Mathematica 11.3 Integration Test Results

on the problems in the test-suite directory "1 Algebraic functions\1.1 Binomial products\1.1.1 Linear"

Test results for the 1917 problems in "1.1.1.2 (a+b x)^m (c+d x)^n.m"

Problem 73: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^3}{x^5} \, dx$$

Optimal (type 1, 17 leaves, 1 step):

$$-\frac{(a+b x)^4}{4 a x^4}$$

Result (type 1, 39 leaves):

$$-\frac{a^3}{4 x^4}-\frac{a^2 b}{x^3}-\frac{3 a b^2}{2 x^2}-\frac{b^3}{x}$$

Problem 82: Result more than twice size of optimal antiderivative.

$$\int x (a+b x)^5 \, dx$$

Optimal (type 1, 30 leaves, 2 steps):

$$-\frac{a (a+b x)^6}{6 b^2}+\frac{(a+b x)^7}{7 b^2}$$

Result (type 1, 67 leaves):

$$\frac{a^5 x^2}{2}+\frac{5}{3} a^4 b x^3+\frac{5}{2} a^3 b^2 x^4+2 a^2 b^3 x^5+\frac{5}{6} a b^4 x^6+\frac{b^5 x^7}{7}$$

Problem 90: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^5}{x^7} \, dx$$

Optimal (type 1, 17 leaves, 1 step):

$$-\frac{(a+b x)^6}{6 a x^6}$$

Result (type 1, 65 leaves):

$$-\frac{a^5}{6 x^6}-\frac{a^4 b}{x^5}-\frac{5 a^3 b^2}{2 x^4}-\frac{10 a^2 b^3}{3 x^3}-\frac{5 a b^4}{2 x^2}-\frac{b^5}{x}$$

Problem 105: Result more than twice size of optimal antiderivative.

$$\int x (a+b x)^7 \, dx$$

Optimal (type 1, 30 leaves, 2 steps):

$$-\frac{a (a+b x)^8}{8 b^2}+\frac{(a+b x)^9}{9 b^2}$$

Result (type 1, 91 leaves):

$$\frac{a^7 x^2}{2}+\frac{7}{3} a^6 b x^3+\frac{21}{4} a^5 b^2 x^4+7 a^4 b^3 x^5+\frac{35}{6} a^3 b^4 x^6+3 a^2 b^5 x^7+\frac{7}{8} a b^6 x^8+\frac{b^7 x^9}{9}$$

Problem 115: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^7}{x^9} \, dx$$

Optimal (type 1, 17 leaves, 1 step):

$$-\frac{(a+b x)^8}{8 a x^8}$$

Result (type 1, 87 leaves):

$$-\frac{a^7}{8 x^8}-\frac{a^6 b}{x^7}-\frac{7 a^5 b^2}{2 x^6}-\frac{7 a^4 b^3}{x^5}-\frac{35 a^3 b^4}{4 x^4}-\frac{7 a^2 b^5}{x^3}-\frac{7 a b^6}{2 x^2}-\frac{b^7}{x}$$

Problem 116: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^7}{x^{10}} \, dx$$

Optimal (type 1, 36 leaves, 2 steps):

$$-\frac{(a+b x)^8}{9 a x^9}+\frac{b (a+b x)^8}{72 a^2 x^8}$$

Result (type 1, 91 leaves):

$$-\frac{a^7}{9 x^9}-\frac{7 a^6 b}{8 x^8}-\frac{3 a^5 b^2}{x^7}-\frac{35 a^4 b^3}{6 x^6}-\frac{7 a^3 b^4}{x^5}-\frac{21 a^2 b^5}{4 x^4}-\frac{7 a b^6}{3 x^3}-\frac{b^7}{2 x^2}$$

Problem 132: Result more than twice size of optimal antiderivative.

$$\int x^2 (a+b x)^{10} \, dx$$

Optimal (type 1, 47 leaves, 2 steps):

$$\frac{a^2 (a+b x)^{11}}{11 b^3}-\frac{a (a+b x)^{12}}{6 b^3}+\frac{(a+b x)^{13}}{13 b^3}$$

Result (type 1, 126 leaves):

$$\frac{a^{10} x^3}{3}+\frac{5}{2} a^9 b x^4+9 a^8 b^2 x^5+20 a^7 b^3 x^6+30 a^6 b^4 x^7+\frac{63}{2} a^5 b^5 x^8+\frac{70}{3} a^4 b^6 x^9+12 a^3 b^7 x^{10}+\frac{45}{11} a^2 b^8 x^{11}+\frac{5}{6} a b^9 x^{12}+\frac{b^{10} x^{13}}{13}$$

Problem 133: Result more than twice size of optimal antiderivative.

$$\int x (a+b x)^{10} \, dx$$

Optimal (type 1, 30 leaves, 2 steps):

$$-\frac{a (a+b x)^{11}}{11 b^2}+\frac{(a+b x)^{12}}{12 b^2}$$

Result (type 1, 128 leaves):

$$\frac{a^{10} x^2}{2}+\frac{10}{3} a^9 b x^3+\frac{45}{4} a^8 b^2 x^4+24 a^7 b^3 x^5+35 a^6 b^4 x^6+36 a^5 b^5 x^7+\frac{105}{4} a^4 b^6 x^8+\frac{40}{3} a^3 b^7 x^9+\frac{9}{2} a^2 b^8 x^{10}+\frac{10}{11} a b^9 x^{11}+\frac{b^{10} x^{12}}{12}$$

Problem 146: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{10}}{x^{12}} \, dx$$

Optimal (type 1, 17 leaves, 1 step):

$$-\frac{(a+b x)^{11}}{11 a x^{11}}$$

Result (type 1, 114 leaves):

$$-\frac{a^{10}}{11 x^{11}}-\frac{a^9 b}{x^{10}}-\frac{5 a^8 b^2}{x^9}-\frac{15 a^7 b^3}{x^8}-\frac{30 a^6 b^4}{x^7}-\frac{42 a^5 b^5}{x^6}-\frac{42 a^4 b^6}{x^5}-\frac{30 a^3 b^7}{x^4}-\frac{15 a^2 b^8}{x^3}-\frac{5 a b^9}{x^2}-\frac{b^{10}}{x}$$

Problem 147: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{10}}{x^{13}} \, dx$$

Optimal (type 1, 36 leaves, 2 steps):

$$-\frac{(a+b x)^{11}}{12 a x^{12}}+\frac{b (a+b x)^{11}}{132 a^2 x^{11}}$$

Result (type 1, 128 leaves):

$$-\frac{a^{10}}{12 x^{12}}-\frac{10 a^9 b}{11 x^{11}}-\frac{9 a^8 b^2}{2 x^{10}}-\frac{40 a^7 b^3}{3 x^9}-\frac{105 a^6 b^4}{4 x^8}-\frac{36 a^5 b^5}{x^7}-\frac{35 a^4 b^6}{x^6}-\frac{24 a^3 b^7}{x^5}-\frac{45 a^2 b^8}{4 x^4}-\frac{10 a b^9}{3 x^3}-\frac{b^{10}}{2 x^2}$$

Problem 148: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{10}}{x^{14}} \, dx$$

Optimal (type 1, 56 leaves, 3 steps):

$$-\frac{(a+b x)^{11}}{13 a x^{13}}+\frac{b (a+b x)^{11}}{78 a^2 x^{12}}-\frac{b^2 (a+b x)^{11}}{858 a^3 x^{11}}$$

Result (type 1, 126 leaves):

$$-\frac{a^{10}}{13 x^{13}}-\frac{5 a^9 b}{6 x^{12}}-\frac{45 a^8 b^2}{11 x^{11}}-\frac{12 a^7 b^3}{x^{10}}-\frac{70 a^6 b^4}{3 x^9}-\frac{63 a^5 b^5}{2 x^8}-\frac{30 a^4 b^6}{x^7}-\frac{20 a^3 b^7}{x^6}-\frac{9 a^2 b^8}{x^5}-\frac{5 a b^9}{2 x^4}-\frac{b^{10}}{3 x^3}$$

Problem 212: Result more than twice size of optimal antiderivative.

$$\int \frac{x^5}{(a+b x)^7}\,dx$$

Optimal (type 1, 17 leaves, 1 step):

$$\frac{x^6}{6 a (a+b x)^6}$$

Result (type 1, 64 leaves):

$$-\frac{a^5+6 a^4 b x+15 a^3 b^2 x^2+20 a^2 b^3 x^3+15 a b^4 x^4+6 b^5 x^5}{6 b^6 (a+b x)^6}$$

Problem 226: Result more than twice size of optimal antiderivative.

$$\int \frac{x^8}{(a+b x)^{10}}\,dx$$

Optimal (type 1, 17 leaves, 1 step):

$$\frac{x^9}{9 a (a+b x)^9}$$

Result (type 1, 97 leaves):

$$-\frac{a^8+9 a^7 b x+36 a^6 b^2 x^2+84 a^5 b^3 x^3+126 a^4 b^4 x^4+126 a^3 b^5 x^5+84 a^2 b^6 x^6+36 a b^7 x^7+9 b^8 x^8}{9 b^9 (a+b x)^9}$$

Problem 227: Result more than twice size of optimal antiderivative.

$$\int \frac{x^7}{(a+b x)^{10}}\,dx$$

Optimal (type 1, 35 leaves, 2 steps):

$$\frac{x^8}{9 a (a+b x)^9}+\frac{x^8}{72 a^2 (a+b x)^8}$$

Result (type 1, 86 leaves):

$$-\frac{a^7+9 a^6 b x+36 a^5 b^2 x^2+84 a^4 b^3 x^3+126 a^3 b^4 x^4+126 a^2 b^5 x^5+84 a b^6 x^6+36 b^7 x^7}{72 b^8 (a+b x)^9}$$

Problem 243: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^8}{x^{10}} \, dx$$

Optimal (type 1, 17 leaves, 1 step):

$$-\frac{(a+b x)^9}{9 a x^9}$$

Result (type 1, 96 leaves):

$$-\frac{a^8}{9 x^9}-\frac{a^7 b}{x^8}-\frac{4 a^6 b^2}{x^7}-\frac{28 a^5 b^3}{3 x^6}-\frac{14 a^4 b^4}{x^5}-\frac{14 a^3 b^5}{x^4}-\frac{28 a^2 b^6}{3 x^3}-\frac{4 a b^7}{x^2}-\frac{b^8}{x}$$

Problem 244: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^7}{x^{10}} \, dx$$

Optimal (type 1, 36 leaves, 2 steps):

$$-\frac{(a+b x)^8}{9 a x^9}+\frac{b (a+b x)^8}{72 a^2 x^8}$$

Result (type 1, 91 leaves):

$$-\frac{a^7}{9 x^9}-\frac{7 a^6 b}{8 x^8}-\frac{3 a^5 b^2}{x^7}-\frac{35 a^4 b^3}{6 x^6}-\frac{7 a^3 b^4}{x^5}-\frac{21 a^2 b^5}{4 x^4}-\frac{7 a b^6}{3 x^3}-\frac{b^7}{2 x^2}$$

Problem 368: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{x^{-1+m} (2 a m+b (-1+2 m) x)}{2 (a+b x)^{3/2}} \, dx$$

Optimal (type 3, 13 leaves, 2 steps):

$$\frac{x^m}{\sqrt{a+b x}}$$

Result (type 5, 100 leaves):

$$\frac{1}{2 a^2 (1+m) \sqrt{1+\frac{b x}{a}}} x^m \sqrt{a+b x} \left(2 a (1+m) \text{Hypergeometric2F1}\left[-\frac{1}{2}, m, 1+m, -\frac{b x}{a}\right] - b x \left(2 m \text{Hypergeometric2F1}\left[\frac{1}{2}, 1+m, 2+m, -\frac{b x}{a}\right] + \text{Hypergeometric2F1}\left[\frac{3}{2}, 1+m, 2+m, -\frac{b x}{a}\right]\right)\right)$$

Problem 369: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \left(-\frac{b x^m}{2 (a+b x)^{3/2}} + \frac{m x^{-1+m}}{\sqrt{a+b x}}\right) dx$$

Optimal (type 3, 13 leaves, ? steps):

$$\frac{x^m}{\sqrt{a+b x}}$$

Result (type 5, 100 leaves):

$$\frac{1}{2 a^2 (1+m) \sqrt{1+\frac{b x}{a}}} x^m \sqrt{a+b x} \left(2 a (1+m) \text{Hypergeometric2F1}\left[-\frac{1}{2}, m, 1+m, -\frac{b x}{a}\right] - b x \left(2 m \text{Hypergeometric2F1}\left[\frac{1}{2}, 1+m, 2+m, -\frac{b x}{a}\right] + \text{Hypergeometric2F1}\left[\frac{3}{2}, 1+m, 2+m, -\frac{b x}{a}\right]\right)\right)$$

Problem 375: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3}}{x} dx$$

Optimal (type 3, 91 leaves, 5 steps):

$$3 (a+b x)^{1/3} - \sqrt{3} a^{1/3} \text{ArcTan}\left[\frac{a^{1/3}+2 (a+b x)^{1/3}}{\sqrt{3} a^{1/3}}\right] - \frac{1}{2} a^{1/3} \text{Log}[x] + \frac{3}{2} a^{1/3} \text{Log}\left[a^{1/3} - (a+b x)^{1/3}\right]$$

Result (type 5, 57 leaves):

$$\frac{6 (a+b x) - 3 a \left(1+\frac{a}{b x}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{2}{3}, \frac{2}{3}, \frac{5}{3}, -\frac{a}{b x}\right]}{2 (a+b x)^{2/3}}$$

Problem 376: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3}}{x^2}\, dx$$

Optimal (type 3, 97 leaves, 5 steps):

$$-\frac{(a+b x)^{1/3}}{x}-\frac{b \operatorname{ArcTan}\left[\frac{a^{1/3}+2 (a+b x)^{1/3}}{\sqrt{3}\, a^{1/3}}\right]}{\sqrt{3}\, a^{2/3}}-\frac{b \operatorname{Log}[x]}{6 a^{2/3}}+\frac{b \operatorname{Log}\left[a^{1/3}-(a+b x)^{1/3}\right]}{2 a^{2/3}}$$

Result (type 5, 61 leaves):

$$\frac{-2 (a+b x)-b \left(1+\frac{a}{b x}\right)^{2/3} x \operatorname{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-\frac{a}{b x}\right]}{2 x (a+b x)^{2/3}}$$

Problem 377: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3}}{x^3}\, dx$$

Optimal (type 3, 127 leaves, 6 steps):

$$-\frac{(a+b x)^{1/3}}{2 x^2}-\frac{b (a+b x)^{1/3}}{6 a x}+\frac{b^2 \operatorname{ArcTan}\left[\frac{a^{1/3}+2 (a+b x)^{1/3}}{\sqrt{3}\, a^{1/3}}\right]}{3 \sqrt{3}\, a^{5/3}}+\frac{b^2 \operatorname{Log}[x]}{18 a^{5/3}}-\frac{b^2 \operatorname{Log}\left[a^{1/3}-(a+b x)^{1/3}\right]}{6 a^{5/3}}$$

Result (type 5, 78 leaves):

$$\frac{-3 a^2-4 a b x-b^2 x^2+b^2 \left(1+\frac{a}{b x}\right)^{2/3} x^2 \operatorname{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-\frac{a}{b x}\right]}{6 a x^2 (a+b x)^{2/3}}$$

Problem 382: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{2/3}}{x}\, dx$$

Optimal (type 3, 92 leaves, 5 steps):

$$\frac{3}{2} (a+b x)^{2/3}+\sqrt{3}\, a^{2/3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2 (a+b x)^{1/3}}{\sqrt{3}\, a^{1/3}}\right]-\frac{1}{2} a^{2/3} \operatorname{Log}[x]+\frac{3}{2} a^{2/3} \operatorname{Log}\left[a^{1/3}-(a+b x)^{1/3}\right]$$

Result (type 5, 57 leaves):

$$\frac{3\,(a+b\,x)-6\,a\left(1+\frac{a}{b\,x}\right)^{1/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-\frac{a}{b\,x}\right]}{2\,(a+b\,x)^{1/3}}$$

Problem 383: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{2/3}}{x^2}\,dx$$

Optimal (type 3, 94 leaves, 5 steps):

$$-\frac{(a+b\,x)^{2/3}}{x}+\frac{2\,b\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{\sqrt{3}\,a^{1/3}}-\frac{b\,\text{Log}[x]}{3\,a^{1/3}}+\frac{b\,\text{Log}\left[a^{1/3}-(a+b\,x)^{1/3}\right]}{a^{1/3}}$$

Result (type 5, 58 leaves):

$$\frac{-a-b\,x-2\,b\left(1+\frac{a}{b\,x}\right)^{1/3}x\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-\frac{a}{b\,x}\right]}{x\,(a+b\,x)^{1/3}}$$

Problem 384: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{2/3}}{x^3}\,dx$$

Optimal (type 3, 127 leaves, 6 steps):

$$-\frac{(a+b\,x)^{2/3}}{2\,x^2}-\frac{b\,(a+b\,x)^{2/3}}{3\,a\,x}-\frac{b^2\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{3\,\sqrt{3}\,a^{4/3}}+\frac{b^2\,\text{Log}[x]}{18\,a^{4/3}}-\frac{b^2\,\text{Log}\left[a^{1/3}-(a+b\,x)^{1/3}\right]}{6\,a^{4/3}}$$

Result (type 5, 79 leaves):

$$\frac{-3\,a^2-5\,a\,b\,x-2\,b^2\,x^2+2\,b^2\left(1+\frac{a}{b\,x}\right)^{1/3}x^2\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-\frac{a}{b\,x}\right]}{6\,a\,x^2\,(a+b\,x)^{1/3}}$$

Problem 389: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{4/3}}{x}\,dx$$

Optimal (type 3, 105 leaves, 6 steps):

$$3 a (a+b x)^{1/3}+\frac{3}{4} (a+b x)^{4/3}-\sqrt{3} a^{4/3} \text{ArcTan}\left[\frac{a^{1/3}+2 (a+b x)^{1/3}}{\sqrt{3} a^{1/3}}\right]-\frac{1}{2} a^{4/3} \text{Log}[x]+\frac{3}{2} a^{4/3} \text{Log}\left[a^{1/3}-(a+b x)^{1/3}\right]$$

Result (type 5, 74 leaves):

$$\left(\frac{15 a}{4}+\frac{3 b x}{4}\right) (a+b x)^{1/3}-\frac{3 a^2 \left(\frac{a+b x}{b x}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-\frac{a}{b x}\right]}{2 (a+b x)^{2/3}}$$

Problem 390: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{4/3}}{x^2} \, dx$$

Optimal (type 3, 107 leaves, 6 steps):

$$4 b (a+b x)^{1/3}-\frac{(a+b x)^{4/3}}{x}-\frac{4 a^{1/3} b \text{ArcTan}\left[\frac{a^{1/3}+2 (a+b x)^{1/3}}{\sqrt{3} a^{1/3}}\right]}{\sqrt{3}}-\frac{2}{3} a^{1/3} b \text{Log}[x]+2 a^{1/3} b \text{Log}\left[a^{1/3}-(a+b x)^{1/3}\right]$$

Result (type 5, 64 leaves):

$$\frac{\left(3 b-\frac{a}{x}\right) (a+b x)-2 a b \left(1+\frac{a}{b x}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-\frac{a}{b x}\right]}{(a+b x)^{2/3}}$$

Problem 391: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{4/3}}{x^3} \, dx$$

Optimal (type 3, 124 leaves, 6 steps):

$$-\frac{2 b (a+b x)^{1/3}}{3 x}-\frac{(a+b x)^{4/3}}{2 x^2}-\frac{2 b^2 \text{ArcTan}\left[\frac{a^{1/3}+2 (a+b x)^{1/3}}{\sqrt{3} a^{1/3}}\right]}{3 \sqrt{3} a^{2/3}}-\frac{b^2 \text{Log}[x]}{9 a^{2/3}}+\frac{b^2 \text{Log}\left[a^{1/3}-(a+b x)^{1/3}\right]}{3 a^{2/3}}$$

Result (type 5, 76 leaves):

$$\frac{-3 a^2-10 a b x-7 b^2 x^2-2 b^2 \left(1+\frac{a}{b x}\right)^{2/3} x^2 \text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-\frac{a}{b x}\right]}{6 x^2 (a+b x)^{2/3}}$$

Problem 396: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x\,(a+b\,x)^{1/3}}\,dx$$

Optimal (type 3, 79 leaves, 4 steps):

$$\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{a^{1/3}}-\frac{\text{Log}[x]}{2\,a^{1/3}}+\frac{3\,\text{Log}\left[a^{1/3}-(a+b\,x)^{1/3}\right]}{2\,a^{1/3}}$$

Result (type 5, 46 leaves):

$$-\frac{3\,\left(\frac{a+b\,x}{b\,x}\right)^{1/3}\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-\frac{a}{b\,x}\right]}{(a+b\,x)^{1/3}}$$

Problem 397: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x^2\,(a+b\,x)^{1/3}}\,dx$$

Optimal (type 3, 100 leaves, 5 steps):

$$-\frac{(a+b\,x)^{2/3}}{a\,x}-\frac{b\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{\sqrt{3}\,a^{4/3}}+\frac{b\,\text{Log}[x]}{6\,a^{4/3}}-\frac{b\,\text{Log}\left[a^{1/3}-(a+b\,x)^{1/3}\right]}{2\,a^{4/3}}$$

Result (type 5, 60 leaves):

$$\frac{-a-b\,x+b\,\left(1+\frac{a}{b\,x}\right)^{1/3}\,x\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-\frac{a}{b\,x}\right]}{a\,x\,(a+b\,x)^{1/3}}$$

Problem 398: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x^3\,(a+b\,x)^{1/3}}\,dx$$

Optimal (type 3, 130 leaves, 6 steps):

$$-\frac{(a+b\,x)^{2/3}}{2\,a\,x^2}+\frac{2\,b\,(a+b\,x)^{2/3}}{3\,a^2\,x}+\frac{2\,b^2\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{3\,\sqrt{3}\,a^{7/3}}-\frac{b^2\,\text{Log}[x]}{9\,a^{7/3}}+\frac{b^2\,\text{Log}\left[a^{1/3}-(a+b\,x)^{1/3}\right]}{3\,a^{7/3}}$$

Result (type 5, 78 leaves):

$$\frac{-3\,a^2+a\,b\,x+4\,b^2\,x^2-4\,b^2\left(1+\frac{a}{b\,x}\right)^{1/3}x^2\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-\frac{a}{b\,x}\right]}{6\,a^2\,x^2\,(a+b\,x)^{1/3}}$$

Problem 404: Result unnecessarily involves higher level functions.

$$\int\frac{1}{x^2\,(-a+b\,x)^{1/3}}\,dx$$

Optimal (type 3, 103 leaves, 5 steps):

$$\frac{(-a+b\,x)^{2/3}}{a\,x}-\frac{b\,\text{ArcTan}\left[\frac{a^{1/3}-2\,(-a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{\sqrt{3}\,a^{4/3}}+\frac{b\,\text{Log}[x]}{6\,a^{4/3}}-\frac{b\,\text{Log}\left[a^{1/3}+(-a+b\,x)^{1/3}\right]}{2\,a^{4/3}}$$

Result (type 5, 62 leaves):

$$\frac{-a+b\,x-b\left(1-\frac{a}{b\,x}\right)^{1/3}x\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{a}{b\,x}\right]}{a\,x\,(-a+b\,x)^{1/3}}$$

Problem 405: Result unnecessarily involves higher level functions.

$$\int\frac{1}{x^3\,(-a+b\,x)^{1/3}}\,dx$$

Optimal (type 3, 136 leaves, 6 steps):

$$\frac{(-a+b\,x)^{2/3}}{2\,a\,x^2}+\frac{2\,b\,(-a+b\,x)^{2/3}}{3\,a^2\,x}-\frac{2\,b^2\,\text{ArcTan}\left[\frac{a^{1/3}-2\,(-a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{3\,\sqrt{3}\,a^{7/3}}+\frac{b^2\,\text{Log}[x]}{9\,a^{7/3}}-\frac{b^2\,\text{Log}\left[a^{1/3}+(-a+b\,x)^{1/3}\right]}{3\,a^{7/3}}$$

Result (type 5, 81 leaves):

$$\frac{-3\,a^2-a\,b\,x+4\,b^2\,x^2-4\,b^2\left(1-\frac{a}{b\,x}\right)^{1/3}x^2\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{a}{b\,x}\right]}{6\,a^2\,x^2\,(-a+b\,x)^{1/3}}$$

Problem 410: Result unnecessarily involves higher level functions.

$$\int\frac{1}{x\,(a+b\,x)^{2/3}}\,dx$$

Optimal (type 3, 80 leaves, 4 steps):

$$-\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{a^{2/3}}-\frac{\text{Log}[x]}{2\,a^{2/3}}+\frac{3\,\text{Log}\left[a^{1/3}-(a+b\,x)^{1/3}\right]}{2\,a^{2/3}}$$

Result (type 5, 48 leaves):

$$-\frac{3\left(\frac{a+b\,x}{b\,x}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-\frac{a}{b\,x}\right]}{2\,(a+b\,x)^{2/3}}$$

Problem 411: Result unnecessarily involves higher level functions.

$$\int\frac{1}{x^2\,(a+b\,x)^{2/3}}\,dx$$

Optimal (type 3, 98 leaves, 5 steps):

$$-\frac{(a+b\,x)^{1/3}}{a\,x}+\frac{2\,b\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{\sqrt{3}\,a^{5/3}}+\frac{b\,\text{Log}[x]}{3\,a^{5/3}}-\frac{b\,\text{Log}\left[a^{1/3}-(a+b\,x)^{1/3}\right]}{a^{5/3}}$$

Result (type 5, 60 leaves):

$$\frac{-a-b\,x+b\left(1+\frac{a}{b\,x}\right)^{2/3}x\,\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-\frac{a}{b\,x}\right]}{a\,x\,(a+b\,x)^{2/3}}$$

Problem 412: Result unnecessarily involves higher level functions.

$$\int\frac{1}{x^3\,(a+b\,x)^{2/3}}\,dx$$

Optimal (type 3, 130 leaves, 6 steps):

$$-\frac{(a+b\,x)^{1/3}}{2\,a\,x^2}+\frac{5\,b\,(a+b\,x)^{1/3}}{6\,a^2\,x}-\frac{5\,b^2\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{3\,\sqrt{3}\,a^{8/3}}-\frac{5\,b^2\,\text{Log}[x]}{18\,a^{8/3}}+\frac{5\,b^2\,\text{Log}\left[a^{1/3}-(a+b\,x)^{1/3}\right]}{6\,a^{8/3}}$$

Result (type 5, 79 leaves):

$$\frac{-3\,a^2+2\,a\,b\,x+5\,b^2\,x^2-5\,b^2\left(1+\frac{a}{b\,x}\right)^{2/3}x^2\,\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-\frac{a}{b\,x}\right]}{6\,a^2\,x^2\,(a+b\,x)^{2/3}}$$

Problem 417: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x\,(a+b\,x)^{4/3}}\,dx$$

Optimal (type 3, 93 leaves, 5 steps):

$$\frac{3}{a\,(a+b\,x)^{1/3}}+\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{a^{4/3}}-\frac{\text{Log}[x]}{2\,a^{4/3}}+\frac{3\,\text{Log}\left[a^{1/3}-(a+b\,x)^{1/3}\right]}{2\,a^{4/3}}$$

Result (type 5, 50 leaves):

$$\frac{3-3\left(1+\frac{a}{b\,x}\right)^{1/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-\frac{a}{b\,x}\right]}{a\,(a+b\,x)^{1/3}}$$

Problem 418: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x^2\,(a+b\,x)^{4/3}}\,dx$$

Optimal (type 3, 113 leaves, 6 steps):

$$-\frac{4\,b}{a^2\,(a+b\,x)^{1/3}}-\frac{1}{a\,x\,(a+b\,x)^{1/3}}-\frac{4\,b\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{\sqrt{3}\,a^{7/3}}+\frac{2\,b\,\text{Log}[x]}{3\,a^{7/3}}-\frac{2\,b\,\text{Log}\left[a^{1/3}-(a+b\,x)^{1/3}\right]}{a^{7/3}}$$

Result (type 5, 61 leaves):

$$\frac{-a-4\,b\,x+4\,b\left(1+\frac{a}{b\,x}\right)^{1/3}x\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-\frac{a}{b\,x}\right]}{a^2\,x\,(a+b\,x)^{1/3}}$$

Problem 419: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x^3\,(a+b\,x)^{4/3}}\,dx$$

Optimal (type 3, 149 leaves, 7 steps):

$$\frac{14\,b^2}{3\,a^3\,(a+b\,x)^{1/3}}-\frac{1}{2\,a\,x^2\,(a+b\,x)^{1/3}}+\frac{7\,b}{6\,a^2\,x\,(a+b\,x)^{1/3}}+\frac{14\,b^2\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+b\,x)^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{3\,\sqrt{3}\,a^{10/3}}-\frac{7\,b^2\,\text{Log}[x]}{9\,a^{10/3}}+\frac{7\,b^2\,\text{Log}\left[a^{1/3}-(a+b\,x)^{1/3}\right]}{3\,a^{10/3}}$$

Result (type 5, 79 leaves):

$$\frac{-3 a^2+7 a b x+28 b^2 x^2-28 b^2 \left(1+\frac{a}{b x}\right)^{1/3} x^2 \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-\frac{a}{b x}\right]}{6 a^3 x^2 (a+b x)^{1/3}}$$

Problem 648: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{1-x}\,\sqrt{x}}\,dx$$

Optimal (type 3, 8 leaves, 3 steps):

$$-\text{ArcSin}[1-2 x]$$

Result (type 3, 38 leaves):

$$\frac{2 \sqrt{-1+x}\,\sqrt{x}\,\text{Log}\left[\sqrt{-1+x}+\sqrt{x}\right]}{\sqrt{-(-1+x)\,x}}$$

Problem 707: Result more than twice size of optimal antiderivative.

$$\int x^m (a+b x)^{5/2}\,dx$$

Optimal (type 5, 48 leaves, 2 steps):

$$\frac{2 x^m \left(-\frac{b x}{a}\right)^{-m} (a+b x)^{7/2} \text{Hypergeometric2F1}\left[\frac{7}{2},-m,\frac{9}{2},1+\frac{b x}{a}\right]}{7 b}$$

Result (type 5, 125 leaves):

$$\left(x^{1+m} \sqrt{a+b x} \left(a^2 \left(6+5 m+m^2\right) \text{Hypergeometric2F1}\left[-\frac{1}{2},1+m,2+m,-\frac{b x}{a}\right]+ b (1+m) x \left(2 a (3+m) \text{Hypergeometric2F1}\left[-\frac{1}{2},2+m,3+m,-\frac{b x}{a}\right]+b (2+m) x \text{Hypergeometric2F1}\left[-\frac{1}{2},3+m,4+m,-\frac{b x}{a}\right]\right)\right)\right) \Big/ \left((1+m) (2+m) (3+m) \sqrt{1+\frac{b x}{a}}\right)$$

Problem 713: Result more than twice size of optimal antiderivative.

$$\int \frac{x^{2+m}}{\sqrt{a+b x}} \, dx$$

Optimal (type 5, 51 leaves, 2 steps):

$$\frac{2 a^2 x^m \left(-\frac{b x}{a}\right)^{-m} \sqrt{a+b x} \text{ Hypergeometric2F1}\left[\frac{1}{2}, -2-m, \frac{3}{2}, 1+\frac{b x}{a}\right]}{b^3}$$

Result (type 5, 109 leaves):

$$\left(x^{1+m} \sqrt{a+b x} \left(-a (2+m) \text{ Hypergeometric2F1}\left[-\frac{1}{2}, 1+m, 2+m, -\frac{b x}{a}\right] + b (1+m) x \text{ Hypergeometric2F1}\left[-\frac{1}{2}, 2+m, 3+m, -\frac{b x}{a}\right] + a (2+m) \text{ Hypergeometric2F1}\left[\frac{1}{2}, 1+m, 2+m, -\frac{b x}{a}\right]\right)\right) \Big/ \left(b^2 (1+m) (2+m) \sqrt{1+\frac{b x}{a}}\right)$$

Problem 717: Result more than twice size of optimal antiderivative.

$$\int \frac{x^{-2+m}}{\sqrt{a+b x}} \, dx$$

Optimal (type 5, 49 leaves, 2 steps):

$$\frac{2 b x^m \left(-\frac{b x}{a}\right)^{-m} \sqrt{a+b x} \text{ Hypergeometric2F1}\left[\frac{1}{2}, 2-m, \frac{3}{2}, 1+\frac{b x}{a}\right]}{a^2}$$

Result (type 5, 114 leaves):

$$\frac{1}{a^3 m \left(-1+m^2\right) \sqrt{1+\frac{b x}{a}}} x^{-1+m} \sqrt{a+b x} \left(a^2 m (1+m) \text{ Hypergeometric2F1}\left[-\frac{1}{2}, -1+m, m, -\frac{b x}{a}\right] - b (-1+m) x \left(a (1+m) \text{ Hypergeometric2F1}\left[-\frac{1}{2}, m, 1+m, -\frac{b x}{a}\right] - b m x \text{ Hypergeometric2F1}\left[\frac{1}{2}, 1+m, 2+m, -\frac{b x}{a}\right]\right)\right)$$

Problem 718: Result more than twice size of optimal antiderivative.

$$\int \frac{x^{-3+m}}{\sqrt{a+b x}} \, dx$$

Optimal (type 5, 51 leaves, 2 steps):

$$-\frac{2 b^2 x^m \left(-\frac{b x}{a}\right)^{-m} \sqrt{a+b x}\, \text{Hypergeometric2F1}\left[\frac{1}{2}, 3-m, \frac{3}{2}, 1+\frac{b x}{a}\right]}{a^3}$$

Result (type 5, 156 leaves):

$$\left(x^{-2+m} \sqrt{1+\frac{b x}{a}} \left(a^3 m \left(-1+m^2\right) \text{Hypergeometric2F1}\left[-\frac{1}{2}, -2+m, -1+m, -\frac{b x}{a}\right] - b(-2+m) x \left(a^2 m (1+m) \text{Hypergeometric2F1}\left[-\frac{1}{2}, -1+m, m, -\frac{b x}{a}\right] + b(-1+m) x \left(-a (1+m) \text{Hypergeometric2F1}\left[-\frac{1}{2}, m, 1+m, -\frac{b x}{a}\right] + b m x \,\text{Hypergeometric2F1}\left[\frac{1}{2}, 1+m, 2+m, -\frac{b x}{a}\right]\right)\right)\right)\right) \Big/ \left(a^3 (-2+m) (-1+m) m (1+m) \sqrt{a+b x}\right)$$

Problem 1162: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{3-x} \sqrt{-2+x}} \, dx$$

Optimal (type 3, 8 leaves, 3 steps):

$$-\text{ArcSin}[5-2 x]$$

Result (type 3, 36 leaves):

$$\frac{2 \sqrt{-3+x} \sqrt{-2+x}\, \text{ArcSinh}\left[\sqrt{-3+x}\right]}{\sqrt{-(-3+x)(-2+x)}}$$

Problem 1170: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(6-3 e x)^{1/4} (2+e x)^{3/4}} \, dx$$

Optimal (type 3, 241 leaves, 11 steps):

$$\frac{\sqrt{2}\, \text{ArcTan}\left[1-\frac{\sqrt{2} (2-e x)^{1/4}}{(2+e x)^{1/4}}\right]}{3^{1/4} e} - \frac{\sqrt{2}\, \text{ArcTan}\left[1+\frac{\sqrt{2} (2-e x)^{1/4}}{(2+e x)^{1/4}}\right]}{3^{1/4} e} - \frac{\text{Log}\left[\frac{\sqrt{6-3 e x}-\sqrt{6} (2-e x)^{1/4} (2+e x)^{1/4}+\sqrt{3} \sqrt{2+e x}}{\sqrt{2+e x}}\right]}{\sqrt{2}\, 3^{1/4} e} + \frac{\text{Log}\left[\frac{\sqrt{6-3 e x}+\sqrt{6} (2-e x)^{1/4} (2+e x)^{1/4}+\sqrt{3} \sqrt{2+e x}}{\sqrt{2+e x}}\right]}{\sqrt{2}\, 3^{1/4} e}$$

Result (type 5, 43 leaves):

$$\frac{2\sqrt{2}\ (2+e\,x)^{1/4}\ \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{1}{4}(2+e\,x)\right]}{3^{1/4}\,e}$$

Problem 1171: Result unnecessarily involves higher level functions.

$$\int \frac{(a-i\,a\,x)^{7/4}}{(a+i\,a\,x)^{1/4}}\,dx$$

Optimal (type 4, 144 leaves, 6 steps):

$$\frac{14\,a^2\,x}{5\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}-\frac{14}{15}\,i\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}-\frac{2\,i\,(a-i\,a\,x)^{7/4}\,(a+i\,a\,x)^{3/4}}{5\,a}-\frac{14\,a^2\,(1+x^2)^{1/4}\,\text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{5\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Result (type 5, 84 leaves):

$$\frac{2\,a\,(a-i\,a\,x)^{3/4}\left(-10\,i+7\,x-3\,i\,x^2+7\,i\,2^{3/4}\,(1+i\,x)^{1/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{15\,(a+i\,a\,x)^{1/4}}$$

Problem 1172: Result unnecessarily involves higher level functions.

$$\int \frac{(a-i\,a\,x)^{3/4}}{(a+i\,a\,x)^{1/4}}\,dx$$

Optimal (type 4, 106 leaves, 5 steps):

$$\frac{2\,a\,x}{(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}-\frac{2\,i\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}{3\,a}-\frac{2\,a\,(1+x^2)^{1/4}\,\text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Result (type 5, 74 leaves):

$$\frac{2\,(a-i\,a\,x)^{3/4}\left(-i+x+i\,2^{3/4}\,(1+i\,x)^{1/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{3\,(a+i\,a\,x)^{1/4}}$$

Problem 1173: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}\,dx$$

Optimal (type 4, 71 leaves, 4 steps):

$$\frac{2\,x}{(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}-\frac{2\,(1+x^2)^{1/4}\,\text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},\,2\right]}{(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Result (type 5, 70 leaves):

$$\frac{2\,i\,2^{3/4}\,(1+i\,x)^{1/4}\,(a-i\,a\,x)^{3/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\,\frac{3}{4},\,\frac{7}{4},\,\frac{1}{2}-\frac{i\,x}{2}\right]}{3\,a\,(a+i\,a\,x)^{1/4}}$$

Problem 1174: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a-i\,a\,x)^{5/4}\,(a+i\,a\,x)^{1/4}}\,dx$$

Optimal (type 4, 78 leaves, 4 steps):

$$-\frac{2\,i}{a\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}+\frac{2\,(1+x^2)^{1/4}\,\text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},\,2\right]}{a\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Result (type 5, 82 leaves):

$$\frac{-6\,i+6\,x-2\times 2^{3/4}\,(1+i\,x)^{1/4}\,(i+x)\,\text{Hypergeometric2F1}\left[\frac{1}{4},\,\frac{3}{4},\,\frac{7}{4},\,\frac{1}{2}-\frac{i\,x}{2}\right]}{3\,a\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Problem 1175: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a-i\,a\,x)^{9/4}\,(a+i\,a\,x)^{1/4}}\,dx$$

Optimal (type 4, 82 leaves, 4 steps):

$$-\frac{4\,i}{5\,a\,(a-i\,a\,x)^{5/4}\,(a+i\,a\,x)^{1/4}}+\frac{2\,(1+x^2)^{1/4}\,\text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},\,2\right]}{5\,a^2\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Result (type 5, 97 leaves):

$$\frac{6\,(2+i\,x+x^2)-2\times 2^{3/4}\,(1+i\,x)^{1/4}\,(i+x)^2\,\text{Hypergeometric2F1}\left[\frac{1}{4},\,\frac{3}{4},\,\frac{7}{4},\,\frac{1}{2}-\frac{i\,x}{2}\right]}{15\,a^2\,(i+x)\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Problem 1176: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a - i a x)^{13/4} (a + i a x)^{1/4}} \, dx$$

Optimal (type 4, 115 leaves, 5 steps):

$$-\frac{4 i}{15 a^2 (a - i a x)^{5/4} (a + i a x)^{1/4}} - \frac{2 i (a + i a x)^{3/4}}{9 a^2 (a - i a x)^{9/4}} + \frac{2 (1 + x^2)^{1/4} \text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2}, 2\right]}{15 a^3 (a - i a x)^{1/4} (a + i a x)^{1/4}}$$

Result (type 5, 103 leaves):

$$\frac{22 i - 4 x + 12 i x^2 + 6 x^3 - 2 \times 2^{3/4} (1 + i x)^{1/4} (i + x)^3 \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, \frac{1}{2} - \frac{i x}{2}\right]}{45 a^3 (i + x)^2 (a - i a x)^{1/4} (a + i a x)^{1/4}}$$

Problem 1177: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a - i a x)^{17/4} (a + i a x)^{1/4}} \, dx$$

Optimal (type 4, 148 leaves, 6 steps):

$$-\frac{4 i}{39 a^3 (a - i a x)^{5/4} (a + i a x)^{1/4}} - \frac{2 i (a + i a x)^{3/4}}{13 a^2 (a - i a x)^{13/4}} - \frac{10 i (a + i a x)^{3/4}}{117 a^3 (a - i a x)^{9/4}} + \frac{2 (1 + x^2)^{1/4} \text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2}, 2\right]}{39 a^4 (a - i a x)^{1/4} (a + i a x)^{1/4}}$$

Result (type 5, 102 leaves):

$$-\frac{2 \left(20 + 8 x^2 - 9 i x^3 - 3 x^4 + 2^{3/4} (1 + i x)^{1/4} (i + x)^4 \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, \frac{1}{2} - \frac{i x}{2}\right]\right)}{117 a^4 (i + x)^3 (a - i a x)^{1/4} (a + i a x)^{1/4}}$$

Problem 1178: Result unnecessarily involves higher level functions.

$$\int \frac{(a - i a x)^{1/4}}{(a + i a x)^{1/4}} \, dx$$

Optimal (type 3, 256 leaves, 12 steps):

$$-\frac{i\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{3/4}}{a}-\frac{i\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}}+\frac{i\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}}-\frac{i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{2\,\sqrt{2}}+\frac{i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{2\,\sqrt{2}}$$

Result (type 5, 71 leaves):

$$\frac{(a-i\,a\,x)^{1/4}\,\left(-i+x+i\,2^{3/4}\,(1+i\,x)^{1/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{(a+i\,a\,x)^{1/4}}$$

Problem 1179: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{1/4}}\,dx$$

Optimal (type 3, 233 leaves, 11 steps):

$$-\frac{i\,\sqrt{2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{a}+\frac{i\,\sqrt{2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{a}-\frac{i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}\,a}+\frac{i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}\,a}$$

Result (type 5, 68 leaves):

$$\frac{2\,i\,2^{3/4}\,(1+i\,x)^{1/4}\,(a-i\,a\,x)^{1/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{1}{2}-\frac{i\,x}{2}\right]}{a\,(a+i\,a\,x)^{1/4}}$$

Problem 1184: Result unnecessarily involves higher level functions.

$$\int\frac{(a-i\,a\,x)^{3/4}}{(a+i\,a\,x)^{3/4}}\,dx$$

Optimal (type 3, 256 leaves, 12 steps):

$$-\frac{i\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{1/4}}{a}-\frac{3\,i\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}}+\frac{3\,i\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}}+\frac{3\,i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{2\,\sqrt{2}}-\frac{3\,i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{2\,\sqrt{2}}$$

Result (type 5, 71 leaves):

$$\frac{(a - i a x)^{3/4} \left(-i + x + i\, 2^{1/4} (1 + i x)^{3/4} \text{Hypergeometric2F1}\left[\frac{3}{4}, \frac{3}{4}, \frac{7}{4}, \frac{1}{2} - \frac{i x}{2}\right]\right)}{(a + i a x)^{3/4}}$$

Problem 1185: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a - i a x)^{1/4} (a + i a x)^{3/4}} \, dx$$

Optimal (type 3, 233 leaves, 11 steps):

$$-\frac{i \sqrt{2} \, \text{ArcTan}\left[1 - \frac{\sqrt{2} (a - i a x)^{1/4}}{(a + i a x)^{1/4}}\right]}{a} + \frac{i \sqrt{2} \, \text{ArcTan}\left[1 + \frac{\sqrt{2} (a - i a x)^{1/4}}{(a + i a x)^{1/4}}\right]}{a} + \frac{i \, \text{Log}\left[1 + \frac{\sqrt{a - i a x}}{\sqrt{a + i a x}} - \frac{\sqrt{2} (a - i a x)^{1/4}}{(a + i a x)^{1/4}}\right]}{\sqrt{2} \, a} - \frac{i \, \text{Log}\left[1 + \frac{\sqrt{a - i a x}}{\sqrt{a + i a x}} + \frac{\sqrt{2} (a - i a x)^{1/4}}{(a + i a x)^{1/4}}\right]}{\sqrt{2} \, a}$$

Result (type 5, 70 leaves):

$$\frac{2 i\, 2^{1/4} (1 + i x)^{3/4} (a - i a x)^{3/4} \text{Hypergeometric2F1}\left[\frac{3}{4}, \frac{3}{4}, \frac{7}{4}, \frac{1}{2} - \frac{i x}{2}\right]}{3 a (a + i a x)^{3/4}}$$

Problem 1189: Result unnecessarily involves higher level functions.

$$\int \frac{(a - i a x)^{5/4}}{(a + i a x)^{3/4}} \, dx$$

Optimal (type 4, 112 leaves, 5 steps):

$$-\frac{10}{3} i (a - i a x)^{1/4} (a + i a x)^{1/4} - \frac{2 i (a - i a x)^{5/4} (a + i a x)^{1/4}}{3 a} + \frac{10 a^2 (1 + x^2)^{3/4} \text{EllipticF}\left[\frac{\text{ArcTan}[x]}{2}, 2\right]}{3 (a - i a x)^{3/4} (a + i a x)^{3/4}}$$

Result (type 5, 80 leaves):

$$-\frac{2 i a (a - i a x)^{1/4} \left(6 + 5 i x + x^2 - 5 \times 2^{1/4} (1 + i x)^{3/4} \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{5}{4}, \frac{1}{2} - \frac{i x}{2}\right]\right)}{3 (a + i a x)^{3/4}}$$

Problem 1190: Result unnecessarily involves higher level functions.

$$\int \frac{(a - i a x)^{1/4}}{(a + i a x)^{3/4}} \, dx$$

Optimal (type 4, 76 leaves, 4 steps):

$$-\frac{2\,i\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}{a}+\frac{2\,a\,(1+x^2)^{3/4}\,\text{EllipticF}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}$$

Result (type 5, 72 leaves):

$$\frac{2\,(a-i\,a\,x)^{1/4}\,\left(-i+x+i\,2^{1/4}\,(1+i\,x)^{3/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{(a+i\,a\,x)^{3/4}}$$

Problem 1191: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}\,dx$$

Optimal (type 4, 43 leaves, 3 steps):

$$\frac{2\,(1+x^2)^{3/4}\,\text{EllipticF}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}$$

Result (type 5, 68 leaves):

$$\frac{2\,i\,2^{1/4}\,(1+i\,x)^{3/4}\,(a-i\,a\,x)^{1/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{1}{2}-\frac{i\,x}{2}\right]}{a\,(a+i\,a\,x)^{3/4}}$$

Problem 1192: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a-i\,a\,x)^{7/4}\,(a+i\,a\,x)^{3/4}}\,dx$$

Optimal (type 4, 82 leaves, 4 steps):

$$-\frac{2\,i\,(a+i\,a\,x)^{1/4}}{3\,a^2\,(a-i\,a\,x)^{3/4}}+\frac{2\,(1+x^2)^{3/4}\,\text{EllipticF}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{3\,a\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}$$

Result (type 5, 79 leaves):

$$\frac{2\,\left(-i+x+2^{1/4}\,(1+i\,x)^{3/4}\,(i+x)\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{3\,a\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}$$

Problem 1193: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a-i a x)^{11/4} (a+i a x)^{3/4}} \, dx$$

Optimal (type 4, 115 leaves, 5 steps):

$$-\frac{2 i (a+i a x)^{1/4}}{7 a^2 (a-i a x)^{7/4}}-\frac{2 i (a+i a x)^{1/4}}{7 a^3 (a-i a x)^{3/4}}+\frac{2 \left(1+x^2\right)^{3/4} \text{EllipticF}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{7 a^2 (a-i a x)^{3/4} (a+i a x)^{3/4}}$$

Result (type 5, 93 leaves):

$$\frac{2 \left(2+i x+x^2+2^{1/4} (1+i x)^{3/4} (i+x)^2 \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{1}{2}-\frac{i x}{2}\right]\right)}{7 a^2 (i+x) (a-i a x)^{3/4} (a+i a x)^{3/4}}$$

Problem 1194: Result unnecessarily involves higher level functions.

$$\int \frac{(a-i a x)^{7/4}}{(a+i a x)^{7/4}} \, dx$$

Optimal (type 3, 291 leaves, 13 steps):

$$\frac{4 i (a-i a x)^{7/4}}{3 a (a+i a x)^{3/4}}+\frac{7 i (a-i a x)^{3/4} (a+i a x)^{1/4}}{3 a}+\frac{7 i \text{ArcTan}\left[1-\frac{\sqrt{2} (a-i a x)^{1/4}}{(a+i a x)^{1/4}}\right]}{\sqrt{2}}-$$
$$\frac{7 i \text{ArcTan}\left[1+\frac{\sqrt{2} (a-i a x)^{1/4}}{(a+i a x)^{1/4}}\right]}{\sqrt{2}}-\frac{7 i \text{Log}\left[1+\frac{\sqrt{a-i a x}}{\sqrt{a+i a x}}-\frac{\sqrt{2} (a-i a x)^{1/4}}{(a+i a x)^{1/4}}\right]}{2 \sqrt{2}}+\frac{7 i \text{Log}\left[1+\frac{\sqrt{a-i a x}}{\sqrt{a+i a x}}+\frac{\sqrt{2} (a-i a x)^{1/4}}{(a+i a x)^{1/4}}\right]}{2 \sqrt{2}}$$

Result (type 5, 76 leaves):

$$\frac{(a-i a x)^{3/4} \left(11 i-3 x-7 i 2^{1/4} (1+i x)^{3/4} \text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i x}{2}\right]\right)}{3 (a+i a x)^{3/4}}$$

Problem 1195: Result unnecessarily involves higher level functions.

$$\int \frac{(a-i a x)^{3/4}}{(a+i a x)^{7/4}} \, dx$$

Optimal (type 3, 266 leaves, 12 steps):

$$\frac{4\,i\,(a-i\,a\,x)^{3/4}}{3\,a\,(a+i\,a\,x)^{3/4}}+\frac{i\,\sqrt{2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{a}-\frac{i\,\sqrt{2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{a}-\frac{i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}\,a}+\frac{i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}\,a}$$

Result (type 5, 73 leaves):

$$-\frac{2\,i\,(a-i\,a\,x)^{3/4}\left(-2+2^{1/4}\,(1+i\,x)^{3/4}\,\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{3\,a\,(a+i\,a\,x)^{3/4}}$$

Problem 1199: Result unnecessarily involves higher level functions.

$$\int\frac{(a-i\,a\,x)^{9/4}}{(a+i\,a\,x)^{7/4}}\,dx$$

Optimal (type 4, 139 leaves, 6 steps):

$$\frac{4\,i\,(a-i\,a\,x)^{9/4}}{3\,a\,(a+i\,a\,x)^{3/4}}+10\,i\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}+\frac{2\,i\,(a-i\,a\,x)^{5/4}\,(a+i\,a\,x)^{1/4}}{a}-\frac{10\,a^2\,(1+x^2)^{3/4}\,\text{EllipticF}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}$$

Result (type 5, 80 leaves):

$$\frac{2\,i\,a\,(a-i\,a\,x)^{1/4}\left(20+11\,i\,x+x^2-15\times2^{1/4}\,(1+i\,x)^{3/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{3\,(a+i\,a\,x)^{3/4}}$$

Problem 1200: Result unnecessarily involves higher level functions.

$$\int\frac{(a-i\,a\,x)^{5/4}}{(a+i\,a\,x)^{7/4}}\,dx$$

Optimal (type 4, 113 leaves, 5 steps):

$$\frac{4\,i\,(a-i\,a\,x)^{5/4}}{3\,a\,(a+i\,a\,x)^{3/4}}+\frac{10\,i\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}{3\,a}-\frac{10\,a\,(1+x^2)^{3/4}\,\text{EllipticF}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{3\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}$$

Result (type 5, 76 leaves):

$$-\frac{2\,(a-\mathrm{i}\,a\,x)^{1/4}\,\left(-7\,\mathrm{i}+3\,x+5\,\mathrm{i}\,2^{1/4}\,(1+\mathrm{i}\,x)^{3/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{1}{2}-\frac{\mathrm{i}\,x}{2}\right]\right)}{3\,(a+\mathrm{i}\,a\,x)^{3/4}}$$

Problem 1201: Result unnecessarily involves higher level functions.

$$\int\frac{(a-\mathrm{i}\,a\,x)^{1/4}}{(a+\mathrm{i}\,a\,x)^{7/4}}\,dx$$

Optimal (type 4, 79 leaves, 4 steps):

$$\frac{4\,\mathrm{i}\,(a-\mathrm{i}\,a\,x)^{1/4}}{3\,a\,(a+\mathrm{i}\,a\,x)^{3/4}}-\frac{2\,(1+x^2)^{3/4}\,\text{EllipticF}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{3\,(a-\mathrm{i}\,a\,x)^{3/4}\,(a+\mathrm{i}\,a\,x)^{3/4}}$$

Result (type 5, 73 leaves):

$$-\frac{2\,\mathrm{i}\,(a-\mathrm{i}\,a\,x)^{1/4}\,\left(-2+2^{1/4}\,(1+\mathrm{i}\,x)^{3/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{1}{2}-\frac{\mathrm{i}\,x}{2}\right]\right)}{3\,a\,(a+\mathrm{i}\,a\,x)^{3/4}}$$

Problem 1202: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a-\mathrm{i}\,a\,x)^{3/4}\,(a+\mathrm{i}\,a\,x)^{7/4}}\,dx$$

Optimal (type 4, 82 leaves, 4 steps):

$$\frac{2\,\mathrm{i}\,(a-\mathrm{i}\,a\,x)^{1/4}}{3\,a^2\,(a+\mathrm{i}\,a\,x)^{3/4}}+\frac{2\,(1+x^2)^{3/4}\,\text{EllipticF}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{3\,a\,(a-\mathrm{i}\,a\,x)^{3/4}\,(a+\mathrm{i}\,a\,x)^{3/4}}$$

Result (type 5, 73 leaves):

$$\frac{2\,\mathrm{i}\,(a-\mathrm{i}\,a\,x)^{1/4}\,\left(1+2^{1/4}\,(1+\mathrm{i}\,x)^{3/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{1}{2}-\frac{\mathrm{i}\,x}{2}\right]\right)}{3\,a^2\,(a+\mathrm{i}\,a\,x)^{3/4}}$$

Problem 1203: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a-\mathrm{i}\,a\,x)^{7/4}\,(a+\mathrm{i}\,a\,x)^{7/4}}\,dx$$

Optimal (type 4, 81 leaves, 4 steps):

$$\frac{2\,x}{3\,a^2\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}+\frac{2\,(1+x^2)^{3/4}\,\text{EllipticF}\left[\frac{\text{ArcTan}[x]}{2},\,2\right]}{3\,a^2\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}$$

Result (type 5, 76 leaves):

$$\frac{2\left(x+2^{1/4}\,(1+i\,x)^{3/4}\,(i+x)\,\text{Hypergeometric2F1}\left[\frac{1}{4},\,\frac{3}{4},\,\frac{5}{4},\,\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{3\,a^2\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}$$

Problem 1204: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a-i\,a\,x)^{11/4}\,(a+i\,a\,x)^{7/4}}\,dx$$

Optimal (type 4, 114 leaves, 5 steps):

$$-\frac{2\,i}{7\,a^2\,(a-i\,a\,x)^{7/4}\,(a+i\,a\,x)^{3/4}}+\frac{10\,x}{21\,a^3\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}+\frac{10\,(1+x^2)^{3/4}\,\text{EllipticF}\left[\frac{\text{ArcTan}[x]}{2},\,2\right]}{21\,a^3\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}$$

Result (type 5, 96 leaves):

$$\frac{2\left(3+5\,i\,x+5\,x^2+5\times 2^{1/4}\,(1+i\,x)^{3/4}\,(i+x)^2\,\text{Hypergeometric2F1}\left[\frac{1}{4},\,\frac{3}{4},\,\frac{5}{4},\,\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{21\,a^3\,(i+x)\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}$$

Problem 1205: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a-i\,a\,x)^{15/4}\,(a+i\,a\,x)^{7/4}}\,dx$$

Optimal (type 4, 147 leaves, 6 steps):

$$-\frac{2\,i}{11\,a^2\,(a-i\,a\,x)^{11/4}\,(a+i\,a\,x)^{3/4}}-\frac{2\,i}{11\,a^3\,(a-i\,a\,x)^{7/4}\,(a+i\,a\,x)^{3/4}}+\frac{10\,x}{33\,a^4\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}+\frac{10\,(1+x^2)^{3/4}\,\text{EllipticF}\left[\frac{\text{ArcTan}[x]}{2},\,2\right]}{33\,a^4\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}$$

Result (type 5, 103 leaves):

$$\frac{2\left(6\,i-2\,x+10\,i\,x^2+5\,x^3+5\times 2^{1/4}\,(1+i\,x)^{3/4}\,(i+x)^3\,\text{Hypergeometric2F1}\left[\frac{1}{4},\,\frac{3}{4},\,\frac{5}{4},\,\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{33\,a^4\,(i+x)^2\,(a-i\,a\,x)^{3/4}\,(a+i\,a\,x)^{3/4}}$$

Problem 1206: Result unnecessarily involves higher level functions.

$$\int \frac{(a - i a x)^{7/4}}{(a + i a x)^{5/4}} \, dx$$

Optimal (type 4, 137 leaves, 6 steps):

$$-\frac{14 a x}{(a - i a x)^{1/4} (a + i a x)^{1/4}} + \frac{4 i (a - i a x)^{7/4}}{a (a + i a x)^{1/4}} + \frac{14 i (a - i a x)^{3/4} (a + i a x)^{3/4}}{3 a} + \frac{14 a (1 + x^2)^{1/4} \text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2}, 2\right]}{(a - i a x)^{1/4} (a + i a x)^{1/4}}$$

Result (type 5, 74 leaves):

$$-\frac{2 (a - i a x)^{3/4} \left(-13 i + x + 7 i 2^{3/4} (1 + i x)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, \frac{1}{2} - \frac{i x}{2}\right]\right)}{3 (a + i a x)^{1/4}}$$

Problem 1207: Result unnecessarily involves higher level functions.

$$\int \frac{(a - i a x)^{3/4}}{(a + i a x)^{5/4}} \, dx$$

Optimal (type 4, 102 leaves, 5 steps):

$$-\frac{6 x}{(a - i a x)^{1/4} (a + i a x)^{1/4}} + \frac{4 i (a - i a x)^{3/4}}{a (a + i a x)^{1/4}} + \frac{6 (1 + x^2)^{1/4} \text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2}, 2\right]}{(a - i a x)^{1/4} (a + i a x)^{1/4}}$$

Result (type 5, 71 leaves):

$$-\frac{2 i (a - i a x)^{3/4} \left(-2 + 2^{3/4} (1 + i x)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, \frac{1}{2} - \frac{i x}{2}\right]\right)}{a (a + i a x)^{1/4}}$$

Problem 1208: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a - i a x)^{1/4} (a + i a x)^{5/4}} \, dx$$

Optimal (type 4, 78 leaves, 4 steps):

$$\frac{2 i}{a (a - i a x)^{1/4} (a + i a x)^{1/4}} + \frac{2 (1 + x^2)^{1/4} \text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2}, 2\right]}{a (a - i a x)^{1/4} (a + i a x)^{1/4}}$$

Result (type 5, 73 leaves) :

$$-\frac{2 i (a-i a x)^{3/4} \left(-3+2^{3/4} (1+i x)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i x}{2}\right]\right)}{3 a^2 (a+i a x)^{1/4}}$$

Problem 1209: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a-i a x)^{5/4} (a+i a x)^{5/4}} \, dx$$

Optimal (type 4, 46 leaves, 3 steps) :

$$\frac{2 \left(1+x^2\right)^{1/4} \text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{a^2 (a-i a x)^{1/4} (a+i a x)^{1/4}}$$

Result (type 5, 79 leaves) :

$$\frac{6 x-2\times 2^{3/4} (1+i x)^{1/4} (i+x) \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i x}{2}\right]}{3 a^2 (a-i a x)^{1/4} (a+i a x)^{1/4}}$$

Problem 1210: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a-i a x)^{9/4} (a+i a x)^{5/4}} \, dx$$

Optimal (type 4, 82 leaves, 4 steps) :

$$-\frac{2 i}{5 a^2 (a-i a x)^{5/4} (a+i a x)^{1/4}}+\frac{6 \left(1+x^2\right)^{1/4} \text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{5 a^3 (a-i a x)^{1/4} (a+i a x)^{1/4}}$$

Result (type 5, 96 leaves) :

$$\frac{2+6 i x+6 x^2-2\times 2^{3/4} (1+i x)^{1/4} (i+x)^2 \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i x}{2}\right]}{5 a^3 (i+x) (a-i a x)^{1/4} (a+i a x)^{1/4}}$$

Problem 1211: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a-i a x)^{13/4} (a+i a x)^{5/4}} \, dx$$

Optimal (type 4, 115 leaves, 5 steps) :

$$-\frac{2\,i}{9\,a^2\,(a-i\,a\,x)^{9/4}\,(a+i\,a\,x)^{1/4}}-\frac{2\,i}{9\,a^3\,(a-i\,a\,x)^{5/4}\,(a+i\,a\,x)^{1/4}}+\frac{2\,(1+x^2)^{1/4}\,\text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{3\,a^4\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Result (type 5, 103 leaves):

$$\frac{4\,i-4\,x+12\,i\,x^2+6\,x^3-2\times 2^{3/4}\,(1+i\,x)^{1/4}\,(i+x)^3\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i\,x}{2}\right]}{9\,a^4\,(i+x)^2\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Problem 1212: Result unnecessarily involves higher level functions.

$$\int\frac{(a-i\,a\,x)^{5/4}}{(a+i\,a\,x)^{5/4}}\,dx$$

Optimal (type 3, 287 leaves, 13 steps):

$$\frac{4\,i\,(a-i\,a\,x)^{5/4}}{a\,(a+i\,a\,x)^{1/4}}+\frac{5\,i\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{3/4}}{a}+\frac{5\,i\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}}-$$
$$\frac{5\,i\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}}+\frac{5\,i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{2\,\sqrt{2}}-\frac{5\,i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{2\,\sqrt{2}}$$

Result (type 5, 72 leaves):

$$-\frac{(a-i\,a\,x)^{1/4}\,\left(-9\,i+x+5\,i\,2^{3/4}\,(1+i\,x)^{1/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{(a+i\,a\,x)^{1/4}}$$

Problem 1213: Result unnecessarily involves higher level functions.

$$\int\frac{(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{5/4}}\,dx$$

Optimal (type 3, 264 leaves, 12 steps):

$$\frac{4\,i\,(a-i\,a\,x)^{1/4}}{a\,(a+i\,a\,x)^{1/4}}+\frac{i\,\sqrt{2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{a}-$$
$$\frac{i\,\sqrt{2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{a}+\frac{i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}\,a}-\frac{i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}\,a}$$

Result (type 5, 71 leaves) :

$$-\frac{2\,i\,(a-i\,a\,x)^{1/4}\left(-2+2^{3/4}\,(1+i\,x)^{1/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{a\,(a+i\,a\,x)^{1/4}}$$

Problem 1217: Result unnecessarily involves higher level functions.

$$\int\frac{(a-i\,a\,x)^{7/4}}{(a+i\,a\,x)^{9/4}}\,dx$$

Optimal (type 4, 141 leaves, 6 steps) :

$$\frac{4\,i\,(a-i\,a\,x)^{7/4}}{5\,a\,(a+i\,a\,x)^{5/4}}+\frac{42\,x}{5\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}-\frac{28\,i\,(a-i\,a\,x)^{3/4}}{5\,a\,(a+i\,a\,x)^{1/4}}-\frac{42\,(1+x^2)^{1/4}\,\text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{5\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Result (type 5, 84 leaves) :

$$\frac{2\,(a-i\,a\,x)^{3/4}\left(-12-16\,i\,x+7\times2^{3/4}\,(1+i\,x)^{5/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{5\,a\,(-i+x)\,(a+i\,a\,x)^{1/4}}$$

Problem 1218: Result unnecessarily involves higher level functions.

$$\int\frac{(a-i\,a\,x)^{3/4}}{(a+i\,a\,x)^{9/4}}\,dx$$

Optimal (type 4, 115 leaves, 5 steps) :

$$\frac{4\,i\,(a-i\,a\,x)^{3/4}}{5\,a\,(a+i\,a\,x)^{5/4}}-\frac{6\,i}{5\,a\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}-\frac{6\,(1+x^2)^{1/4}\,\text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},2\right]}{5\,a\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Result (type 5, 83 leaves) :

$$\frac{2\,(a-i\,a\,x)^{3/4}\left(-1-3\,i\,x+2^{3/4}\,(1+i\,x)^{5/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{5\,a^2\,(-i+x)\,(a+i\,a\,x)^{1/4}}$$

Problem 1219: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{9/4}}\,dx$$

Optimal (type 4, 82 leaves, 4 steps):

$$\frac{4\,i}{5\,a\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{5/4}}+\frac{2\,(1+x^2)^{1/4}\,\text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},\,2\right]}{5\,a^2\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Result (type 5, 84 leaves):

$$\frac{2\,(a-i\,a\,x)^{3/4}\,\left(6+3\,i\,x-2^{3/4}\,(1+i\,x)^{5/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{15\,a^3\,(-i+x)\,(a+i\,a\,x)^{1/4}}$$

Problem 1220: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a-i\,a\,x)^{5/4}\,(a+i\,a\,x)^{9/4}}\,dx$$

Optimal (type 4, 82 leaves, 5 steps):

$$\frac{2\,i}{5\,a^2\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{5/4}}+\frac{6\,(1+x^2)^{1/4}\,\text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},\,2\right]}{5\,a^3\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Result (type 5, 94 leaves):

$$\frac{2-6\,i\,x+6\,x^2-2\times 2^{3/4}\,(1+i\,x)^{1/4}\,(1+x^2)\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i\,x}{2}\right]}{5\,a^3\,(-i+x)\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Problem 1221: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a-i\,a\,x)^{9/4}\,(a+i\,a\,x)^{9/4}}\,dx$$

Optimal (type 4, 88 leaves, 4 steps):

$$\frac{2\,x}{5\,a^4\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}\,(1+x^2)}+\frac{6\,(1+x^2)^{1/4}\,\text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2},\,2\right]}{5\,a^4\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}}$$

Result (type 5, 98 leaves):

$$\frac{8\,x+6\,x^3-2\times 2^{3/4}\,(1+i\,x)^{1/4}\,(-i+x)\,(i+x)^2\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{1}{2}-\frac{i\,x}{2}\right]}{5\,a^4\,(a-i\,a\,x)^{1/4}\,(a+i\,a\,x)^{1/4}\,(1+x^2)}$$

Problem 1222: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a - i a x)^{13/4} (a + i a x)^{9/4}} \, dx$$

Optimal (type 4, 121 leaves, 5 steps):

$$-\frac{2 i}{9 a^2 (a - i a x)^{9/4} (a + i a x)^{5/4}} + \frac{14 x}{45 a^5 (a - i a x)^{1/4} (a + i a x)^{1/4} (1 + x^2)} + \frac{14 (1 + x^2)^{1/4} \text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2}, 2\right]}{15 a^5 (a - i a x)^{1/4} (a + i a x)^{1/4}}$$

Result (type 5, 120 leaves):

$$\left(2 \left(5 + 28 i x + 28 x^2 + 21 i x^3 + 21 x^4 - 7 \times 2^{3/4} (1 + i x)^{1/4} (-i + x) (i + x)^3 \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, \frac{1}{2} - \frac{i x}{2}\right]\right)\right) \Big/ \left(45 a^5 (-i + x) (i + x)^2 (a - i a x)^{1/4} (a + i a x)^{1/4}\right)$$

Problem 1223: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a - i a x)^{17/4} (a + i a x)^{9/4}} \, dx$$

Optimal (type 4, 154 leaves, 6 steps):

$$-\frac{2 i}{13 a^2 (a - i a x)^{13/4} (a + i a x)^{5/4}} - \frac{2 i}{13 a^3 (a - i a x)^{9/4} (a + i a x)^{5/4}} + \frac{14 x}{65 a^6 (a - i a x)^{1/4} (a + i a x)^{1/4} (1 + x^2)} + \frac{42 (1 + x^2)^{1/4} \text{EllipticE}\left[\frac{\text{ArcTan}[x]}{2}, 2\right]}{65 a^6 (a - i a x)^{1/4} (a + i a x)^{1/4}}$$

Result (type 5, 127 leaves):

$$\left(2 \left(10 i - 23 x + 56 i x^2 + 7 x^3 + 42 i x^4 + 21 x^5 - 7 \times 2^{3/4} (1 + i x)^{1/4} (-i + x) (i + x)^4 \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, \frac{1}{2} - \frac{i x}{2}\right]\right)\right) \Big/ \left(65 a^6 (-i + x) (i + x)^3 (a - i a x)^{1/4} (a + i a x)^{1/4}\right)$$

Problem 1224: Result unnecessarily involves higher level functions.

$$\int \frac{(a - i a x)^{5/4}}{(a + i a x)^{9/4}} \, dx$$

Optimal (type 3, 297 leaves, 13 steps):

$$\frac{4\,i\,(a-i\,a\,x)^{5/4}}{5\,a\,(a+i\,a\,x)^{5/4}}-\frac{4\,i\,(a-i\,a\,x)^{1/4}}{a\,(a+i\,a\,x)^{1/4}}-\frac{i\,\sqrt{2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{a}+$$
$$\frac{i\,\sqrt{2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{a}-\frac{i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}-\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}\,a}+\frac{i\,\text{Log}\left[1+\frac{\sqrt{a-i\,a\,x}}{\sqrt{a+i\,a\,x}}+\frac{\sqrt{2}\,(a-i\,a\,x)^{1/4}}{(a+i\,a\,x)^{1/4}}\right]}{\sqrt{2}\,a}$$

Result (type 5, 84 leaves):

$$\frac{2\,(a-i\,a\,x)^{1/4}\left(-8-12\,i\,x+5\times 2^{3/4}\,(1+i\,x)^{5/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{1}{2}-\frac{i\,x}{2}\right]\right)}{5\,a\,(-i+x)\,(a+i\,a\,x)^{1/4}}$$

Problem 1235: Result more than twice size of optimal antiderivative.

$$\int (3-6\,x)^m\,(2+4\,x)^m\,dx$$

Optimal (type 5, 20 leaves, 2 steps):

$$6^m\,x\,\text{Hypergeometric2F1}\left[\frac{1}{2},-m,\frac{3}{2},4\,x^2\right]$$

Result (type 5, 42 leaves):

$$(3-6\,x)^m\,x\,(2+4\,x)^m\,\left(1-4\,x^2\right)^{-m}\,\text{Hypergeometric2F1}\left[\frac{1}{2},-m,\frac{3}{2},4\,x^2\right]$$

Problem 1236: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^4\,(c+d\,x)\,dx$$

Optimal (type 1, 38 leaves, 2 steps):

$$\frac{(b\,c-a\,d)\,(a+b\,x)^5}{5\,b^2}+\frac{d\,(a+b\,x)^6}{6\,b^2}$$

Result (type 1, 84 leaves):

$$\frac{1}{30}\,x\,\left(15\,a^4\,(2\,c+d\,x)+20\,a^3\,b\,x\,(3\,c+2\,d\,x)+15\,a^2\,b^2\,x^2\,(4\,c+3\,d\,x)+6\,a\,b^3\,x^3\,(5\,c+4\,d\,x)+b^4\,x^4\,(6\,c+5\,d\,x)\right)$$

Problem 1246: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^4 (c+d x)^2 \, dx$$

Optimal (type 1, 65 leaves, 2 steps):

$$\frac{(b c-a d)^2 (a+b x)^5}{5 b^3}+\frac{d (b c-a d) (a+b x)^6}{3 b^3}+\frac{d^2 (a+b x)^7}{7 b^3}$$

Result (type 1, 148 leaves):

$$a^4 c^2 x+a^3 c (2 b c+a d) x^2+\frac{1}{3} a^2 \left(6 b^2 c^2+8 a b c d+a^2 d^2\right) x^3+ a b \left(b^2 c^2+3 a b c d+a^2 d^2\right) x^4+\frac{1}{5} b^2 \left(b^2 c^2+8 a b c d+6 a^2 d^2\right) x^5+\frac{1}{3} b^3 d (b c+2 a d) x^6+\frac{1}{7} b^4 d^2 x^7$$

Problem 1258: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^5 (c+d x)^3 \, dx$$

Optimal (type 1, 92 leaves, 2 steps):

$$\frac{(b c-a d)^3 (a+b x)^6}{6 b^4}+\frac{3 d (b c-a d)^2 (a+b x)^7}{7 b^4}+\frac{3 d^2 (b c-a d) (a+b x)^8}{8 b^4}+\frac{d^3 (a+b x)^9}{9 b^4}$$

Result (type 1, 235 leaves):

$$\frac{1}{504} x \left(126 a^5 \left(4 c^3+6 c^2 d x+4 c d^2 x^2+d^3 x^3\right)+126 a^4 b x \left(10 c^3+20 c^2 d x+15 c d^2 x^2+4 d^3 x^3\right)+ 84 a^3 b^2 x^2 \left(20 c^3+45 c^2 d x+36 c d^2 x^2+10 d^3 x^3\right)+36 a^2 b^3 x^3 \left(35 c^3+84 c^2 d x+70 c d^2 x^2+20 d^3 x^3\right)+ 9 a b^4 x^4 \left(56 c^3+140 c^2 d x+120 c d^2 x^2+35 d^3 x^3\right)+b^5 x^5 \left(84 c^3+216 c^2 d x+189 c d^2 x^2+56 d^3 x^3\right)\right)$$

Problem 1259: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^4 (c+d x)^3 \, dx$$

Optimal (type 1, 92 leaves, 2 steps):

$$\frac{(b c-a d)^3 (a+b x)^5}{5 b^4}+\frac{d (b c-a d)^2 (a+b x)^6}{2 b^4}+\frac{3 d^2 (b c-a d) (a+b x)^7}{7 b^4}+\frac{d^3 (a+b x)^8}{8 b^4}$$

Result (type 1, 217 leaves):

$$a^4 c^3 x + \frac{1}{2} a^3 c^2 (4 b c + 3 a d) x^2 + a^2 c (2 b^2 c^2 + 4 a b c d + a^2 d^2) x^3 + \frac{1}{4} a (4 b^3 c^3 + 18 a b^2 c^2 d + 12 a^2 b c d^2 + a^3 d^3) x^4 + \frac{1}{5} b (b^3 c^3 + 12 a b^2 c^2 d + 18 a^2 b c d^2 + 4 a^3 d^3) x^5 + \frac{1}{2} b^2 d (b^2 c^2 + 4 a b c d + 2 a^2 d^2) x^6 + \frac{1}{7} b^3 d^2 (3 b c + 4 a d) x^7 + \frac{1}{8} b^4 d^3 x^8$$

Problem 1268: Result more than twice size of optimal antiderivative.

$$\int \frac{(c + d x)^3}{(a + b x)^5} \, dx$$

Optimal (type 1, 28 leaves, 1 step):

$$-\frac{(c + d x)^4}{4 (b c - a d) (a + b x)^4}$$

Result (type 1, 91 leaves):

$$-\frac{a^3 d^3 + a^2 b d^2 (c + 4 d x) + a b^2 d (c^2 + 4 c d x + 6 d^2 x^2) + b^3 (c^3 + 4 c^2 d x + 6 c d^2 x^2 + 4 d^3 x^3)}{4 b^4 (a + b x)^4}$$

Problem 1273: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^9 (c + d x)^7 \, dx$$

Optimal (type 1, 200 leaves, 2 steps):

$$\frac{(b c - a d)^7 (a + b x)^{10}}{10 b^8} + \frac{7 d (b c - a d)^6 (a + b x)^{11}}{11 b^8} + \frac{7 d^2 (b c - a d)^5 (a + b x)^{12}}{4 b^8} + \frac{35 d^3 (b c - a d)^4 (a + b x)^{13}}{13 b^8} + \frac{5 d^4 (b c - a d)^3 (a + b x)^{14}}{2 b^8} + \frac{7 d^5 (b c - a d)^2 (a + b x)^{15}}{5 b^8} + \frac{7 d^6 (b c - a d) (a + b x)^{16}}{16 b^8} + \frac{d^7 (a + b x)^{17}}{17 b^8}$$

Result (type 1, 993 leaves):

$$a^9 c^7 x + \frac{1}{2} a^8 c^6 (9 b c + 7 a d) x^2 + a^7 c^5 (12 b^2 c^2 + 21 a b c d + 7 a^2 d^2) x^3 +$$
$$\frac{7}{4} a^6 c^4 (12 b^3 c^3 + 36 a b^2 c^2 d + 27 a^2 b c d^2 + 5 a^3 d^3) x^4 + \frac{7}{5} a^5 c^3 (18 b^4 c^4 + 84 a b^3 c^3 d + 108 a^2 b^2 c^2 d^2 + 45 a^3 b c d^3 + 5 a^4 d^4) x^5 +$$
$$\frac{7}{2} a^4 c^2 (6 b^5 c^5 + 42 a b^4 c^4 d + 84 a^2 b^3 c^3 d^2 + 60 a^3 b^2 c^2 d^3 + 15 a^4 b c d^4 + a^5 d^5) x^6 +$$
$$a^3 c (12 b^6 c^6 + 126 a b^5 c^5 d + 378 a^2 b^4 c^4 d^2 + 420 a^3 b^3 c^3 d^3 + 180 a^4 b^2 c^2 d^4 + 27 a^5 b c d^5 + a^6 d^6) x^7 +$$
$$\frac{1}{8} a^2 (36 b^7 c^7 + 588 a b^6 c^6 d + 2646 a^2 b^5 c^5 d^2 + 4410 a^3 b^4 c^4 d^3 + 2940 a^4 b^3 c^3 d^4 + 756 a^5 b^2 c^2 d^5 + 63 a^6 b c d^6 + a^7 d^7) x^8 +$$
$$a b (b^7 c^7 + 28 a b^6 c^6 d + 196 a^2 b^5 c^5 d^2 + 490 a^3 b^4 c^4 d^3 + 490 a^4 b^3 c^3 d^4 + 196 a^5 b^2 c^2 d^5 + 28 a^6 b c d^6 + a^7 d^7) x^9 +$$
$$\frac{1}{10} b^2 (b^7 c^7 + 63 a b^6 c^6 d + 756 a^2 b^5 c^5 d^2 + 2940 a^3 b^4 c^4 d^3 + 4410 a^4 b^3 c^3 d^4 + 2646 a^5 b^2 c^2 d^5 + 588 a^6 b c d^6 + 36 a^7 d^7) x^{10} +$$
$$\frac{7}{11} b^3 d (b^6 c^6 + 27 a b^5 c^5 d + 180 a^2 b^4 c^4 d^2 + 420 a^3 b^3 c^3 d^3 + 378 a^4 b^2 c^2 d^4 + 126 a^5 b c d^5 + 12 a^6 d^6) x^{11} +$$
$$\frac{7}{4} b^4 d^2 (b^5 c^5 + 15 a b^4 c^4 d + 60 a^2 b^3 c^3 d^2 + 84 a^3 b^2 c^2 d^3 + 42 a^4 b c d^4 + 6 a^5 d^5) x^{12} +$$
$$\frac{7}{13} b^5 d^3 (5 b^4 c^4 + 45 a b^3 c^3 d + 108 a^2 b^2 c^2 d^2 + 84 a^3 b c d^3 + 18 a^4 d^4) x^{13} + \frac{1}{2} b^6 d^4 (5 b^3 c^3 + 27 a b^2 c^2 d + 36 a^2 b c d^2 + 12 a^3 d^3) x^{14} +$$
$$\frac{1}{5} b^7 d^5 (7 b^2 c^2 + 21 a b c d + 12 a^2 d^2) x^{15} + \frac{1}{16} b^8 d^6 (7 b c + 9 a d) x^{16} + \frac{1}{17} b^9 d^7 x^{17}$$

Problem 1274: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^8 (c + d x)^7 \, dx$$

Optimal (type 1, 200 leaves, 2 steps):

$$\frac{(b c - a d)^7 (a + b x)^9}{9 b^8} + \frac{7 d (b c - a d)^6 (a + b x)^{10}}{10 b^8} + \frac{21 d^2 (b c - a d)^5 (a + b x)^{11}}{11 b^8} + \frac{35 d^3 (b c - a d)^4 (a + b x)^{12}}{12 b^8} +$$
$$\frac{35 d^4 (b c - a d)^3 (a + b x)^{13}}{13 b^8} + \frac{3 d^5 (b c - a d)^2 (a + b x)^{14}}{2 b^8} + \frac{7 d^6 (b c - a d) (a + b x)^{15}}{15 b^8} + \frac{d^7 (a + b x)^{16}}{16 b^8}$$

Result (type 1, 897 leaves):

$$a^8 c^7 x + \frac{1}{2} a^7 c^6 \left(8 b c + 7 a d\right) x^2 + \frac{7}{3} a^6 c^5 \left(4 b^2 c^2 + 8 a b c d + 3 a^2 d^2\right) x^3 +$$
$$\frac{7}{4} a^5 c^4 \left(8 b^3 c^3 + 28 a b^2 c^2 d + 24 a^2 b c d^2 + 5 a^3 d^3\right) x^4 + \frac{7}{5} a^4 c^3 \left(10 b^4 c^4 + 56 a b^3 c^3 d + 84 a^2 b^2 c^2 d^2 + 40 a^3 b c d^3 + 5 a^4 d^4\right) x^5 +$$
$$\frac{7}{6} a^3 c^2 \left(8 b^5 c^5 + 70 a b^4 c^4 d + 168 a^2 b^3 c^3 d^2 + 140 a^3 b^2 c^2 d^3 + 40 a^4 b c d^4 + 3 a^5 d^5\right) x^6 +$$
$$a^2 c \left(4 b^6 c^6 + 56 a b^5 c^5 d + 210 a^2 b^4 c^4 d^2 + 280 a^3 b^3 c^3 d^3 + 140 a^4 b^2 c^2 d^4 + 24 a^5 b c d^5 + a^6 d^6\right) x^7 +$$
$$\frac{1}{8} a \left(8 b^7 c^7 + 196 a b^6 c^6 d + 1176 a^2 b^5 c^5 d^2 + 2450 a^3 b^4 c^4 d^3 + 1960 a^4 b^3 c^3 d^4 + 588 a^5 b^2 c^2 d^5 + 56 a^6 b c d^6 + a^7 d^7\right) x^8 +$$
$$\frac{1}{9} b \left(b^7 c^7 + 56 a b^6 c^6 d + 588 a^2 b^5 c^5 d^2 + 1960 a^3 b^4 c^4 d^3 + 2450 a^4 b^3 c^3 d^4 + 1176 a^5 b^2 c^2 d^5 + 196 a^6 b c d^6 + 8 a^7 d^7\right) x^9 +$$
$$\frac{7}{10} b^2 d \left(b^6 c^6 + 24 a b^5 c^5 d + 140 a^2 b^4 c^4 d^2 + 280 a^3 b^3 c^3 d^3 + 210 a^4 b^2 c^2 d^4 + 56 a^5 b c d^5 + 4 a^6 d^6\right) x^{10} +$$
$$\frac{7}{11} b^3 d^2 \left(3 b^5 c^5 + 40 a b^4 c^4 d + 140 a^2 b^3 c^3 d^2 + 168 a^3 b^2 c^2 d^3 + 70 a^4 b c d^4 + 8 a^5 d^5\right) x^{11} +$$
$$\frac{7}{12} b^4 d^3 \left(5 b^4 c^4 + 40 a b^3 c^3 d + 84 a^2 b^2 c^2 d^2 + 56 a^3 b c d^3 + 10 a^4 d^4\right) x^{12} + \frac{7}{13} b^5 d^4 \left(5 b^3 c^3 + 24 a b^2 c^2 d + 28 a^2 b c d^2 + 8 a^3 d^3\right) x^{13} +$$
$$\frac{1}{2} b^6 d^5 \left(3 b^2 c^2 + 8 a b c d + 4 a^2 d^2\right) x^{14} + \frac{1}{15} b^7 d^6 \left(7 b c + 8 a d\right) x^{15} + \frac{1}{16} b^8 d^7 x^{16}$$

Problem 1275: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^7 (c + d x)^7 \, dx$$

Optimal (type 1, 200 leaves, 2 steps):

$$\frac{(b c - a d)^7 (a + b x)^8}{8 b^8} + \frac{7 d (b c - a d)^6 (a + b x)^9}{9 b^8} + \frac{21 d^2 (b c - a d)^5 (a + b x)^{10}}{10 b^8} + \frac{35 d^3 (b c - a d)^4 (a + b x)^{11}}{11 b^8} +$$
$$\frac{35 d^4 (b c - a d)^3 (a + b x)^{12}}{12 b^8} + \frac{21 d^5 (b c - a d)^2 (a + b x)^{13}}{13 b^8} + \frac{d^6 (b c - a d) (a + b x)^{14}}{2 b^8} + \frac{d^7 (a + b x)^{15}}{15 b^8}$$

Result (type 1, 785 leaves):

$$a^7 c^7 x + \frac{7}{2} a^6 c^6 (b c + a d) x^2 + \frac{7}{3} a^5 c^5 (3 b^2 c^2 + 7 a b c d + 3 a^2 d^2) x^3 +$$
$$\frac{7}{4} a^4 c^4 (5 b^3 c^3 + 21 a b^2 c^2 d + 21 a^2 b c d^2 + 5 a^3 d^3) x^4 + \frac{7}{5} a^3 c^3 (5 b^4 c^4 + 35 a b^3 c^3 d + 63 a^2 b^2 c^2 d^2 + 35 a^3 b c d^3 + 5 a^4 d^4) x^5 +$$
$$\frac{7}{6} a^2 c^2 (3 b^5 c^5 + 35 a b^4 c^4 d + 105 a^2 b^3 c^3 d^2 + 105 a^3 b^2 c^2 d^3 + 35 a^4 b c d^4 + 3 a^5 d^5) x^6 +$$
$$a c (b^6 c^6 + 21 a b^5 c^5 d + 105 a^2 b^4 c^4 d^2 + 175 a^3 b^3 c^3 d^3 + 105 a^4 b^2 c^2 d^4 + 21 a^5 b c d^5 + a^6 d^6) x^7 +$$
$$\frac{1}{8} (b^7 c^7 + 49 a b^6 c^6 d + 441 a^2 b^5 c^5 d^2 + 1225 a^3 b^4 c^4 d^3 + 1225 a^4 b^3 c^3 d^4 + 441 a^5 b^2 c^2 d^5 + 49 a^6 b c d^6 + a^7 d^7) x^8 +$$
$$\frac{7}{9} b d (b^6 c^6 + 21 a b^5 c^5 d + 105 a^2 b^4 c^4 d^2 + 175 a^3 b^3 c^3 d^3 + 105 a^4 b^2 c^2 d^4 + 21 a^5 b c d^5 + a^6 d^6) x^9 +$$
$$\frac{7}{10} b^2 d^2 (3 b^5 c^5 + 35 a b^4 c^4 d + 105 a^2 b^3 c^3 d^2 + 105 a^3 b^2 c^2 d^3 + 35 a^4 b c d^4 + 3 a^5 d^5) x^{10} +$$
$$\frac{7}{11} b^3 d^3 (5 b^4 c^4 + 35 a b^3 c^3 d + 63 a^2 b^2 c^2 d^2 + 35 a^3 b c d^3 + 5 a^4 d^4) x^{11} + \frac{7}{12} b^4 d^4 (5 b^3 c^3 + 21 a b^2 c^2 d + 21 a^2 b c d^2 + 5 a^3 d^3) x^{12} +$$
$$\frac{7}{13} b^5 d^5 (3 b^2 c^2 + 7 a b c d + 3 a^2 d^2) x^{13} + \frac{1}{2} b^6 d^6 (b c + a d) x^{14} + \frac{1}{15} b^7 d^7 x^{15}$$

Problem 1276: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^6 (c + d x)^7 \, dx$$

Optimal (type 1, 173 leaves, 2 steps):

$$\frac{(b c - a d)^6 (c + d x)^8}{8 d^7} - \frac{2 b (b c - a d)^5 (c + d x)^9}{3 d^7} + \frac{3 b^2 (b c - a d)^4 (c + d x)^{10}}{2 d^7} -$$
$$\frac{20 b^3 (b c - a d)^3 (c + d x)^{11}}{11 d^7} + \frac{5 b^4 (b c - a d)^2 (c + d x)^{12}}{4 d^7} - \frac{6 b^5 (b c - a d) (c + d x)^{13}}{13 d^7} + \frac{b^6 (c + d x)^{14}}{14 d^7}$$

Result (type 1, 684 leaves):

$$a^6 c^7 x + \frac{1}{2} a^5 c^6 (6 b c + 7 a d) x^2 + a^4 c^5 (5 b^2 c^2 + 14 a b c d + 7 a^2 d^2) x^3 + \frac{1}{4} a^3 c^4 (20 b^3 c^3 + 105 a b^2 c^2 d + 126 a^2 b c d^2 + 35 a^3 d^3) x^4 + a^2 c^3 (3 b^4 c^4 + 28 a b^3 c^3 d + 63 a^2 b^2 c^2 d^2 + 42 a^3 b c d^3 + 7 a^4 d^4) x^5 + \frac{1}{2} a c^2 (2 b^5 c^5 + 35 a b^4 c^4 d + 140 a^2 b^3 c^3 d^2 + 175 a^3 b^2 c^2 d^3 + 70 a^4 b c d^4 + 7 a^5 d^5) x^6 + \frac{1}{7} c (b^6 c^6 + 42 a b^5 c^5 d + 315 a^2 b^4 c^4 d^2 + 700 a^3 b^3 c^3 d^3 + 525 a^4 b^2 c^2 d^4 + 126 a^5 b c d^5 + 7 a^6 d^6) x^7 + \frac{1}{8} d (7 b^6 c^6 + 126 a b^5 c^5 d + 525 a^2 b^4 c^4 d^2 + 700 a^3 b^3 c^3 d^3 + 315 a^4 b^2 c^2 d^4 + 42 a^5 b c d^5 + a^6 d^6) x^8 + \frac{1}{3} b d^2 (7 b^5 c^5 + 70 a b^4 c^4 d + 175 a^2 b^3 c^3 d^2 + 140 a^3 b^2 c^2 d^3 + 35 a^4 b c d^4 + 2 a^5 d^5) x^9 + \frac{1}{2} b^2 d^3 (7 b^4 c^4 + 42 a b^3 c^3 d + 63 a^2 b^2 c^2 d^2 + 28 a^3 b c d^3 + 3 a^4 d^4) x^{10} + \frac{1}{11} b^3 d^4 (35 b^3 c^3 + 126 a b^2 c^2 d + 105 a^2 b c d^2 + 20 a^3 d^3) x^{11} + \frac{1}{4} b^4 d^5 (7 b^2 c^2 + 14 a b c d + 5 a^2 d^2) x^{12} + \frac{1}{13} b^5 d^6 (7 b c + 6 a d) x^{13} + \frac{1}{14} b^6 d^7 x^{14}$$

Problem 1277: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^5 (c + d x)^7 \, dx$$

Optimal (type 1, 144 leaves, 2 steps):

$$-\frac{(b c - a d)^5 (c + d x)^8}{8 d^6} + \frac{5 b (b c - a d)^4 (c + d x)^9}{9 d^6} - \frac{b^2 (b c - a d)^3 (c + d x)^{10}}{d^6} + \frac{10 b^3 (b c - a d)^2 (c + d x)^{11}}{11 d^6} - \frac{5 b^4 (b c - a d) (c + d x)^{12}}{12 d^6} + \frac{b^5 (c + d x)^{13}}{13 d^6}$$

Result (type 1, 574 leaves):

$$a^5 c^7 x + \frac{1}{2} a^4 c^6 (5 b c + 7 a d) x^2 + \frac{1}{3} a^3 c^5 (10 b^2 c^2 + 35 a b c d + 21 a^2 d^2) x^3 + \frac{5}{4} a^2 c^4 (2 b^3 c^3 + 14 a b^2 c^2 d + 21 a^2 b c d^2 + 7 a^3 d^3) x^4 + a c^3 (b^4 c^4 + 14 a b^3 c^3 d + 42 a^2 b^2 c^2 d^2 + 35 a^3 b c d^3 + 7 a^4 d^4) x^5 + \frac{1}{6} c^2 (b^5 c^5 + 35 a b^4 c^4 d + 210 a^2 b^3 c^3 d^2 + 350 a^3 b^2 c^2 d^3 + 175 a^4 b c d^4 + 21 a^5 d^5) x^6 + c d (b^5 c^5 + 15 a b^4 c^4 d + 50 a^2 b^3 c^3 d^2 + 50 a^3 b^2 c^2 d^3 + 15 a^4 b c d^4 + a^5 d^5) x^7 + \frac{1}{8} d^2 (21 b^5 c^5 + 175 a b^4 c^4 d + 350 a^2 b^3 c^3 d^2 + 210 a^3 b^2 c^2 d^3 + 35 a^4 b c d^4 + a^5 d^5) x^8 + \frac{5}{9} b d^3 (7 b^4 c^4 + 35 a b^3 c^3 d + 42 a^2 b^2 c^2 d^2 + 14 a^3 b c d^3 + a^4 d^4) x^9 + \frac{1}{2} b^2 d^4 (7 b^3 c^3 + 21 a b^2 c^2 d + 14 a^2 b c d^2 + 2 a^3 d^3) x^{10} + \frac{1}{11} b^3 d^5 (21 b^2 c^2 + 35 a b c d + 10 a^2 d^2) x^{11} + \frac{1}{12} b^4 d^6 (7 b c + 5 a d) x^{12} + \frac{1}{13} b^5 d^7 x^{13}$$

Problem 1278: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^4 (c+d x)^7 \, dx$$

Optimal (type 1, 119 leaves, 2 steps):

$$\frac{(b c-a d)^4 (c+d x)^8}{8 d^5}-\frac{4 b (b c-a d)^3 (c+d x)^9}{9 d^5}+\frac{3 b^2 (b c-a d)^2 (c+d x)^{10}}{5 d^5}-\frac{4 b^3 (b c-a d) (c+d x)^{11}}{11 d^5}+\frac{b^4 (c+d x)^{12}}{12 d^5}$$

Result (type 1, 473 leaves):

$$a^4 c^7 x+\frac{1}{2} a^3 c^6 (4 b c+7 a d) x^2+\frac{1}{3} a^2 c^5 \left(6 b^2 c^2+28 a b c d+21 a^2 d^2\right) x^3+\frac{1}{4} a c^4 \left(4 b^3 c^3+42 a b^2 c^2 d+84 a^2 b c d^2+35 a^3 d^3\right) x^4+$$
$$\frac{1}{5} c^3 \left(b^4 c^4+28 a b^3 c^3 d+126 a^2 b^2 c^2 d^2+140 a^3 b c d^3+35 a^4 d^4\right) x^5+\frac{7}{6} c^2 d \left(b^4 c^4+12 a b^3 c^3 d+30 a^2 b^2 c^2 d^2+20 a^3 b c d^3+3 a^4 d^4\right) x^6+$$
$$c d^2 \left(3 b^4 c^4+20 a b^3 c^3 d+30 a^2 b^2 c^2 d^2+12 a^3 b c d^3+a^4 d^4\right) x^7+\frac{1}{8} d^3 \left(35 b^4 c^4+140 a b^3 c^3 d+126 a^2 b^2 c^2 d^2+28 a^3 b c d^3+a^4 d^4\right) x^8+$$
$$\frac{1}{9} b d^4 \left(35 b^3 c^3+84 a b^2 c^2 d+42 a^2 b c d^2+4 a^3 d^3\right) x^9+\frac{1}{10} b^2 d^5 \left(21 b^2 c^2+28 a b c d+6 a^2 d^2\right) x^{10}+\frac{1}{11} b^3 d^6 (7 b c+4 a d) x^{11}+\frac{1}{12} b^4 d^7 x^{12}$$

Problem 1279: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^3 (c+d x)^7 \, dx$$

Optimal (type 1, 92 leaves, 2 steps):

$$-\frac{(b c-a d)^3 (c+d x)^8}{8 d^4}+\frac{b (b c-a d)^2 (c+d x)^9}{3 d^4}-\frac{3 b^2 (b c-a d) (c+d x)^{10}}{10 d^4}+\frac{b^3 (c+d x)^{11}}{11 d^4}$$

Result (type 1, 360 leaves):

$$a^3 c^7 x+\frac{1}{2} a^2 c^6 (3 b c+7 a d) x^2+a c^5 \left(b^2 c^2+7 a b c d+7 a^2 d^2\right) x^3+\frac{1}{4} c^4 \left(b^3 c^3+21 a b^2 c^2 d+63 a^2 b c d^2+35 a^3 d^3\right) x^4+$$
$$\frac{7}{5} c^3 d \left(b^3 c^3+9 a b^2 c^2 d+15 a^2 b c d^2+5 a^3 d^3\right) x^5+\frac{7}{2} c^2 d^2 \left(b^3 c^3+5 a b^2 c^2 d+5 a^2 b c d^2+a^3 d^3\right) x^6+c d^3 \left(5 b^3 c^3+15 a b^2 c^2 d+9 a^2 b c d^2+a^3 d^3\right) x^7+$$
$$\frac{1}{8} d^4 \left(35 b^3 c^3+63 a b^2 c^2 d+21 a^2 b c d^2+a^3 d^3\right) x^8+\frac{1}{3} b d^5 \left(7 b^2 c^2+7 a b c d+a^2 d^2\right) x^9+\frac{1}{10} b^2 d^6 (7 b c+3 a d) x^{10}+\frac{1}{11} b^3 d^7 x^{11}$$

Problem 1280: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^2 (c+d x)^7 \, dx$$

Optimal (type 1, 65 leaves, 2 steps):

$$\frac{(b c-a d)^2 (c+d x)^8}{8 d^3}-\frac{2 b (b c-a d) (c+d x)^9}{9 d^3}+\frac{b^2 (c+d x)^{10}}{10 d^3}$$

Result (type 1, 261 leaves):

$$a^2 c^7 x+\frac{1}{2} a c^6 (2 b c+7 a d) x^2+\frac{1}{3} c^5 \left(b^2 c^2+14 a b c d+21 a^2 d^2\right) x^3+\frac{7}{4} c^4 d \left(b^2 c^2+6 a b c d+5 a^2 d^2\right) x^4+\frac{7}{5} c^3 d^2 \left(3 b^2 c^2+10 a b c d+5 a^2 d^2\right) x^5+$$
$$\frac{7}{6} c^2 d^3 \left(5 b^2 c^2+10 a b c d+3 a^2 d^2\right) x^6+c d^4 \left(5 b^2 c^2+6 a b c d+a^2 d^2\right) x^7+\frac{1}{8} d^5 \left(21 b^2 c^2+14 a b c d+a^2 d^2\right) x^8+\frac{1}{9} b d^6 (7 b c+2 a d) x^9+\frac{1}{10} b^2 d^7 x^{10}$$

Problem 1281: Result more than twice size of optimal antiderivative.

$$\int (a+b x) (c+d x)^7 \, dx$$

Optimal (type 1, 38 leaves, 2 steps):

$$-\frac{(b c-a d) (c+d x)^8}{8 d^2}+\frac{b (c+d x)^9}{9 d^2}$$

Result (type 1, 151 leaves):

$$a c^7 x+\frac{1}{2} c^6 (b c+7 a d) x^2+\frac{7}{3} c^5 d (b c+3 a d) x^3+\frac{7}{4} c^4 d^2 (3 b c+5 a d) x^4+$$
$$7 c^3 d^3 (b c+a d) x^5+\frac{7}{6} c^2 d^4 (5 b c+3 a d) x^6+c d^5 (3 b c+a d) x^7+\frac{1}{8} d^6 (7 b c+a d) x^8+\frac{1}{9} b d^7 x^9$$

Problem 1284: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^7}{(a+b x)^2} \, dx$$

Optimal (type 3, 187 leaves, 2 steps):

$$\frac{21 d^2 (b c-a d)^5 x}{b^7}-\frac{(b c-a d)^7}{b^8 (a+b x)}+\frac{35 d^3 (b c-a d)^4 (a+b x)^2}{2 b^8}+\frac{35 d^4 (b c-a d)^3 (a+b x)^3}{3 b^8}+$$
$$\frac{21 d^5 (b c-a d)^2 (a+b x)^4}{4 b^8}+\frac{7 d^6 (b c-a d) (a+b x)^5}{5 b^8}+\frac{d^7 (a+b x)^6}{6 b^8}+\frac{7 d (b c-a d)^6 \text{Log}[a+b x]}{b^8}$$

Result (type 3, 388 leaves):

$$\frac{1}{60 b^8 (a+b x)}\Big(60 a^7 d^7-60 a^6 b d^6 (7 c+6 d x)+210 a^5 b^2 d^5 \left(6 c^2+10 c d x-d^2 x^2\right)+70 a^4 b^3 d^4 \left(-30 c^3-72 c^2 d x+18 c d^2 x^2+d^3 x^3\right)-35 a^3 b^4 d^3 \left(-60 c^4-180 c^3 d x+90 c^2 d^2 x^2+12 c d^3 x^3+d^4 x^4\right)+21 a^2 b^5 d^2 \left(-60 c^5-200 c^4 d x+200 c^3 d^2 x^2+50 c^2 d^3 x^3+10 c d^4 x^4+d^5 x^5\right)-7 a b^6 d \left(-60 c^6-180 c^5 d x+450 c^4 d^2 x^2+200 c^3 d^3 x^3+75 c^2 d^4 x^4+18 c d^5 x^5+2 d^6 x^6\right)+b^7 \left(-60 c^7+1260 c^5 d^2 x^2+1050 c^4 d^3 x^3+700 c^3 d^4 x^4+315 c^2 d^5 x^5+84 c d^6 x^6+10 d^7 x^7\right)+420 d (b c-a d)^6 (a+b x) \text{Log}[a+b x]\Big)$$

Problem 1285: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^7}{(a+b x)^3} \, dx$$

Optimal (type 3, 185 leaves, 2 steps):

$$\frac{35 d^3 (b c-a d)^4 x}{b^7}-\frac{(b c-a d)^7}{2 b^8 (a+b x)^2}-\frac{7 d (b c-a d)^6}{b^8 (a+b x)}+\frac{35 d^4 (b c-a d)^3 (a+b x)^2}{2 b^8}+\frac{7 d^5 (b c-a d)^2 (a+b x)^3}{b^8}+\frac{7 d^6 (b c-a d) (a+b x)^4}{4 b^8}+\frac{d^7 (a+b x)^5}{5 b^8}+\frac{21 d^2 (b c-a d)^5 \text{Log}[a+b x]}{b^8}$$

Result (type 3, 389 leaves):

$$\frac{1}{20 b^8 (a+b x)^2}\Big(-130 a^7 d^7+10 a^6 b d^6 (77 c+16 d x)+10 a^5 b^2 d^5 \left(-189 c^2-56 c d x+50 d^2 x^2\right)+70 a^4 b^3 d^4 \left(35 c^3+6 c^2 d x-34 c d^2 x^2+2 d^3 x^3\right)-35 a^3 b^4 d^3 \left(50 c^4-20 c^3 d x-126 c^2 d^2 x^2+20 c d^3 x^3+d^4 x^4\right)+7 a^2 b^5 d^2 \left(90 c^5-200 c^4 d x-550 c^3 d^2 x^2+200 c^2 d^3 x^3+25 c d^4 x^4+2 d^5 x^5\right)-7 a b^6 d \left(10 c^6-120 c^5 d x-200 c^4 d^2 x^2+200 c^3 d^3 x^3+50 c^2 d^4 x^4+10 c d^5 x^5+d^6 x^6\right)+b^7 \left(-10 c^7-140 c^6 d x+700 c^4 d^3 x^3+350 c^3 d^4 x^4+140 c^2 d^5 x^5+35 c d^6 x^6+4 d^7 x^7\right)-420 d^2 (-b c+a d)^5 (a+b x)^2 \text{Log}[a+b x]\Big)$$

Problem 1288: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^7}{(a+b x)^6} \, dx$$

Optimal (type 3, 181 leaves, 2 steps):

$$\frac{d^6 (7 b c-6 a d) x}{b^7}+\frac{d^7 x^2}{2 b^6}-\frac{(b c-a d)^7}{5 b^8 (a+b x)^5}-\frac{7 d (b c-a d)^6}{4 b^8 (a+b x)^4}-\frac{7 d^2 (b c-a d)^5}{b^8 (a+b x)^3}-\frac{35 d^3 (b c-a d)^4}{2 b^8 (a+b x)^2}-\frac{35 d^4 (b c-a d)^3}{b^8 (a+b x)}+\frac{21 d^5 (b c-a d)^2 \text{Log}[a+b x]}{b^8}$$

Result (type 3, 389 leaves):

$$\frac{1}{20 b^8 (a+b x)^5}\left(459 a^7 d^7+3 a^6 b d^6 (-406 c+625 d x)+a^5 b^2 d^5 \left(959 c^2-5250 c d x+2700 d^2 x^2\right)+5 a^4 b^3 d^4 \left(-28 c^3+875 c^2 d x-1680 c d^2 x^2+260 d^3 x^3\right)-5 a^3 b^4 d^3 \left(7 c^4+140 c^3 d x-1540 c^2 d^2 x^2+1120 c d^3 x^3+80 d^4 x^4\right)-a^2 b^5 d^2 \left(14 c^5+175 c^4 d x+1400 c^3 d^2 x^2-6300 c^2 d^3 x^3+700 c d^4 x^4+500 d^5 x^5\right)-7 a b^6 d \left(c^6+10 c^5 d x+50 c^4 d^2 x^2+200 c^3 d^3 x^3-300 c^2 d^4 x^4-100 c d^5 x^5+10 d^6 x^6\right)-b^7 \left(4 c^7+35 c^6 d x+140 c^5 d^2 x^2+350 c^4 d^3 x^3+700 c^3 d^4 x^4-140 c d^6 x^6-10 d^7 x^7\right)+420 d^5 (b c-a d)^2 (a+b x)^5 \text{Log}[a+b x]\right)$$

Problem 1289: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^7}{(a+b x)^7} \, dx$$

Optimal (type 3, 186 leaves, 2 steps):

$$\frac{d^7 x}{b^7}-\frac{(b c-a d)^7}{6 b^8 (a+b x)^6}-\frac{7 d (b c-a d)^6}{5 b^8 (a+b x)^5}-\frac{21 d^2 (b c-a d)^5}{4 b^8 (a+b x)^4}-\frac{35 d^3 (b c-a d)^4}{3 b^8 (a+b x)^3}-\frac{35 d^4 (b c-a d)^3}{2 b^8 (a+b x)^2}-\frac{21 d^5 (b c-a d)^2}{b^8 (a+b x)}+\frac{7 d^6 (b c-a d) \text{Log}[a+b x]}{b^8}$$

Result (type 3, 390 leaves):

$$-\frac{1}{60 b^8 (a+b x)^6}\left(669 a^7 d^7+3 a^6 b d^6 (-343 c+1198 d x)+3 a^5 b^2 d^5 \left(70 c^2-1918 c d x+2575 d^2 x^2\right)+5 a^4 b^3 d^4 \left(14 c^3+252 c^2 d x-2625 c d^2 x^2+1640 d^3 x^3\right)+5 a^3 b^4 d^3 \left(7 c^4+84 c^3 d x+630 c^2 d^2 x^2-3080 c d^3 x^3+810 d^4 x^4\right)+3 a^2 b^5 d^2 \left(7 c^5+70 c^4 d x+350 c^3 d^2 x^2+1400 c^2 d^3 x^3-3150 c d^4 x^4+120 d^5 x^5\right)+a b^6 d \left(14 c^6+126 c^5 d x+525 c^4 d^2 x^2+1400 c^3 d^3 x^3+3150 c^2 d^4 x^4-2520 c d^5 x^5-360 d^6 x^6\right)+b^7 \left(10 c^7+84 c^6 d x+315 c^5 d^2 x^2+700 c^4 d^3 x^3+1050 c^3 d^4 x^4+1260 c^2 d^5 x^5-60 d^7 x^7\right)+420 d^6 (-b c+a d) (a+b x)^6 \text{Log}[a+b x]\right)$$

Problem 1291: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^7}{(a+b x)^9} \, dx$$

Optimal (type 1, 28 leaves, 1 step):

$$-\frac{(c+d x)^8}{8 (b c-a d) (a+b x)^8}$$

Result (type 1, 353 leaves):

$$-\frac{1}{8 b^8 (a+b x)^8}\left(a^7 d^7+a^6 b d^6 (c+8 d x)+a^5 b^2 d^5 \left(c^2+8 c d x+28 d^2 x^2\right)+a^4 b^3 d^4 \left(c^3+8 c^2 d x+28 c d^2 x^2+56 d^3 x^3\right)+a^3 b^4 d^3 \left(c^4+8 c^3 d x+28 c^2 d^2 x^2+56 c d^3 x^3+70 d^4 x^4\right)+a^2 b^5 d^2 \left(c^5+8 c^4 d x+28 c^3 d^2 x^2+56 c^2 d^3 x^3+70 c d^4 x^4+56 d^5 x^5\right)+a b^6 d \left(c^6+8 c^5 d x+28 c^4 d^2 x^2+56 c^3 d^3 x^3+70 c^2 d^4 x^4+56 c d^5 x^5+28 d^6 x^6\right)+b^7 \left(c^7+8 c^6 d x+28 c^5 d^2 x^2+56 c^4 d^3 x^3+70 c^3 d^4 x^4+56 c^2 d^5 x^5+28 c d^6 x^6+8 d^7 x^7\right)\right)$$

Problem 1292: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^7}{(a+b x)^{10}} \, dx$$

Optimal (type 1, 58 leaves, 2 steps):

$$-\frac{(c+d x)^8}{9 (b c-a d) (a+b x)^9}+\frac{d (c+d x)^8}{72 (b c-a d)^2 (a+b x)^8}$$

Result (type 1, 367 leaves):

$$-\frac{1}{72 b^8 (a+b x)^9}\left(a^7 d^7+a^6 b d^6 (2 c+9 d x)+3 a^5 b^2 d^5 \left(c^2+6 c d x+12 d^2 x^2\right)+a^4 b^3 d^4 \left(4 c^3+27 c^2 d x+72 c d^2 x^2+84 d^3 x^3\right)+a^3 b^4 d^3 \left(5 c^4+36 c^3 d x+108 c^2 d^2 x^2+168 c d^3 x^3+126 d^4 x^4\right)+3 a^2 b^5 d^2 \left(2 c^5+15 c^4 d x+48 c^3 d^2 x^2+84 c^2 d^3 x^3+84 c d^4 x^4+42 d^5 x^5\right)+a b^6 d \left(7 c^6+54 c^5 d x+180 c^4 d^2 x^2+336 c^3 d^3 x^3+378 c^2 d^4 x^4+252 c d^5 x^5+84 d^6 x^6\right)+b^7 \left(8 c^7+63 c^6 d x+216 c^5 d^2 x^2+420 c^4 d^3 x^3+504 c^3 d^4 x^4+378 c^2 d^5 x^5+168 c d^6 x^6+36 d^7 x^7\right)\right)$$

Problem 1293: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^7}{(a+b x)^{11}} \, dx$$

Optimal (type 1, 89 leaves, 3 steps):

$$-\frac{(c+d x)^8}{10 (b c-a d) (a+b x)^{10}}+\frac{d (c+d x)^8}{45 (b c-a d)^2 (a+b x)^9}-\frac{d^2 (c+d x)^8}{360 (b c-a d)^3 (a+b x)^8}$$

Result (type 1, 371 leaves):

$$-\frac{1}{360 b^8 (a+b x)^{10}}\left(a^7 d^7+a^6 b d^6 (3 c+10 d x)+3 a^5 b^2 d^5 \left(2 c^2+10 c d x+15 d^2 x^2\right)+5 a^4 b^3 d^4 \left(2 c^3+12 c^2 d x+27 c d^2 x^2+24 d^3 x^3\right)+5 a^3 b^4 d^3 \left(3 c^4+20 c^3 d x+54 c^2 d^2 x^2+72 c d^3 x^3+42 d^4 x^4\right)+3 a^2 b^5 d^2 \left(7 c^5+50 c^4 d x+150 c^3 d^2 x^2+240 c^2 d^3 x^3+210 c d^4 x^4+84 d^5 x^5\right)+a b^6 d \left(28 c^6+210 c^5 d x+675 c^4 d^2 x^2+1200 c^3 d^3 x^3+1260 c^2 d^4 x^4+756 c d^5 x^5+210 d^6 x^6\right)+b^7 \left(36 c^7+280 c^6 d x+945 c^5 d^2 x^2+1800 c^4 d^3 x^3+2100 c^3 d^4 x^4+1512 c^2 d^5 x^5+630 c d^6 x^6+120 d^7 x^7\right)\right)$$

Problem 1294: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^7}{(a+b x)^{12}} \, dx$$

Optimal (type 1, 120 leaves, 4 steps):

$$-\frac{(c+d x)^8}{11 (b c-a d) (a+b x)^{11}}+\frac{3 d (c+d x)^8}{110 (b c-a d)^2 (a+b x)^{10}}-\frac{d^2 (c+d x)^8}{165 (b c-a d)^3 (a+b x)^9}+\frac{d^3 (c+d x)^8}{1320 (b c-a d)^4 (a+b x)^8}$$

Result (type 1, 369 leaves):

$$-\frac{1}{1320 b^8 (a+b x)^{11}} \left(a^7 d^7+a^6 b d^6 (4 c+11 d x)+a^5 b^2 d^5 \left(10 c^2+44 c d x+55 d^2 x^2\right)+5 a^4 b^3 d^4 \left(4 c^3+22 c^2 d x+44 c d^2 x^2+33 d^3 x^3\right)+\right.$$
$$5 a^3 b^4 d^3 \left(7 c^4+44 c^3 d x+110 c^2 d^2 x^2+132 c d^3 x^3+66 d^4 x^4\right)+a^2 b^5 d^2 \left(56 c^5+385 c^4 d x+1100 c^3 d^2 x^2+1650 c^2 d^3 x^3+1320 c d^4 x^4+462 d^5 x^5\right)+$$
$$a b^6 d \left(84 c^6+616 c^5 d x+1925 c^4 d^2 x^2+3300 c^3 d^3 x^3+3300 c^2 d^4 x^4+1848 c d^5 x^5+462 d^6 x^6\right)+$$
$$\left.b^7 \left(120 c^7+924 c^6 d x+3080 c^5 d^2 x^2+5775 c^4 d^3 x^3+6600 c^3 d^4 x^4+4620 c^2 d^5 x^5+1848 c d^6 x^6+330 d^7 x^7\right)\right)$$

Problem 1295: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^7}{(a+b x)^{13}} \, dx$$

Optimal (type 1, 151 leaves, 5 steps):

$$-\frac{(c+d x)^8}{12 (b c-a d) (a+b x)^{12}}+\frac{d (c+d x)^8}{33 (b c-a d)^2 (a+b x)^{11}}-\frac{d^2 (c+d x)^8}{110 (b c-a d)^3 (a+b x)^{10}}+\frac{d^3 (c+d x)^8}{495 (b c-a d)^4 (a+b x)^9}-\frac{d^4 (c+d x)^8}{3960 (b c-a d)^5 (a+b x)^8}$$

Result (type 1, 371 leaves):

$$-\frac{1}{3960 b^8 (a+b x)^{12}} \left(a^7 d^7+a^6 b d^6 (5 c+12 d x)+3 a^5 b^2 d^5 \left(5 c^2+20 c d x+22 d^2 x^2\right)+5 a^4 b^3 d^4 \left(7 c^3+36 c^2 d x+66 c d^2 x^2+44 d^3 x^3\right)+\right.$$
$$5 a^3 b^4 d^3 \left(14 c^4+84 c^3 d x+198 c^2 d^2 x^2+220 c d^3 x^3+99 d^4 x^4\right)+3 a^2 b^5 d^2 \left(42 c^5+280 c^4 d x+770 c^3 d^2 x^2+1100 c^2 d^3 x^3+825 c d^4 x^4+264 d^5 x^5\right)+$$
$$a b^6 d \left(210 c^6+1512 c^5 d x+4620 c^4 d^2 x^2+7700 c^3 d^3 x^3+7425 c^2 d^4 x^4+3960 c d^5 x^5+924 d^6 x^6\right)+$$
$$\left.b^7 \left(330 c^7+2520 c^6 d x+8316 c^5 d^2 x^2+15400 c^4 d^3 x^3+17325 c^3 d^4 x^4+11880 c^2 d^5 x^5+4620 c d^6 x^6+792 d^7 x^7\right)\right)$$

Problem 1299: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^{12} (c+d x)^{10} \, dx$$

Optimal (type 1, 275 leaves, 2 steps):

$$\frac{(b c-a d)^{10} (a+b x)^{13}}{13 b^{11}}+\frac{5 d (b c-a d)^9 (a+b x)^{14}}{7 b^{11}}+\frac{3 d^2 (b c-a d)^8 (a+b x)^{15}}{b^{11}}+\frac{15 d^3 (b c-a d)^7 (a+b x)^{16}}{2 b^{11}}+\frac{210 d^4 (b c-a d)^6 (a+b x)^{17}}{17 b^{11}}+\frac{14 d^5 (b c-a d)^5 (a+b x)^{18}}{b^{11}}+\frac{210 d^6 (b c-a d)^4 (a+b x)^{19}}{19 b^{11}}+\frac{6 d^7 (b c-a d)^3 (a+b x)^{20}}{b^{11}}+\frac{15 d^8 (b c-a d)^2 (a+b x)^{21}}{7 b^{11}}+\frac{5 d^9 (b c-a d) (a+b x)^{22}}{11 b^{11}}+\frac{d^{10} (a+b x)^{23}}{23 b^{11}}$$

Result (type 1, 1817 leaves):

$$a^{12} c^{10} x+a^{11} c^9 (6 b c+5 a d) x^2+a^{10} c^8 (22 b^2 c^2+40 a b c d+15 a^2 d^2) x^3+$$
$$5 a^9 c^7 (11 b^3 c^3+33 a b^2 c^2 d+27 a^2 b c d^2+6 a^3 d^3) x^4+a^8 c^6 (99 b^4 c^4+440 a b^3 c^3 d+594 a^2 b^2 c^2 d^2+288 a^3 b c d^3+42 a^4 d^4) x^5+$$
$$3 a^7 c^5 (44 b^5 c^5+275 a b^4 c^4 d+550 a^2 b^3 c^3 d^2+440 a^3 b^2 c^2 d^3+140 a^4 b c d^4+14 a^5 d^5) x^6+$$
$$\frac{3}{7} a^6 c^4 (308 b^6 c^6+2640 a b^5 c^5 d+7425 a^2 b^4 c^4 d^2+8800 a^3 b^3 c^3 d^3+4620 a^4 b^2 c^2 d^4+1008 a^5 b c d^5+70 a^6 d^6) x^7+$$
$$3 a^5 c^3 (33 b^7 c^7+385 a b^6 c^6 d+1485 a^2 b^5 c^5 d^2+2475 a^3 b^4 c^4 d^3+1925 a^4 b^3 c^3 d^4+693 a^5 b^2 c^2 d^5+105 a^6 b c d^6+5 a^7 d^7) x^8+$$
$$5 a^4 c^2 (11 b^8 c^8+176 a b^7 c^7 d+924 a^2 b^6 c^6 d^2+2112 a^3 b^5 c^5 d^3+2310 a^4 b^4 c^4 d^4+1232 a^5 b^3 c^3 d^5+308 a^6 b^2 c^2 d^6+32 a^7 b c d^7+a^8 d^8) x^9+a^3 c$$
$$(22 b^9 c^9+495 a b^8 c^8 d+3564 a^2 b^7 c^7 d^2+11088 a^3 b^6 c^6 d^3+16632 a^4 b^5 c^5 d^4+12474 a^5 b^4 c^4 d^5+4620 a^6 b^3 c^3 d^6+792 a^7 b^2 c^2 d^7+54 a^8 b c d^8+a^9 d^9)$$
$$x^{10}+\frac{1}{11} a^2 (66 b^{10} c^{10}+2200 a b^9 c^9 d+22275 a^2 b^8 c^8 d^2+95040 a^3 b^7 c^7 d^3+194040 a^4 b^6 c^6 d^4+$$
$$199584 a^5 b^5 c^5 d^5+103950 a^6 b^4 c^4 d^6+26400 a^7 b^3 c^3 d^7+2970 a^8 b^2 c^2 d^8+120 a^9 b c d^9+a^{10} d^{10}) x^{11}+$$
$$a b (b^{10} c^{10}+55 a b^9 c^9 d+825 a^2 b^8 c^8 d^2+4950 a^3 b^7 c^7 d^3+13860 a^4 b^6 c^6 d^4+19404 a^5 b^5 c^5 d^5+13860 a^6 b^4 c^4 d^6+4950 a^7 b^3 c^3 d^7+$$
$$825 a^8 b^2 c^2 d^8+55 a^9 b c d^9+a^{10} d^{10}) x^{12}+\frac{1}{13} b^2 (b^{10} c^{10}+120 a b^9 c^9 d+2970 a^2 b^8 c^8 d^2+26400 a^3 b^7 c^7 d^3+103950 a^4 b^6 c^6 d^4+$$
$$199584 a^5 b^5 c^5 d^5+194040 a^6 b^4 c^4 d^6+95040 a^7 b^3 c^3 d^7+22275 a^8 b^2 c^2 d^8+2200 a^9 b c d^9+66 a^{10} d^{10}) x^{13}+\frac{5}{7} b^3 d$$
$$(b^9 c^9+54 a b^8 c^8 d+792 a^2 b^7 c^7 d^2+4620 a^3 b^6 c^6 d^3+12474 a^4 b^5 c^5 d^4+16632 a^5 b^4 c^4 d^5+11088 a^6 b^3 c^3 d^6+3564 a^7 b^2 c^2 d^7+495 a^8 b c d^8+22 a^9 d^9)$$
$$x^{14}+3 b^4 d^2 (b^8 c^8+32 a b^7 c^7 d+308 a^2 b^6 c^6 d^2+1232 a^3 b^5 c^5 d^3+2310 a^4 b^4 c^4 d^4+2112 a^5 b^3 c^3 d^5+924 a^6 b^2 c^2 d^6+176 a^7 b c d^7+11 a^8 d^8) x^{15}+$$
$$\frac{3}{2} b^5 d^3 (5 b^7 c^7+105 a b^6 c^6 d+693 a^2 b^5 c^5 d^2+1925 a^3 b^4 c^4 d^3+2475 a^4 b^3 c^3 d^4+1485 a^5 b^2 c^2 d^5+385 a^6 b c d^6+33 a^7 d^7) x^{16}+$$
$$\frac{3}{17} b^6 d^4 (70 b^6 c^6+1008 a b^5 c^5 d+4620 a^2 b^4 c^4 d^2+8800 a^3 b^3 c^3 d^3+7425 a^4 b^2 c^2 d^4+2640 a^5 b c d^5+308 a^6 d^6) x^{17}+$$
$$b^7 d^5 (14 b^5 c^5+140 a b^4 c^4 d+440 a^2 b^3 c^3 d^2+550 a^3 b^2 c^2 d^3+275 a^4 b c d^4+44 a^5 d^5) x^{18}+$$
$$\frac{5}{19} b^8 d^6 (42 b^4 c^4+288 a b^3 c^3 d+594 a^2 b^2 c^2 d^2+440 a^3 b c d^3+99 a^4 d^4) x^{19}+b^9 d^7 (6 b^3 c^3+27 a b^2 c^2 d+33 a^2 b c d^2+11 a^3 d^3) x^{20}+$$
$$\frac{1}{7} b^{10} d^8 (15 b^2 c^2+40 a b c d+22 a^2 d^2) x^{21}+\frac{1}{11} b^{11} d^9 (5 b c+6 a d) x^{22}+\frac{1}{23} b^{12} d^{10} x^{23}$$

Problem 1300: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^{11} (c+d x)^{10} \, dx$$

Optimal (type 1, 279 leaves, 2 steps):

$$\frac{(b c-a d)^{10} (a+b x)^{12}}{12 b^{11}}+\frac{10 d (b c-a d)^9 (a+b x)^{13}}{13 b^{11}}+\frac{45 d^2 (b c-a d)^8 (a+b x)^{14}}{14 b^{11}}+\frac{8 d^3 (b c-a d)^7 (a+b x)^{15}}{b^{11}}+\frac{105 d^4 (b c-a d)^6 (a+b x)^{16}}{8 b^{11}}+\frac{252 d^5 (b c-a d)^5 (a+b x)^{17}}{17 b^{11}}+\frac{35 d^6 (b c-a d)^4 (a+b x)^{18}}{3 b^{11}}+\frac{120 d^7 (b c-a d)^3 (a+b x)^{19}}{19 b^{11}}+\frac{9 d^8 (b c-a d)^2 (a+b x)^{20}}{4 b^{11}}+\frac{10 d^9 (b c-a d) (a+b x)^{21}}{21 b^{11}}+\frac{d^{10} (a+b x)^{22}}{22 b^{11}}$$

Result (type 1, 1702 leaves):

$$a^{11} c^{10} x + \frac{1}{2} a^{10} c^9 \left(11 b c + 10 a d\right) x^2 + \frac{5}{3} a^9 c^8 \left(11 b^2 c^2 + 22 a b c d + 9 a^2 d^2\right) x^3 +$$
$$\frac{5}{4} a^8 c^7 \left(33 b^3 c^3 + 110 a b^2 c^2 d + 99 a^2 b c d^2 + 24 a^3 d^3\right) x^4 + 3 a^7 c^6 \left(22 b^4 c^4 + 110 a b^3 c^3 d + 165 a^2 b^2 c^2 d^2 + 88 a^3 b c d^3 + 14 a^4 d^4\right) x^5 +$$
$$\frac{1}{2} a^6 c^5 \left(154 b^5 c^5 + 1100 a b^4 c^4 d + 2475 a^2 b^3 c^3 d^2 + 2200 a^3 b^2 c^2 d^3 + 770 a^4 b c d^4 + 84 a^5 d^5\right) x^6 +$$
$$\frac{6}{7} a^5 c^4 \left(77 b^6 c^6 + 770 a b^5 c^5 d + 2475 a^2 b^4 c^4 d^2 + 3300 a^3 b^3 c^3 d^3 + 1925 a^4 b^2 c^2 d^4 + 462 a^5 b c d^5 + 35 a^6 d^6\right) x^7 +$$
$$\frac{15}{4} a^4 c^3 \left(11 b^7 c^7 + 154 a b^6 c^6 d + 693 a^2 b^5 c^5 d^2 + 1320 a^3 b^4 c^4 d^3 + 1155 a^4 b^3 c^3 d^4 + 462 a^5 b^2 c^2 d^5 + 77 a^6 b c d^6 + 4 a^7 d^7\right) x^8 +$$
$$\frac{5}{3} a^3 c^2 \left(11 b^8 c^8 + 220 a b^7 c^7 d + 1386 a^2 b^6 c^6 d^2 + 3696 a^3 b^5 c^5 d^3 + 4620 a^4 b^4 c^4 d^4 + 2772 a^5 b^3 c^3 d^5 + 770 a^6 b^2 c^2 d^6 + 88 a^7 b c d^7 + 3 a^8 d^8\right) x^9 +$$
$$\frac{1}{2} a^2 c \left(11 b^9 c^9 + 330 a b^8 c^8 d + 2970 a^2 b^7 c^7 d^2 + 11\,088 a^3 b^6 c^6 d^3 + 19\,404 a^4 b^5 c^5 d^4 + 16\,632 a^5 b^4 c^4 d^5 + 6930 a^6 b^3 c^3 d^6 +\right.$$
$$\left.1320 a^7 b^2 c^2 d^7 + 99 a^8 b c d^8 + 2 a^9 d^9\right) x^{10} + \frac{1}{11} a \left(11 b^{10} c^{10} + 550 a b^9 c^9 d + 7425 a^2 b^8 c^8 d^2 + 39\,600 a^3 b^7 c^7 d^3 +\right.$$
$$\left.97\,020 a^4 b^6 c^6 d^4 + 116\,424 a^5 b^5 c^5 d^5 + 69\,300 a^6 b^4 c^4 d^6 + 19\,800 a^7 b^3 c^3 d^7 + 2475 a^8 b^2 c^2 d^8 + 110 a^9 b c d^9 + a^{10} d^{10}\right) x^{11} +$$
$$\frac{1}{12} b \left(b^{10} c^{10} + 110 a b^9 c^9 d + 2475 a^2 b^8 c^8 d^2 + 19\,800 a^3 b^7 c^7 d^3 + 69\,300 a^4 b^6 c^6 d^4 + 116\,424 a^5 b^5 c^5 d^5 + 97\,020 a^6 b^4 c^4 d^6 +\right.$$
$$\left.39\,600 a^7 b^3 c^3 d^7 + 7425 a^8 b^2 c^2 d^8 + 550 a^9 b c d^9 + 11 a^{10} d^{10}\right) x^{12} + \frac{5}{13} b^2 d \left(2 b^9 c^9 + 99 a b^8 c^8 d + 1320 a^2 b^7 c^7 d^2 +\right.$$
$$\left.6930 a^3 b^6 c^6 d^3 + 16\,632 a^4 b^5 c^5 d^4 + 19\,404 a^5 b^4 c^4 d^5 + 11\,088 a^6 b^3 c^3 d^6 + 2970 a^7 b^2 c^2 d^7 + 330 a^8 b c d^8 + 11 a^9 d^9\right) x^{13} +$$
$$\frac{15}{14} b^3 d^2 \left(3 b^8 c^8 + 88 a b^7 c^7 d + 770 a^2 b^6 c^6 d^2 + 2772 a^3 b^5 c^5 d^3 + 4620 a^4 b^4 c^4 d^4 + 3696 a^5 b^3 c^3 d^5 + 1386 a^6 b^2 c^2 d^6 + 220 a^7 b c d^7 + 11 a^8 d^8\right) x^{14} +$$
$$2 b^4 d^3 \left(4 b^7 c^7 + 77 a b^6 c^6 d + 462 a^2 b^5 c^5 d^2 + 1155 a^3 b^4 c^4 d^3 + 1320 a^4 b^3 c^3 d^4 + 693 a^5 b^2 c^2 d^5 + 154 a^6 b c d^6 + 11 a^7 d^7\right) x^{15} +$$
$$\frac{3}{8} b^5 d^4 \left(35 b^6 c^6 + 462 a b^5 c^5 d + 1925 a^2 b^4 c^4 d^2 + 3300 a^3 b^3 c^3 d^3 + 2475 a^4 b^2 c^2 d^4 + 770 a^5 b c d^5 + 77 a^6 d^6\right) x^{16} +$$
$$\frac{3}{17} b^6 d^5 \left(84 b^5 c^5 + 770 a b^4 c^4 d + 2200 a^2 b^3 c^3 d^2 + 2475 a^3 b^2 c^2 d^3 + 1100 a^4 b c d^4 + 154 a^5 d^5\right) x^{17} +$$
$$\frac{5}{6} b^7 d^6 \left(14 b^4 c^4 + 88 a b^3 c^3 d + 165 a^2 b^2 c^2 d^2 + 110 a^3 b c d^3 + 22 a^4 d^4\right) x^{18} + \frac{5}{19} b^8 d^7 \left(24 b^3 c^3 + 99 a b^2 c^2 d + 110 a^2 b c d^2 + 33 a^3 d^3\right) x^{19} +$$
$$\frac{1}{4} b^9 d^8 \left(9 b^2 c^2 + 22 a b c d + 11 a^2 d^2\right) x^{20} + \frac{1}{21} b^{10} d^9 \left(10 b c + 11 a d\right) x^{21} + \frac{1}{22} b^{11} d^{10} x^{22}$$

Problem 1301: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^{10} (c + d x)^{10} \, dx$$

Optimal (type 1, 279 leaves, 2 steps):

$$\frac{(b c-a d)^{10} (a+b x)^{11}}{11 b^{11}}+\frac{5 d (b c-a d)^9 (a+b x)^{12}}{6 b^{11}}+\frac{45 d^2 (b c-a d)^8 (a+b x)^{13}}{13 b^{11}}+\frac{60 d^3 (b c-a d)^7 (a+b x)^{14}}{7 b^{11}}+\frac{14 d^4 (b c-a d)^6 (a+b x)^{15}}{b^{11}}+\frac{63 d^5 (b c-a d)^5 (a+b x)^{16}}{4 b^{11}}+\frac{210 d^6 (b c-a d)^4 (a+b x)^{17}}{17 b^{11}}+\frac{20 d^7 (b c-a d)^3 (a+b x)^{18}}{3 b^{11}}+\frac{45 d^8 (b c-a d)^2 (a+b x)^{19}}{19 b^{11}}+\frac{d^9 (b c-a d) (a+b x)^{20}}{2 b^{11}}+\frac{d^{10} (a+b x)^{21}}{21 b^{11}}$$

Result (type 1, 1539 leaves):

$$a^{10} c^{10} x+5 a^9 c^9 (b c+a d) x^2+\frac{5}{3} a^8 c^8 (9 b^2 c^2+20 a b c d+9 a^2 d^2) x^3+$$
$$\frac{15}{2} a^7 c^7 (4 b^3 c^3+15 a b^2 c^2 d+15 a^2 b c d^2+4 a^3 d^3) x^4+3 a^6 c^6 (14 b^4 c^4+80 a b^3 c^3 d+135 a^2 b^2 c^2 d^2+80 a^3 b c d^3+14 a^4 d^4) x^5+$$
$$2 a^5 c^5 (21 b^5 c^5+175 a b^4 c^4 d+450 a^2 b^3 c^3 d^2+450 a^3 b^2 c^2 d^3+175 a^4 b c d^4+21 a^5 d^5) x^6+$$
$$\frac{30}{7} a^4 c^4 (7 b^6 c^6+84 a b^5 c^5 d+315 a^2 b^4 c^4 d^2+480 a^3 b^3 c^3 d^3+315 a^4 b^2 c^2 d^4+84 a^5 b c d^5+7 a^6 d^6) x^7+$$
$$\frac{15}{2} a^3 c^3 (2 b^7 c^7+35 a b^6 c^6 d+189 a^2 b^5 c^5 d^2+420 a^3 b^4 c^4 d^3+420 a^4 b^3 c^3 d^4+189 a^5 b^2 c^2 d^5+35 a^6 b c d^6+2 a^7 d^7) x^8+$$
$$\frac{5}{3} a^2 c^2 (3 b^8 c^8+80 a b^7 c^7 d+630 a^2 b^6 c^6 d^2+2016 a^3 b^5 c^5 d^3+2940 a^4 b^4 c^4 d^4+2016 a^5 b^3 c^3 d^5+630 a^6 b^2 c^2 d^6+80 a^7 b c d^7+3 a^8 d^8) x^9+$$
$$a c (b^9 c^9+45 a b^8 c^8 d+540 a^2 b^7 c^7 d^2+2520 a^3 b^6 c^6 d^3+5292 a^4 b^5 c^5 d^4+5292 a^5 b^4 c^4 d^5+2520 a^6 b^3 c^3 d^6+540 a^7 b^2 c^2 d^7+45 a^8 b c d^8+a^9 d^9) x^{10}+$$
$$\frac{1}{11} (b^{10} c^{10}+100 a b^9 c^9 d+2025 a^2 b^8 c^8 d^2+14400 a^3 b^7 c^7 d^3+44100 a^4 b^6 c^6 d^4+$$
$$63504 a^5 b^5 c^5 d^5+44100 a^6 b^4 c^4 d^6+14400 a^7 b^3 c^3 d^7+2025 a^8 b^2 c^2 d^8+100 a^9 b c d^9+a^{10} d^{10}) x^{11}+$$
$$\frac{5}{6} b d (b^9 c^9+45 a b^8 c^8 d+540 a^2 b^7 c^7 d^2+2520 a^3 b^6 c^6 d^3+5292 a^4 b^5 c^5 d^4+5292 a^5 b^4 c^4 d^5+2520 a^6 b^3 c^3 d^6+540 a^7 b^2 c^2 d^7+45 a^8 b c d^8+a^9 d^9) x^{12}+$$
$$\frac{15}{13} b^2 d^2 (3 b^8 c^8+80 a b^7 c^7 d+630 a^2 b^6 c^6 d^2+2016 a^3 b^5 c^5 d^3+2940 a^4 b^4 c^4 d^4+2016 a^5 b^3 c^3 d^5+630 a^6 b^2 c^2 d^6+80 a^7 b c d^7+3 a^8 d^8) x^{13}+$$
$$\frac{30}{7} b^3 d^3 (2 b^7 c^7+35 a b^6 c^6 d+189 a^2 b^5 c^5 d^2+420 a^3 b^4 c^4 d^3+420 a^4 b^3 c^3 d^4+189 a^5 b^2 c^2 d^5+35 a^6 b c d^6+2 a^7 d^7) x^{14}+$$
$$2 b^4 d^4 (7 b^6 c^6+84 a b^5 c^5 d+315 a^2 b^4 c^4 d^2+480 a^3 b^3 c^3 d^3+315 a^4 b^2 c^2 d^4+84 a^5 b c d^5+7 a^6 d^6) x^{15}+$$
$$\frac{3}{4} b^5 d^5 (21 b^5 c^5+175 a b^4 c^4 d+450 a^2 b^3 c^3 d^2+450 a^3 b^2 c^2 d^3+175 a^4 b c d^4+21 a^5 d^5) x^{16}+$$
$$\frac{15}{17} b^6 d^6 (14 b^4 c^4+80 a b^3 c^3 d+135 a^2 b^2 c^2 d^2+80 a^3 b c d^3+14 a^4 d^4) x^{17}+\frac{5}{3} b^7 d^7 (4 b^3 c^3+15 a b^2 c^2 d+15 a^2 b c d^2+4 a^3 d^3) x^{18}+$$
$$\frac{5}{19} b^8 d^8 (9 b^2 c^2+20 a b c d+9 a^2 d^2) x^{19}+\frac{1}{2} b^9 d^9 (b c+a d) x^{20}+\frac{1}{21} b^{10} d^{10} x^{21}$$

Problem 1302: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^9 (c+d x)^{10} \, dx$$

Optimal (type 1, 250 leaves, 2 steps):

$$-\frac{(b c-a d)^9 (c+d x)^{11}}{11 d^{10}}+\frac{3 b (b c-a d)^8 (c+d x)^{12}}{4 d^{10}}-\frac{36 b^2 (b c-a d)^7 (c+d x)^{13}}{13 d^{10}}+\frac{6 b^3 (b c-a d)^6 (c+d x)^{14}}{d^{10}}-\frac{42 b^4 (b c-a d)^5 (c+d x)^{15}}{5 d^{10}}+\frac{63 b^5 (b c-a d)^4 (c+d x)^{16}}{8 d^{10}}-\frac{84 b^6 (b c-a d)^3 (c+d x)^{17}}{17 d^{10}}+\frac{2 b^7 (b c-a d)^2 (c+d x)^{18}}{d^{10}}-\frac{9 b^8 (b c-a d) (c+d x)^{19}}{19 d^{10}}+\frac{b^9 (c+d x)^{20}}{20 d^{10}}$$

Result (type 1, 1397 leaves):

$$a^9 c^{10} x+\frac{1}{2} a^8 c^9 (9 b c+10 a d) x^2+3 a^7 c^8 (4 b^2 c^2+10 a b c d+5 a^2 d^2) x^3+$$
$$\frac{3}{4} a^6 c^7 (28 b^3 c^3+120 a b^2 c^2 d+135 a^2 b c d^2+40 a^3 d^3) x^4+\frac{6}{5} a^5 c^6 (21 b^4 c^4+140 a b^3 c^3 d+270 a^2 b^2 c^2 d^2+180 a^3 b c d^3+35 a^4 d^4) x^5+$$
$$3 a^4 c^5 (7 b^5 c^5+70 a b^4 c^4 d+210 a^2 b^3 c^3 d^2+240 a^3 b^2 c^2 d^3+105 a^4 b c d^4+14 a^5 d^5) x^6+$$
$$6 a^3 c^4 (2 b^6 c^6+30 a b^5 c^5 d+135 a^2 b^4 c^4 d^2+240 a^3 b^3 c^3 d^3+180 a^4 b^2 c^2 d^4+54 a^5 b c d^5+5 a^6 d^6) x^7+$$
$$\frac{3}{4} a^2 c^3 (6 b^7 c^7+140 a b^6 c^6 d+945 a^2 b^5 c^5 d^2+2520 a^3 b^4 c^4 d^3+2940 a^4 b^3 c^3 d^4+1512 a^5 b^2 c^2 d^5+315 a^6 b c d^6+20 a^7 d^7) x^8+$$
$$a c^2 (b^8 c^8+40 a b^7 c^7 d+420 a^2 b^6 c^6 d^2+1680 a^3 b^5 c^5 d^3+2940 a^4 b^4 c^4 d^4+2352 a^5 b^3 c^3 d^5+840 a^6 b^2 c^2 d^6+120 a^7 b c d^7+5 a^8 d^8) x^9+$$
$$\frac{1}{10} c (b^9 c^9+90 a b^8 c^8 d+1620 a^2 b^7 c^7 d^2+10080 a^3 b^6 c^6 d^3+26460 a^4 b^5 c^5 d^4+31752 a^5 b^4 c^4 d^5+$$
$$17640 a^6 b^3 c^3 d^6+4320 a^7 b^2 c^2 d^7+405 a^8 b c d^8+10 a^9 d^9) x^{10}+\frac{1}{11} d (10 b^9 c^9+405 a b^8 c^8 d+4320 a^2 b^7 c^7 d^2+$$
$$17640 a^3 b^6 c^6 d^3+31752 a^4 b^5 c^5 d^4+26460 a^5 b^4 c^4 d^5+10080 a^6 b^3 c^3 d^6+1620 a^7 b^2 c^2 d^7+90 a^8 b c d^8+a^9 d^9) x^{11}+$$
$$\frac{3}{4} b d^2 (5 b^8 c^8+120 a b^7 c^7 d+840 a^2 b^6 c^6 d^2+2352 a^3 b^5 c^5 d^3+2940 a^4 b^4 c^4 d^4+1680 a^5 b^3 c^3 d^5+420 a^6 b^2 c^2 d^6+40 a^7 b c d^7+a^8 d^8) x^{12}+$$
$$\frac{6}{13} b^2 d^3 (20 b^7 c^7+315 a b^6 c^6 d+1512 a^2 b^5 c^5 d^2+2940 a^3 b^4 c^4 d^3+2520 a^4 b^3 c^3 d^4+945 a^5 b^2 c^2 d^5+140 a^6 b c d^6+6 a^7 d^7) x^{13}+$$
$$3 b^3 d^4 (5 b^6 c^6+54 a b^5 c^5 d+180 a^2 b^4 c^4 d^2+240 a^3 b^3 c^3 d^3+135 a^4 b^2 c^2 d^4+30 a^5 b c d^5+2 a^6 d^6) x^{14}+$$
$$\frac{6}{5} b^4 d^5 (14 b^5 c^5+105 a b^4 c^4 d+240 a^2 b^3 c^3 d^2+210 a^3 b^2 c^2 d^3+70 a^4 b c d^4+7 a^5 d^5) x^{15}+$$
$$\frac{3}{8} b^5 d^6 (35 b^4 c^4+180 a b^3 c^3 d+270 a^2 b^2 c^2 d^2+140 a^3 b c d^3+21 a^4 d^4) x^{16}+\frac{3}{17} b^6 d^7 (40 b^3 c^3+135 a b^2 c^2 d+120 a^2 b c d^2+28 a^3 d^3) x^{17}+$$
$$\frac{1}{2} b^7 d^8 (5 b^2 c^2+10 a b c d+4 a^2 d^2) x^{18}+\frac{1}{19} b^8 d^9 (10 b c+9 a d) x^{19}+\frac{1}{20} b^9 d^{10} x^{20}$$

Problem 1303: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^8 (c+d x)^{10} \, dx$$

Optimal (type 1, 225 leaves, 2 steps):

$$\frac{(b c-a d)^8 (c+d x)^{11}}{11 d^9}-\frac{2 b (b c-a d)^7 (c+d x)^{12}}{3 d^9}+\frac{28 b^2 (b c-a d)^6 (c+d x)^{13}}{13 d^9}-\frac{4 b^3 (b c-a d)^5 (c+d x)^{14}}{d^9}+\frac{14 b^4 (b c-a d)^4 (c+d x)^{15}}{3 d^9}-\frac{7 b^5 (b c-a d)^3 (c+d x)^{16}}{2 d^9}+\frac{28 b^6 (b c-a d)^2 (c+d x)^{17}}{17 d^9}-\frac{4 b^7 (b c-a d) (c+d x)^{18}}{9 d^9}+\frac{b^8 (c+d x)^{19}}{19 d^9}$$

Result (type 1, 1241 leaves):

$$a^8 c^{10} x+a^7 c^9 (4 b c+5 a d) x^2+\frac{1}{3} a^6 c^8 (28 b^2 c^2+80 a b c d+45 a^2 d^2) x^3+2 a^5 c^7 (7 b^3 c^3+35 a b^2 c^2 d+45 a^2 b c d^2+15 a^3 d^3) x^4+2 a^4 c^6 (7 b^4 c^4+56 a b^3 c^3 d+126 a^2 b^2 c^2 d^2+96 a^3 b c d^3+21 a^4 d^4) x^5+\frac{14}{3} a^3 c^5 (2 b^5 c^5+25 a b^4 c^4 d+90 a^2 b^3 c^3 d^2+120 a^3 b^2 c^2 d^3+60 a^4 b c d^4+9 a^5 d^5) x^6+2 a^2 c^4 (2 b^6 c^6+40 a b^5 c^5 d+225 a^2 b^4 c^4 d^2+480 a^3 b^3 c^3 d^3+420 a^4 b^2 c^2 d^4+144 a^5 b c d^5+15 a^6 d^6) x^7+a c^3 (b^7 c^7+35 a b^6 c^6 d+315 a^2 b^5 c^5 d^2+1050 a^3 b^4 c^4 d^3+1470 a^4 b^3 c^3 d^4+882 a^5 b^2 c^2 d^5+210 a^6 b c d^6+15 a^7 d^7) x^8+\frac{1}{9} c^2 (b^8 c^8+80 a b^7 c^7 d+1260 a^2 b^6 c^6 d^2+6720 a^3 b^5 c^5 d^3+14700 a^4 b^4 c^4 d^4+14112 a^5 b^3 c^3 d^5+5880 a^6 b^2 c^2 d^6+960 a^7 b c d^7+45 a^8 d^8) x^9+c d (b^8 c^8+36 a b^7 c^7 d+336 a^2 b^6 c^6 d^2+1176 a^3 b^5 c^5 d^3+1764 a^4 b^4 c^4 d^4+1176 a^5 b^3 c^3 d^5+336 a^6 b^2 c^2 d^6+36 a^7 b c d^7+a^8 d^8) x^{10}+\frac{1}{11} d^2 (45 b^8 c^8+960 a b^7 c^7 d+5880 a^2 b^6 c^6 d^2+14112 a^3 b^5 c^5 d^3+14700 a^4 b^4 c^4 d^4+6720 a^5 b^3 c^3 d^5+1260 a^6 b^2 c^2 d^6+80 a^7 b c d^7+a^8 d^8) x^{11}+\frac{2}{3} b d^3 (15 b^7 c^7+210 a b^6 c^6 d+882 a^2 b^5 c^5 d^2+1470 a^3 b^4 c^4 d^3+1050 a^4 b^3 c^3 d^4+315 a^5 b^2 c^2 d^5+35 a^6 b c d^6+a^7 d^7) x^{12}+\frac{14}{13} b^2 d^4 (15 b^6 c^6+144 a b^5 c^5 d+420 a^2 b^4 c^4 d^2+480 a^3 b^3 c^3 d^3+225 a^4 b^2 c^2 d^4+40 a^5 b c d^5+2 a^6 d^6) x^{13}+2 b^3 d^5 (9 b^5 c^5+60 a b^4 c^4 d+120 a^2 b^3 c^3 d^2+90 a^3 b^2 c^2 d^3+25 a^4 b c d^4+2 a^5 d^5) x^{14}+\frac{2}{3} b^4 d^6 (21 b^4 c^4+96 a b^3 c^3 d+126 a^2 b^2 c^2 d^2+56 a^3 b c d^3+7 a^4 d^4) x^{15}+\frac{1}{2} b^5 d^7 (15 b^3 c^3+45 a b^2 c^2 d+35 a^2 b c d^2+7 a^3 d^3) x^{16}+\frac{1}{17} b^6 d^8 (45 b^2 c^2+80 a b c d+28 a^2 d^2) x^{17}+\frac{1}{9} b^7 d^9 (5 b c+4 a d) x^{18}+\frac{1}{19} b^8 d^{10} x^{19}$$

Problem 1304: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^7 (c+d x)^{10} \, dx$$

Optimal (type 1, 200 leaves, 2 steps):

$$-\frac{(b c-a d)^7 (c+d x)^{11}}{11 d^8}+\frac{7 b (b c-a d)^6 (c+d x)^{12}}{12 d^8}-\frac{21 b^2 (b c-a d)^5 (c+d x)^{13}}{13 d^8}+\frac{5 b^3 (b c-a d)^4 (c+d x)^{14}}{2 d^8}-\frac{7 b^4 (b c-a d)^3 (c+d x)^{15}}{3 d^8}+\frac{21 b^5 (b c-a d)^2 (c+d x)^{16}}{16 d^8}-\frac{7 b^6 (b c-a d) (c+d x)^{17}}{17 d^8}+\frac{b^7 (c+d x)^{18}}{18 d^8}$$

Result (type 1, 1105 leaves) :

$$a^7 c^{10} x+\frac{1}{2} a^6 c^9 (7 b c+10 a d) x^2+\frac{1}{3} a^5 c^8 \left(21 b^2 c^2+70 a b c d+45 a^2 d^2\right) x^3+$$
$$\frac{5}{4} a^4 c^7 \left(7 b^3 c^3+42 a b^2 c^2 d+63 a^2 b c d^2+24 a^3 d^3\right) x^4+7 a^3 c^6 \left(b^4 c^4+10 a b^3 c^3 d+27 a^2 b^2 c^2 d^2+24 a^3 b c d^3+6 a^4 d^4\right) x^5+$$
$$\frac{7}{6} a^2 c^5 \left(3 b^5 c^5+50 a b^4 c^4 d+225 a^2 b^3 c^3 d^2+360 a^3 b^2 c^2 d^3+210 a^4 b c d^4+36 a^5 d^5\right) x^6+$$
$$a c^4 \left(b^6 c^6+30 a b^5 c^5 d+225 a^2 b^4 c^4 d^2+600 a^3 b^3 c^3 d^3+630 a^4 b^2 c^2 d^4+252 a^5 b c d^5+30 a^6 d^6\right) x^7+$$
$$\frac{1}{8} c^3 \left(b^7 c^7+70 a b^6 c^6 d+945 a^2 b^5 c^5 d^2+4200 a^3 b^4 c^4 d^3+7350 a^4 b^3 c^3 d^4+5292 a^5 b^2 c^2 d^5+1470 a^6 b c d^6+120 a^7 d^7\right) x^8+$$
$$\frac{5}{9} c^2 d \left(2 b^7 c^7+63 a b^6 c^6 d+504 a^2 b^5 c^5 d^2+1470 a^3 b^4 c^4 d^3+1764 a^4 b^3 c^3 d^4+882 a^5 b^2 c^2 d^5+168 a^6 b c d^6+9 a^7 d^7\right) x^9+$$
$$\frac{1}{2} c d^2 \left(9 b^7 c^7+168 a b^6 c^6 d+882 a^2 b^5 c^5 d^2+1764 a^3 b^4 c^4 d^3+1470 a^4 b^3 c^3 d^4+504 a^5 b^2 c^2 d^5+63 a^6 b c d^6+2 a^7 d^7\right) x^{10}+$$
$$\frac{1}{11} d^3 \left(120 b^7 c^7+1470 a b^6 c^6 d+5292 a^2 b^5 c^5 d^2+7350 a^3 b^4 c^4 d^3+4200 a^4 b^3 c^3 d^4+945 a^5 b^2 c^2 d^5+70 a^6 b c d^6+a^7 d^7\right) x^{11}+$$
$$\frac{7}{12} b d^4 \left(30 b^6 c^6+252 a b^5 c^5 d+630 a^2 b^4 c^4 d^2+600 a^3 b^3 c^3 d^3+225 a^4 b^2 c^2 d^4+30 a^5 b c d^5+a^6 d^6\right) x^{12}+$$
$$\frac{7}{13} b^2 d^5 \left(36 b^5 c^5+210 a b^4 c^4 d+360 a^2 b^3 c^3 d^2+225 a^3 b^2 c^2 d^3+50 a^4 b c d^4+3 a^5 d^5\right) x^{13}+$$
$$\frac{5}{2} b^3 d^6 \left(6 b^4 c^4+24 a b^3 c^3 d+27 a^2 b^2 c^2 d^2+10 a^3 b c d^3+a^4 d^4\right) x^{14}+\frac{1}{3} b^4 d^7 \left(24 b^3 c^3+63 a b^2 c^2 d+42 a^2 b c d^2+7 a^3 d^3\right) x^{15}+$$
$$\frac{1}{16} b^5 d^8 \left(45 b^2 c^2+70 a b c d+21 a^2 d^2\right) x^{16}+\frac{1}{17} b^6 d^9 (10 b c+7 a d) x^{17}+\frac{1}{18} b^7 d^{10} x^{18}$$

Problem 1305: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^6 (c+d x)^{10}\, dx$$

Optimal (type 1, 170 leaves, 2 steps) :

$$\frac{(b c-a d)^6 (c+d x)^{11}}{11 d^7}-\frac{b (b c-a d)^5 (c+d x)^{12}}{2 d^7}+\frac{15 b^2 (b c-a d)^4 (c+d x)^{13}}{13 d^7}-\frac{10 b^3 (b c-a d)^3 (c+d x)^{14}}{7 d^7}+\frac{b^4 (b c-a d)^2 (c+d x)^{15}}{d^7}-\frac{3 b^5 (b c-a d) (c+d x)^{16}}{8 d^7}+\frac{b^6 (c+d x)^{17}}{17 d^7}$$

Result (type 1, 939 leaves):

$$a^6 c^{10} x+a^5 c^9 (3 b c+5 a d) x^2+5 a^4 c^8 (b^2 c^2+4 a b c d+3 a^2 d^2) x^3+\frac{5}{2} a^3 c^7 (2 b^3 c^3+15 a b^2 c^2 d+27 a^2 b c d^2+12 a^3 d^3) x^4+a^2 c^6 (3 b^4 c^4+40 a b^3 c^3 d+135 a^2 b^2 c^2 d^2+144 a^3 b c d^3+42 a^4 d^4) x^5+a c^5 (b^5 c^5+25 a b^4 c^4 d+150 a^2 b^3 c^3 d^2+300 a^3 b^2 c^2 d^3+210 a^4 b c d^4+42 a^5 d^5) x^6+\frac{1}{7} c^4 (b^6 c^6+60 a b^5 c^5 d+675 a^2 b^4 c^4 d^2+2400 a^3 b^3 c^3 d^3+3150 a^4 b^2 c^2 d^4+1512 a^5 b c d^5+210 a^6 d^6) x^7+\frac{5}{4} c^3 d (b^6 c^6+27 a b^5 c^5 d+180 a^2 b^4 c^4 d^2+420 a^3 b^3 c^3 d^3+378 a^4 b^2 c^2 d^4+126 a^5 b c d^5+12 a^6 d^6) x^8+5 c^2 d^2 (b^6 c^6+16 a b^5 c^5 d+70 a^2 b^4 c^4 d^2+112 a^3 b^3 c^3 d^3+70 a^4 b^2 c^2 d^4+16 a^5 b c d^5+a^6 d^6) x^9+c d^3 (12 b^6 c^6+126 a b^5 c^5 d+378 a^2 b^4 c^4 d^2+420 a^3 b^3 c^3 d^3+180 a^4 b^2 c^2 d^4+27 a^5 b c d^5+a^6 d^6) x^{10}+\frac{1}{11} d^4 (210 b^6 c^6+1512 a b^5 c^5 d+3150 a^2 b^4 c^4 d^2+2400 a^3 b^3 c^3 d^3+675 a^4 b^2 c^2 d^4+60 a^5 b c d^5+a^6 d^6) x^{11}+\frac{1}{2} b d^5 (42 b^5 c^5+210 a b^4 c^4 d+300 a^2 b^3 c^3 d^2+150 a^3 b^2 c^2 d^3+25 a^4 b c d^4+a^5 d^5) x^{12}+\frac{5}{13} b^2 d^6 (42 b^4 c^4+144 a b^3 c^3 d+135 a^2 b^2 c^2 d^2+40 a^3 b c d^3+3 a^4 d^4) x^{13}+\frac{5}{7} b^3 d^7 (12 b^3 c^3+27 a b^2 c^2 d+15 a^2 b c d^2+2 a^3 d^3) x^{14}+b^4 d^8 (3 b^2 c^2+4 a b c d+a^2 d^2) x^{15}+\frac{1}{8} b^5 d^9 (5 b c+3 a d) x^{16}+\frac{1}{17} b^6 d^{10} x^{17}$$

Problem 1306: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^5 (c+d x)^{10} \, dx$$

Optimal (type 1, 146 leaves, 2 steps):

$$-\frac{(b c-a d)^5 (c+d x)^{11}}{11 d^6}+\frac{5 b (b c-a d)^4 (c+d x)^{12}}{12 d^6}-\frac{10 b^2 (b c-a d)^3 (c+d x)^{13}}{13 d^6}+\frac{5 b^3 (b c-a d)^2 (c+d x)^{14}}{7 d^6}-\frac{b^4 (b c-a d) (c+d x)^{15}}{3 d^6}+\frac{b^5 (c+d x)^{16}}{16 d^6}$$

Result (type 1, 811 leaves):

$$a^5 c^{10} x + \frac{5}{2} a^4 c^9 (b c + 2 a d) x^2 + \frac{5}{3} a^3 c^8 (2 b^2 c^2 + 10 a b c d + 9 a^2 d^2) x^3 +$$
$$\frac{5}{4} a^2 c^7 (2 b^3 c^3 + 20 a b^2 c^2 d + 45 a^2 b c d^2 + 24 a^3 d^3) x^4 + a c^6 (b^4 c^4 + 20 a b^3 c^3 d + 90 a^2 b^2 c^2 d^2 + 120 a^3 b c d^3 + 42 a^4 d^4) x^5 +$$
$$\frac{1}{6} c^5 (b^5 c^5 + 50 a b^4 c^4 d + 450 a^2 b^3 c^3 d^2 + 1200 a^3 b^2 c^2 d^3 + 1050 a^4 b c d^4 + 252 a^5 d^5) x^6 +$$
$$\frac{5}{7} c^4 d (2 b^5 c^5 + 45 a b^4 c^4 d + 240 a^2 b^3 c^3 d^2 + 420 a^3 b^2 c^2 d^3 + 252 a^4 b c d^4 + 42 a^5 d^5) x^7 +$$
$$\frac{15}{8} c^3 d^2 (3 b^5 c^5 + 40 a b^4 c^4 d + 140 a^2 b^3 c^3 d^2 + 168 a^3 b^2 c^2 d^3 + 70 a^4 b c d^4 + 8 a^5 d^5) x^8 +$$
$$\frac{5}{3} c^2 d^3 (8 b^5 c^5 + 70 a b^4 c^4 d + 168 a^2 b^3 c^3 d^2 + 140 a^3 b^2 c^2 d^3 + 40 a^4 b c d^4 + 3 a^5 d^5) x^9 +$$
$$\frac{1}{2} c d^4 (42 b^5 c^5 + 252 a b^4 c^4 d + 420 a^2 b^3 c^3 d^2 + 240 a^3 b^2 c^2 d^3 + 45 a^4 b c d^4 + 2 a^5 d^5) x^{10} +$$
$$\frac{1}{11} d^5 (252 b^5 c^5 + 1050 a b^4 c^4 d + 1200 a^2 b^3 c^3 d^2 + 450 a^3 b^2 c^2 d^3 + 50 a^4 b c d^4 + a^5 d^5) x^{11} +$$
$$\frac{5}{12} b d^6 (42 b^4 c^4 + 120 a b^3 c^3 d + 90 a^2 b^2 c^2 d^2 + 20 a^3 b c d^3 + a^4 d^4) x^{12} + \frac{5}{13} b^2 d^7 (24 b^3 c^3 + 45 a b^2 c^2 d + 20 a^2 b c d^2 + 2 a^3 d^3) x^{13} +$$
$$\frac{5}{14} b^3 d^8 (9 b^2 c^2 + 10 a b c d + 2 a^2 d^2) x^{14} + \frac{1}{3} b^4 d^9 (2 b c + a d) x^{15} + \frac{1}{16} b^5 d^{10} x^{16}$$

Problem 1307: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^4 (c + d x)^{10} \, dx$$

Optimal (type 1, 119 leaves, 2 steps):

$$\frac{(b c - a d)^4 (c + d x)^{11}}{11 d^5} - \frac{b (b c - a d)^3 (c + d x)^{12}}{3 d^5} + \frac{6 b^2 (b c - a d)^2 (c + d x)^{13}}{13 d^5} - \frac{2 b^3 (b c - a d) (c + d x)^{14}}{7 d^5} + \frac{b^4 (c + d x)^{15}}{15 d^5}$$

Result (type 1, 660 leaves):

$$a^4 c^{10} x + a^3 c^9 (2 b c + 5 a d) x^2 + \frac{1}{3} a^2 c^8 (6 b^2 c^2 + 40 a b c d + 45 a^2 d^2) x^3 + a c^7 (b^3 c^3 + 15 a b^2 c^2 d + 45 a^2 b c d^2 + 30 a^3 d^3) x^4 + \frac{1}{5} c^6 (b^4 c^4 + 40 a b^3 c^3 d + 270 a^2 b^2 c^2 d^2 + 480 a^3 b c d^3 + 210 a^4 d^4) x^5 + \frac{1}{3} c^5 d (5 b^4 c^4 + 90 a b^3 c^3 d + 360 a^2 b^2 c^2 d^2 + 420 a^3 b c d^3 + 126 a^4 d^4) x^6 + \frac{3}{7} c^4 d^2 (15 b^4 c^4 + 160 a b^3 c^3 d + 420 a^2 b^2 c^2 d^2 + 336 a^3 b c d^3 + 70 a^4 d^4) x^7 + 3 c^3 d^3 (5 b^4 c^4 + 35 a b^3 c^3 d + 63 a^2 b^2 c^2 d^2 + 35 a^3 b c d^3 + 5 a^4 d^4) x^8 + \frac{1}{3} c^2 d^4 (70 b^4 c^4 + 336 a b^3 c^3 d + 420 a^2 b^2 c^2 d^2 + 160 a^3 b c d^3 + 15 a^4 d^4) x^9 + \frac{1}{5} c d^5 (126 b^4 c^4 + 420 a b^3 c^3 d + 360 a^2 b^2 c^2 d^2 + 90 a^3 b c d^3 + 5 a^4 d^4) x^{10} + \frac{1}{11} d^6 (210 b^4 c^4 + 480 a b^3 c^3 d + 270 a^2 b^2 c^2 d^2 + 40 a^3 b c d^3 + a^4 d^4) x^{11} + \frac{1}{3} b d^7 (30 b^3 c^3 + 45 a b^2 c^2 d + 15 a^2 b c d^2 + a^3 d^3) x^{12} + \frac{1}{13} b^2 d^8 (45 b^2 c^2 + 40 a b c d + 6 a^2 d^2) x^{13} + \frac{1}{7} b^3 d^9 (5 b c + 2 a d) x^{14} + \frac{1}{15} b^4 d^{10} x^{15}$$

Problem 1308: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^3 (c + d x)^{10} \, dx$$

Optimal (type 1, 92 leaves, 2 steps):

$$-\frac{(b c - a d)^3 (c + d x)^{11}}{11 d^4} + \frac{b (b c - a d)^2 (c + d x)^{12}}{4 d^4} - \frac{3 b^2 (b c - a d) (c + d x)^{13}}{13 d^4} + \frac{b^3 (c + d x)^{14}}{14 d^4}$$

Result (type 1, 511 leaves):

$$a^3 c^{10} x + \frac{1}{2} a^2 c^9 (3 b c + 10 a d) x^2 + a c^8 (b^2 c^2 + 10 a b c d + 15 a^2 d^2) x^3 + \frac{1}{4} c^7 (b^3 c^3 + 30 a b^2 c^2 d + 135 a^2 b c d^2 + 120 a^3 d^3) x^4 + c^6 d (2 b^3 c^3 + 27 a b^2 c^2 d + 72 a^2 b c d^2 + 42 a^3 d^3) x^5 + \frac{3}{2} c^5 d^2 (5 b^3 c^3 + 40 a b^2 c^2 d + 70 a^2 b c d^2 + 28 a^3 d^3) x^6 + \frac{6}{7} c^4 d^3 (20 b^3 c^3 + 105 a b^2 c^2 d + 126 a^2 b c d^2 + 35 a^3 d^3) x^7 + \frac{3}{4} c^3 d^4 (35 b^3 c^3 + 126 a b^2 c^2 d + 105 a^2 b c d^2 + 20 a^3 d^3) x^8 + c^2 d^5 (28 b^3 c^3 + 70 a b^2 c^2 d + 40 a^2 b c d^2 + 5 a^3 d^3) x^9 + \frac{1}{2} c d^6 (42 b^3 c^3 + 72 a b^2 c^2 d + 27 a^2 b c d^2 + 2 a^3 d^3) x^{10} + \frac{1}{11} d^7 (120 b^3 c^3 + 135 a b^2 c^2 d + 30 a^2 b c d^2 + a^3 d^3) x^{11} + \frac{1}{4} b d^8 (15 b^2 c^2 + 10 a b c d + a^2 d^2) x^{12} + \frac{1}{13} b^2 d^9 (10 b c + 3 a d) x^{13} + \frac{1}{14} b^3 d^{10} x^{14}$$

Problem 1309: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^2 (c + d x)^{10} \, dx$$

Optimal (type 1, 65 leaves, 2 steps):

$$\frac{(b c-a d)^2 (c+d x)^{11}}{11 d^3}-\frac{b (b c-a d) (c+d x)^{12}}{6 d^3}+\frac{b^2 (c+d x)^{13}}{13 d^3}$$

Result (type 1, 358 leaves):

$$a^2 c^{10} x+a c^9 (b c+5 a d) x^2+\frac{1}{3} c^8 \left(b^2 c^2+20 a b c d+45 a^2 d^2\right) x^3+\frac{5}{2} c^7 d \left(b^2 c^2+9 a b c d+12 a^2 d^2\right) x^4+3 c^6 d^2 \left(3 b^2 c^2+16 a b c d+14 a^2 d^2\right) x^5+2 c^5 d^3 \left(10 b^2 c^2+35 a b c d+21 a^2 d^2\right) x^6+6 c^4 d^4 \left(5 b^2 c^2+12 a b c d+5 a^2 d^2\right) x^7+\frac{3}{2} c^3 d^5 \left(21 b^2 c^2+35 a b c d+10 a^2 d^2\right) x^8+\frac{5}{3} c^2 d^6 \left(14 b^2 c^2+16 a b c d+3 a^2 d^2\right) x^9+c d^7 \left(12 b^2 c^2+9 a b c d+a^2 d^2\right) x^{10}+\frac{1}{11} d^8 \left(45 b^2 c^2+20 a b c d+a^2 d^2\right) x^{11}+\frac{1}{6} b d^9 (5 b c+a d) x^{12}+\frac{1}{13} b^2 d^{10} x^{13}$$

Problem 1310: Result more than twice size of optimal antiderivative.

$$\int (a+b x) (c+d x)^{10} \, dx$$

Optimal (type 1, 38 leaves, 2 steps):

$$-\frac{(b c-a d) (c+d x)^{11}}{11 d^2}+\frac{b (c+d x)^{12}}{12 d^2}$$

Result (type 1, 220 leaves):

$$a c^{10} x+\frac{1}{2} c^9 (b c+10 a d) x^2+\frac{5}{3} c^8 d (2 b c+9 a d) x^3+\frac{15}{4} c^7 d^2 (3 b c+8 a d) x^4+6 c^6 d^3 (4 b c+7 a d) x^5+7 c^5 d^4 (5 b c+6 a d) x^6+6 c^4 d^5 (6 b c+5 a d) x^7+\frac{15}{4} c^3 d^6 (7 b c+4 a d) x^8+\frac{5}{3} c^2 d^7 (8 b c+3 a d) x^9+\frac{1}{2} c d^8 (9 b c+2 a d) x^{10}+\frac{1}{11} d^9 (10 b c+a d) x^{11}+\frac{1}{12} b d^{10} x^{12}$$

Problem 1312: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^{10}}{a+b x} \, dx$$

Optimal (type 3, 241 leaves, 2 steps):

$$\frac{d (b c-a d)^9 x}{b^{10}}+\frac{(b c-a d)^8 (c+d x)^2}{2 b^9}+\frac{(b c-a d)^7 (c+d x)^3}{3 b^8}+\frac{(b c-a d)^6 (c+d x)^4}{4 b^7}+\frac{(b c-a d)^5 (c+d x)^5}{5 b^6}+\frac{(b c-a d)^4 (c+d x)^6}{6 b^5}+\frac{(b c-a d)^3 (c+d x)^7}{7 b^4}+\frac{(b c-a d)^2 (c+d x)^8}{8 b^3}+\frac{(b c-a d) (c+d x)^9}{9 b^2}+\frac{(c+d x)^{10}}{10 b}+\frac{(b c-a d)^{10} \text{Log}[a+b x]}{b^{11}}$$

Result (type 3, 591 leaves):

$$\frac{1}{2520\, b^{10}} d\, x\, \big(-2520\, a^9 d^9 + 1260\, a^8 b\, d^8 (20\, c + d\, x) - 840\, a^7 b^2 d^7 (135\, c^2 + 15\, c\, d\, x + d^2 x^2) + 210\, a^6 b^3 d^6 (1440\, c^3 + 270\, c^2 d\, x + 40\, c\, d^2 x^2 + 3\, d^3 x^3) - 252\, a^5 b^4 d^5 (2100\, c^4 + 600\, c^3 d\, x + 150\, c^2 d^2 x^2 + 25\, c\, d^3 x^3 + 2\, d^4 x^4) + 210\, a^4 b^5 d^4 (3024\, c^5 + 1260\, c^4 d\, x + 480\, c^3 d^2 x^2 + 135\, c^2 d^3 x^3 + 24\, c\, d^4 x^4 + 2\, d^5 x^5) - 120\, a^3 b^6 d^3 (4410\, c^6 + 2646\, c^5 d\, x + 1470\, c^4 d^2 x^2 + 630\, c^3 d^3 x^3 + 189\, c^2 d^4 x^4 + 35\, c\, d^5 x^5 + 3\, d^6 x^6) + 45\, a^2 b^7 d^2 (6720\, c^7 + 5880\, c^6 d\, x + 4704\, c^5 d^2 x^2 + 2940\, c^4 d^3 x^3 + 1344\, c^3 d^4 x^4 + 420\, c^2 d^5 x^5 + 80\, c\, d^6 x^6 + 7\, d^7 x^7) - 10\, a\, b^8 d\, (11340\, c^8 + 15120\, c^7 d\, x + 17640\, c^6 d^2 x^2 + 15876\, c^5 d^3 x^3 + 10584\, c^4 d^4 x^4 + 5040\, c^3 d^5 x^5 + 1620\, c^2 d^6 x^6 + 315\, c\, d^7 x^7 + 28\, d^8 x^8) + b^9 (25200\, c^9 + 56700\, c^8 d\, x + 100800\, c^7 d^2 x^2 + 132300\, c^6 d^3 x^3 + 127008\, c^5 d^4 x^4 + 88200\, c^4 d^5 x^5 + 43200\, c^3 d^6 x^6 + 14175\, c^2 d^7 x^7 + 2800\, c\, d^8 x^8 + 252\, d^9 x^9)\big) + \frac{(b\, c - a\, d)^{10} \,\mathrm{Log}[a + b\, x]}{b^{11}}$$

Problem 1313: Result more than twice size of optimal antiderivative.

$$\int \frac{(c + d\, x)^{10}}{(a + b\, x)^2}\, dx$$

Optimal (type 3, 258 leaves, 2 steps):

$$\frac{45\, d^2 (b\, c - a\, d)^8 x}{b^{10}} - \frac{(b\, c - a\, d)^{10}}{b^{11} (a + b\, x)} + \frac{60\, d^3 (b\, c - a\, d)^7 (a + b\, x)^2}{b^{11}} + \frac{70\, d^4 (b\, c - a\, d)^6 (a + b\, x)^3}{b^{11}} + \frac{63\, d^5 (b\, c - a\, d)^5 (a + b\, x)^4}{b^{11}} + \frac{42\, d^6 (b\, c - a\, d)^4 (a + b\, x)^5}{b^{11}} + \frac{20\, d^7 (b\, c - a\, d)^3 (a + b\, x)^6}{b^{11}} + \frac{45\, d^8 (b\, c - a\, d)^2 (a + b\, x)^7}{7\, b^{11}} + \frac{5\, d^9 (b\, c - a\, d) (a + b\, x)^8}{4\, b^{11}} + \frac{d^{10} (a + b\, x)^9}{9\, b^{11}} + \frac{10\, d\, (b\, c - a\, d)^9 \,\mathrm{Log}[a + b\, x]}{b^{11}}$$

Result (type 3, 708 leaves):

$$\frac{1}{252\, b^{11} (a + b\, x)} \big(-252\, a^{10} d^{10} + 252\, a^9 b\, d^9 (10\, c + 9\, d\, x) + 1260\, a^8 b^2 d^8 (-9\, c^2 - 16\, c\, d\, x + d^2 x^2) - 420\, a^7 b^3 d^7 (-72\, c^3 - 189\, c^2 d\, x + 27\, c\, d^2 x^2 + d^3 x^3) + 210\, a^6 b^4 d^6 (-252\, c^4 - 864\, c^3 d\, x + 216\, c^2 d^2 x^2 + 18\, c\, d^3 x^3 + d^4 x^4) - 126\, a^5 b^5 d^5 (-504\, c^5 - 2100\, c^4 d\, x + 840\, c^3 d^2 x^2 + 120\, c^2 d^3 x^3 + 15\, c\, d^4 x^4 + d^5 x^5) + 42\, a^4 b^6 d^4 (-1260\, c^6 - 6048\, c^5 d\, x + 3780\, c^4 d^2 x^2 + 840\, c^3 d^3 x^3 + 180\, c^2 d^4 x^4 + 27\, c\, d^5 x^5 + 2\, d^6 x^6) - 12\, a^3 b^7 d^3 (-2520\, c^7 - 13230\, c^6 d\, x + 13230\, c^5 d^2 x^2 + 4410\, c^4 d^3 x^3 + 1470\, c^3 d^4 x^4 + 378\, c^2 d^5 x^5 + 63\, c\, d^6 x^6 + 5\, d^7 x^7) + 9\, a^2 b^8 d^2 (-1260\, c^8 - 6720\, c^7 d\, x + 11760\, c^6 d^2 x^2 + 5880\, c^5 d^3 x^3 + 2940\, c^4 d^4 x^4 + 1176\, c^3 d^5 x^5 + 336\, c^2 d^6 x^6 + 60\, c\, d^7 x^7 + 5\, d^8 x^8) - a\, b^9 d\, (-2520\, c^9 - 11340\, c^8 d\, x + 45360\, c^7 d^2 x^2 + 35280\, c^6 d^3 x^3 + 26460\, c^5 d^4 x^4 + 15876\, c^4 d^5 x^5 + 7056\, c^3 d^6 x^6 + 2160\, c^2 d^7 x^7 + 405\, c\, d^8 x^8 + 35\, d^9 x^9) + b^{10} (-252\, c^{10} + 11340\, c^8 d^2 x^2 + 15120\, c^7 d^3 x^3 + 17640\, c^6 d^4 x^4 + 15876\, c^5 d^5 x^5 + 10584\, c^4 d^6 x^6 + 5040\, c^3 d^7 x^7 + 1620\, c^2 d^8 x^8 + 315\, c\, d^9 x^9 + 28\, d^{10} x^{10}) - 2520\, d\, (-b\, c + a\, d)^9 (a + b\, x) \,\mathrm{Log}[a + b\, x]\big)$$

Problem 1314: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^{10}}{(a+b x)^3} \, dx$$

Optimal (type 3, 262 leaves, 2 steps):

$$\frac{120 d^3 (b c-a d)^7 x}{b^{10}}-\frac{(b c-a d)^{10}}{2 b^{11} (a+b x)^2}-\frac{10 d (b c-a d)^9}{b^{11} (a+b x)}+\frac{105 d^4 (b c-a d)^6 (a+b x)^2}{b^{11}}+\frac{84 d^5 (b c-a d)^5 (a+b x)^3}{b^{11}}+\frac{105 d^6 (b c-a d)^4 (a+b x)^4}{2 b^{11}}+\frac{24 d^7 (b c-a d)^3 (a+b x)^5}{b^{11}}+\frac{15 d^8 (b c-a d)^2 (a+b x)^6}{2 b^{11}}+\frac{10 d^9 (b c-a d) (a+b x)^7}{7 b^{11}}+\frac{d^{10} (a+b x)^8}{8 b^{11}}+\frac{45 d^2 (b c-a d)^8 \text{Log}[a+b x]}{b^{11}}$$

Result (type 3, 708 leaves):

$$\frac{1}{56 b^{11} (a+b x)^2}\Big(532 a^{10} d^{10}-56 a^9 b d^9 (85 c+26 d x)+28 a^8 b^2 d^8 (675 c^2+380 c d x-116 d^2 x^2)-280 a^7 b^3 d^7 (156 c^3+117 c^2 d x-91 c d^2 x^2+3 d^3 x^3)+$$
$$210 a^6 b^4 d^6 (308 c^4+256 c^3 d x-414 c^2 d^2 x^2+32 c d^3 x^3+d^4 x^4)-84 a^5 b^5 d^5 (756 c^5+560 c^4 d x-2000 c^3 d^2 x^2+280 c^2 d^3 x^3+20 c d^4 x^4+d^5 x^5)+$$
$$42 a^4 b^6 d^4 (980 c^6+336 c^5 d x-4760 c^4 d^2 x^2+1120 c^3 d^3 x^3+140 c^2 d^4 x^4+16 c d^5 x^5+d^6 x^6)-$$
$$24 a^3 b^7 d^3 (700 c^7-490 c^6 d x-6174 c^5 d^2 x^2+2450 c^4 d^3 x^3+490 c^3 d^4 x^4+98 c^2 d^5 x^5+14 c d^6 x^6+d^7 x^7)+$$
$$3 a^2 b^8 d^2 (1260 c^8-4480 c^7 d x-21560 c^6 d^2 x^2+15680 c^5 d^3 x^3+4900 c^4 d^4 x^4+1568 c^3 d^5 x^5+392 c^2 d^6 x^6+64 c d^7 x^7+5 d^8 x^8)-$$
$$2 a b^9 d (140 c^9-2520 c^8 d x-6720 c^7 d^2 x^2+11760 c^6 d^3 x^3+5880 c^5 d^4 x^4+2940 c^4 d^5 x^5+1176 c^3 d^6 x^6+336 c^2 d^7 x^7+60 c d^8 x^8+5 d^9 x^9)+$$
$$b^{10} (-28 c^{10}-560 c^9 d x+6720 c^7 d^3 x^3+5880 c^6 d^4 x^4+4704 c^5 d^5 x^5+2940 c^4 d^6 x^6+1344 c^3 d^7 x^7+420 c^2 d^8 x^8+80 c d^9 x^9+7 d^{10} x^{10})+$$
$$2520 d^2 (b c-a d)^8 (a+b x)^2 \text{Log}[a+b x]\Big)$$

Problem 1320: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^{10}}{(a+b x)^9} \, dx$$

Optimal (type 3, 258 leaves, 2 steps):

$$\frac{d^9 (10 b c-9 a d) x}{b^{10}}+\frac{d^{10} x^2}{2 b^9}-\frac{(b c-a d)^{10}}{8 b^{11} (a+b x)^8}-\frac{10 d (b c-a d)^9}{7 b^{11} (a+b x)^7}-\frac{15 d^2 (b c-a d)^8}{2 b^{11} (a+b x)^6}-\frac{24 d^3 (b c-a d)^7}{b^{11} (a+b x)^5}-\frac{105 d^4 (b c-a d)^6}{2 b^{11} (a+b x)^4}-\frac{84 d^5 (b c-a d)^5}{b^{11} (a+b x)^3}-\frac{105 d^6 (b c-a d)^4}{b^{11} (a+b x)^2}-\frac{120 d^7 (b c-a d)^3}{b^{11} (a+b x)}+\frac{45 d^8 (b c-a d)^2 \text{Log}[a+b x]}{b^{11}}$$

Result (type 3, 712 leaves):

$$\frac{1}{56\, b^{11}\, (a+b\, x)^8} \Big(3601\, a^{10}\, d^{10} + 2\, a^9\, b\, d^9\, (-4609\, c + 13\,144\, d\, x) + a^8\, b^2\, d^8\, (6849\, c^2 - 68\,704\, c\, d\, x + 81\,928\, d^2\, x^2) +$$
$$8\, a^7\, b^3\, d^7\, (-105\, c^3 + 6534\, c^2\, d\, x - 27\,538\, c\, d^2\, x^2 + 17\,542\, d^3\, x^3) + 14\, a^6\, b^4\, d^6\, (-15\, c^4 - 480\, c^3\, d\, x + 12\,348\, c^2\, d^2\, x^2 - 28\,112\, c\, d^3\, x^3 + 10\,010\, d^4\, x^4) -$$
$$28\, a^5\, b^5\, d^5\, (3\, c^5 + 60\, c^4\, d\, x + 840\, c^3\, d^2\, x^2 - 11\,508\, c^2\, d^3\, x^3 + 15\,050\, c\, d^4\, x^4 - 2744\, d^5\, x^5) -$$
$$14\, a^4\, b^6\, d^4\, (3\, c^6 + 48\, c^5\, d\, x + 420\, c^4\, d^2\, x^2 + 3360\, c^3\, d^3\, x^3 - 26\,250\, c^2\, d^4\, x^4 + 19\,040\, c\, d^5\, x^5 - 1064\, d^6\, x^6) -$$
$$8\, a^3\, b^7\, d^3\, (3\, c^7 + 42\, c^6\, d\, x + 294\, c^5\, d^2\, x^2 + 1470\, c^4\, d^3\, x^3 + 7350\, c^3\, d^4\, x^4 - 32\,340\, c^2\, d^5\, x^5 + 10\,780\, c\, d^6\, x^6 + 728\, d^7\, x^7) -$$
$$a^2\, b^8\, d^2\, (15\, c^8 + 192\, c^7\, d\, x + 1176\, c^6\, d^2\, x^2 + 4704\, c^5\, d^3\, x^3 + 14\,700\, c^4\, d^4\, x^4 + 47\,040\, c^3\, d^5\, x^5 - 105\,840\, c^2\, d^6\, x^6 + 4480\, c\, d^7\, x^7 + 3248\, d^8\, x^8) -$$
$$2\, a\, b^9\, d\, (5\, c^9 + 60\, c^8\, d\, x + 336\, c^7\, d^2\, x^2 + 1176\, c^6\, d^3\, x^3 + 2940\, c^5\, d^4\, x^4 + 5880\, c^4\, d^5\, x^5 + 11\,760\, c^3\, d^6\, x^6 - 10\,080\, c^2\, d^7\, x^7 - 2240\, c\, d^8\, x^8 + 140\, d^9\, x^9) -$$
$$b^{10}\, (7\, c^{10} + 80\, c^9\, d\, x + 420\, c^8\, d^2\, x^2 + 1344\, c^7\, d^3\, x^3 + 2940\, c^6\, d^4\, x^4 + 4704\, c^5\, d^5\, x^5 + 5880\, c^4\, d^6\, x^6 + 6720\, c^3\, d^7\, x^7 - 560\, c\, d^9\, x^9 - 28\, d^{10}\, x^{10}) +$$
$$2520\, d^8\, (b\, c - a\, d)^2\, (a+b\, x)^8\, \mathrm{Log}[a+b\, x]\Big)$$

Problem 1321: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d\, x)^{10}}{(a+b\, x)^{10}}\, dx$$

Optimal (type 3, 257 leaves, 2 steps):

$$\frac{d^{10}\, x}{b^{10}} - \frac{(b\, c-a\, d)^{10}}{9\, b^{11}\, (a+b\, x)^9} - \frac{5\, d\, (b\, c-a\, d)^9}{4\, b^{11}\, (a+b\, x)^8} - \frac{45\, d^2\, (b\, c-a\, d)^8}{7\, b^{11}\, (a+b\, x)^7} - \frac{20\, d^3\, (b\, c-a\, d)^7}{b^{11}\, (a+b\, x)^6} - \frac{42\, d^4\, (b\, c-a\, d)^6}{b^{11}\, (a+b\, x)^5} -$$
$$\frac{63\, d^5\, (b\, c-a\, d)^5}{b^{11}\, (a+b\, x)^4} - \frac{70\, d^6\, (b\, c-a\, d)^4}{b^{11}\, (a+b\, x)^3} - \frac{60\, d^7\, (b\, c-a\, d)^3}{b^{11}\, (a+b\, x)^2} - \frac{45\, d^8\, (b\, c-a\, d)^2}{b^{11}\, (a+b\, x)} + \frac{10\, d^9\, (b\, c-a\, d)\, \mathrm{Log}[a+b\, x]}{b^{11}}$$

Result (type 3, 708 leaves):

$$-\frac{1}{252\, b^{11}\, (a+b\, x)^9} \Big(4861\, a^{10}\, d^{10} + a^9\, b\, d^9\, (-7129\, c + 41\,229\, d\, x) + 9\, a^8\, b^2\, d^8\, (140\, c^2 - 6849\, c\, d\, x + 17\,064\, d^2\, x^2) +$$
$$12\, a^7\, b^3\, d^7\, (35\, c^3 + 945\, c^2\, d\, x - 19\,602\, c\, d^2\, x^2 + 27\,342\, d^3\, x^3) + 42\, a^6\, b^4\, d^6\, (5\, c^4 + 90\, c^3\, d\, x + 1080\, c^2\, d^2\, x^2 - 12\,348\, c\, d^3\, x^3 + 10\,458\, d^4\, x^4) +$$
$$126\, a^5\, b^5\, d^5\, (c^5 + 15\, c^4\, d\, x + 120\, c^3\, d^2\, x^2 + 840\, c^2\, d^3\, x^3 - 5754\, c\, d^4\, x^4 + 2982\, d^5\, x^5) +$$
$$42\, a^4\, b^6\, d^4\, (2\, c^6 + 27\, c^5\, d\, x + 180\, c^4\, d^2\, x^2 + 840\, c^3\, d^3\, x^3 + 3780\, c^2\, d^4\, x^4 - 15\,750\, c\, d^5\, x^5 + 4704\, d^6\, x^6) +$$
$$12\, a^3\, b^7\, d^3\, (5\, c^7 + 63\, c^6\, d\, x + 378\, c^5\, d^2\, x^2 + 1470\, c^4\, d^3\, x^3 + 4410\, c^3\, d^4\, x^4 + 13\,230\, c^2\, d^5\, x^5 - 32\,340\, c\, d^6\, x^6 + 4536\, d^7\, x^7) +$$
$$9\, a^2\, b^8\, d^2\, (5\, c^8 + 60\, c^7\, d\, x + 336\, c^6\, d^2\, x^2 + 1176\, c^5\, d^3\, x^3 + 2940\, c^4\, d^4\, x^4 + 5880\, c^3\, d^5\, x^5 + 11\,760\, c^2\, d^6\, x^6 - 15\,120\, c\, d^7\, x^7 + 252\, d^8\, x^8) +$$
$$a\, b^9\, d\, (35\, c^9 + 405\, c^8\, d\, x + 2160\, c^7\, d^2\, x^2 + 7056\, c^6\, d^3\, x^3 + 15\,876\, c^5\, d^4\, x^4 + 26\,460\, c^4\, d^5\, x^5 + 35\,280\, c^3\, d^6\, x^6 + 45\,360\, c^2\, d^7\, x^7 - 22\,680\, c\, d^8\, x^8 - 2268\, d^9\, x^9) +$$
$$b^{10}\, (28\, c^{10} + 315\, c^9\, d\, x + 1620\, c^8\, d^2\, x^2 + 5040\, c^7\, d^3\, x^3 + 10\,584\, c^6\, d^4\, x^4 + 15\,876\, c^5\, d^5\, x^5 + 17\,640\, c^4\, d^6\, x^6 + 15\,120\, c^3\, d^7\, x^7 + 11\,340\, c^2\, d^8\, x^8 - 252\, d^{10}\, x^{10}) +$$
$$2520\, d^9\, (-b\, c + a\, d)\, (a+b\, x)^9\, \mathrm{Log}[a+b\, x]\Big)$$

Problem 1322: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^{10}}{(a+b x)^{11}} \, dx$$

Optimal (type 3, 271 leaves, 2 steps):

$$-\frac{(b c-a d)^{10}}{10 b^{11} (a+b x)^{10}}-\frac{10 d (b c-a d)^9}{9 b^{11} (a+b x)^9}-\frac{45 d^2 (b c-a d)^8}{8 b^{11} (a+b x)^8}-\frac{120 d^3 (b c-a d)^7}{7 b^{11} (a+b x)^7}-\frac{35 d^4 (b c-a d)^6}{b^{11} (a+b x)^6}-\frac{252 d^5 (b c-a d)^5}{5 b^{11} (a+b x)^5}-\frac{105 d^6 (b c-a d)^4}{2 b^{11} (a+b x)^4}-\frac{40 d^7 (b c-a d)^3}{b^{11} (a+b x)^3}-\frac{45 d^8 (b c-a d)^2}{2 b^{11} (a+b x)^2}-\frac{10 d^9 (b c-a d)}{b^{11} (a+b x)}+\frac{d^{10} \text{Log}[a+b x]}{b^{11}}$$

Result (type 3, 591 leaves):

$$-\frac{1}{2520 b^{11} (a+b x)^{10}} (b c-a d) \left(7381 a^9 d^9+a^8 b d^8 (4861 c+71290 d x)+a^7 b^2 d^7 \left(3601 c^2+46090 c d x+308205 d^2 x^2\right)+a^6 b^3 d^6 \left(2761 c^3+33490 c^2 d x+194805 c d^2 x^2+784080 d^3 x^3\right)+a^5 b^4 d^5 \left(2131 c^4+25090 c^3 d x+138105 c^2 d^2 x^2+481680 c d^3 x^3+1296540 d^4 x^4\right)+a^4 b^5 d^4 \left(1627 c^5+18790 c^4 d x+100305 c^3 d^2 x^2+330480 c^2 d^3 x^3+767340 c d^4 x^4+1450008 d^5 x^5\right)+a^3 b^6 d^3 \left(1207 c^6+13750 c^5 d x+71955 c^4 d^2 x^2+229680 c^3 d^3 x^3+502740 c^2 d^4 x^4+814968 c d^5 x^5+1102500 d^6 x^6\right)+a^2 b^7 d^2 \left(847 c^7+9550 c^6 d x+49275 c^5 d^2 x^2+154080 c^4 d^3 x^3+326340 c^3 d^4 x^4+497448 c^2 d^5 x^5+573300 c d^6 x^6+554400 d^7 x^7\right)+a b^8 d \left(532 c^8+5950 c^7 d x+30375 c^6 d^2 x^2+93600 c^5 d^3 x^3+194040 c^4 d^4 x^4+285768 c^3 d^5 x^5+308700 c^2 d^6 x^6+252000 c d^7 x^7+170100 d^8 x^8\right)+b^9 \left(252 c^9+2800 c^8 d x+14175 c^7 d^2 x^2+43200 c^6 d^3 x^3+88200 c^5 d^4 x^4+127008 c^4 d^5 x^5+132300 c^3 d^6 x^6+100800 c^2 d^7 x^7+56700 c d^8 x^8+25200 d^9 x^9\right)\right)+\frac{d^{10} \text{Log}[a+b x]}{b^{11}}$$

Problem 1323: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^{10}}{(a+b x)^{12}} \, dx$$

Optimal (type 1, 28 leaves, 1 step):

$$-\frac{(c+d x)^{11}}{11 (b c-a d) (a+b x)^{11}}$$

Result (type 1, 665 leaves):

$$-\frac{1}{11 b^{11} (a+b x)^{11}} \left(a^{10} d^{10}+a^9 b d^9 (c+11 d x)+a^8 b^2 d^8 \left(c^2+11 c d x+55 d^2 x^2\right)+a^7 b^3 d^7 \left(c^3+11 c^2 d x+55 c d^2 x^2+165 d^3 x^3\right)+a^6 b^4 d^6 \left(c^4+11 c^3 d x+55 c^2 d^2 x^2+165 c d^3 x^3+330 d^4 x^4\right)+a^5 b^5 d^5 \left(c^5+11 c^4 d x+55 c^3 d^2 x^2+165 c^2 d^3 x^3+330 c d^4 x^4+462 d^5 x^5\right)+a^4 b^6 d^4 \left(c^6+11 c^5 d x+55 c^4 d^2 x^2+165 c^3 d^3 x^3+330 c^2 d^4 x^4+462 c d^5 x^5+462 d^6 x^6\right)+a^3 b^7 d^3 \left(c^7+11 c^6 d x+55 c^5 d^2 x^2+165 c^4 d^3 x^3+330 c^3 d^4 x^4+462 c^2 d^5 x^5+462 c d^6 x^6+330 d^7 x^7\right)+a^2 b^8 d^2 \left(c^8+11 c^7 d x+55 c^6 d^2 x^2+165 c^5 d^3 x^3+330 c^4 d^4 x^4+462 c^3 d^5 x^5+462 c^2 d^6 x^6+330 c d^7 x^7+165 d^8 x^8\right)+a b^9 d \left(c^9+11 c^8 d x+55 c^7 d^2 x^2+165 c^6 d^3 x^3+330 c^5 d^4 x^4+462 c^4 d^5 x^5+462 c^3 d^6 x^6+330 c^2 d^7 x^7+165 c d^8 x^8+55 d^9 x^9\right)+b^{10} \left(c^{10}+11 c^9 d x+55 c^8 d^2 x^2+165 c^7 d^3 x^3+330 c^6 d^4 x^4+462 c^5 d^5 x^5+462 c^4 d^6 x^6+330 c^3 d^7 x^7+165 c^2 d^8 x^8+55 c d^9 x^9+11 d^{10} x^{10}\right)\right)$$

Problem 1324: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^{10}}{(a+b x)^{13}} \, dx$$

Optimal (type 1, 58 leaves, 2 steps):

$$-\frac{(c+d x)^{11}}{12 (b c-a d) (a+b x)^{12}}+\frac{d (c+d x)^{11}}{132 (b c-a d)^2 (a+b x)^{11}}$$

Result (type 1, 684 leaves):

$$-\frac{1}{132 b^{11} (a+b x)^{12}} \left(a^{10} d^{10}+2 a^9 b d^9 (c+6 d x)+3 a^8 b^2 d^8 \left(c^2+8 c d x+22 d^2 x^2\right)+4 a^7 b^3 d^7 \left(c^3+9 c^2 d x+33 c d^2 x^2+55 d^3 x^3\right)+a^6 b^4 d^6 \left(5 c^4+48 c^3 d x+198 c^2 d^2 x^2+440 c d^3 x^3+495 d^4 x^4\right)+6 a^5 b^5 d^5 \left(c^5+10 c^4 d x+44 c^3 d^2 x^2+110 c^2 d^3 x^3+165 c d^4 x^4+132 d^5 x^5\right)+a^4 b^6 d^4 \left(7 c^6+72 c^5 d x+330 c^4 d^2 x^2+880 c^3 d^3 x^3+1485 c^2 d^4 x^4+1584 c d^5 x^5+924 d^6 x^6\right)+4 a^3 b^7 d^3 \left(2 c^7+21 c^6 d x+99 c^5 d^2 x^2+275 c^4 d^3 x^3+495 c^3 d^4 x^4+594 c^2 d^5 x^5+462 c d^6 x^6+198 d^7 x^7\right)+3 a^2 b^8 d^2 \left(3 c^8+32 c^7 d x+154 c^6 d^2 x^2+440 c^5 d^3 x^3+825 c^4 d^4 x^4+1056 c^3 d^5 x^5+924 c^2 d^6 x^6+528 c d^7 x^7+165 d^8 x^8\right)+2 a b^9 d \left(5 c^9+54 c^8 d x+264 c^7 d^2 x^2+770 c^6 d^3 x^3+1485 c^5 d^4 x^4+1980 c^4 d^5 x^5+1848 c^3 d^6 x^6+1188 c^2 d^7 x^7+495 c d^8 x^8+110 d^9 x^9\right)+b^{10} \left(11 c^{10}+120 c^9 d x+594 c^8 d^2 x^2+1760 c^7 d^3 x^3+3465 c^6 d^4 x^4+4752 c^5 d^5 x^5+4620 c^4 d^6 x^6+3168 c^3 d^7 x^7+1485 c^2 d^8 x^8+440 c d^9 x^9+66 d^{10} x^{10}\right)\right)$$

Problem 1325: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^{10}}{(a+b x)^{14}} \, dx$$

Optimal (type 1, 89 leaves, 3 steps):

$$-\frac{(c+d x)^{11}}{13 (b c-a d) (a+b x)^{13}}+\frac{d (c+d x)^{11}}{78 (b c-a d)^2 (a+b x)^{12}}-\frac{d^2 (c+d x)^{11}}{858 (b c-a d)^3 (a+b x)^{11}}$$

Result (type 1, 690 leaves):

$$-\frac{1}{858\,b^{11}\,(a+b\,x)^{13}}\Big(a^{10}\,d^{10}+a^9\,b\,d^9\,(3\,c+13\,d\,x)+3\,a^8\,b^2\,d^8\,(2\,c^2+13\,c\,d\,x+26\,d^2\,x^2)+2\,a^7\,b^3\,d^7\,(5\,c^3+39\,c^2\,d\,x+117\,c\,d^2\,x^2+143\,d^3\,x^3)+a^6\,b^4\,d^6\,(15\,c^4+130\,c^3\,d\,x+468\,c^2\,d^2\,x^2+858\,c\,d^3\,x^3+715\,d^4\,x^4)+3\,a^5\,b^5\,d^5\,(7\,c^5+65\,c^4\,d\,x+260\,c^3\,d^2\,x^2+572\,c^2\,d^3\,x^3+715\,c\,d^4\,x^4+429\,d^5\,x^5)+a^4\,b^6\,d^4\,(28\,c^6+273\,c^5\,d\,x+1170\,c^4\,d^2\,x^2+2860\,c^3\,d^3\,x^3+4290\,c^2\,d^4\,x^4+3861\,c\,d^5\,x^5+1716\,d^6\,x^6)+2\,a^3\,b^7\,d^3\,(18\,c^7+182\,c^6\,d\,x+819\,c^5\,d^2\,x^2+2145\,c^4\,d^3\,x^3+3575\,c^3\,d^4\,x^4+3861\,c^2\,d^5\,x^5+2574\,c\,d^6\,x^6+858\,d^7\,x^7)+3\,a^2\,b^8\,d^2\,(15\,c^8+156\,c^7\,d\,x+728\,c^6\,d^2\,x^2+2002\,c^5\,d^3\,x^3+3575\,c^4\,d^4\,x^4+4290\,c^3\,d^5\,x^5+3432\,c^2\,d^6\,x^6+1716\,c\,d^7\,x^7+429\,d^8\,x^8)+a\,b^9\,d\,(55\,c^9+585\,c^8\,d\,x+2808\,c^7\,d^2\,x^2+8008\,c^6\,d^3\,x^3+15\,015\,c^5\,d^4\,x^4+19\,305\,c^4\,d^5\,x^5+17\,160\,c^3\,d^6\,x^6+10\,296\,c^2\,d^7\,x^7+3861\,c\,d^8\,x^8+715\,d^9\,x^9)+b^{10}\,(66\,c^{10}+715\,c^9\,d\,x+3510\,c^8\,d^2\,x^2+10\,296\,c^7\,d^3\,x^3+20\,020\,c^6\,d^4\,x^4+27\,027\,c^5\,d^5\,x^5+25\,740\,c^4\,d^6\,x^6+17\,160\,c^3\,d^7\,x^7+7722\,c^2\,d^8\,x^8+2145\,c\,d^9\,x^9+286\,d^{10}\,x^{10})\Big)$$

Problem 1326: Result more than twice size of optimal antiderivative.

$$\int\frac{(c+d\,x)^{10}}{(a+b\,x)^{15}}\,dx$$

Optimal (type 1, 120 leaves, 4 steps):

$$-\frac{(c+d\,x)^{11}}{14\,(b\,c-a\,d)\,(a+b\,x)^{14}}+\frac{3\,d\,(c+d\,x)^{11}}{182\,(b\,c-a\,d)^2\,(a+b\,x)^{13}}-\frac{d^2\,(c+d\,x)^{11}}{364\,(b\,c-a\,d)^3\,(a+b\,x)^{12}}+\frac{d^3\,(c+d\,x)^{11}}{4004\,(b\,c-a\,d)^4\,(a+b\,x)^{11}}$$

Result (type 1, 692 leaves):

$$-\frac{1}{4004\,b^{11}\,(a+b\,x)^{14}}\Big(a^{10}\,d^{10}+2\,a^9\,b\,d^9\,(2\,c+7\,d\,x)+a^8\,b^2\,d^8\,(10\,c^2+56\,c\,d\,x+91\,d^2\,x^2)+4\,a^7\,b^3\,d^7\,(5\,c^3+35\,c^2\,d\,x+91\,c\,d^2\,x^2+91\,d^3\,x^3)+7\,a^6\,b^4\,d^6\,(5\,c^4+40\,c^3\,d\,x+130\,c^2\,d^2\,x^2+208\,c\,d^3\,x^3+143\,d^4\,x^4)+14\,a^5\,b^5\,d^5\,(4\,c^5+35\,c^4\,d\,x+130\,c^3\,d^2\,x^2+260\,c^2\,d^3\,x^3+286\,c\,d^4\,x^4+143\,d^5\,x^5)+7\,a^4\,b^6\,d^4\,(12\,c^6+112\,c^5\,d\,x+455\,c^4\,d^2\,x^2+1040\,c^3\,d^3\,x^3+1430\,c^2\,d^4\,x^4+1144\,c\,d^5\,x^5+429\,d^6\,x^6)+4\,a^3\,b^7\,d^3\,(30\,c^7+294\,c^6\,d\,x+1274\,c^5\,d^2\,x^2+3185\,c^4\,d^3\,x^3+5005\,c^3\,d^4\,x^4+5005\,c^2\,d^5\,x^5+3003\,c\,d^6\,x^6+858\,d^7\,x^7)+a^2\,b^8\,d^2\,(165\,c^8+1680\,c^7\,d\,x+7644\,c^6\,d^2\,x^2+20\,384\,c^5\,d^3\,x^3+35\,035\,c^4\,d^4\,x^4+40\,040\,c^3\,d^5\,x^5+30\,030\,c^2\,d^6\,x^6+13\,728\,c\,d^7\,x^7+3003\,d^8\,x^8)+2\,a\,b^9\,d\,(110\,c^9+1155\,c^8\,d\,x+5460\,c^7\,d^2\,x^2+15\,288\,c^6\,d^3\,x^3+28\,028\,c^5\,d^4\,x^4+35\,035\,c^4\,d^5\,x^5+30\,030\,c^3\,d^6\,x^6+17\,160\,c^2\,d^7\,x^7+6006\,c\,d^8\,x^8+1001\,d^9\,x^9)+b^{10}\,(286\,c^{10}+3080\,c^9\,d\,x+15\,015\,c^8\,d^2\,x^2+43\,680\,c^7\,d^3\,x^3+84\,084\,c^6\,d^4\,x^4+112\,112\,c^5\,d^5\,x^5+105\,105\,c^4\,d^6\,x^6+68\,640\,c^3\,d^7\,x^7+30\,030\,c^2\,d^8\,x^8+8008\,c\,d^9\,x^9+1001\,d^{10}\,x^{10})\Big)$$

Problem 1327: Result more than twice size of optimal antiderivative.

$$\int\frac{(c+d\,x)^{10}}{(a+b\,x)^{16}}\,dx$$

Optimal (type 1, 151 leaves, 5 steps):

$$-\frac{(c+d x)^{11}}{15 (b c-a d) (a+b x)^{15}}+\frac{2 d (c+d x)^{11}}{105 (b c-a d)^2 (a+b x)^{14}}-\frac{2 d^2 (c+d x)^{11}}{455 (b c-a d)^3 (a+b x)^{13}}+\frac{d^3 (c+d x)^{11}}{1365 (b c-a d)^4 (a+b x)^{12}}-\frac{d^4 (c+d x)^{11}}{15015 (b c-a d)^5 (a+b x)^{11}}$$

Result (type 1, 690 leaves):

$$-\frac{1}{15015 b^{11} (a+b x)^{15}}\left(a^{10} d^{10}+5 a^9 b d^9 (c+3 d x)+15 a^8 b^2 d^8 (c^2+5 c d x+7 d^2 x^2)+5 a^7 b^3 d^7 (7 c^3+45 c^2 d x+105 c d^2 x^2+91 d^3 x^3)+\right.$$
$$35 a^6 b^4 d^6 (2 c^4+15 c^3 d x+45 c^2 d^2 x^2+65 c d^3 x^3+39 d^4 x^4)+21 a^5 b^5 d^5 (6 c^5+50 c^4 d x+175 c^3 d^2 x^2+325 c^2 d^3 x^3+325 c d^4 x^4+143 d^5 x^5)+$$
$$35 a^4 b^6 d^4 (6 c^6+54 c^5 d x+210 c^4 d^2 x^2+455 c^3 d^3 x^3+585 c^2 d^4 x^4+429 c d^5 x^5+143 d^6 x^6)+$$
$$5 a^3 b^7 d^3 (66 c^7+630 c^6 d x+2646 c^5 d^2 x^2+6370 c^4 d^3 x^3+9555 c^3 d^4 x^4+9009 c^2 d^5 x^5+5005 c d^6 x^6+1287 d^7 x^7)+$$
$$15 a^2 b^8 d^2 (33 c^8+330 c^7 d x+1470 c^6 d^2 x^2+3822 c^5 d^3 x^3+6370 c^4 d^4 x^4+7007 c^3 d^5 x^5+5005 c^2 d^6 x^6+2145 c d^7 x^7+429 d^8 x^8)+5 a b^9 d$$
$$(143 c^9+1485 c^8 d x+6930 c^7 d^2 x^2+19110 c^6 d^3 x^3+34398 c^5 d^4 x^4+42042 c^4 d^5 x^5+35035 c^3 d^6 x^6+19305 c^2 d^7 x^7+6435 c d^8 x^8+1001 d^9 x^9)+$$
$$b^{10} (1001 c^{10}+10725 c^9 d x+51975 c^8 d^2 x^2+150150 c^7 d^3 x^3+286650 c^6 d^4 x^4+378378 c^5 d^5 x^5+$$
$$\left.350350 c^4 d^6 x^6+225225 c^3 d^7 x^7+96525 c^2 d^8 x^8+25025 c d^9 x^9+3003 d^{10} x^{10})\right)$$

Problem 1328: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^{10}}{(a+b x)^{17}} \, dx$$

Optimal (type 1, 182 leaves, 6 steps):

$$-\frac{(c+d x)^{11}}{16 (b c-a d) (a+b x)^{16}}+\frac{d (c+d x)^{11}}{48 (b c-a d)^2 (a+b x)^{15}}-\frac{d^2 (c+d x)^{11}}{168 (b c-a d)^3 (a+b x)^{14}}+$$
$$\frac{d^3 (c+d x)^{11}}{728 (b c-a d)^4 (a+b x)^{13}}-\frac{d^4 (c+d x)^{11}}{4368 (b c-a d)^5 (a+b x)^{12}}+\frac{d^5 (c+d x)^{11}}{48048 (b c-a d)^6 (a+b x)^{11}}$$

Result (type 1, 694 leaves):

$$-\frac{1}{48048 b^{11} (a+b x)^{16}}\left(a^{10} d^{10}+2 a^9 b d^9 (3 c+8 d x)+3 a^8 b^2 d^8 (7 c^2+32 c d x+40 d^2 x^2)+8 a^7 b^3 d^7 (7 c^3+42 c^2 d x+90 c d^2 x^2+70 d^3 x^3)+\right.$$
$$14 a^6 b^4 d^6 (9 c^4+64 c^3 d x+180 c^2 d^2 x^2+240 c d^3 x^3+130 d^4 x^4)+84 a^5 b^5 d^5 (3 c^5+24 c^4 d x+80 c^3 d^2 x^2+140 c^2 d^3 x^3+130 c d^4 x^4+52 d^5 x^5)+$$
$$14 a^4 b^6 d^4 (33 c^6+288 c^5 d x+1080 c^4 d^2 x^2+2240 c^3 d^3 x^3+2730 c^2 d^4 x^4+1872 c d^5 x^5+572 d^6 x^6)+$$
$$8 a^3 b^7 d^3 (99 c^7+924 c^6 d x+3780 c^5 d^2 x^2+8820 c^4 d^3 x^3+12740 c^3 d^4 x^4+11466 c^2 d^5 x^5+6006 c d^6 x^6+1430 d^7 x^7)+$$
$$3 a^2 b^8 d^2 (429 c^8+4224 c^7 d x+18480 c^6 d^2 x^2+47040 c^5 d^3 x^3+76440 c^4 d^4 x^4+81536 c^3 d^5 x^5+56056 c^2 d^6 x^6+22880 c d^7 x^7+4290 d^8 x^8)+$$
$$2 a b^9 d (1001 c^9+10296 c^8 d x+47520 c^7 d^2 x^2+129360 c^6 d^3 x^3+229320 c^5 d^4 x^4+275184 c^4 d^5 x^5+224224 c^3 d^6 x^6+$$
$$120120 c^2 d^7 x^7+38610 c d^8 x^8+5720 d^9 x^9)+b^{10} (3003 c^{10}+32032 c^9 d x+154440 c^8 d^2 x^2+443520 c^7 d^3 x^3+$$
$$\left.840840 c^6 d^4 x^4+1100736 c^5 d^5 x^5+1009008 c^4 d^6 x^6+640640 c^3 d^7 x^7+270270 c^2 d^8 x^8+68640 c d^9 x^9+8008 d^{10} x^{10})\right)$$

Problem 1329: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^{10}}{(a+b x)^{18}}\,dx$$

Optimal (type 1, 213 leaves, 7 steps):

$$-\frac{(c+d x)^{11}}{17 (b c-a d) (a+b x)^{17}}+\frac{3 d (c+d x)^{11}}{136 (b c-a d)^2 (a+b x)^{16}}-\frac{d^2 (c+d x)^{11}}{136 (b c-a d)^3 (a+b x)^{15}}+\frac{d^3 (c+d x)^{11}}{476 (b c-a d)^4 (a+b x)^{14}}-\frac{3 d^4 (c+d x)^{11}}{6188 (b c-a d)^5 (a+b x)^{13}}+\frac{d^5 (c+d x)^{11}}{12376 (b c-a d)^6 (a+b x)^{12}}-\frac{d^6 (c+d x)^{11}}{136136 (b c-a d)^7 (a+b x)^{11}}$$

Result (type 1, 690 leaves):

$$-\frac{1}{136136 b^{11} (a+b x)^{17}}\Big(a^{10} d^{10}+a^9 b d^9 (7 c+17 d x)+a^8 b^2 d^8 (28 c^2+119 c d x+136 d^2 x^2)+4 a^7 b^3 d^7 (21 c^3+119 c^2 d x+238 c d^2 x^2+170 d^3 x^3)+14 a^6 b^4 d^6 (15 c^4+102 c^3 d x+272 c^2 d^2 x^2+340 c d^3 x^3+170 d^4 x^4)+14 a^5 b^5 d^5 (33 c^5+255 c^4 d x+816 c^3 d^2 x^2+1360 c^2 d^3 x^3+1190 c d^4 x^4+442 d^5 x^5)+14 a^4 b^6 d^4 (66 c^6+561 c^5 d x+2040 c^4 d^2 x^2+4080 c^3 d^3 x^3+4760 c^2 d^4 x^4+3094 c d^5 x^5+884 d^6 x^6)+4 a^3 b^7 d^3 (429 c^7+3927 c^6 d x+15708 c^5 d^2 x^2+35700 c^4 d^3 x^3+49980 c^3 d^4 x^4+43316 c^2 d^5 x^5+21658 c d^6 x^6+4862 d^7 x^7)+a^2 b^8 d^2 (3003 c^8+29172 c^7 d x+125664 c^6 d^2 x^2+314160 c^5 d^3 x^3+499800 c^4 d^4 x^4+519792 c^3 d^5 x^5+346528 c^2 d^6 x^6+136136 c d^7 x^7+24310 d^8 x^8)+a b^9 d (5005 c^9+51051 c^8 d x+233376 c^7 d^2 x^2+628320 c^6 d^3 x^3+1099560 c^5 d^4 x^4+1299480 c^4 d^5 x^5+1039584 c^3 d^6 x^6+544544 c^2 d^7 x^7+170170 c d^8 x^8+24310 d^9 x^9)+b^{10} (8008 c^{10}+85085 c^9 d x+408408 c^8 d^2 x^2+1166880 c^7 d^3 x^3+2199120 c^6 d^4 x^4+2858856 c^5 d^5 x^5+2598960 c^4 d^6 x^6+1633632 c^3 d^7 x^7+680680 c^2 d^8 x^8+170170 c d^9 x^9+19448 d^{10} x^{10})\Big)$$

Problem 1330: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^{10}}{(a+b x)^{19}}\,dx$$

Optimal (type 1, 244 leaves, 8 steps):

$$-\frac{(c+d x)^{11}}{18 (b c-a d) (a+b x)^{18}}+\frac{7 d (c+d x)^{11}}{306 (b c-a d)^2 (a+b x)^{17}}-\frac{7 d^2 (c+d x)^{11}}{816 (b c-a d)^3 (a+b x)^{16}}+\frac{7 d^3 (c+d x)^{11}}{2448 (b c-a d)^4 (a+b x)^{15}}-\frac{d^4 (c+d x)^{11}}{1224 (b c-a d)^5 (a+b x)^{14}}+\frac{d^5 (c+d x)^{11}}{5304 (b c-a d)^6 (a+b x)^{13}}-\frac{d^6 (c+d x)^{11}}{31824 (b c-a d)^7 (a+b x)^{12}}+\frac{d^7 (c+d x)^{11}}{350064 (b c-a d)^8 (a+b x)^{11}}$$

Result (type 1, 694 leaves):

$$-\frac{1}{350064\, b^{11}\, (a+b\,x)^{18}}\Big(a^{10} d^{10}+2 a^9 b\, d^9 (4 c+9 d\,x)+9 a^8 b^2 d^8 \left(4 c^2+16 c\, d\,x+17 d^2 x^2\right)+24 a^7 b^3 d^7 \left(5 c^3+27 c^2 d\,x+51 c\, d^2 x^2+34 d^3 x^3\right)+6 a^6 b^4 d^6 \left(55 c^4+360 c^3 d\,x+918 c^2 d^2 x^2+1088 c\, d^3 x^3+510 d^4 x^4\right)+36 a^5 b^5 d^5 \left(22 c^5+165 c^4 d\,x+510 c^3 d^2 x^2+816 c^2 d^3 x^3+680 c\, d^4 x^4+238 d^5 x^5\right)+6 a^4 b^6 d^4 \left(286 c^6+2376 c^5 d\,x+8415 c^4 d^2 x^2+16320 c^3 d^3 x^3+18360 c^2 d^4 x^4+11424 c\, d^5 x^5+3094 d^6 x^6\right)+24 a^3 b^7 d^3 \left(143 c^7+1287 c^6 d\,x+5049 c^5 d^2 x^2+11220 c^4 d^3 x^3+15300 c^3 d^4 x^4+12852 c^2 d^5 x^5+6188 c\, d^6 x^6+1326 d^7 x^7\right)+9 a^2 b^8 d^2 \left(715 c^8+6864 c^7 d\,x+29172 c^6 d^2 x^2+71808 c^5 d^3 x^3+112200 c^4 d^4 x^4+114240 c^3 d^5 x^5+74256 c^2 d^6 x^6+28288 c\, d^7 x^7+4862 d^8 x^8\right)+2 a\, b^9 d \left(5720 c^9+57915 c^8 d\,x+262548 c^7 d^2 x^2+700128 c^6 d^3 x^3+1211760 c^5 d^4 x^4+1413720 c^4 d^5 x^5+1113840 c^3 d^6 x^6+572832 c^2 d^7 x^7+175032 c\, d^8 x^8+24310 d^9 x^9\right)+b^{10} \left(19448 c^{10}+205920 c^9 d\,x+984555 c^8 d^2 x^2+2800512 c^7 d^3 x^3+5250960 c^6 d^4 x^4+6785856 c^5 d^5 x^5+6126120 c^4 d^6 x^6+3818880 c^3 d^7 x^7+1575288 c^2 d^8 x^8+388960 c\, d^9 x^9+43758 d^{10} x^{10}\right)\Big)$$

Problem 1331: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d\,x)^{10}}{(a+b\,x)^{20}}\, dx$$

Optimal (type 1, 273 leaves, 2 steps):

$$-\frac{(b\,c-a\,d)^{10}}{19\, b^{11} (a+b\,x)^{19}}-\frac{5 d\, (b\,c-a\,d)^9}{9\, b^{11} (a+b\,x)^{18}}-\frac{45 d^2 (b\,c-a\,d)^8}{17\, b^{11} (a+b\,x)^{17}}-\frac{15 d^3 (b\,c-a\,d)^7}{2\, b^{11} (a+b\,x)^{16}}-\frac{14 d^4 (b\,c-a\,d)^6}{b^{11} (a+b\,x)^{15}}-\frac{18 d^5 (b\,c-a\,d)^5}{b^{11} (a+b\,x)^{14}}-\frac{210 d^6 (b\,c-a\,d)^4}{13\, b^{11} (a+b\,x)^{13}}-\frac{10 d^7 (b\,c-a\,d)^3}{b^{11} (a+b\,x)^{12}}-\frac{45 d^8 (b\,c-a\,d)^2}{11\, b^{11} (a+b\,x)^{11}}-\frac{d^9 (b\,c-a\,d)}{b^{11} (a+b\,x)^{10}}-\frac{d^{10}}{9\, b^{11} (a+b\,x)^9}$$

Result (type 1, 692 leaves):

$$-\frac{1}{831402\, b^{11}\, (a+b\,x)^{19}}\Big(a^{10} d^{10}+a^9 b\, d^9 (9 c+19 d\,x)+9 a^8 b^2 d^8 \left(5 c^2+19 c\, d\,x+19 d^2 x^2\right)+3 a^7 b^3 d^7 \left(55 c^3+285 c^2 d\,x+513 c\, d^2 x^2+323 d^3 x^3\right)+3 a^6 b^4 d^6 \left(165 c^4+1045 c^3 d\,x+2565 c^2 d^2 x^2+2907 c\, d^3 x^3+1292 d^4 x^4\right)+9 a^5 b^5 d^5 \left(143 c^5+1045 c^4 d\,x+3135 c^3 d^2 x^2+4845 c^2 d^3 x^3+3876 c\, d^4 x^4+1292 d^5 x^5\right)+3 a^4 b^6 d^4 \left(1001 c^6+8151 c^5 d\,x+28215 c^4 d^2 x^2+53295 c^3 d^3 x^3+58140 c^2 d^4 x^4+34884 c\, d^5 x^5+9044 d^6 x^6\right)+3 a^3 b^7 d^3 \left(2145 c^7+19019 c^6 d\,x+73359 c^5 d^2 x^2+159885 c^4 d^3 x^3+213180 c^3 d^4 x^4+174420 c^2 d^5 x^5+81396 c\, d^6 x^6+16796 d^7 x^7\right)+9 a^2 b^8 d^2 \left(1430 c^8+13585 c^7 d\,x+57057 c^6 d^2 x^2+138567 c^5 d^3 x^3+213180 c^4 d^4 x^4+213180 c^3 d^5 x^5+135660 c^2 d^6 x^6+50388 c\, d^7 x^7+8398 d^8 x^8\right)+a\, b^9 d \left(24310 c^9+244530 c^8 d\,x+1100385 c^7 d^2 x^2+2909907 c^6 d^3 x^3+4988412 c^5 d^4 x^4+5755860 c^4 d^5 x^5+4476780 c^3 d^6 x^6+2267460 c^2 d^7 x^7+680238 c\, d^8 x^8+92378 d^9 x^9\right)+b^{10} \left(43758 c^{10}+461890 c^9 d\,x+2200770 c^8 d^2 x^2+6235515 c^7 d^3 x^3+11639628 c^6 d^4 x^4+14965236 c^5 d^5 x^5+13430340 c^4 d^6 x^6+8314020 c^3 d^7 x^7+3401190 c^2 d^8 x^8+831402 c\, d^9 x^9+92378 d^{10} x^{10}\right)\Big)$$

Problem 1332: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^{10}}{(a+b x)^{21}} \, dx$$

Optimal (type 1, 279 leaves, 2 steps):

$$-\frac{(b c-a d)^{10}}{20 b^{11} (a+b x)^{20}}-\frac{10 d (b c-a d)^9}{19 b^{11} (a+b x)^{19}}-\frac{5 d^2 (b c-a d)^8}{2 b^{11} (a+b x)^{18}}-\frac{120 d^3 (b c-a d)^7}{17 b^{11} (a+b x)^{17}}-\frac{105 d^4 (b c-a d)^6}{8 b^{11} (a+b x)^{16}}-\frac{84 d^5 (b c-a d)^5}{5 b^{11} (a+b x)^{15}}-\frac{15 d^6 (b c-a d)^4}{b^{11} (a+b x)^{14}}-\frac{120 d^7 (b c-a d)^3}{13 b^{11} (a+b x)^{13}}-\frac{15 d^8 (b c-a d)^2}{4 b^{11} (a+b x)^{12}}-\frac{10 d^9 (b c-a d)}{11 b^{11} (a+b x)^{11}}-\frac{d^{10}}{10 b^{11} (a+b x)^{10}}$$

Result (type 1, 692 leaves):

$$-\frac{1}{1\,847\,560 b^{11} (a+b x)^{20}} \Big(a^{10} d^{10}+10 a^9 b d^9 (c+2 d x)+5 a^8 b^2 d^8 \left(11 c^2+40 c d x+38 d^2 x^2\right)+ 20 a^7 b^3 d^7 \left(11 c^3+55 c^2 d x+95 c d^2 x^2+57 d^3 x^3\right)+5 a^6 b^4 d^6 \left(143 c^4+880 c^3 d x+2090 c^2 d^2 x^2+2280 c d^3 x^3+969 d^4 x^4\right)+ 2 a^5 b^5 d^5 \left(1001 c^5+7150 c^4 d x+20\,900 c^3 d^2 x^2+31\,350 c^2 d^3 x^3+24\,225 c d^4 x^4+7752 d^5 x^5\right)+ 5 a^4 b^6 d^4 \left(1001 c^6+8008 c^5 d x+27\,170 c^4 d^2 x^2+50\,160 c^3 d^3 x^3+53\,295 c^2 d^4 x^4+31\,008 c d^5 x^5+7752 d^6 x^6\right)+ 20 a^3 b^7 d^3 \left(572 c^7+5005 c^6 d x+19\,019 c^5 d^2 x^2+40\,755 c^4 d^3 x^3+53\,295 c^3 d^4 x^4+42\,636 c^2 d^5 x^5+19\,380 c d^6 x^6+3876 d^7 x^7\right)+5 a^2 b^8 d^2 \left(4862 c^8+45\,760 c^7 d x+190\,190 c^6 d^2 x^2+456\,456 c^5 d^3 x^3+692\,835 c^4 d^4 x^4+682\,176 c^3 d^5 x^5+426\,360 c^2 d^6 x^6+155\,040 c d^7 x^7+25\,194 d^8 x^8\right)+ 10 a b^9 d \left(4862 c^9+48\,620 c^8 d x+217\,360 c^7 d^2 x^2+570\,570 c^6 d^3 x^3+969\,969 c^5 d^4 x^4+1\,108\,536 c^4 d^5 x^5+852\,720 c^3 d^6 x^6+ 426\,360 c^2 d^7 x^7+125\,970 c d^8 x^8+16\,796 d^9 x^9\right)+b^{10} \left(92\,378 c^{10}+972\,400 c^9 d x+4\,618\,900 c^8 d^2 x^2+13\,041\,600 c^7 d^3 x^3+ 24\,249\,225 c^6 d^4 x^4+31\,039\,008 c^5 d^5 x^5+27\,713\,400 c^4 d^6 x^6+17\,054\,400 c^3 d^7 x^7+6\,928\,350 c^2 d^8 x^8+1\,679\,600 c d^9 x^9+184\,756 d^{10} x^{10}\right)\Big)$$

Problem 1333: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^{10}}{(a+b x)^{22}} \, dx$$

Optimal (type 1, 279 leaves, 2 steps):

$$-\frac{(b c-a d)^{10}}{21 b^{11} (a+b x)^{21}}-\frac{d (b c-a d)^9}{2 b^{11} (a+b x)^{20}}-\frac{45 d^2 (b c-a d)^8}{19 b^{11} (a+b x)^{19}}-\frac{20 d^3 (b c-a d)^7}{3 b^{11} (a+b x)^{18}}-\frac{210 d^4 (b c-a d)^6}{17 b^{11} (a+b x)^{17}}-\frac{63 d^5 (b c-a d)^5}{4 b^{11} (a+b x)^{16}}-\frac{14 d^6 (b c-a d)^4}{b^{11} (a+b x)^{15}}-\frac{60 d^7 (b c-a d)^3}{7 b^{11} (a+b x)^{14}}-\frac{45 d^8 (b c-a d)^2}{13 b^{11} (a+b x)^{13}}-\frac{5 d^9 (b c-a d)}{6 b^{11} (a+b x)^{12}}-\frac{d^{10}}{11 b^{11} (a+b x)^{11}}$$

Result (type 1, 692 leaves):

$$-\frac{1}{3\,879\,876\,b^{11}\,(a+b\,x)^{21}}\Big(a^{10}\,d^{10}+a^9\,b\,d^9\,(11\,c+21\,d\,x)+3\,a^8\,b^2\,d^8\,(22\,c^2+77\,c\,d\,x+70\,d^2\,x^2)+$$
$$2\,a^7\,b^3\,d^7\,(143\,c^3+693\,c^2\,d\,x+1155\,c\,d^2\,x^2+665\,d^3\,x^3)+7\,a^6\,b^4\,d^6\,(143\,c^4+858\,c^3\,d\,x+1980\,c^2\,d^2\,x^2+2090\,c\,d^3\,x^3+855\,d^4\,x^4)+$$
$$21\,a^5\,b^5\,d^5\,(143\,c^5+1001\,c^4\,d\,x+2860\,c^3\,d^2\,x^2+4180\,c^2\,d^3\,x^3+3135\,c\,d^4\,x^4+969\,d^5\,x^5)+$$
$$7\,a^4\,b^6\,d^4\,(1144\,c^6+9009\,c^5\,d\,x+30\,030\,c^4\,d^2\,x^2+54\,340\,c^3\,d^3\,x^3+56\,430\,c^2\,d^4\,x^4+31\,977\,c\,d^5\,x^5+7752\,d^6\,x^6)+$$
$$2\,a^3\,b^7\,d^3\,(9724\,c^7+84\,084\,c^6\,d\,x+315\,315\,c^5\,d^2\,x^2+665\,665\,c^4\,d^3\,x^3+855\,855\,c^3\,d^4\,x^4+671\,517\,c^2\,d^5\,x^5+298\,452\,c\,d^6\,x^6+58\,140\,d^7\,x^7)+$$
$$3\,a^2\,b^8\,d^2\,(14\,586\,c^8+136\,136\,c^7\,d\,x+560\,560\,c^6\,d^2\,x^2+1\,331\,330\,c^5\,d^3\,x^3+1\,996\,995\,c^4\,d^4\,x^4+1\,939\,938\,c^3\,d^5\,x^5+$$
$$1\,193\,808\,c^2\,d^6\,x^6+426\,360\,c\,d^7\,x^7+67\,830\,d^8\,x^8)+a\,b^9\,d\,(92\,378\,c^9+918\,918\,c^8\,d\,x+4\,084\,080\,c^7\,d^2\,x^2+10\,650\,640\,c^6\,d^3\,x^3+$$
$$17\,972\,955\,c^5\,d^4\,x^4+20\,369\,349\,c^4\,d^5\,x^5+15\,519\,504\,c^3\,d^6\,x^6+7\,674\,480\,c^2\,d^7\,x^7+2\,238\,390\,c\,d^8\,x^8+293\,930\,d^9\,x^9)+$$
$$b^{10}\,(184\,756\,c^{10}+1\,939\,938\,c^9\,d\,x+9\,189\,180\,c^8\,d^2\,x^2+25\,865\,840\,c^7\,d^3\,x^3+47\,927\,880\,c^6\,d^4\,x^4+61\,108\,047\,c^5\,d^5\,x^5+$$
$$54\,318\,264\,c^4\,d^6\,x^6+33\,256\,080\,c^3\,d^7\,x^7+13\,430\,340\,c^2\,d^8\,x^8+3\,233\,230\,c\,d^9\,x^9+352\,716\,d^{10}\,x^{10})\Big)$$

Problem 1362: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,x)^9}{(c+d\,x)^8}\,dx$$

Optimal (type 3, 232 leaves, 2 steps):

$$-\frac{b^8\,(8\,b\,c-9\,a\,d)\,x}{d^9}+\frac{b^9\,x^2}{2\,d^8}+\frac{(b\,c-a\,d)^9}{7\,d^{10}\,(c+d\,x)^7}-\frac{3\,b\,(b\,c-a\,d)^8}{2\,d^{10}\,(c+d\,x)^6}+\frac{36\,b^2\,(b\,c-a\,d)^7}{5\,d^{10}\,(c+d\,x)^5}-$$
$$\frac{21\,b^3\,(b\,c-a\,d)^6}{d^{10}\,(c+d\,x)^4}+\frac{42\,b^4\,(b\,c-a\,d)^5}{d^{10}\,(c+d\,x)^3}-\frac{63\,b^5\,(b\,c-a\,d)^4}{d^{10}\,(c+d\,x)^2}+\frac{84\,b^6\,(b\,c-a\,d)^3}{d^{10}\,(c+d\,x)}+\frac{36\,b^7\,(b\,c-a\,d)^2\,\mathrm{Log}[c+d\,x]}{d^{10}}$$

Result (type 3, 584 leaves):

$$-\frac{1}{70\,d^{10}\,(c+d\,x)^7}\Big(10\,a^9\,d^9+15\,a^8\,b\,d^8\,(c+7\,d\,x)+24\,a^7\,b^2\,d^7\,(c^2+7\,c\,d\,x+21\,d^2\,x^2)+42\,a^6\,b^3\,d^6\,(c^3+7\,c^2\,d\,x+21\,c\,d^2\,x^2+35\,d^3\,x^3)+$$
$$84\,a^5\,b^4\,d^5\,(c^4+7\,c^3\,d\,x+21\,c^2\,d^2\,x^2+35\,c\,d^3\,x^3+35\,d^4\,x^4)+210\,a^4\,b^5\,d^4\,(c^5+7\,c^4\,d\,x+21\,c^3\,d^2\,x^2+35\,c^2\,d^3\,x^3+35\,c\,d^4\,x^4+21\,d^5\,x^5)+$$
$$840\,a^3\,b^6\,d^3\,(c^6+7\,c^5\,d\,x+21\,c^4\,d^2\,x^2+35\,c^3\,d^3\,x^3+35\,c^2\,d^4\,x^4+21\,c\,d^5\,x^5+7\,d^6\,x^6)-$$
$$6\,a^2\,b^7\,c\,d^2\,(1089\,c^6+7203\,c^5\,d\,x+20\,139\,c^4\,d^2\,x^2+30\,625\,c^3\,d^3\,x^3+26\,950\,c^2\,d^4\,x^4+13\,230\,c\,d^5\,x^5+2940\,d^6\,x^6)+$$
$$6\,a\,b^8\,d\,(1443\,c^8+9261\,c^7\,d\,x+24\,843\,c^6\,d^2\,x^2+35\,525\,c^5\,d^3\,x^3+28\,175\,c^4\,d^4\,x^4+11\,025\,c^3\,d^5\,x^5+735\,c^2\,d^6\,x^6-735\,c\,d^7\,x^7-105\,d^8\,x^8)-$$
$$b^9\,(3349\,c^9+20\,923\,c^8\,d\,x+53\,949\,c^7\,d^2\,x^2+72\,275\,c^6\,d^3\,x^3+50\,225\,c^5\,d^4\,x^4+12\,495\,c^4\,d^5\,x^5-4655\,c^3\,d^6\,x^6-3185\,c^2\,d^7\,x^7-315\,c\,d^8\,x^8+35\,d^9\,x^9)-$$
$$2520\,b^7\,(b\,c-a\,d)^2\,(c+d\,x)^7\,\mathrm{Log}[c+d\,x]\Big)$$

Problem 1363: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^8}{(c+d x)^8} \, dx$$

Optimal (type 3, 209 leaves, 2 steps):

$$\frac{b^8 x}{d^8}-\frac{(b c-a d)^8}{7 d^9 (c+d x)^7}+\frac{4 b (b c-a d)^7}{3 d^9 (c+d x)^6}-\frac{28 b^2 (b c-a d)^6}{5 d^9 (c+d x)^5}+\frac{14 b^3 (b c-a d)^5}{d^9 (c+d x)^4}-\frac{70 b^4 (b c-a d)^4}{3 d^9 (c+d x)^3}+\frac{28 b^5 (b c-a d)^3}{d^9 (c+d x)^2}-\frac{28 b^6 (b c-a d)^2}{d^9 (c+d x)}-\frac{8 b^7 (b c-a d) \text{Log}[c+d x]}{d^9}$$

Result (type 3, 474 leaves):

$$-\frac{1}{105 d^9 (c+d x)^7}\Big(15 a^8 d^8+20 a^7 b d^7 (c+7 d x)+28 a^6 b^2 d^6 (c^2+7 c d x+21 d^2 x^2)+42 a^5 b^3 d^5 (c^3+7 c^2 d x+21 c d^2 x^2+35 d^3 x^3)+$$
$$70 a^4 b^4 d^4 (c^4+7 c^3 d x+21 c^2 d^2 x^2+35 c d^3 x^3+35 d^4 x^4)+140 a^3 b^5 d^3 (c^5+7 c^4 d x+21 c^3 d^2 x^2+35 c^2 d^3 x^3+35 c d^4 x^4+21 d^5 x^5)+$$
$$420 a^2 b^6 d^2 (c^6+7 c^5 d x+21 c^4 d^2 x^2+35 c^3 d^3 x^3+35 c^2 d^4 x^4+21 c d^5 x^5+7 d^6 x^6)-$$
$$2 a b^7 c d (1089 c^6+7203 c^5 d x+20139 c^4 d^2 x^2+30625 c^3 d^3 x^3+26950 c^2 d^4 x^4+13230 c d^5 x^5+2940 d^6 x^6)+$$
$$b^8 (1443 c^8+9261 c^7 d x+24843 c^6 d^2 x^2+35525 c^5 d^3 x^3+28175 c^4 d^4 x^4+11025 c^3 d^5 x^5+735 c^2 d^6 x^6-735 c d^7 x^7-105 d^8 x^8)+$$
$$840 b^7 (b c-a d) (c+d x)^7 \text{Log}[c+d x]\Big)$$

Problem 1365: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^6}{(c+d x)^8} \, dx$$

Optimal (type 1, 28 leaves, 1 step):

$$\frac{(a+b x)^7}{7 (b c-a d) (c+d x)^7}$$

Result (type 1, 271 leaves):

$$-\frac{1}{7 d^7 (c+d x)^7}\Big(a^6 d^6+a^5 b d^5 (c+7 d x)+a^4 b^2 d^4 (c^2+7 c d x+21 d^2 x^2)+$$
$$a^3 b^3 d^3 (c^3+7 c^2 d x+21 c d^2 x^2+35 d^3 x^3)+a^2 b^4 d^2 (c^4+7 c^3 d x+21 c^2 d^2 x^2+35 c d^3 x^3+35 d^4 x^4)+$$
$$a b^5 d (c^5+7 c^4 d x+21 c^3 d^2 x^2+35 c^2 d^3 x^3+35 c d^4 x^4+21 d^5 x^5)+b^6 (c^6+7 c^5 d x+21 c^4 d^2 x^2+35 c^3 d^3 x^3+35 c^2 d^4 x^4+21 c d^5 x^5+7 d^6 x^6)\Big)$$

Problem 1366: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^5}{(c+d x)^8}\,dx$$

Optimal (type 1, 58 leaves, 2 steps):

$$\frac{(a+b x)^6}{7\,(b c-a d)\,(c+d x)^7}+\frac{b\,(a+b x)^6}{42\,(b c-a d)^2\,(c+d x)^6}$$

Result (type 1, 205 leaves):

$$-\frac{1}{42\,d^6\,(c+d x)^7}\left(6 a^5 d^5+5 a^4 b d^4\,(c+7 d x)+4 a^3 b^2 d^3\,(c^2+7 c d x+21 d^2 x^2)+3 a^2 b^3 d^2\,(c^3+7 c^2 d x+21 c d^2 x^2+35 d^3 x^3)+2 a b^4 d\,(c^4+7 c^3 d x+21 c^2 d^2 x^2+35 c d^3 x^3+35 d^4 x^4)+b^5\,(c^5+7 c^4 d x+21 c^3 d^2 x^2+35 c^2 d^3 x^3+35 c d^4 x^4+21 d^5 x^5)\right)$$

Problem 1453: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(-2+x)\,\sqrt{2+x}}\,dx$$

Optimal (type 3, 14 leaves, 2 steps):

$$-\text{ArcTanh}\left[\frac{\sqrt{2+x}}{2}\right]$$

Result (type 3, 31 leaves):

$$\frac{1}{2}\,\text{Log}\left[2-\sqrt{2+x}\right]-\frac{1}{2}\,\text{Log}\left[2+\sqrt{2+x}\right]$$

Problem 1458: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)\,(c+d x)^{1/3}}\,dx$$

Optimal (type 3, 139 leaves, 4 steps):

$$\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{1+\frac{2 b^{1/3}\,(c+d x)^{1/3}}{(b c-a d)^{1/3}}}{\sqrt{3}}\right]}{b^{2/3}\,(b c-a d)^{1/3}}-\frac{\text{Log}[a+b x]}{2 b^{2/3}\,(b c-a d)^{1/3}}+\frac{3\,\text{Log}\left[(b c-a d)^{1/3}-b^{1/3}\,(c+d x)^{1/3}\right]}{2 b^{2/3}\,(b c-a d)^{1/3}}$$

Result (type 5, 47 leaves):

$$-\frac{3\,(c+d\,x)^{2/3}\,\text{Hypergeometric2F1}\left[\frac{2}{3},1,\frac{5}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{2\,b\,c-2\,a\,d}$$

Problem 1459: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)\,(c+d\,x)^{2/3}}\,dx$$

Optimal (type 3, 140 leaves, 4 steps):

$$-\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{1+\frac{2\,b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}}}{\sqrt{3}}\right]}{b^{1/3}\,(b\,c-a\,d)^{2/3}}-\frac{\text{Log}[a+b\,x]}{2\,b^{1/3}\,(b\,c-a\,d)^{2/3}}+\frac{3\,\text{Log}\left[(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right]}{2\,b^{1/3}\,(b\,c-a\,d)^{2/3}}$$

Result (type 5, 46 leaves):

$$-\frac{3\,(c+d\,x)^{1/3}\,\text{Hypergeometric2F1}\left[\frac{1}{3},1,\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{b\,c-a\,d}$$

Problem 1539: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{-b\,x}\,\sqrt{2+b\,x}}\,dx$$

Optimal (type 3, 10 leaves, 3 steps):

$$\frac{\text{ArcSin}[1+b\,x]}{b}$$

Result (type 3, 51 leaves):

$$\frac{2\,\sqrt{x}\,\sqrt{2+b\,x}\,\text{ArcSinh}\left[\frac{\sqrt{b}\,\sqrt{x}}{\sqrt{2}}\right]}{\sqrt{b}\,\sqrt{-b\,x\,(2+b\,x)}}$$

Problem 1540: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{-1-b\,x}\,\sqrt{2+b\,x}}\,dx$$

Optimal (type 3, 11 leaves, 3 steps):

$$\frac{\text{ArcSin}[3+2\,b\,x]}{b}$$

Result (type 3, 49 leaves):

$$\frac{2\sqrt{1+b\,x}\,\sqrt{2+b\,x}\,\text{ArcSinh}\left[\sqrt{1+b\,x}\right]}{b\sqrt{-(1+b\,x)\,(2+b\,x)}}$$

Problem 1550: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{-4+b\,x}\,\sqrt{4+b\,x}}\,dx$$

Optimal (type 3, 11 leaves, 1 step):

$$\frac{\text{ArcCosh}\left[\frac{b\,x}{4}\right]}{b}$$

Result (type 3, 24 leaves):

$$\frac{2\,\text{ArcSinh}\left[\frac{\sqrt{-4+b\,x}}{2\sqrt{2}}\right]}{b}$$

Problem 1555: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{4-x}\,\sqrt{x}}\,dx$$

Optimal (type 3, 10 leaves, 3 steps):

$$-\text{ArcSin}\left[1-\frac{x}{2}\right]$$

Result (type 3, 38 leaves):

$$\frac{2\sqrt{-4+x}\,\sqrt{x}\,\text{Log}\left[\sqrt{-4+x}+\sqrt{x}\right]}{\sqrt{-(-4+x)\,x}}$$

Problem 1558: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{\sqrt{a-b\,x}\,\sqrt{c+d\,x}}\,dx$$

Optimal (type 3, 43 leaves, 3 steps):

$$-\frac{2\,\text{ArcTan}\left[\frac{\sqrt{d}\,\sqrt{a-b\,x}}{\sqrt{b}\,\sqrt{c+d\,x}}\right]}{\sqrt{b}\,\sqrt{d}}$$

Result (type 3, 64 leaves):

$$\frac{i\,\text{Log}\left[2\,\sqrt{a-b\,x}\,\sqrt{c+d\,x}-\frac{i\,(b\,c-a\,d+2\,b\,d\,x)}{\sqrt{b}\,\sqrt{d}}\right]}{\sqrt{b}\,\sqrt{d}}$$

Problem 1559: Result unnecessarily involves higher level functions.

$$\int (a+b\,x)^{3/2}\,(c+d\,x)^{1/3}\,dx$$

Optimal (type 4, 457 leaves, 5 steps):

$$-\frac{108\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}\,(c+d\,x)^{1/3}}{935\,b\,d^2}+\frac{12\,(b\,c-a\,d)\,(a+b\,x)^{3/2}\,(c+d\,x)^{1/3}}{187\,b\,d}+$$

$$\frac{6\,(a+b\,x)^{5/2}\,(c+d\,x)^{1/3}}{17\,b}-\left(108\times 3^{3/4}\,\sqrt{2-\sqrt{3}}\,(b\,c-a\,d)^3\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}{\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}\right],\,-7+4\,\sqrt{3}\right]\right)\Big/$$

$$\left(935\,b^{4/3}\,d^3\,\sqrt{a+b\,x}\,\sqrt{-\frac{(b\,c-a\,d)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 142 leaves):

$$-\frac{1}{935\,b\,d^3\,\sqrt{a+b\,x}}6\,(c+d\,x)^{1/3}\left(-d\,(a+b\,x)\,\left(27\,a^2\,d^2+2\,a\,b\,d\,(23\,c+50\,d\,x)+b^2\,\left(-18\,c^2+10\,c\,d\,x+55\,d^2\,x^2\right)\right)-\right.$$

$$\left.27\,(b\,c-a\,d)^3\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{3},\,\frac{1}{2},\,\frac{4}{3},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1560: Result unnecessarily involves higher level functions.

$$\int \sqrt{a+b x}\,(c+d x)^{1/3}\,dx$$

Optimal (type 4, 419 leaves, 4 steps):

$$\frac{12 (b c-a d) \sqrt{a+b x} (c+d x)^{1/3}}{55 b d}+\frac{6 (a+b x)^{3/2} (c+d x)^{1/3}}{11 b}+\left(12\times 3^{3/4} \sqrt{2-\sqrt{3}} (b c-a d)^2 \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left(\left(1-\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)^2}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}}{\left(1-\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}}\right],-7+4 \sqrt{3}\right]\right)\Big/\left(55 b^{4/3} d^2 \sqrt{a+b x} \sqrt{-\frac{(b c-a d)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 110 leaves):

$$\frac{1}{55 b d^2 \sqrt{a+b x}} 6 (c+d x)^{1/3} \left(d (a+b x) (2 b c+3 a d+5 b d x)-3 (b c-a d)^2 \sqrt{\frac{d (a+b x)}{-b c+a d}}\ \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{2},\frac{4}{3},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1561: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{1/3}}{\sqrt{a+b x}}\,dx$$

Optimal (type 4, 381 leaves, 3 steps):

$$\frac{6\sqrt{a+bx}\,(c+dx)^{1/3}}{5b} - \left(4\times 3^{3/4}\sqrt{2-\sqrt{3}}\,(bc-ad)\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)\sqrt{\frac{(bc-ad)^{2/3}+b^{1/3}(bc-ad)^{1/3}(c+dx)^{1/3}+b^{2/3}(c+dx)^{2/3}}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}}{\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}}\right],-7+4\sqrt{3}\right]\right)\Bigg/$$

$$\left(5b^{4/3}d\sqrt{a+bx}\sqrt{-\frac{(bc-ad)^{1/3}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)^2}}\right)$$

Result (type 5, 93 leaves) :

$$\frac{6(c+dx)^{1/3}\left(d(a+bx)+(bc-ad)\sqrt{\frac{d(a+bx)}{-bc+ad}}\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{2},\frac{4}{3},\frac{b(c+dx)}{bc-ad}\right]\right)}{5bd\sqrt{a+bx}}$$

Problem 1562: Result unnecessarily involves higher level functions.

$$\int\frac{(c+dx)^{1/3}}{(a+bx)^{3/2}}\,dx$$

Optimal (type 4, 366 leaves, 3 steps) :

$$-\frac{2(c+dx)^{1/3}}{b\sqrt{a+bx}} - \left(4\sqrt{2-\sqrt{3}}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{(bc-ad)^{2/3}+b^{1/3}(bc-ad)^{1/3}(c+dx)^{1/3}+b^{2/3}(c+dx)^{2/3}}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}}{\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}}\right],-7+4\sqrt{3}\right]\right)\Bigg/$$

$$\left(3^{1/4}b^{4/3}\sqrt{a+bx}\sqrt{-\frac{(bc-ad)^{1/3}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)^2}}\right)$$

Result (type 5, 74 leaves) :

$$\frac{2\,(c+d\,x)^{1/3}\left(-1+\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\ \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{2},\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{b\,\sqrt{a+b\,x}}$$

Problem 1563: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d\,x)^{1/3}}{(a+b\,x)^{5/2}}\,dx$$

Optimal (type 4, 417 leaves, 4 steps):

$$-\frac{2\,(c+d\,x)^{1/3}}{3\,b\,(a+b\,x)^{3/2}}-\frac{4\,d\,(c+d\,x)^{1/3}}{9\,b\,(b\,c-a\,d)\,\sqrt{a+b\,x}}+\left(4\,\sqrt{2-\sqrt{3}}\ d\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left(\left(1-\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}\right],-7+4\,\sqrt{3}\right]\right)\Bigg/\left(9\times 3^{1/4}\,b^{4/3}\,(b\,c-a\,d)\,\sqrt{a+b\,x}\,\sqrt{-\frac{(b\,c-a\,d)^{1/3}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 104 leaves):

$$\frac{2\,(c+d\,x)^{1/3}\left(3\,b\,c-a\,d+2\,b\,d\,x+d\,(a+b\,x)\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\ \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{2},\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{9\,b\,(-b\,c+a\,d)\,(a+b\,x)^{3/2}}$$

Problem 1564: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d\,x)^{1/3}}{(a+b\,x)^{7/2}}\,dx$$

Optimal (type 4, 457 leaves, 5 steps):

$$-\frac{2\,(c+d\,x)^{1/3}}{5\,b\,(a+b\,x)^{5/2}}-\frac{4\,d\,(c+d\,x)^{1/3}}{45\,b\,(b\,c-a\,d)\,(a+b\,x)^{3/2}}+\frac{28\,d^2\,(c+d\,x)^{1/3}}{135\,b\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}}-$$

$$\left(28\,\sqrt{2-\sqrt{3}}\,d^2\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}{\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}\right],\,-7+4\,\sqrt{3}\right]\right)\Big/$$

$$\left(135\times 3^{1/4}\,b^{4/3}\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}\,\sqrt{-\frac{(b\,c-a\,d)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 140 leaves):

$$\left(2\,(c+d\,x)^{1/3}\left(-7\,a^2\,d^2+2\,a\,b\,d\,(24\,c+17\,d\,x)+b^2\,\left(-27\,c^2-6\,c\,d\,x+14\,d^2\,x^2\right)+\right.\right.$$

$$\left.\left.7\,d^2\,(a+b\,x)^2\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{3},\,\frac{1}{2},\,\frac{4}{3},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)\right)\Big/\left(135\,b\,(b\,c-a\,d)^2\,(a+b\,x)^{5/2}\right)$$

Problem 1565: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{3/2}}{(c+d\,x)^{1/3}}\,dx$$

Optimal (type 4, 839 leaves, 6 steps):

$$-\frac{54\,(b\,c-a\,d)\,\sqrt{a+b\,x}\,(c+d\,x)^{2/3}}{91\,d^2}+\frac{6\,(a+b\,x)^{3/2}\,(c+d\,x)^{2/3}}{13\,d}-$$

$$\frac{162\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}}{91\,b^{2/3}\,d^2\,\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}+\Bigg(81\times 3^{1/4}\,\sqrt{2+\sqrt{3}}\,(b\,c-a\,d)^{7/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)$$

$$\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}{\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}\right],\,-7+4\,\sqrt{3}\right]\Bigg)\Bigg/$$

$$\left(91\,b^{2/3}\,d^3\,\sqrt{a+b\,x}\,\sqrt{-\frac{(b\,c-a\,d)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)-\Bigg(54\,\sqrt{2}\,3^{3/4}\,(b\,c-a\,d)^{7/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)$$

$$\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}{\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}\right],\,-7+4\,\sqrt{3}\right]\Bigg)\Bigg/$$

$$\left(91\,b^{2/3}\,d^3\,\sqrt{a+b\,x}\,\sqrt{-\frac{(b\,c-a\,d)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 108 leaves):

$$\frac{1}{182\,d^3\,\sqrt{a+b\,x}}3\,(c+d\,x)^{2/3}\left(4\,d\,(a+b\,x)\,(-9\,b\,c+16\,a\,d+7\,b\,d\,x)+27\,(b\,c-a\,d)^2\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{2}{3},\,\frac{5}{3},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1566: Result unnecessarily involves higher level functions.

$$\int\frac{\sqrt{a+b\,x}}{(c+d\,x)^{1/3}}\,dx$$

Optimal (type 4, 804 leaves, 5 steps):

$$\frac{6\sqrt{a+bx}\,(c+dx)^{2/3}}{7d}+\frac{18\,(bc-ad)\,\sqrt{a+bx}}{7\,b^{2/3}\,d\,\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}\right)}-$$

$$\left(9\times 3^{1/4}\sqrt{2+\sqrt{3}}\,(bc-ad)^{4/3}\left((bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}\right)\sqrt{\frac{(bc-ad)^{2/3}+b^{1/3}\,(bc-ad)^{1/3}\,(c+dx)^{1/3}+b^{2/3}\,(c+dx)^{2/3}}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}}{\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}}\right],\,-7+4\sqrt{3}\right]\right)\Big/$$

$$\left(7\,b^{2/3}\,d^2\sqrt{a+bx}\sqrt{-\frac{(bc-ad)^{1/3}\left((bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}\right)^2}}\right)+\left(6\sqrt{2}\,3^{3/4}\,(bc-ad)^{4/3}\left((bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{(bc-ad)^{2/3}+b^{1/3}\,(bc-ad)^{1/3}\,(c+dx)^{1/3}+b^{2/3}\,(c+dx)^{2/3}}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}\right)^2}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}}{\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}}\right],\,-7+4\sqrt{3}\right]\right)\Big/$$

$$\left(7\,b^{2/3}\,d^2\sqrt{a+bx}\sqrt{-\frac{(bc-ad)^{1/3}\left((bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}\,(c+dx)^{1/3}\right)^2}}\right)$$

Result (type 5, 77 leaves) :

$$\frac{3\sqrt{a+bx}\,(c+dx)^{2/3}\left(4+\frac{3\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{2}{3},\frac{5}{3},\frac{b\,(c+dx)}{bc-ad}\right]}{\sqrt{\frac{d\,(a+bx)}{-bc+ad}}}\right)}{14\,d}$$

Problem 1567: Result unnecessarily involves higher level functions.

$$\int\frac{1}{\sqrt{a+bx}\,(c+dx)^{1/3}}\,dx$$

Optimal (type 4, 762 leaves, 4 steps) :

$$-\frac{6\sqrt{a+bx}}{b^{2/3}\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)}+$$

$$\left(3\times 3^{1/4}\sqrt{2+\sqrt{3}}\,(bc-ad)^{1/3}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)\sqrt{\frac{(bc-ad)^{2/3}+b^{1/3}(bc-ad)^{1/3}(c+dx)^{1/3}+b^{2/3}(c+dx)^{2/3}}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}}{\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}}\right],-7+4\sqrt{3}\right]\right)\Big/$$

$$\left(b^{2/3}d\sqrt{a+bx}\sqrt{-\frac{(bc-ad)^{1/3}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)^2}}\right)-\left(2\sqrt{2}\,3^{3/4}(bc-ad)^{1/3}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{(bc-ad)^{2/3}+b^{1/3}(bc-ad)^{1/3}(c+dx)^{1/3}+b^{2/3}(c+dx)^{2/3}}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}}{\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}}\right],-7+4\sqrt{3}\right]\right)\Big/$$

$$\left(b^{2/3}d\sqrt{a+bx}\sqrt{-\frac{(bc-ad)^{1/3}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)^2}}\right)$$

Result (type 5, 73 leaves) :

$$\frac{3\sqrt{\frac{d(a+bx)}{-bc+ad}}\,(c+dx)^{2/3}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{2}{3},\frac{5}{3},\frac{b(c+dx)}{bc-ad}\right]}{2d\sqrt{a+bx}}$$

Problem 1568: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+bx)^{3/2}(c+dx)^{1/3}}\,dx$$

Optimal (type 4, 796 leaves, 5 steps) :

$$-\frac{2 (c+d x)^{2/3}}{(b c-a d) \sqrt{a+b x}}-\frac{2 d \sqrt{a+b x}}{b^{2/3} (b c-a d) \left(\left(1-\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}+$$

$$\left(3^{1/4} \sqrt{2+\sqrt{3}} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left(\left(1-\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}}{\left(1-\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}}\right],-7+4 \sqrt{3}\right]\right)\Big/$$

$$\left(b^{2/3} (b c-a d)^{2/3} \sqrt{a+b x} \sqrt{-\frac{(b c-a d)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)^2}}\right)-$$

$$\left(2 \sqrt{2} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left(\left(1-\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}}{\left(1-\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}}\right],-7+4 \sqrt{3}\right]\right)\Big/$$

$$\left(3^{1/4} b^{2/3} (b c-a d)^{2/3} \sqrt{a+b x} \sqrt{-\frac{(b c-a d)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right) (b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 83 leaves) :

$$\frac{(c+d x)^{2/3} \left(-4+\sqrt{\frac{d (a+b x)}{-b c+a d}}\ \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{2}{3},\frac{5}{3},\frac{b (c+d x)}{b c-a d}\right]\right)}{2 (b c-a d) \sqrt{a+b x}}$$

Problem 1569: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{5/2} (c+d x)^{1/3}} \, dx$$

Optimal (type 4, 842 leaves, 6 steps) :

$$-\frac{2\,(c+d\,x)^{2/3}}{3\,(b\,c-a\,d)\,(a+b\,x)^{3/2}}+\frac{10\,d\,(c+d\,x)^{2/3}}{9\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}}+\frac{10\,d^2\,\sqrt{a+b\,x}}{9\,b^{2/3}\,(b\,c-a\,d)^2\,\left(\left(1-\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}-$$

$$\left(5\,\sqrt{2+\sqrt{3}}\;d\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left(\left(1-\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}\right],\,-7+4\,\sqrt{3}\right]\right)\Big/$$

$$\left(3\times3^{3/4}\,b^{2/3}\,(b\,c-a\,d)^{5/3}\,\sqrt{a+b\,x}\,\sqrt{-\frac{(b\,c-a\,d)^{1/3}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)+$$

$$\left(10\,\sqrt{2}\;d\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left(\left(1-\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}\right],\,-7+4\,\sqrt{3}\right]\right)\Big/$$

$$\left(9\times3^{1/4}\,b^{2/3}\,(b\,c-a\,d)^{5/3}\,\sqrt{a+b\,x}\,\sqrt{-\frac{(b\,c-a\,d)^{1/3}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 105 leaves):

$$\frac{(c+d\,x)^{2/3}\left(4\,(-3\,b\,c+8\,a\,d+5\,b\,d\,x)-5\,d\,(a+b\,x)\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{18\,(b\,c-a\,d)^2\,(a+b\,x)^{3/2}}$$

Problem 1570: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{3/2}}{(c+d\,x)^{2/3}}\,dx$$

Optimal (type 4, 416 leaves, 4 steps):

$$-\frac{54\,(b\,c-a\,d)\,\sqrt{a+b\,x}\,(c+d\,x)^{1/3}}{55\,d^2}+\frac{6\,(a+b\,x)^{3/2}\,(c+d\,x)^{1/3}}{11\,d}-$$

$$\left(54\times 3^{3/4}\,\sqrt{2-\sqrt{3}}\,(b\,c-a\,d)^2\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}{\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}\right],\,-7+4\,\sqrt{3}\right]\right)\Big/$$

$$\left(55\,b^{1/3}\,d^3\,\sqrt{a+b\,x}\,\sqrt{-\frac{(b\,c-a\,d)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 108 leaves):

$$\frac{1}{55\,d^3\,\sqrt{a+b\,x}}3\,(c+d\,x)^{1/3}\left(2\,d\,(a+b\,x)\,(-9\,b\,c+14\,a\,d+5\,b\,d\,x)+27\,(b\,c-a\,d)^2\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{3},\,\frac{1}{2},\,\frac{4}{3},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1571: Result unnecessarily involves higher level functions.

$$\int\frac{\sqrt{a+b\,x}}{(c+d\,x)^{2/3}}\,dx$$

Optimal (type 4, 381 leaves, 3 steps):

$$\frac{6\,\sqrt{a+b\,x}\,(c+d\,x)^{1/3}}{5\,d}+$$

$$\left(6\times 3^{3/4}\,\sqrt{2-\sqrt{3}}\,(b\,c-a\,d)\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}{\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}}\right],\,-7+4\,\sqrt{3}\right]\right)\Big/$$

$$\left(5\,b^{1/3}\,d^2\,\sqrt{a+b\,x}\,\sqrt{-\frac{(b\,c-a\,d)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 77 leaves):

$$\frac{3\sqrt{a+b\,x}\,\left(c+d\,x\right)^{1/3}\left(2+\frac{3\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{2},\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}}\right)}{5\,d}$$

Problem 1572: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{a+b\,x}\,\left(c+d\,x\right)^{2/3}}\,dx$$

Optimal (type 4, 345 leaves, 2 steps):

$$-\left(\left(2\times 3^{3/4}\sqrt{2-\sqrt{3}}\,\left(\left(b\,c-a\,d\right)^{1/3}-b^{1/3}\left(c+d\,x\right)^{1/3}\right)\sqrt{\frac{\left(b\,c-a\,d\right)^{2/3}+b^{1/3}\left(b\,c-a\,d\right)^{1/3}\left(c+d\,x\right)^{1/3}+b^{2/3}\left(c+d\,x\right)^{2/3}}{\left(\left(1-\sqrt{3}\right)\left(b\,c-a\,d\right)^{1/3}-b^{1/3}\left(c+d\,x\right)^{1/3}\right)^2}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)\left(b\,c-a\,d\right)^{1/3}-b^{1/3}\left(c+d\,x\right)^{1/3}}{\left(1-\sqrt{3}\right)\left(b\,c-a\,d\right)^{1/3}-b^{1/3}\left(c+d\,x\right)^{1/3}}\right],-7+4\sqrt{3}\right]\right)\Big/\left(b^{1/3}\,d\,\sqrt{a+b\,x}\,\sqrt{-\frac{\left(b\,c-a\,d\right)^{1/3}\left(\left(b\,c-a\,d\right)^{1/3}-b^{1/3}\left(c+d\,x\right)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)\left(b\,c-a\,d\right)^{1/3}-b^{1/3}\left(c+d\,x\right)^{1/3}\right)^2}}\right)\right)$$

Result (type 5, 71 leaves):

$$\frac{3\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\left(c+d\,x\right)^{1/3}\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{2},\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{d\,\sqrt{a+b\,x}}$$

Problem 1573: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\left(a+b\,x\right)^{3/2}\left(c+d\,x\right)^{2/3}}\,dx$$

Optimal (type 4, 383 leaves, 3 steps):

$$-\frac{2(c+dx)^{1/3}}{(bc-ad)\sqrt{a+bx}}+\left(2\sqrt{2-\sqrt{3}}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)\sqrt{\frac{(bc-ad)^{2/3}+b^{1/3}(bc-ad)^{1/3}(c+dx)^{1/3}+b^{2/3}(c+dx)^{2/3}}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}}{\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}}\right],-7+4\sqrt{3}\right]\right)\Bigg/\left(3^{1/4}b^{1/3}(bc-ad)\sqrt{a+bx}\sqrt{-\frac{(bc-ad)^{1/3}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)^2}}\right)$$

Result (type 5, 81 leaves):

$$-\frac{(c+dx)^{1/3}\left(2+\sqrt{\frac{d(a+bx)}{-bc+ad}}\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{2},\frac{4}{3},\frac{b(c+dx)}{bc-ad}\right]\right)}{(bc-ad)\sqrt{a+bx}}$$

Problem 1574: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+bx)^{5/2}(c+dx)^{2/3}}\,dx$$

Optimal (type 4, 421 leaves, 4 steps):

$$-\frac{2(c+dx)^{1/3}}{3(bc-ad)(a+bx)^{3/2}}+\frac{14d(c+dx)^{1/3}}{9(bc-ad)^2\sqrt{a+bx}}-\left(14\sqrt{2-\sqrt{3}}\,d\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)\sqrt{\frac{(bc-ad)^{2/3}+b^{1/3}(bc-ad)^{1/3}(c+dx)^{1/3}+b^{2/3}(c+dx)^{2/3}}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1+\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}}{\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}}\right],-7+4\sqrt{3}\right]\right)\Bigg/\left(9\times3^{1/4}b^{1/3}(bc-ad)^2\sqrt{a+bx}\sqrt{-\frac{(bc-ad)^{1/3}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)}{\left(\left(1-\sqrt{3}\right)(bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)^2}}\right)$$

Result (type 5, 102 leaves):

$$\frac{(c+d x)^{1/3} \left(-6 b c+20 a d+14 b d x+7 d (a+b x) \sqrt{\frac{d (a+b x)}{-b c+a d}} \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{2},\frac{4}{3},\frac{b (c+d x)}{b c-a d}\right]\right)}{9 (b c-a d)^2 (a+b x)^{3/2}}$$

Problem 1575: Result unnecessarily involves higher level functions.

$$\int (a+b x)^{2/3} (c+d x)^{1/3} \, dx$$

Optimal (type 3, 219 leaves, 3 steps):

$$\frac{(b c-a d) (a+b x)^{2/3} (c+d x)^{1/3}}{6 b d}+\frac{(a+b x)^{5/3} (c+d x)^{1/3}}{2 b}+$$
$$\frac{(b c-a d)^2 \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/3} (a+b x)^{1/3}}{\sqrt{3} b^{1/3} (c+d x)^{1/3}}\right]}{3 \sqrt{3} b^{4/3} d^{5/3}}+\frac{(b c-a d)^2 \text{Log}[c+d x]}{18 b^{4/3} d^{5/3}}+\frac{(b c-a d)^2 \text{Log}\left[-1+\frac{d^{1/3} (a+b x)^{1/3}}{b^{1/3} (c+d x)^{1/3}}\right]}{6 b^{4/3} d^{5/3}}$$

Result (type 5, 109 leaves):

$$\frac{1}{6 b d^2 (a+b x)^{1/3}} (c+d x)^{1/3} \left(d (a+b x) (2 a d+b (c+3 d x))-2 (b c-a d)^2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/3} \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1576: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{1/3}}{(a+b x)^{1/3}} \, dx$$

Optimal (type 3, 172 leaves, 2 steps):

$$\frac{(a+b x)^{2/3} (c+d x)^{1/3}}{b}-\frac{(b c-a d) \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/3} (a+b x)^{1/3}}{\sqrt{3} b^{1/3} (c+d x)^{1/3}}\right]}{\sqrt{3} b^{4/3} d^{2/3}}-\frac{(b c-a d) \text{Log}[c+d x]}{6 b^{4/3} d^{2/3}}-\frac{(b c-a d) \text{Log}\left[-1+\frac{d^{1/3} (a+b x)^{1/3}}{b^{1/3} (c+d x)^{1/3}}\right]}{2 b^{4/3} d^{2/3}}$$

Result (type 5, 90 leaves):

$$\frac{(c+d x)^{1/3} \left(d (a+b x)+(b c-a d) \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/3} \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{b (c+d x)}{b c-a d}\right]\right)}{b d (a+b x)^{1/3}}$$

Problem 1577: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{1/3}}{(a+b x)^{4/3}} \, dx$$

Optimal (type 3, 149 leaves, 2 steps):

$$-\frac{3 (c+d x)^{1/3}}{b (a+b x)^{1/3}}-\frac{\sqrt{3}\, d^{1/3} \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/3} (a+b x)^{1/3}}{\sqrt{3}\, b^{1/3} (c+d x)^{1/3}}\right]}{b^{4/3}}-\frac{d^{1/3} \text{Log}[c+d x]}{2 b^{4/3}}-\frac{3 d^{1/3} \text{Log}\left[-1+\frac{d^{1/3} (a+b x)^{1/3}}{b^{1/3} (c+d x)^{1/3}}\right]}{2 b^{4/3}}$$

Result (type 5, 74 leaves):

$$\frac{3 (c+d x)^{1/3} \left(-1+\left(\frac{d (a+b x)}{-b c+a d}\right)^{1/3} \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{b (c+d x)}{b c-a d}\right]\right)}{b (a+b x)^{1/3}}$$

Problem 1582: Result unnecessarily involves higher level functions.

$$\int (a+b x)^{4/3} (c+d x)^{1/3} \, dx$$

Optimal (type 4, 655 leaves, 6 steps):

$$-\frac{3 (b c-a d)^2 (a+b x)^{1/3} (c+d x)^{1/3}}{20 b d^2}+\frac{3 (b c-a d) (a+b x)^{4/3} (c+d x)^{1/3}}{40 b d}+\frac{3 (a+b x)^{7/3} (c+d x)^{1/3}}{8 b}+$$

$$\Bigg(3^{3/4} \sqrt{2+\sqrt{3}}\, (b c-a d)^3 \left((a+b x) (c+d x)\right)^{2/3} \sqrt{(b c+a d+2 b d x)^2} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3} (b c-a d)^{2/3} \left((a+b x) (c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} \left((a+b x) (c+d x)\right)^{2/3}\right) \Big/ \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2\right)}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}\right],-7-4 \sqrt{3}\right]\Bigg) \Bigg/ \Bigg(10\times 2^{2/3} b^{4/3} d^{7/3} (a+b x)^{2/3}$$

$$(c+d x)^{2/3} (b c+a d+2 b d x) \sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2}} \sqrt{\left(a d+b (c+2 d x)\right)^2}\Bigg)$$

Result (type 5, 140 leaves):

$$-\frac{1}{40\, b\, d^3\, (a+b\,x)^{2/3}} 3\, (c+d\,x)^{1/3} \left(-d\, (a+b\,x)\, \left(2\, a^2\, d^2+a\, b\, d\, (5\, c+9\, d\,x)+b^2\, \left(-2\, c^2+c\, d\,x+5\, d^2\, x^2\right)\right)-2\, (b\, c-a\, d)^3 \left(\frac{d\, (a+b\,x)}{-b\, c+a\, d}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{4}{3},\frac{b\, (c+d\,x)}{b\, c-a\, d}\right]\right)$$

Problem 1583: Result unnecessarily involves higher level functions.

$$\int (a+b\,x)^{1/3}\, (c+d\,x)^{1/3}\, dx$$

Optimal (type 4, 617 leaves, 5 steps):

$$\frac{3\, (b\, c-a\, d)\, (a+b\,x)^{1/3}\, (c+d\,x)^{1/3}}{10\, b\, d}+\frac{3\, (a+b\,x)^{4/3}\, (c+d\,x)^{1/3}}{5\, b}-$$

$$\left(3^{3/4}\, \sqrt{2+\sqrt{3}}\, (b\, c-a\, d)^2\, ((a+b\,x)\, (c+d\,x))^{2/3}\, \sqrt{(b\, c+a\, d+2\, b\, d\,x)^2}\, \left((b\, c-a\, d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\, ((a+b\,x)\, (c+d\,x))^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b\, c-a\, d)^{4/3}-2^{2/3}\, b^{1/3}\, d^{1/3}\, (b\, c-a\, d)^{2/3}\, ((a+b\,x)\, (c+d\,x))^{1/3}+2\times 2^{1/3}\, b^{2/3}\, d^{2/3}\, ((a+b\,x)\, (c+d\,x))^{2/3}\right)\right/}$$

$$\left.\left(\left(1+\sqrt{3}\right)\, (b\, c-a\, d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\, ((a+b\,x)\, (c+d\,x))^{1/3}\right)^2\right)$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)\, (b\, c-a\, d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\, ((a+b\,x)\, (c+d\,x))^{1/3}}{\left(1+\sqrt{3}\right)\, (b\, c-a\, d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\, ((a+b\,x)\, (c+d\,x))^{1/3}}\right],-7-4\, \sqrt{3}\right]\right) \Bigg/ \left(5\times 2^{2/3}\, b^{4/3}\, d^{4/3}\, (a+b\,x)^{2/3}\right.$$

$$\left.(c+d\,x)^{2/3}\, (b\, c+a\, d+2\, b\, d\,x)\, \sqrt{\frac{(b\, c-a\, d)^{2/3}\, \left((b\, c-a\, d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\, ((a+b\,x)\, (c+d\,x))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)\, (b\, c-a\, d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\, ((a+b\,x)\, (c+d\,x))^{1/3}\right)^2}}\, \sqrt{(a\, d+b\, (c+2\, d\,x))^2}\right)$$

Result (type 5, 108 leaves):

$$\frac{1}{10\, b\, d^2\, (a+b\,x)^{2/3}} 3\, (c+d\,x)^{1/3} \left(d\, (a+b\,x)\, (a\, d+b\, (c+2\, d\,x))-(b\, c-a\, d)^2 \left(\frac{d\, (a+b\,x)}{-b\, c+a\, d}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{4}{3},\frac{b\, (c+d\,x)}{b\, c-a\, d}\right]\right)$$

Problem 1584: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d\,x)^{1/3}}{(a+b\,x)^{2/3}}\, dx$$

Optimal (type 4, 576 leaves, 4 steps):

$$\frac{3 (a+b x)^{1/3} (c+d x)^{1/3}}{2 b}+$$

$$\Bigg(3^{3/4} \sqrt{2+\sqrt{3}} (b c-a d) ((a+b x) (c+d x))^{2/3} \sqrt{(b c+a d+2 b d x)^2} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3} (b c-a d)^{2/3} ((a+b x) (c+d x))^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} ((a+b x) (c+d x))^{2/3}\right) \Big/ \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)^2\right)}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}}\right],-7-4 \sqrt{3}\right]\Bigg) \Big/ \Bigg(2^{2/3} b^{4/3} d^{1/3} (a+b x)^{2/3}$$

$$(c+d x)^{2/3} (b c+a d+2 b d x) \sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)^2}} \sqrt{(a d+b (c+2 d x))^2}\Bigg)$$

Result (type 5, 93 leaves) :

$$\frac{3 (c+d x)^{1/3} \left(d (a+b x)+(b c-a d) \left(\frac{d (a+b x)}{-b c+a d}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{4}{3},\frac{b (c+d x)}{b c-a d}\right]\right)}{2 b d (a+b x)^{2/3}}$$

Problem 1585: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{1/3}}{(a+b x)^{5/3}} \, dx$$

Optimal (type 4, 568 leaves, 4 steps) :

$$-\frac{3\,(c+d\,x)^{1/3}}{2\,b\,(a+b\,x)^{2/3}}+\left(3^{3/4}\sqrt{2+\sqrt{3}}\,d^{2/3}\,((a+b\,x)\,(c+d\,x))^{2/3}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b\,c-a\,d)^{2/3}\,((a+b\,x)\,(c+d\,x))^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,((a+b\,x)\,(c+d\,x))^{2/3}\right)\Big/\right.}$$

$$\left.\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2\right)$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(2^{2/3}\,b^{4/3}\,(a+b\,x)^{2/3}\,(c+d\,x)^{2/3}\,(b\,c+a\,d+2\,b\,d\,x)\sqrt{\frac{(b\,c-a\,d)^{2/3}\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2}}\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 76 leaves) :

$$\frac{3\,(c+d\,x)^{1/3}\left(-1+\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{2\,b\,(a+b\,x)^{2/3}}$$

Problem 1586: Result unnecessarily involves higher level functions.

$$\int\frac{(c+d\,x)^{1/3}}{(a+b\,x)^{8/3}}\,dx$$

Optimal (type 4, 617 leaves, 5 steps) :

$$-\frac{3\,(c+d\,x)^{1/3}}{5\,b\,(a+b\,x)^{5/3}}-\frac{3\,d\,(c+d\,x)^{1/3}}{10\,b\,(b\,c-a\,d)\,(a+b\,x)^{2/3}}-$$

$$\left(3^{3/4}\sqrt{2+\sqrt{3}}\;d^{5/3}\,((a+b\,x)\,(c+d\,x))^{2/3}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b\,c-a\,d)^{2/3}\,((a+b\,x)\,(c+d\,x))^{1/3}+2\times2^{1/3}\,b^{2/3}\,d^{2/3}\,((a+b\,x)\,(c+d\,x))^{2/3}\right)\Big/\right.}$$
$$\left.\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2\right)$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}\right],\,-7-4\sqrt{3}\right]\right)\Big/\left(5\times2^{2/3}\,b^{4/3}\,(b\,c-a\,d)\right.$$

$$\left.(a+b\,x)^{2/3}\,(c+d\,x)^{2/3}\,(b\,c+a\,d+2\,b\,d\,x)\sqrt{\frac{(b\,c-a\,d)^{2/3}\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2}}\;\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 103 leaves):

$$\frac{3\,(c+d\,x)^{1/3}\left(2\,b\,c-a\,d+b\,d\,x+d\,(a+b\,x)\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{10\,b\,(-b\,c+a\,d)\,(a+b\,x)^{5/3}}$$

Problem 1587: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{4/3}}{(c+d\,x)^{1/3}}\,dx$$

Optimal (type 3, 216 leaves, 3 steps):

$$-\frac{2\,(b\,c-a\,d)\,(a+b\,x)^{1/3}\,(c+d\,x)^{2/3}}{3\,d^2}+\frac{(a+b\,x)^{4/3}\,(c+d\,x)^{2/3}}{2\,d}-$$
$$\frac{2\,(b\,c-a\,d)^2\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,b^{1/3}\,(c+d\,x)^{1/3}}{\sqrt{3}\,d^{1/3}\,(a+b\,x)^{1/3}}\right]}{3\sqrt{3}\,b^{2/3}\,d^{7/3}}-\frac{(b\,c-a\,d)^2\,\text{Log}[a+b\,x]}{9\,b^{2/3}\,d^{7/3}}-\frac{(b\,c-a\,d)^2\,\text{Log}\left[-1+\frac{b^{1/3}\,(c+d\,x)^{1/3}}{d^{1/3}\,(a+b\,x)^{1/3}}\right]}{3\,b^{2/3}\,d^{7/3}}$$

Result (type 5, 107 leaves):

$$\frac{1}{6\,d^3\,(a+b\,x)^{2/3}}(c+d\,x)^{2/3}\left(d\,(a+b\,x)\,(-4\,b\,c+7\,a\,d+3\,b\,d\,x)+2\,(b\,c-a\,d)^2\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1588: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3}}{(c+d x)^{1/3}}\, dx$$

Optimal (type 3, 171 leaves, 2 steps):

$$\frac{(a+b x)^{1/3} (c+d x)^{2/3}}{d}+\frac{(b c-a d) \operatorname{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3} (c+d x)^{1/3}}{\sqrt{3} d^{1/3} (a+b x)^{1/3}}\right]}{\sqrt{3} b^{2/3} d^{4/3}}+\frac{(b c-a d) \operatorname{Log}[a+b x]}{6 b^{2/3} d^{4/3}}+\frac{(b c-a d) \operatorname{Log}\left[-1+\frac{b^{1/3} (c+d x)^{1/3}}{d^{1/3} (a+b x)^{1/3}}\right]}{2 b^{2/3} d^{4/3}}$$

Result (type 5, 76 leaves):

$$\frac{(a+b x)^{1/3} (c+d x)^{2/3} \left(2+\frac{\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b (c+d x)}{b c-a d}\right]}{\left(\frac{d (a+b x)}{-b c+a d}\right)^{1/3}}\right)}{2 d}$$

Problem 1589: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{2/3} (c+d x)^{1/3}}\, dx$$

Optimal (type 3, 126 leaves, 1 step):

$$-\frac{\sqrt{3} \operatorname{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3} (c+d x)^{1/3}}{\sqrt{3} d^{1/3} (a+b x)^{1/3}}\right]}{b^{2/3} d^{1/3}}-\frac{\operatorname{Log}[a+b x]}{2 b^{2/3} d^{1/3}}-\frac{3 \operatorname{Log}\left[-1+\frac{b^{1/3} (c+d x)^{1/3}}{d^{1/3} (a+b x)^{1/3}}\right]}{2 b^{2/3} d^{1/3}}$$

Result (type 5, 73 leaves):

$$\frac{3 \left(\frac{d (a+b x)}{-b c+a d}\right)^{2/3} (c+d x)^{2/3} \text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b (c+d x)}{b c-a d}\right]}{2 d (a+b x)^{2/3}}$$

Problem 1594: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{8/3}}{(c+d x)^{1/3}}\, dx$$

Optimal (type 4, 1365 leaves, 8 steps):

$$\frac{3\,(b\,c-a\,d)^2\,(a+b\,x)^{2/3}\,(c+d\,x)^{2/3}}{7\,d^3}-\frac{12\,(b\,c-a\,d)\,(a+b\,x)^{5/3}\,(c+d\,x)^{2/3}}{35\,d^2}+$$

$$\frac{3\,(a+b\,x)^{8/3}\,(c+d\,x)^{2/3}}{10\,d}-\left(3\times 2^{2/3}\,(b\,c-a\,d)^3\,((a+b\,x)\,(c+d\,x))^{1/3}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)\Big/$$

$$\left(7\,b^{2/3}\,d^{11/3}\,(a+b\,x)^{1/3}\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)\,\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)\right)+$$

$$\left(3\times 3^{1/4}\,\sqrt{2-\sqrt{3}}\,(b\,c-a\,d)^{11/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b\,c-a\,d)^{2/3}\,((a+b\,x)\,(c+d\,x))^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,((a+b\,x)\,(c+d\,x))^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2\right)}$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}\right],-7-4\,\sqrt{3}\right]\right)\Big/\left(7\times 2^{1/3}\,b^{2/3}\,d^{11/3}\,(a+b\,x)^{1/3}\right.$$

$$\left.(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{\frac{(b\,c-a\,d)^{2/3}\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2}}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)-$$

$$\left(2\times 2^{1/6}\times 3^{3/4}\,(b\,c-a\,d)^{11/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b\,c-a\,d)^{2/3}\,((a+b\,x)\,(c+d\,x))^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,((a+b\,x)\,(c+d\,x))^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2\right)}$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}\right],-7-4\,\sqrt{3}\right]\right)\Big/\left(7\,b^{2/3}\,d^{11/3}\,(a+b\,x)^{1/3}\right.$$

$$\left.(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{\frac{(b\,c-a\,d)^{2/3}\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2}}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 138 leaves) :

$$\frac{1}{70\,d^4\,(a+b\,x)^{1/3}}3\,(c+d\,x)^{2/3}\left(d\,(a+b\,x)\,\left(25\,a^2\,d^2+2\,a\,b\,d\,(-14\,c+11\,d\,x)+b^2\,\left(10\,c^2-8\,c\,d\,x+7\,d^2\,x^2\right)\right)-10\,(b\,c-a\,d)^3\,\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1595: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{5/3}}{(c+d\,x)^{1/3}}\,dx$$

Optimal (type 4, 1330 leaves, 7 steps) :

$$-\frac{15\,(b c-a d)\,(a+b x)^{2/3}\,(c+d x)^{2/3}}{28\,d^2}+\frac{3\,(a+b x)^{5/3}\,(c+d x)^{2/3}}{7\,d}+$$

$$\Big(15\,(b c-a d)^2\,\big((a+b x)\,(c+d x)\big)^{1/3}\sqrt{(b c+a d+2 b d x)^2}\,\sqrt{\big(a d+b\,(c+2 d x)\big)^2}\Big)\Big/$$
$$\Big(14\times 2^{1/3}\,b^{2/3}\,d^{8/3}\,(a+b x)^{1/3}\,(c+d x)^{1/3}\,(b c+a d+2 b d x)\,\Big(\big(1+\sqrt{3}\big)\,(b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}\Big)\Big)-$$

$$\Big(15\times 3^{1/4}\sqrt{2-\sqrt{3}}\,(b c-a d)^{8/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}\sqrt{(b c+a d+2 b d x)^2}\,\Big((b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}\Big)$$
$$\sqrt{\Big(\Big((b c-a d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b c-a d)^{2/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,\big((a+b x)\,(c+d x)\big)^{2/3}\Big)\Big/}$$
$$\overline{\Big(\big(1+\sqrt{3}\big)\,(b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}\Big)^2\Big)}$$
$$\text{EllipticE}\Big[\text{ArcSin}\Big[\frac{\big(1-\sqrt{3}\big)\,(b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}}{\big(1+\sqrt{3}\big)\,(b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}}\Big],\,-7-4\sqrt{3}\Big]\Big)\Big/\Big(28\times 2^{1/3}\,b^{2/3}\,d^{8/3}\,(a+b x)^{1/3}$$
$$(c+d x)^{1/3}\,(b c+a d+2 b d x)\sqrt{\frac{(b c-a d)^{2/3}\,\Big((b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}\Big)}{\Big(\big(1+\sqrt{3}\big)\,(b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}\Big)^2}}\,\sqrt{\big(a d+b\,(c+2 d x)\big)^2}\Big)+$$

$$\Big(5\times 3^{3/4}\,(b c-a d)^{8/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}\sqrt{(b c+a d+2 b d x)^2}\,\Big((b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}\Big)$$
$$\sqrt{\Big(\Big((b c-a d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b c-a d)^{2/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,\big((a+b x)\,(c+d x)\big)^{2/3}\Big)\Big/}$$
$$\overline{\Big(\big(1+\sqrt{3}\big)\,(b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}\Big)^2\Big)}$$
$$\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\big(1-\sqrt{3}\big)\,(b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}}{\big(1+\sqrt{3}\big)\,(b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}}\Big],\,-7-4\sqrt{3}\Big]\Big)\Big/\Big(7\times 2^{5/6}\,b^{2/3}\,d^{8/3}\,(a+b x)^{1/3}$$
$$(c+d x)^{1/3}\,(b c+a d+2 b d x)\sqrt{\frac{(b c-a d)^{2/3}\,\Big((b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}\Big)}{\Big(\big(1+\sqrt{3}\big)\,(b c-a d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b x)\,(c+d x)\big)^{1/3}\Big)^2}}\,\sqrt{\big(a d+b\,(c+2 d x)\big)^2}\Big)$$

Result (type 5, 107 leaves):

$$\frac{1}{28\,d^3\,(a+b x)^{1/3}}3\,(c+d x)^{2/3}\left(d\,(a+b x)\,(-5 b c+9 a d+4 b d x)+5\,(b c-a d)^2\left(\frac{d\,(a+b x)}{-b c+a d}\right)^{1/3}\text{Hypergeometric2F1}\Big[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d x)}{b c-a d}\Big]\right)$$

Problem 1596: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{2/3}}{(c+d x)^{1/3}}\,dx$$

Optimal (type 4, 1293 leaves, 6 steps):

$$\frac{3 (a+b x)^{2/3} (c+d x)^{2/3}}{4 d}-\Big(3 (b c-a d) \left((a+b x) (c+d x)\right)^{1/3} \sqrt{(b c+a d+2 b d x)^2}\, \sqrt{\left(a d+b (c+2 d x)\right)^2}\Big)\Big/$$
$$\Big(2\times 2^{1/3} b^{2/3} d^{5/3} (a+b x)^{1/3} (c+d x)^{1/3} (b c+a d+2 b d x) \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)\Big)+$$
$$\Big(3\times 3^{1/4} \sqrt{2-\sqrt{3}}\, (b c-a d)^{5/3} \left((a+b x) (c+d x)\right)^{1/3} \sqrt{(b c+a d+2 b d x)^2}\, \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)$$
$$\sqrt{\Big(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3} (b c-a d)^{2/3} \left((a+b x) (c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} \left((a+b x) (c+d x)\right)^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2\Big)}$$
$$\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}\right],-7-4 \sqrt{3}\right]\Big)\Big/\Big(4\times 2^{1/3} b^{2/3} d^{5/3} (a+b x)^{1/3}$$
$$(c+d x)^{1/3} (b c+a d+2 b d x) \sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2}}\, \sqrt{\left(a d+b (c+2 d x)\right)^2}\Big)-$$
$$\Big(3^{3/4} (b c-a d)^{5/3} \left((a+b x) (c+d x)\right)^{1/3} \sqrt{(b c+a d+2 b d x)^2}\, \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)$$
$$\sqrt{\Big(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3} (b c-a d)^{2/3} \left((a+b x) (c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} \left((a+b x) (c+d x)\right)^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2\Big)}$$
$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}\right],-7-4 \sqrt{3}\right]\Big)\Big/\Big(2^{5/6} b^{2/3} d^{5/3} (a+b x)^{1/3}$$
$$(c+d x)^{1/3} (b c+a d+2 b d x) \sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2}}\, \sqrt{\left(a d+b (c+2 d x)\right)^2}\Big)$$

Result (type 5, 76 leaves):

$$\frac{3\,(a+b\,x)^{2/3}\,(c+d\,x)^{2/3}\left(1+\frac{\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{2/3}}\right)}{4\,d}$$

Problem 1597: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{1/3}\,(c+d\,x)^{1/3}}\,dx$$

Optimal (type 4, 1257 leaves, 5 steps):

$$\left(3\left((a+b x)(c+d x)\right)^{1/3}\sqrt{(b c+a d+2 b d x)^2}\sqrt{(a d+b(c+2 d x))^2}\right)\Big/$$

$$\left(2^{1/3} b^{2/3} d^{2/3}(a+b x)^{1/3}(c+d x)^{1/3}(b c+a d+2 b d x)\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}\right)\right)-$$

$$\left(3\times 3^{1/4}\sqrt{2-\sqrt{3}}\,(b c-a d)^{2/3}\left((a+b x)(c+d x)\right)^{1/3}\sqrt{(b c+a d+2 b d x)^2}\left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3}(b c-a d)^{2/3}\left((a+b x)(c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3}\left((a+b x)(c+d x)\right)^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}\right)^2\right)}$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/\left(2\times 2^{1/3} b^{2/3} d^{2/3}(a+b x)^{1/3}\right.$$

$$\left.(c+d x)^{1/3}(b c+a d+2 b d x)\sqrt{\frac{(b c-a d)^{2/3}\left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}\right)^2}}\sqrt{(a d+b(c+2 d x))^2}\right)+$$

$$\left(2^{1/6}\times 3^{3/4}(b c-a d)^{2/3}\left((a+b x)(c+d x)\right)^{1/3}\sqrt{(b c+a d+2 b d x)^2}\left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3}(b c-a d)^{2/3}\left((a+b x)(c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3}\left((a+b x)(c+d x)\right)^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}\right)^2\right)}$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(b^{2/3} d^{2/3}(a+b x)^{1/3}(c+d x)^{1/3}(b c+a d+2 b d x)\sqrt{\frac{(b c-a d)^{2/3}\left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)(c+d x)\right)^{1/3}\right)^2}}\sqrt{(a d+b(c+2 d x))^2}\right)$$

Result (type 5, 73 leaves):

$$\frac{3\left(\frac{d(a+b x)}{-b c+a d}\right)^{1/3}(c+d x)^{2/3}\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{b(c+d x)}{b c-a d}\right]}{2 d(a+b x)^{1/3}}$$

Problem 1598: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{4/3} (c+d x)^{1/3}} \, dx$$

Optimal (type 4, 1297 leaves, 6 steps):

$$-\frac{3 (c+d x)^{2/3}}{(b c-a d) (a+b x)^{1/3}}+\left(3 d^{1/3} \left((a+b x) (c+d x)\right)^{1/3} \sqrt{(b c+a d+2 b d x)^2} \sqrt{\left(a d+b (c+2 d x)\right)^2}\right) \Big/$$
$$\left(2^{1/3} b^{2/3} (b c-a d) (a+b x)^{1/3} (c+d x)^{1/3} (b c+a d+2 b d x) \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)\right)-$$
$$\left(3\times 3^{1/4} \sqrt{2-\sqrt{3}} \, d^{1/3} \left((a+b x) (c+d x)\right)^{1/3} \sqrt{(b c+a d+2 b d x)^2} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)\right.$$
$$\sqrt{\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3} (b c-a d)^{2/3} \left((a+b x) (c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} \left((a+b x) (c+d x)\right)^{2/3}\right) \Big/ \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2}$$
$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}\right],-7-4 \sqrt{3}\right]\right) \Big/ \left(2\times 2^{1/3} b^{2/3} (b c-a d)^{1/3}\right.$$
$$\left.(a+b x)^{1/3} (c+d x)^{1/3} (b c+a d+2 b d x) \sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2}} \sqrt{\left(a d+b (c+2 d x)\right)^2}\right)+$$
$$\left(2^{1/6}\times 3^{3/4} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3} \sqrt{(b c+a d+2 b d x)^2} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)\right.$$
$$\sqrt{\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3} (b c-a d)^{2/3} \left((a+b x) (c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} \left((a+b x) (c+d x)\right)^{2/3}\right) \Big/ \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2}$$
$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}\right],-7-4 \sqrt{3}\right]\right) \Big/ \left(b^{2/3} (b c-a d)^{1/3} (a+b x)^{1/3}\right.$$
$$\left.(c+d x)^{1/3} (b c+a d+2 b d x) \sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2}} \sqrt{\left(a d+b (c+2 d x)\right)^2}\right)$$

Result (type 5, 83 leaves) :

$$\frac{3\,(c+d\,x)^{2/3}\left(-2+\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{2\,(b\,c-a\,d)\,(a+b\,x)^{1/3}}$$

Problem 1599: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{7/3}\,(c+d\,x)^{1/3}}\,dx$$

Optimal (type 4, 1335 leaves, 7 steps) :

$$-\frac{3\,(c+d\,x)^{2/3}}{4\,(b\,c-a\,d)\,(a+b\,x)^{4/3}}+\frac{3\,d\,(c+d\,x)^{2/3}}{2\,(b\,c-a\,d)^2\,(a+b\,x)^{1/3}}-\left(3\,d^{4/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)\Big/$$
$$\left(2\times 2^{1/3}\,b^{2/3}\,(b\,c-a\,d)^2\,(a+b\,x)^{1/3}\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)\right)+$$
$$\left(3\times 3^{1/4}\sqrt{2-\sqrt{3}}\,d^{4/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)\right.$$
$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b\,c-a\,d)^{2/3}\,((a+b\,x)\,(c+d\,x))^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,((a+b\,x)\,(c+d\,x))^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2\right)}$$
$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/\left(4\times 2^{1/3}\,b^{2/3}\,(b\,c-a\,d)^{4/3}\right.$$
$$\left.(a+b\,x)^{1/3}\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)\sqrt{\frac{(b\,c-a\,d)^{2/3}\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2}}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)-$$
$$\left(3^{3/4}\,d^{4/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)\right.$$
$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b\,c-a\,d)^{2/3}\,((a+b\,x)\,(c+d\,x))^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,((a+b\,x)\,(c+d\,x))^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2\right)}$$
$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/\left(2^{5/6}\,b^{2/3}\,(b\,c-a\,d)^{4/3}\right.$$
$$\left.(a+b\,x)^{1/3}\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)\sqrt{\frac{(b\,c-a\,d)^{2/3}\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2}}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 100 leaves):

$$-\frac{3\,(c+d\,x)^{2/3}\left(-3\,a\,d+b\,(c-2\,d\,x)+d\,(a+b\,x)\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{4\,(b\,c-a\,d)^2\,(a+b\,x)^{4/3}}$$

Problem 1600: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{10/3} (c+d x)^{1/3}} \, dx$$

Optimal (type 4, 1372 leaves, 8 steps) :

$$-\frac{3 (c+d x)^{2/3}}{7 (b c-a d) (a+b x)^{7/3}}+\frac{15 d (c+d x)^{2/3}}{28 (b c-a d)^2 (a+b x)^{4/3}}-\frac{15 d^2 (c+d x)^{2/3}}{14 (b c-a d)^3 (a+b x)^{1/3}}+$$

$$\left(15 d^{7/3} \left((a+b x) (c+d x)\right)^{1/3} \sqrt{(b c+a d+2 b d x)^2} \sqrt{\left(a d+b (c+2 d x)\right)^2}\right) \Big/ \left(14\times 2^{1/3} b^{2/3} (b c-a d)^3 (a+b x)^{1/3} (c+d x)^{1/3} (b c+a d+2 b d x) \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)\right)-$$

$$\Bigg(15\times 3^{1/4} \sqrt{2-\sqrt{3}}\; d^{7/3} \left((a+b x) (c+d x)\right)^{1/3} \sqrt{(b c+a d+2 b d x)^2} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3} (b c-a d)^{2/3} \left((a+b x) (c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} \left((a+b x) (c+d x)\right)^{2/3}\right) \Big/ \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2\right)}$$

$$\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}\right], -7-4 \sqrt{3}\right]\Bigg) \Bigg/ \Bigg(28\times 2^{1/3} b^{2/3} (b c-a d)^{7/3}$$

$$(a+b x)^{1/3} (c+d x)^{1/3} (b c+a d+2 b d x) \sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2}} \sqrt{\left(a d+b (c+2 d x)\right)^2}\Bigg)+$$

$$\Bigg(5\times 3^{3/4} d^{7/3} \left((a+b x) (c+d x)\right)^{1/3} \sqrt{(b c+a d+2 b d x)^2} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3} (b c-a d)^{2/3} \left((a+b x) (c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} \left((a+b x) (c+d x)\right)^{2/3}\right) \Big/ \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2\right)}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}\right], -7-4 \sqrt{3}\right]\Bigg) \Bigg/ \Bigg(7\times 2^{5/6} b^{2/3} (b c-a d)^{7/3}$$

$$(a+b x)^{1/3} (c+d x)^{1/3} (b c+a d+2 b d x) \sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2}} \sqrt{\left(a d+b (c+2 d x)\right)^2}\Bigg)$$

Result (type 5, 136 leaves) :

$$\frac{1}{28\,(b\,c-a\,d)^3\,(a+b\,x)^{7/3}}3\,(c+d\,x)^{2/3}\left(-19\,a^2\,d^2+a\,b\,d\,(13\,c-25\,d\,x)+b^2\,\left(-4\,c^2+5\,c\,d\,x-10\,d^2\,x^2\right)+5\,d^2\,(a+b\,x)^2\,\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1601: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{5/3}}{(c+d\,x)^{2/3}}\,dx$$

Optimal (type 3, 216 leaves, 3 steps):

$$-\frac{5\,(b\,c-a\,d)\,(a+b\,x)^{2/3}\,(c+d\,x)^{1/3}}{6\,d^2}+\frac{(a+b\,x)^{5/3}\,(c+d\,x)^{1/3}}{2\,d}-\frac{5\,(b\,c-a\,d)^2\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,d^{1/3}\,(a+b\,x)^{1/3}}{\sqrt{3}\,b^{1/3}\,(c+d\,x)^{1/3}}\right]}{3\,\sqrt{3}\,b^{1/3}\,d^{8/3}}-\frac{5\,(b\,c-a\,d)^2\,\text{Log}[c+d\,x]}{18\,b^{1/3}\,d^{8/3}}-\frac{5\,(b\,c-a\,d)^2\,\text{Log}\left[-1+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{b^{1/3}\,(c+d\,x)^{1/3}}\right]}{6\,b^{1/3}\,d^{8/3}}$$

Result (type 5, 107 leaves):

$$\frac{1}{6\,d^3\,(a+b\,x)^{1/3}}(c+d\,x)^{1/3}\left(d\,(a+b\,x)\,(-5\,b\,c+8\,a\,d+3\,b\,d\,x)+10\,(b\,c-a\,d)^2\,\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1602: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{2/3}}{(c+d\,x)^{2/3}}\,dx$$

Optimal (type 3, 169 leaves, 2 steps):

$$\frac{(a+b\,x)^{2/3}\,(c+d\,x)^{1/3}}{d}+\frac{2\,(b\,c-a\,d)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,d^{1/3}\,(a+b\,x)^{1/3}}{\sqrt{3}\,b^{1/3}\,(c+d\,x)^{1/3}}\right]}{\sqrt{3}\,b^{1/3}\,d^{5/3}}+\frac{(b\,c-a\,d)\,\text{Log}[c+d\,x]}{3\,b^{1/3}\,d^{5/3}}+\frac{(b\,c-a\,d)\,\text{Log}\left[-1+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{b^{1/3}\,(c+d\,x)^{1/3}}\right]}{b^{1/3}\,d^{5/3}}$$

Result (type 5, 74 leaves):

$$\frac{(a+b\,x)^{2/3}\,(c+d\,x)^{1/3}\left(1+\frac{2\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{2/3}}\right)}{d}$$

Problem 1603: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{1/3} (c+d x)^{2/3}} \, dx$$

Optimal (type 3, 126 leaves, 1 step):

$$-\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/3} (a+b x)^{1/3}}{\sqrt{3}\, b^{1/3} (c+d x)^{1/3}}\right]}{b^{1/3} d^{2/3}}-\frac{\text{Log}[c+d x]}{2 b^{1/3} d^{2/3}}-\frac{3 \,\text{Log}\left[-1+\frac{d^{1/3} (a+b x)^{1/3}}{b^{1/3} (c+d x)^{1/3}}\right]}{2 b^{1/3} d^{2/3}}$$

Result (type 5, 71 leaves):

$$\frac{3 \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/3} (c+d x)^{1/3}\, \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{b (c+d x)}{b c-a d}\right]}{d\, (a+b x)^{1/3}}$$

Problem 1608: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{7/3}}{(c+d x)^{2/3}} \, dx$$

Optimal (type 4, 649 leaves, 6 steps):

$$\frac{21 (b c-a d)^2 (a+b x)^{1/3} (c+d x)^{1/3}}{20 d^3}-\frac{21 (b c-a d) (a+b x)^{4/3} (c+d x)^{1/3}}{40 d^2}+\frac{3 (a+b x)^{7/3} (c+d x)^{1/3}}{8 d}-$$

$$\Bigg(7\times 3^{3/4} \sqrt{2+\sqrt{3}}\, (b c-a d)^3 \left((a+b x) (c+d x)\right)^{2/3} \sqrt{(b c+a d+2 b d x)^2}\, \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3} (b c-a d)^{2/3} \left((a+b x) (c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} \left((a+b x) (c+d x)\right)^{2/3}\right) \Big/ \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2\right)}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}\right],-7-4 \sqrt{3}\right]\Bigg) \Big/ \Bigg(10\times 2^{2/3} b^{1/3} d^{10/3} (a+b x)^{2/3}$$

$$(c+d x)^{2/3} (b c+a d+2 b d x) \sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2}}\, \sqrt{\left(a d+b (c+2 d x)\right)^2}\Bigg)$$

Result (type 5, 137 leaves):

$$\frac{1}{40\, d^4\, (a+b\,x)^{2/3}} 3\, (c+d\,x)^{1/3} \left(d\, (a+b\,x)\, \left(26\, a^2\, d^2 + a\,b\,d\, (-35\,c + 17\,d\,x) + b^2\, (14\,c^2 - 7\,c\,d\,x + 5\,d^2\,x^2)\right) - 14\, (b\,c - a\,d)^3 \left(\frac{d\,(a+b\,x)}{-b\,c + a\,d}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{1}{3}, \frac{2}{3}, \frac{4}{3}, \frac{b\,(c+d\,x)}{b\,c - a\,d}\right]\right)$$

Problem 1609: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b\,x)^{4/3}}{(c+d\,x)^{2/3}}\, dx$$

Optimal (type 4, 614 leaves, 5 steps):

$$-\frac{6\,(b\,c - a\,d)\,(a+b\,x)^{1/3}\,(c+d\,x)^{1/3}}{5\,d^2} + \frac{3\,(a+b\,x)^{4/3}\,(c+d\,x)^{1/3}}{5\,d} + \left(2 \times 2^{1/3} \times 3^{3/4} \sqrt{2+\sqrt{3}}\, (b\,c - a\,d)^2\, ((a+b\,x)\,(c+d\,x))^{2/3} \sqrt{(b\,c + a\,d + 2\,b\,d\,x)^2} \left((b\,c - a\,d)^{2/3} + 2^{2/3}\, b^{1/3}\, d^{1/3}\, ((a+b\,x)\,(c+d\,x))^{1/3}\right) \sqrt{\left(\left((b\,c - a\,d)^{4/3} - 2^{2/3}\, b^{1/3}\, d^{1/3}\, (b\,c - a\,d)^{2/3}\, ((a+b\,x)\,(c+d\,x))^{1/3} + 2 \times 2^{1/3}\, b^{2/3}\, d^{2/3}\, ((a+b\,x)\,(c+d\,x))^{2/3}\right) \Big/ \left(\left(1+\sqrt{3}\right)(b\,c - a\,d)^{2/3} + 2^{2/3}\, b^{1/3}\, d^{1/3}\, ((a+b\,x)\,(c+d\,x))^{1/3}\right)^2\right)}\; \text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c - a\,d)^{2/3} + 2^{2/3}\, b^{1/3}\, d^{1/3}\, ((a+b\,x)\,(c+d\,x))^{1/3}}{\left(1+\sqrt{3}\right)(b\,c - a\,d)^{2/3} + 2^{2/3}\, b^{1/3}\, d^{1/3}\, ((a+b\,x)\,(c+d\,x))^{1/3}}\right], -7-4\sqrt{3}\right]\right) \Big/ \left(5\, b^{1/3}\, d^{7/3}\, (a+b\,x)^{2/3}\, (c+d\,x)^{2/3}\, (b\,c + a\,d + 2\,b\,d\,x) \sqrt{\frac{(b\,c - a\,d)^{2/3} \left((b\,c - a\,d)^{2/3} + 2^{2/3}\, b^{1/3}\, d^{1/3}\, ((a+b\,x)\,(c+d\,x))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c - a\,d)^{2/3} + 2^{2/3}\, b^{1/3}\, d^{1/3}\, ((a+b\,x)\,(c+d\,x))^{1/3}\right)^2}} \sqrt{(a\,d + b\,(c + 2\,d\,x))^2}\right)$$

Result (type 5, 106 leaves):

$$\frac{1}{5\, d^3\, (a+b\,x)^{2/3}} 3\, (c+d\,x)^{1/3} \left(d\,(a+b\,x)\,(-2\,b\,c + 3\,a\,d + b\,d\,x) + 2\,(b\,c - a\,d)^2 \left(\frac{d\,(a+b\,x)}{-b\,c + a\,d}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{1}{3}, \frac{2}{3}, \frac{4}{3}, \frac{b\,(c+d\,x)}{b\,c - a\,d}\right]\right)$$

Problem 1610: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b\,x)^{1/3}}{(c+d\,x)^{2/3}}\, dx$$

Optimal (type 4, 577 leaves, 4 steps):

$$\frac{3 (a+b x)^{1/3} (c+d x)^{1/3}}{2 d} - \left(3^{3/4} \sqrt{2+\sqrt{3}} (b c-a d) \left((a+b x) (c+d x)\right)^{2/3} \sqrt{(b c+a d+2 b d x)^2} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right) \sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3} (b c-a d)^{2/3} \left((a+b x) (c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} \left((a+b x) (c+d x)\right)^{2/3}\right) \Big/ \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2\right)} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}}\right], -7-4 \sqrt{3}\right]\right) \Big/ \left(2^{2/3} b^{1/3} d^{4/3} (a+b x)^{2/3} (c+d x)^{2/3} (b c+a d+2 b d x) \sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left((a+b x) (c+d x)\right)^{1/3}\right)^2}} \sqrt{\left(a d+b (c+2 d x)\right)^2}\right)$$

Result (type 5, 76 leaves):

$$\frac{3 (a+b x)^{1/3} (c+d x)^{1/3} \left(1+\frac{\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{4}{3},\frac{b (c+d x)}{b c-a d}\right]}{\left(\frac{d (a+b x)}{-b c+a d}\right)^{1/3}}\right)}{2 d}$$

Problem 1611: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{2/3} (c+d x)^{2/3}} \, dx$$

Optimal (type 4, 542 leaves, 3 steps):

$$\left(2^{1/3}\times 3^{3/4}\sqrt{2+\sqrt{3}}\ \left((a+b x)\ (c+d x)\right)^{2/3}\sqrt{(b c+a d+2 b d x)^2}\ \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)\ (c+d x)\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3}(b c-a d)^{2/3}\left((a+b x)\ (c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3}\left((a+b x)\ (c+d x)\right)^{2/3}\right)\right/}$$

$$\left.\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)\ (c+d x)\right)^{1/3}\right)^2\right)$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)\ (c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)\ (c+d x)\right)^{1/3}}\right],\ -7-4\sqrt{3}\right]\right)\Big/$$

$$\left(b^{1/3} d^{1/3}(a+b x)^{2/3}(c+d x)^{2/3}(b c+a d+2 b d x)\sqrt{\frac{(b c-a d)^{2/3}\left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)\ (c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)\ (c+d x)\right)^{1/3}\right)^2}}\ \sqrt{\left(a d+b\ (c+2 d x)\right)^2}\right)$$

Result (type 5, 71 leaves):

$$\frac{3\left(\frac{d\ (a+b x)}{-b c+a d}\right)^{2/3}(c+d x)^{1/3}\ \text{Hypergeometric2F1}\left[\frac{1}{3},\ \frac{2}{3},\ \frac{4}{3},\ \frac{b\ (c+d x)}{b c-a d}\right]}{d\ (a+b x)^{2/3}}$$

Problem 1612: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b x)^{5/3}\ (c+d x)^{2/3}}\,dx$$

Optimal (type 4, 586 leaves, 4 steps):

$$-\frac{3\ (c+d x)^{1/3}}{2\ (b c-a d)\ (a+b x)^{2/3}}-\left(3^{3/4}\sqrt{2+\sqrt{3}}\ d^{2/3}\left((a+b x)\ (c+d x)\right)^{2/3}\sqrt{(b c+a d+2 b d x)^2}\ \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)\ (c+d x)\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3}(b c-a d)^{2/3}\left((a+b x)\ (c+d x)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3}\left((a+b x)\ (c+d x)\right)^{2/3}\right)\right/}$$

$$\left.\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)\ (c+d x)\right)^{1/3}\right)^2\right)$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)\ (c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)\ (c+d x)\right)^{1/3}}\right],\ -7-4\sqrt{3}\right]\right)\Big/\left(2^{2/3} b^{1/3}\ (b c-a d)\right.$$

$$\left.(a+b x)^{2/3}(c+d x)^{2/3}(b c+a d+2 b d x)\sqrt{\frac{(b c-a d)^{2/3}\left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)\ (c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3}\left((a+b x)\ (c+d x)\right)^{1/3}\right)^2}}\ \sqrt{\left(a d+b\ (c+2 d x)\right)^2}\right)$$

Result (type 5, 83 leaves):

$$-\frac{3\,(c+d\,x)^{1/3}\left(1+\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{2\,(b\,c-a\,d)\,(a+b\,x)^{2/3}}$$

Problem 1613: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{8/3}\,(c+d\,x)^{2/3}}\,dx$$

Optimal (type 4, 621 leaves, 5 steps):

$$-\frac{3\,(c+d\,x)^{1/3}}{5\,(b\,c-a\,d)\,(a+b\,x)^{5/3}}+\frac{6\,d\,(c+d\,x)^{1/3}}{5\,(b\,c-a\,d)^2\,(a+b\,x)^{2/3}}+$$
$$\Bigg(2\times 2^{1/3}\times 3^{3/4}\sqrt{2+\sqrt{3}}\;d^{5/3}\,((a+b\,x)\,(c+d\,x))^{2/3}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)$$
$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b\,c-a\,d)^{2/3}\,((a+b\,x)\,(c+d\,x))^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,((a+b\,x)\,(c+d\,x))^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2\right)}$$
$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}}\right],-7-4\sqrt{3}\right]\Bigg)\Bigg/\Bigg(5\,b^{1/3}\,(b\,c-a\,d)^2\,(a+b\,x)^{2/3}$$
$$(c+d\,x)^{2/3}\,(b\,c+a\,d+2\,b\,d\,x)\sqrt{\frac{(b\,c-a\,d)^{2/3}\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,((a+b\,x)\,(c+d\,x))^{1/3}\right)^2}}\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\Bigg)$$

Result (type 5, 102 leaves):

$$\frac{3\,(c+d\,x)^{1/3}\left(-b\,c+3\,a\,d+2\,b\,d\,x+2\,d\,(a+b\,x)\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{5\,(b\,c-a\,d)^2\,(a+b\,x)^{5/3}}$$

Problem 1614: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{11/3}\,(c+d\,x)^{2/3}}\,dx$$

Optimal (type 4, 656 leaves, 6 steps):

$$-\frac{3\,(c+d\,x)^{1/3}}{8\,(b\,c-a\,d)\,(a+b\,x)^{8/3}}+\frac{21\,d\,(c+d\,x)^{1/3}}{40\,(b\,c-a\,d)^2\,(a+b\,x)^{5/3}}-\frac{21\,d^2\,(c+d\,x)^{1/3}}{20\,(b\,c-a\,d)^3\,(a+b\,x)^{2/3}}-$$

$$\Bigg(7\times 3^{3/4}\,\sqrt{2+\sqrt{3}}\,d^{8/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{2/3}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\Big((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)$$

$$\sqrt{\Big(\Big((b\,c-a\,d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b\,c-a\,d)^{2/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{2/3}\Big)\Big/}$$
$$\overline{\Big(\big(1+\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)^2\Big)}$$

$$\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\big(1-\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}}{\big(1+\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}}\Big],\,-7-4\,\sqrt{3}\Big]\Bigg)\Bigg/\Bigg(10\times 2^{2/3}\,b^{1/3}\,(b\,c-a\,d)^3$$

$$(a+b\,x)^{2/3}\,(c+d\,x)^{2/3}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{\frac{(b\,c-a\,d)^{2/3}\,\Big((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)}{\Big(\big(1+\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)^2}}\,\sqrt{\big(a\,d+b\,(c+2\,d\,x)\big)^2}\Bigg)$$

Result (type 5, 136 leaves):

$$\Big(3\,(c+d\,x)^{1/3}\,\Big(26\,a^2\,d^2+a\,b\,d\,(-17\,c+35\,d\,x)+b^2\,\big(5\,c^2-7\,c\,d\,x+14\,d^2\,x^2\big)+$$
$$14\,d^2\,(a+b\,x)^2\,\Big(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\Big)^{2/3}\,\text{Hypergeometric2F1}\Big[\frac{1}{3},\,\frac{2}{3},\,\frac{4}{3},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\Big]\Big)\Big)\Big/\Big(40\,(-b\,c+a\,d)^3\,(a+b\,x)^{8/3}\Big)$$

Problem 1615: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{7/3}}{(c+d\,x)^{4/3}}\,dx$$

Optimal (type 3, 241 leaves, 4 steps):

$$-\frac{3\,(a+b\,x)^{7/3}}{d\,(c+d\,x)^{1/3}}-\frac{14\,b\,(b\,c-a\,d)\,(a+b\,x)^{1/3}\,(c+d\,x)^{2/3}}{3\,d^3}+\frac{7\,b\,(a+b\,x)^{4/3}\,(c+d\,x)^{2/3}}{2\,d^2}-$$

$$\frac{14\,b^{1/3}\,(b\,c-a\,d)^2\,\text{ArcTan}\Big[\frac{1}{\sqrt{3}}+\frac{2\,b^{1/3}\,(c+d\,x)^{1/3}}{\sqrt{3}\,d^{1/3}\,(a+b\,x)^{1/3}}\Big]}{3\,\sqrt{3}\,d^{10/3}}-\frac{7\,b^{1/3}\,(b\,c-a\,d)^2\,\text{Log}[a+b\,x]}{9\,d^{10/3}}-\frac{7\,b^{1/3}\,(b\,c-a\,d)^2\,\text{Log}\Big[-1+\frac{b^{1/3}\,(c+d\,x)^{1/3}}{d^{1/3}\,(a+b\,x)^{1/3}}\Big]}{3\,d^{10/3}}$$

Result (type 5, 132 leaves):

$$\frac{1}{6\, d^4\, (a+b\, x)^{2/3}}(c+d\, x)^{2/3}\left(d\, (a+b\, x)\left(b\, (-10\, b\, c+13\, a\, d)+3\, b^2\, d\, x-\frac{18\, (b\, c-a\, d)^2}{c+d\, x}\right)+14\, b\, (b\, c-a\, d)^2\left(\frac{d\, (a+b\, x)}{-b\, c+a\, d}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b\, (c+d\, x)}{b\, c-a\, d}\right]\right)$$

Problem 1616: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\, x)^{4/3}}{(c+d\, x)^{4/3}}\, dx$$

Optimal (type 3, 195 leaves, 3 steps):

$$-\frac{3\, (a+b\, x)^{4/3}}{d\, (c+d\, x)^{1/3}}+\frac{4\, b\, (a+b\, x)^{1/3}\, (c+d\, x)^{2/3}}{d^2}+\frac{4\, b^{1/3}\, (b\, c-a\, d)\, \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\, b^{1/3}\, (c+d\, x)^{1/3}}{\sqrt{3}\, d^{1/3}\, (a+b\, x)^{1/3}}\right]}{\sqrt{3}\, d^{7/3}}+\frac{2\, b^{1/3}\, (b\, c-a\, d)\, \text{Log}[a+b\, x]}{3\, d^{7/3}}+\frac{2\, b^{1/3}\, (b\, c-a\, d)\, \text{Log}\left[-1+\frac{b^{1/3}\, (c+d\, x)^{1/3}}{d^{1/3}\, (a+b\, x)^{1/3}}\right]}{d^{7/3}}$$

Result (type 5, 95 leaves):

$$\frac{(a+b\, x)^{1/3}\, (c+d\, x)^{2/3}\left(\frac{4\, b\, c-3\, a\, d+b\, d\, x}{c+d\, x}+\frac{2\, b\, \text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b\, (c+d\, x)}{b\, c-a\, d}\right]}{\left(\frac{d\, (a+b\, x)}{-b\, c+a\, d}\right)^{1/3}}\right)}{d^2}$$

Problem 1617: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\, x)^{1/3}}{(c+d\, x)^{4/3}}\, dx$$

Optimal (type 3, 149 leaves, 2 steps):

$$-\frac{3\, (a+b\, x)^{1/3}}{d\, (c+d\, x)^{1/3}}-\frac{\sqrt{3}\, b^{1/3}\, \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\, b^{1/3}\, (c+d\, x)^{1/3}}{\sqrt{3}\, d^{1/3}\, (a+b\, x)^{1/3}}\right]}{d^{4/3}}-\frac{b^{1/3}\, \text{Log}[a+b\, x]}{2\, d^{4/3}}-\frac{3\, b^{1/3}\, \text{Log}\left[-1+\frac{b^{1/3}\, (c+d\, x)^{1/3}}{d^{1/3}\, (a+b\, x)^{1/3}}\right]}{2\, d^{4/3}}$$

Result (type 5, 90 leaves):

$$\frac{-6\, d\, (a+b\, x)+3\, b\left(\frac{d\, (a+b\, x)}{-b\, c+a\, d}\right)^{2/3}(c+d\, x)\, \text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b\, (c+d\, x)}{b\, c-a\, d}\right]}{2\, d^2\, (a+b\, x)^{2/3}\, (c+d\, x)^{1/3}}$$

Problem 1622: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{8/3}}{(c+d x)^{4/3}} \, dx$$

Optimal (type 4, 1355 leaves, 8 steps):

$$-\frac{3 (a+b x)^{8/3}}{d (c+d x)^{1/3}}-\frac{30 b (b c-a d) (a+b x)^{2/3} (c+d x)^{2/3}}{7 d^3}+\frac{24 b (a+b x)^{5/3} (c+d x)^{2/3}}{7 d^2}+$$

$$\left(30\times 2^{2/3} b^{1/3} (b c-a d)^2 ((a+b x) (c+d x))^{1/3} \sqrt{(b c+a d+2 b d x)^2} \sqrt{(a d+b (c+2 d x))^2}\right)\Big/$$

$$\left(7 d^{11/3} (a+b x)^{1/3} (c+d x)^{1/3} (b c+a d+2 b d x) \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)\right)-$$

$$\left(15\times 2^{2/3}\times 3^{1/4} \sqrt{2-\sqrt{3}}\, b^{1/3} (b c-a d)^{8/3} ((a+b x) (c+d x))^{1/3} \sqrt{(b c+a d+2 b d x)^2} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3} (b c-a d)^{2/3} ((a+b x) (c+d x))^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} ((a+b x) (c+d x))^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)^2\right)}$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}}\right],-7-4 \sqrt{3}\right]\right)\Big/$$

$$\left(7 d^{11/3} (a+b x)^{1/3} (c+d x)^{1/3} (b c+a d+2 b d x) \sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)^2}} \sqrt{(a d+b (c+2 d x))^2}\right)+$$

$$\left(20\times 2^{1/6}\times 3^{3/4} b^{1/3} (b c-a d)^{8/3} ((a+b x) (c+d x))^{1/3} \sqrt{(b c+a d+2 b d x)^2} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3} b^{1/3} d^{1/3} (b c-a d)^{2/3} ((a+b x) (c+d x))^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} ((a+b x) (c+d x))^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)^2\right)}$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}}\right],-7-4 \sqrt{3}\right]\right)\Big/$$

$$\left(7 d^{11/3} (a+b x)^{1/3} (c+d x)^{1/3} (b c+a d+2 b d x) \sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2^{2/3} b^{1/3} d^{1/3} ((a+b x) (c+d x))^{1/3}\right)^2}} \sqrt{(a d+b (c+2 d x))^2}\right)$$

Result (type 5, 131 leaves):

$$\frac{1}{7 d^4 (a+b x)^{1/3}} 3 (c+d x)^{2/3} \left(d (a+b x) \left(b (-3 b c+4 a d)+b^2 d x-\frac{7 (b c-a d)^2}{c+d x}\right)+10 b (b c-a d)^2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/3} \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1623: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{5/3}}{(c+d x)^{4/3}} \, dx$$

Optimal (type 4, 1317 leaves, 7 steps):

$$-\frac{3\,(a+b\,x)^{5/3}}{d\,(c+d\,x)^{1/3}}+\frac{15\,b\,(a+b\,x)^{2/3}\,(c+d\,x)^{2/3}}{4\,d^2}-\Big(15\,b^{1/3}\,(b\,c-a\,d)\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\Big)\Big/$$
$$\Big(2\times 2^{1/3}\,d^{8/3}\,(a+b\,x)^{1/3}\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)\,\Big(\big(1+\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)\Big)+$$
$$\Big(15\times 3^{1/4}\sqrt{2-\sqrt{3}}\,b^{1/3}\,(b\,c-a\,d)^{5/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\Big((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)$$
$$\sqrt{\Big(\Big((b\,c-a\,d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b\,c-a\,d)^{2/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{2/3}\Big)\Big/\Big(\big(1+\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)^2\Big)}$$
$$\text{EllipticE}\Big[\text{ArcSin}\Big[\frac{\big(1-\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}}{\big(1+\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}}\Big],\,-7-4\sqrt{3}\Big]\Big)\Big/\Big(4\times 2^{1/3}\,d^{8/3}\,(a+b\,x)^{1/3}$$
$$(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{\frac{(b\,c-a\,d)^{2/3}\,\Big((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)}{\Big(\big(1+\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)^2}}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\Big)-$$
$$\Big(5\times 3^{3/4}\,b^{1/3}\,(b\,c-a\,d)^{5/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\Big((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)$$
$$\sqrt{\Big(\Big((b\,c-a\,d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b\,c-a\,d)^{2/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{2/3}\Big)\Big/\Big(\big(1+\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)^2\Big)}$$
$$\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\big(1-\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}}{\big(1+\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}}\Big],\,-7-4\sqrt{3}\Big]\Big)\Big/$$
$$\Big(2^{5/6}\,d^{8/3}\,(a+b\,x)^{1/3}\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{\frac{(b\,c-a\,d)^{2/3}\,\Big((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)}{\Big(\big(1+\sqrt{3}\big)\,(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\big((a+b\,x)\,(c+d\,x)\big)^{1/3}\Big)^2}}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\Big)$$

Result (type 5, 98 leaves):

$$\frac{3\,(a+b\,x)^{2/3}\,(c+d\,x)^{2/3}\left(\frac{5\,b\,c-4\,a\,d+b\,d\,x}{c+d\,x}+\frac{5\,b\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{2/3}}\right)}{4\,d^2}$$

Problem 1624: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{2/3}}{(c+d x)^{4/3}}\, dx$$

Optimal (type 4, 1279 leaves, 6 steps):

$$-\frac{3\,(a+b x)^{2/3}}{d\,(c+d x)^{1/3}}+\left(3\times 2^{2/3}\, b^{1/3}\, \left((a+b x)\,(c+d x)\right)^{1/3} \sqrt{(b c+a d+2 b d x)^2}\, \sqrt{\left(a d+b\,(c+2 d x)\right)^2}\right)\Big/$$
$$\left(d^{5/3}\,(a+b x)^{1/3}\,(c+d x)^{1/3}\,(b c+a d+2 b d x)\,\left(\left(1+\sqrt{3}\right)\,(b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}\right)\right)-$$
$$\Bigg(3\times 3^{1/4}\,\sqrt{2-\sqrt{3}}\;b^{1/3}\,(b c-a d)^{2/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}\sqrt{(b c+a d+2 b d x)^2}\,\left((b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}\right)$$
$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3}\, b^{1/3}\, d^{1/3}\,(b c-a d)^{2/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}+2\times 2^{1/3}\, b^{2/3}\, d^{2/3}\,\left((a+b x)\,(c+d x)\right)^{2/3}\right)\Big/\right.}$$
$$\overline{\left.\left(\left(1+\sqrt{3}\right)\,(b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}\right)^2\right)}$$
$$\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)\,(b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right)\,(b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}}\right],\,-7-4\sqrt{3}\right]\Bigg)\Big/$$
$$\left(2^{1/3}\, d^{5/3}\,(a+b x)^{1/3}\,(c+d x)^{1/3}\,(b c+a d+2 b d x)\,\sqrt{\frac{(b c-a d)^{2/3}\,\left((b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)\,(b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}\right)^2}}\;\sqrt{\left(a d+b\,(c+2 d x)\right)^2}\right)+$$
$$\Bigg(2\times 2^{1/6}\times 3^{3/4}\, b^{1/3}\,(b c-a d)^{2/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}\sqrt{(b c+a d+2 b d x)^2}\,\left((b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}\right)$$
$$\sqrt{\left(\left((b c-a d)^{4/3}-2^{2/3}\, b^{1/3}\, d^{1/3}\,(b c-a d)^{2/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}+2\times 2^{1/3}\, b^{2/3}\, d^{2/3}\,\left((a+b x)\,(c+d x)\right)^{2/3}\right)\Big/\right.}$$
$$\overline{\left.\left(\left(1+\sqrt{3}\right)\,(b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}\right)^2\right)}$$
$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)\,(b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}}{\left(1+\sqrt{3}\right)\,(b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}}\right],\,-7-4\sqrt{3}\right]\Bigg)\Big/$$
$$\left(d^{5/3}\,(a+b x)^{1/3}\,(c+d x)^{1/3}\,(b c+a d+2 b d x)\,\sqrt{\frac{(b c-a d)^{2/3}\,\left((b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)\,(b c-a d)^{2/3}+2^{2/3}\, b^{1/3}\, d^{1/3}\,\left((a+b x)\,(c+d x)\right)^{1/3}\right)^2}}\;\sqrt{\left(a d+b\,(c+2 d x)\right)^2}\right)$$

Result (type 5, 87 leaves):

$$\frac{-3\,d\,\left(a+b\,x\right)+3\,b\,\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/3}\left(c+d\,x\right)\,\text{Hypergeometric2F1}\left[\frac{1}{3},\,\frac{2}{3},\,\frac{5}{3},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{d^2\,\left(a+b\,x\right)^{1/3}\,\left(c+d\,x\right)^{1/3}}$$

Problem 1625: Result unnecessarily involves higher level functions.

$$\int\frac{1}{\left(a+b\,x\right)^{1/3}\,\left(c+d\,x\right)^{4/3}}\,dx$$

Optimal (type 4, 1298 leaves, 6 steps):

$$\frac{3\,(a+b\,x)^{2/3}}{(b\,c-a\,d)\,(c+d\,x)^{1/3}}-\left(3\,b^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\sqrt{\left(a\,d+b\,(c+2\,d\,x)\right)^2}\right)\Big/$$

$$\left(2^{1/3}\,d^{2/3}\,(b\,c-a\,d)\,(a+b\,x)^{1/3}\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)\,\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}\right)\right)+$$

$$\Bigg(3\times 3^{1/4}\sqrt{2-\sqrt{3}}\;b^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}\right)$$

$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b\,c-a\,d)^{2/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}\right)^2\right)}$$

$$\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}}\right],-7-4\sqrt{3}\right]\Bigg)\Bigg/\Bigg(2\times 2^{1/3}\,d^{2/3}\,(b\,c-a\,d)^{1/3}$$

$$(a+b\,x)^{1/3}\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)\sqrt{\frac{(b\,c-a\,d)^{2/3}\,\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}\right)^2}}\,\sqrt{\left(a\,d+b\,(c+2\,d\,x)\right)^2}\Bigg)-$$

$$\Bigg(2^{1/6}\times 3^{3/4}\,b^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}\right)$$

$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2^{2/3}\,b^{1/3}\,d^{1/3}\,(b\,c-a\,d)^{2/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}+2\times 2^{1/3}\,b^{2/3}\,d^{2/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}\right)^2\right)}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}}\right],-7-4\sqrt{3}\right]\Bigg)\Bigg/\Bigg(d^{2/3}\,(b\,c-a\,d)^{1/3}\,(a+b\,x)^{1/3}$$

$$(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)\sqrt{\frac{(b\,c-a\,d)^{2/3}\,\left((b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2^{2/3}\,b^{1/3}\,d^{1/3}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/3}\right)^2}}\,\sqrt{\left(a\,d+b\,(c+2\,d\,x)\right)^2}\Bigg)$$

Result (type 5, 100 leaves) :

$$\frac{6\,d\,(a+b\,x)-3\,b\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/3}(c+d\,x)\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{2\,d\,(b\,c-a\,d)\,(a+b\,x)^{1/3}\,(c+d\,x)^{1/3}}$$

Problem 1626: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b\,x)^{4/3}\,(c+d\,x)^{4/3}}\,dx$$

Optimal (type 4, 1327 leaves, 7 steps) :

$$-\frac{3}{(bc-ad)(a+bx)^{1/3}(c+dx)^{1/3}}-\frac{6d(a+bx)^{2/3}}{(bc-ad)^2(c+dx)^{1/3}}+$$

$$\left(3\times 2^{2/3} b^{1/3} d^{1/3}((a+bx)(c+dx))^{1/3}\sqrt{(bc+ad+2bdx)^2}\sqrt{(ad+b(c+2dx))^2}\right)\Big/$$
$$\left((bc-ad)^2(a+bx)^{1/3}(c+dx)^{1/3}(bc+ad+2bdx)\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}\right)\right)-$$

$$\Bigg(3\times 3^{1/4}\sqrt{2-\sqrt{3}}\,b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}\sqrt{(bc+ad+2bdx)^2}\left((bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}\right)$$
$$\sqrt{\left(\left((bc-ad)^{4/3}-2^{2/3}b^{1/3}d^{1/3}(bc-ad)^{2/3}((a+bx)(c+dx))^{1/3}+2\times 2^{1/3}b^{2/3}d^{2/3}((a+bx)(c+dx))^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}\right)^2\right)}$$
$$\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}}{\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}}\right],-7-4\sqrt{3}\right]\Bigg)\Bigg/\Bigg(2^{1/3}(bc-ad)^{4/3}(a+bx)^{1/3}$$
$$(c+dx)^{1/3}(bc+ad+2bdx)\sqrt{\frac{(bc-ad)^{2/3}\left((bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}\right)^2}}\sqrt{(ad+b(c+2dx))^2}\Bigg)+$$

$$\Bigg(2\times 2^{1/6}\times 3^{3/4}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}\sqrt{(bc+ad+2bdx)^2}\left((bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}\right)$$
$$\sqrt{\left(\left((bc-ad)^{4/3}-2^{2/3}b^{1/3}d^{1/3}(bc-ad)^{2/3}((a+bx)(c+dx))^{1/3}+2\times 2^{1/3}b^{2/3}d^{2/3}((a+bx)(c+dx))^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}\right)^2\right)}$$
$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}}{\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}}\right],-7-4\sqrt{3}\right]\Bigg)\Bigg/\Bigg((bc-ad)^{4/3}(a+bx)^{1/3}$$
$$(c+dx)^{1/3}(bc+ad+2bdx)\sqrt{\frac{(bc-ad)^{2/3}\left((bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2^{2/3}b^{1/3}d^{1/3}((a+bx)(c+dx))^{1/3}\right)^2}}\sqrt{(ad+b(c+2dx))^2}\Bigg)$$

Result (type 5, 98 leaves):

$$-\frac{3\left(ad+b(c+2dx)-b\left(\frac{d(a+bx)}{-bc+ad}\right)^{1/3}(c+dx)\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{b(c+dx)}{bc-ad}\right]\right)}{(bc-ad)^2(a+bx)^{1/3}(c+dx)^{1/3}}$$

Problem 1627: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a + b x)^{7/3} (c + d x)^{4/3}} \, dx$$

Optimal (type 4, 1370 leaves, 8 steps) :

$$-\frac{3}{4 \left(b c-a d\right) \left(a+b x\right)^{4/3} \left(c+d x\right)^{1/3}}+\frac{15 d}{4 \left(b c-a d\right)^2 \left(a+b x\right)^{1/3} \left(c+d x\right)^{1/3}}+\frac{15 d^2 \left(a+b x\right)^{2/3}}{2 \left(b c-a d\right)^3 \left(c+d x\right)^{1/3}}-\left(15 b^{1/3} d^{4/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3} \sqrt{\left(b c+a d+2 b d x\right)^2} \sqrt{\left(a d+b \left(c+2 d x\right)\right)^2}\right)\Big/\left(2\times 2^{1/3} \left(b c-a d\right)^3 \left(a+b x\right)^{1/3} \left(c+d x\right)^{1/3} \left(b c+a d+2 b d x\right) \left(\left(1+\sqrt{3}\right) \left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}\right)\right)+$$

$$\left(15\times 3^{1/4} \sqrt{2-\sqrt{3}}\; b^{1/3} d^{4/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3} \sqrt{\left(b c+a d+2 b d x\right)^2} \left(\left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left(\left(b c-a d\right)^{4/3}-2^{2/3} b^{1/3} d^{1/3} \left(b c-a d\right)^{2/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right) \left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}\right)^2\right)}$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) \left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}}{\left(1+\sqrt{3}\right) \left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/\left(4\times 2^{1/3} \left(b c-a d\right)^{7/3}\right.$$

$$\left.\left(a+b x\right)^{1/3} \left(c+d x\right)^{1/3} \left(b c+a d+2 b d x\right) \sqrt{\frac{\left(b c-a d\right)^{2/3} \left(\left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) \left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}\right)^2}} \sqrt{\left(a d+b \left(c+2 d x\right)\right)^2}\right)-$$

$$\left(5\times 3^{3/4} b^{1/3} d^{4/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3} \sqrt{\left(b c+a d+2 b d x\right)^2} \left(\left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left(\left(b c-a d\right)^{4/3}-2^{2/3} b^{1/3} d^{1/3} \left(b c-a d\right)^{2/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}+2\times 2^{1/3} b^{2/3} d^{2/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right) \left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}\right)^2\right)}$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) \left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}}{\left(1+\sqrt{3}\right) \left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/\left(2^{5/6} \left(b c-a d\right)^{7/3} \left(a+b x\right)^{1/3}\right.$$

$$\left.\left(c+d x\right)^{1/3} \left(b c+a d+2 b d x\right) \sqrt{\frac{\left(b c-a d\right)^{2/3} \left(\left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) \left(b c-a d\right)^{2/3}+2^{2/3} b^{1/3} d^{1/3} \left(\left(a+b x\right) \left(c+d x\right)\right)^{1/3}\right)^2}} \sqrt{\left(a d+b \left(c+2 d x\right)\right)^2}\right)$$

Result (type 5, 138 leaves) :

$$-\left(\left(3\left(4 a^2 d^2+a b d(7 c+15 d x)+b^2\left(-c^2+5 c d x+10 d^2 x^2\right)-5 b d(a+b x)\left(\frac{d(a+b x)}{-b c+a d}\right)^{1/3}(c+d x)\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{b(c+d x)}{b c-a d}\right]\right)\right)\Big/\left(4(-b c+a d)^3(a+b x)^{4/3}(c+d x)^{1/3}\right)\right)$$

Problem 1628: Result unnecessarily involves higher level functions.

$$\int \frac{(-1+x)^{1/3}}{(1+x)^{1/3}}\,dx$$

Optimal (type 3, 77 leaves, 2 steps):

$$(-1+x)^{1/3}(1+x)^{2/3}+\frac{2\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2(1+x)^{1/3}}{\sqrt{3}(-1+x)^{1/3}}\right]}{\sqrt{3}}+\frac{1}{3}\text{Log}[-1+x]+\text{Log}\left[-1+\frac{(1+x)^{1/3}}{(-1+x)^{1/3}}\right]$$

Result (type 5, 50 leaves):

$$\left(\frac{-1+x}{1+x}\right)^{1/3}\left(1+x-2^{2/3}(1+x)^{1/3}\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{1-x}{2}\right]\right)$$

Problem 1629: Result unnecessarily involves higher level functions.

$$\int (a+b x)^{3/2}(c+d x)^{1/4}\,dx$$

Optimal (type 4, 185 leaves, 6 steps):

$$-\frac{8(b c-a d)^2\sqrt{a+b x}\,(c+d x)^{1/4}}{77 b d^2}+\frac{4(b c-a d)(a+b x)^{3/2}(c+d x)^{1/4}}{77 b d}+\frac{4(a+b x)^{5/2}(c+d x)^{1/4}}{11 b}+\frac{16(b c-a d)^{13/4}\sqrt{-\frac{d(a+b x)}{b c-a d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}(c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{77 b^{5/4} d^3\sqrt{a+b x}}$$

Result (type 5, 140 leaves):

$$-\frac{1}{77 b d^3\sqrt{a+b x}}4(c+d x)^{1/4}\left(-d(a+b x)\left(4 a^2 d^2+a b d(5 c+13 d x)+b^2\left(-2 c^2+c d x+7 d^2 x^2\right)\right)-4(b c-a d)^3\sqrt{\frac{d(a+b x)}{-b c+a d}}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b(c+d x)}{b c-a d}\right]\right)$$

Problem 1630: Result unnecessarily involves higher level functions.

$$\int \sqrt{a+b x}\,(c+d x)^{1/4}\,dx$$

Optimal (type 4, 147 leaves, 5 steps):

$$\frac{4 (b c-a d) \sqrt{a+b x}\,(c+d x)^{1/4}}{21 b d}+\frac{4 (a+b x)^{3/2} (c+d x)^{1/4}}{7 b}-\frac{8 (b c-a d)^{9/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{21 b^{5/4} d^2 \sqrt{a+b x}}$$

Result (type 5, 109 leaves):

$$\frac{1}{21 b d^2 \sqrt{a+b x}} 4 (c+d x)^{1/4} \left(d (a+b x) (2 a d+b (c+3 d x))-2 (b c-a d)^2 \sqrt{\frac{d (a+b x)}{-b c+a d}}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1631: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{1/4}}{\sqrt{a+b x}}\,dx$$

Optimal (type 4, 111 leaves, 4 steps):

$$\frac{4 \sqrt{a+b x}\,(c+d x)^{1/4}}{3 b}+\frac{4 (b c-a d)^{5/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{3 b^{5/4} d \sqrt{a+b x}}$$

Result (type 5, 93 leaves):

$$\frac{4 (c+d x)^{1/4} \left(d (a+b x)+(b c-a d) \sqrt{\frac{d (a+b x)}{-b c+a d}}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)}{3 b d \sqrt{a+b x}}$$

Problem 1632: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{1/4}}{(a+b x)^{3/2}}\,dx$$

Optimal (type 4, 104 leaves, 4 steps):

$$-\frac{2\,(c+d\,x)^{1/4}}{b\,\sqrt{a+b\,x}}+\frac{2\,(b\,c-a\,d)^{1/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],\,-1\right]}{b^{5/4}\,\sqrt{a+b\,x}}$$

Result (type 5, 74 leaves):

$$\frac{2\,(c+d\,x)^{1/4}\,\left(-1+\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{4},\,\frac{1}{2},\,\frac{5}{4},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{b\,\sqrt{a+b\,x}}$$

Problem 1633: Result unnecessarily involves higher level functions.

$$\int\frac{(c+d\,x)^{1/4}}{(a+b\,x)^{5/2}}\,dx$$

Optimal (type 4, 145 leaves, 5 steps):

$$-\frac{2\,(c+d\,x)^{1/4}}{3\,b\,(a+b\,x)^{3/2}}-\frac{d\,(c+d\,x)^{1/4}}{3\,b\,(b\,c-a\,d)\,\sqrt{a+b\,x}}-\frac{d\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],\,-1\right]}{3\,b^{5/4}\,(b\,c-a\,d)^{3/4}\,\sqrt{a+b\,x}}$$

Result (type 5, 103 leaves):

$$\frac{(c+d\,x)^{1/4}\,\left(2\,b\,c-a\,d+b\,d\,x+d\,(a+b\,x)\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{4},\,\frac{1}{2},\,\frac{5}{4},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{3\,b\,(-b\,c+a\,d)\,(a+b\,x)^{3/2}}$$

Problem 1634: Result unnecessarily involves higher level functions.

$$\int\frac{(c+d\,x)^{1/4}}{(a+b\,x)^{7/2}}\,dx$$

Optimal (type 4, 185 leaves, 6 steps):

$$-\frac{2\,(c+d\,x)^{1/4}}{5\,b\,(a+b\,x)^{5/2}}-\frac{d\,(c+d\,x)^{1/4}}{15\,b\,(b\,c-a\,d)\,(a+b\,x)^{3/2}}+\frac{d^2\,(c+d\,x)^{1/4}}{6\,b\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}}+\frac{d^2\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],\,-1\right]}{6\,b^{5/4}\,(b\,c-a\,d)^{7/4}\,\sqrt{a+b\,x}}$$

Result (type 5, 140 leaves):

$$\left((c+d x)^{1/4}\left(-5 a^2 d^2+2 a b d (11 c+6 d x)+b^2 \left(-12 c^2-2 c d x+5 d^2 x^2\right)+\right.\right.$$
$$\left.\left.5 d^2 (a+b x)^2 \sqrt{\frac{d (a+b x)}{-b c+a d}}\ \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)\right)\Big/\left(30 b (b c-a d)^2 (a+b x)^{5/2}\right)$$

Problem 1635: Result unnecessarily involves higher level functions.

$$\int (a+b x)^{3/2} (c+d x)^{3/4}\, dx$$

Optimal (type 4, 270 leaves, 10 steps):

$$-\frac{8 (b c-a d)^2 \sqrt{a+b x}\ (c+d x)^{3/4}}{65 b d^2}+\frac{4 (b c-a d) (a+b x)^{3/2} (c+d x)^{3/4}}{39 b d}+\frac{4 (a+b x)^{5/2} (c+d x)^{3/4}}{13 b}+$$
$$\frac{16 (b c-a d)^{15/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{65 b^{7/4} d^3 \sqrt{a+b x}}-\frac{16 (b c-a d)^{15/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{65 b^{7/4} d^3 \sqrt{a+b x}}$$

Result (type 5, 141 leaves):

$$-\frac{1}{195 b d^3 \sqrt{a+b x}} 4 (c+d x)^{3/4}$$
$$\left(-d (a+b x) \left(4 a^2 d^2+a b d (17 c+25 d x)+b^2 \left(-6 c^2+5 c d x+15 d^2 x^2\right)\right)-4 (b c-a d)^3 \sqrt{\frac{d (a+b x)}{-b c+a d}}\ \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1636: Result unnecessarily involves higher level functions.

$$\int \sqrt{a+b x}\ (c+d x)^{3/4}\, dx$$

Optimal (type 4, 232 leaves, 9 steps):

$$\frac{4\,(b\,c-a\,d)\,\sqrt{a+b\,x}\,(c+d\,x)^{3/4}}{15\,b\,d}+\frac{4\,(a+b\,x)^{3/2}\,(c+d\,x)^{3/4}}{9\,b}-\frac{8\,(b\,c-a\,d)^{11/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{15\,b^{7/4}\,d^2\,\sqrt{a+b\,x}}+\frac{8\,(b\,c-a\,d)^{11/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{15\,b^{7/4}\,d^2\,\sqrt{a+b\,x}}$$

Result (type 5, 110 leaves):

$$\frac{1}{45\,b\,d^2\,\sqrt{a+b\,x}}4\,(c+d\,x)^{3/4}\left(d\,(a+b\,x)\,(3\,b\,c+2\,a\,d+5\,b\,d\,x)-2\,(b\,c-a\,d)^2\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1637: Result unnecessarily involves higher level functions.

$$\int\frac{(c+d\,x)^{3/4}}{\sqrt{a+b\,x}}\,dx$$

Optimal (type 4, 196 leaves, 8 steps):

$$\frac{4\,\sqrt{a+b\,x}\,(c+d\,x)^{3/4}}{5\,b}+\frac{12\,(b\,c-a\,d)^{7/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{5\,b^{7/4}\,d\,\sqrt{a+b\,x}}-\frac{12\,(b\,c-a\,d)^{7/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{5\,b^{7/4}\,d\,\sqrt{a+b\,x}}$$

Result (type 5, 93 leaves):

$$\frac{4\,(c+d\,x)^{3/4}\left(d\,(a+b\,x)+(b\,c-a\,d)\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{5\,b\,d\,\sqrt{a+b\,x}}$$

Problem 1638: Result unnecessarily involves higher level functions.

$$\int\frac{(c+d\,x)^{3/4}}{(a+b\,x)^{3/2}}\,dx$$

Optimal (type 4, 184 leaves, 8 steps):

$$-\frac{2\,(c+d\,x)^{3/4}}{b\,\sqrt{a+b\,x}}+\frac{6\,(b\,c-a\,d)^{3/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{b^{7/4}\,\sqrt{a+b\,x}}-\frac{6\,(b\,c-a\,d)^{3/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{b^{7/4}\,\sqrt{a+b\,x}}$$

Result (type 5, 74 leaves):

$$\frac{2\,(c+d\,x)^{3/4}\left(-1+\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{b\,\sqrt{a+b\,x}}$$

Problem 1639: Result unnecessarily involves higher level functions.

$$\int\frac{(c+d\,x)^{3/4}}{(a+b\,x)^{5/2}}\,dx$$

Optimal (type 4, 221 leaves, 9 steps):

$$-\frac{2\,(c+d\,x)^{3/4}}{3\,b\,(a+b\,x)^{3/2}}-\frac{d\,(c+d\,x)^{3/4}}{b\,(b\,c-a\,d)\,\sqrt{a+b\,x}}+\frac{d\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{b^{7/4}\,(b\,c-a\,d)^{1/4}\,\sqrt{a+b\,x}}-\frac{d\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{b^{7/4}\,(b\,c-a\,d)^{1/4}\,\sqrt{a+b\,x}}$$

Result (type 5, 104 leaves):

$$\frac{(c+d\,x)^{3/4}\left(2\,b\,c+a\,d+3\,b\,d\,x-d\,(a+b\,x)\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{3\,b\,(-b\,c+a\,d)\,(a+b\,x)^{3/2}}$$

Problem 1640: Result unnecessarily involves higher level functions.

$$\int\frac{(c+d\,x)^{3/4}}{(a+b\,x)^{7/2}}\,dx$$

Optimal (type 4, 270 leaves, 10 steps):

$$-\frac{2\,(c+d\,x)^{3/4}}{5\,b\,(a+b\,x)^{5/2}}-\frac{d\,(c+d\,x)^{3/4}}{5\,b\,(b\,c-a\,d)\,(a+b\,x)^{3/2}}+\frac{3\,d^2\,(c+d\,x)^{3/4}}{10\,b\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}}-$$
$$\frac{3\,d^2\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{10\,b^{7/4}\,(b\,c-a\,d)^{5/4}\,\sqrt{a+b\,x}}+\frac{3\,d^2\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{10\,b^{7/4}\,(b\,c-a\,d)^{5/4}\,\sqrt{a+b\,x}}$$

Result (type 5, 140 leaves):

$$\left((c+d x)^{3/4} \left(a^2 d^2+2 a b d (3 c+4 d x)-b^2 \left(4 c^2+2 c d x-3 d^2 x^2\right)-d^2 (a+b x)^2 \sqrt{\frac{d (a+b x)}{-b c+a d}}\, \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]\right)\right) \Big/ \left(10 b (b c-a d)^2 (a+b x)^{5/2}\right)$$

Problem 1641: Result unnecessarily involves higher level functions.

$$\int (a+b x)^{3/2} (c+d x)^{5/4}\, dx$$

Optimal (type 4, 220 leaves, 7 steps):

$$-\frac{8 (b c-a d)^3 \sqrt{a+b x} (c+d x)^{1/4}}{231 b^2 d^2}+\frac{4 (b c-a d)^2 (a+b x)^{3/2} (c+d x)^{1/4}}{231 b^2 d}+\frac{4 (b c-a d) (a+b x)^{5/2} (c+d x)^{1/4}}{33 b^2}+$$

$$\frac{4 (a+b x)^{5/2} (c+d x)^{5/4}}{15 b}+\frac{16 (b c-a d)^{17/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\, \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{231 b^{9/4} d^3 \sqrt{a+b x}}$$

Result (type 5, 182 leaves):

$$\frac{1}{1155 b^2 d^3 \sqrt{a+b x}}$$

$$4 (c+d x)^{1/4} \left(-d (a+b x) \left(20 a^3 d^3-12 a^2 b d^2 (6 c+d x)-a b^2 d \left(35 c^2+214 c d x+119 d^2 x^2\right)+b^3 \left(10 c^3-5 c^2 d x-112 c d^2 x^2-77 d^3 x^3\right)\right)+\right.$$

$$\left.20 (b c-a d)^4 \sqrt{\frac{d (a+b x)}{-b c+a d}}\, \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1642: Result unnecessarily involves higher level functions.

$$\int \sqrt{a+b x}\, (c+d x)^{5/4}\, dx$$

Optimal (type 4, 182 leaves, 6 steps):

$$\frac{20\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}\,(c+d\,x)^{1/4}}{231\,b^2\,d}+\frac{20\,(b\,c-a\,d)\,(a+b\,x)^{3/2}\,(c+d\,x)^{1/4}}{77\,b^2}+\frac{4\,(a+b\,x)^{3/2}\,(c+d\,x)^{5/4}}{11\,b}-\frac{40\,(b\,c-a\,d)^{13/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{231\,b^{9/4}\,d^2\,\sqrt{a+b\,x}}$$

Result (type 5, 143 leaves):

$$\frac{1}{231\,b^2\,d^2\,\sqrt{a+b\,x}}4\,(c+d\,x)^{1/4}\left(-d\,(a+b\,x)\,\left(10\,a^2\,d^2-2\,a\,b\,d\,(13\,c+3\,d\,x)-b^2\,\left(5\,c^2+36\,c\,d\,x+21\,d^2\,x^2\right)\right)-10\,(b\,c-a\,d)^3\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1643: Result unnecessarily involves higher level functions.

$$\int\frac{(c+d\,x)^{5/4}}{\sqrt{a+b\,x}}\,dx$$

Optimal (type 4, 144 leaves, 5 steps):

$$\frac{20\,(b\,c-a\,d)\,\sqrt{a+b\,x}\,(c+d\,x)^{1/4}}{21\,b^2}+\frac{4\,\sqrt{a+b\,x}\,(c+d\,x)^{5/4}}{7\,b}+\frac{20\,(b\,c-a\,d)^{9/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{21\,b^{9/4}\,d\,\sqrt{a+b\,x}}$$

Result (type 5, 111 leaves):

$$\frac{1}{21\,b^2\,d\,\sqrt{a+b\,x}}4\,(c+d\,x)^{1/4}\left(-d\,(a+b\,x)\,(-8\,b\,c+5\,a\,d-3\,b\,d\,x)+5\,(b\,c-a\,d)^2\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1644: Result unnecessarily involves higher level functions.

$$\int\frac{(c+d\,x)^{5/4}}{(a+b\,x)^{3/2}}\,dx$$

Optimal (type 4, 132 leaves, 5 steps):

$$\frac{10\,d\,\sqrt{a+b\,x}\,\left(c+d\,x\right)^{1/4}}{3\,b^2}-\frac{2\,\left(c+d\,x\right)^{5/4}}{b\,\sqrt{a+b\,x}}+\frac{10\,\left(b\,c-a\,d\right)^{5/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{3\,b^{9/4}\,\sqrt{a+b\,x}}$$

Result (type 5, 95 leaves):

$$-\frac{2\,\left(c+d\,x\right)^{1/4}\,\left(3\,b\,c-5\,a\,d-2\,b\,d\,x+\frac{5\,d\,(a+b\,x)\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}}\right)}{3\,b^2\,\sqrt{a+b\,x}}$$

Problem 1645: Result unnecessarily involves higher level functions.

$$\int\frac{\left(c+d\,x\right)^{5/4}}{\left(a+b\,x\right)^{5/2}}\,dx$$

Optimal (type 4, 135 leaves, 5 steps):

$$-\frac{5\,d\,\left(c+d\,x\right)^{1/4}}{3\,b^2\,\sqrt{a+b\,x}}-\frac{2\,\left(c+d\,x\right)^{5/4}}{3\,b\,\left(a+b\,x\right)^{3/2}}+\frac{5\,d\,\left(b\,c-a\,d\right)^{1/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{3\,b^{9/4}\,\sqrt{a+b\,x}}$$

Result (type 5, 95 leaves):

$$\frac{\left(c+d\,x\right)^{1/4}\,\left(-2\,b\,c-5\,a\,d-7\,b\,d\,x+5\,d\,\left(a+b\,x\right)\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{3\,b^2\,\left(a+b\,x\right)^{3/2}}$$

Problem 1646: Result unnecessarily involves higher level functions.

$$\int\frac{\left(c+d\,x\right)^{5/4}}{\left(a+b\,x\right)^{7/2}}\,dx$$

Optimal (type 4, 175 leaves, 6 steps):

$$-\frac{d\,\left(c+d\,x\right)^{1/4}}{3\,b^2\,\left(a+b\,x\right)^{3/2}}-\frac{d^2\,\left(c+d\,x\right)^{1/4}}{6\,b^2\,\left(b\,c-a\,d\right)\,\sqrt{a+b\,x}}-\frac{2\,\left(c+d\,x\right)^{5/4}}{5\,b\,\left(a+b\,x\right)^{5/2}}-\frac{d^2\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{6\,b^{9/4}\,\left(b\,c-a\,d\right)^{3/4}\,\sqrt{a+b\,x}}$$

Result (type 5, 138 leaves):

$$\left((c+d x)^{1/4}\left(-5 a^2 d^2-2 a b d (c+6 d x)+b^2 \left(12 c^2+22 c d x+5 d^2 x^2\right)+5 d^2 (a+b x)^2 \sqrt{\frac{d (a+b x)}{-b c+a d}}\ \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)\right)\Big/\left(30 b^2 (-b c+a d) (a+b x)^{5/2}\right)$$

Problem 1647: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{5/4}}{(a+b x)^{9/2}}\, dx$$

Optimal (type 4, 213 leaves, 7 steps):

$$-\frac{d (c+d x)^{1/4}}{7 b^2 (a+b x)^{5/2}}-\frac{d^2 (c+d x)^{1/4}}{42 b^2 (b c-a d) (a+b x)^{3/2}}+\frac{5 d^3 (c+d x)^{1/4}}{84 b^2 (b c-a d)^2 \sqrt{a+b x}}-\frac{2 (c+d x)^{5/4}}{7 b (a+b x)^{7/2}}+\frac{5 d^3 \sqrt{-\frac{d (a+b x)}{b c-a d}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{84 b^{9/4} (b c-a d)^{7/4} \sqrt{a+b x}}$$

Result (type 5, 181 leaves):

$$\left((c+d x)^{1/4}\left(-5 a^3 d^3-a^2 b d^2 (2 c+17 d x)+a b^2 d \left(36 c^2+68 c d x+17 d^2 x^2\right)-b^3 \left(24 c^3+36 c^2 d x+2 c d^2 x^2-5 d^3 x^3\right)+5 d^3 (a+b x)^3 \sqrt{\frac{d (a+b x)}{-b c+a d}}\ \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)\right)\Big/\left(84 b^2 (b c-a d)^2 (a+b x)^{7/2}\right)$$

Problem 1648: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{5/2}}{(c+d x)^{1/4}}\, dx$$

Optimal (type 4, 264 leaves, 10 steps):

$$\frac{16 (b c-a d)^2 \sqrt{a+b x} (c+d x)^{3/4}}{39 d^3}-\frac{40 (b c-a d) (a+b x)^{3/2} (c+d x)^{3/4}}{117 d^2}+\frac{4 (a+b x)^{5/2} (c+d x)^{3/4}}{13 d}-\frac{32 (b c-a d)^{15/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{39 b^{3/4} d^4 \sqrt{a+b x}}+\frac{32 (b c-a d)^{15/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{39 b^{3/4} d^4 \sqrt{a+b x}}$$

Result (type 5, 138 leaves):

$$\frac{1}{117\,d^4\,\sqrt{a+b\,x}}4\,(c+d\,x)^{3/4}\left(d\,(a+b\,x)\,\left(31\,a^2\,d^2+2\,a\,b\,d\,(-17\,c+14\,d\,x)+b^2\,\left(12\,c^2-10\,c\,d\,x+9\,d^2\,x^2\right)\right)-8\,(b\,c-a\,d)^3\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1649: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{3/2}}{(c+d\,x)^{1/4}}\,dx$$

Optimal (type 4, 229 leaves, 9 steps):

$$-\frac{8\,(b\,c-a\,d)\,\sqrt{a+b\,x}\,(c+d\,x)^{3/4}}{15\,d^2}+\frac{4\,(a+b\,x)^{3/2}\,(c+d\,x)^{3/4}}{9\,d}+\frac{16\,(b\,c-a\,d)^{11/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{15\,b^{3/4}\,d^3\,\sqrt{a+b\,x}}-\frac{16\,(b\,c-a\,d)^{11/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{15\,b^{3/4}\,d^3\,\sqrt{a+b\,x}}$$

Result (type 5, 107 leaves):

$$\frac{1}{45\,d^3\,\sqrt{a+b\,x}}4\,(c+d\,x)^{3/4}\left(d\,(a+b\,x)\,(-6\,b\,c+11\,a\,d+5\,b\,d\,x)+4\,(b\,c-a\,d)^2\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1650: Result unnecessarily involves higher level functions.

$$\int\frac{\sqrt{a+b\,x}}{(c+d\,x)^{1/4}}\,dx$$

Optimal (type 4, 196 leaves, 8 steps):

$$\frac{4\sqrt{a+b x}\,(c+d x)^{3/4}}{5 d}-\frac{8\,(b c-a d)^{7/4}\sqrt{-\frac{d (a+b x)}{b c-a d}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{5 b^{3/4} d^2 \sqrt{a+b x}}+$$
$$\frac{8\,(b c-a d)^{7/4}\sqrt{-\frac{d (a+b x)}{b c-a d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{5 b^{3/4} d^2 \sqrt{a+b x}}$$

Result (type 5, 77 leaves):

$$\frac{4\sqrt{a+b x}\,(c+d x)^{3/4}\left(3+\frac{2\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]}{\sqrt{\frac{d (a+b x)}{-b c+a d}}}\right)}{15 d}$$

Problem 1651: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{a+b x}\,(c+d x)^{1/4}}\,dx$$

Optimal (type 4, 167 leaves, 7 steps):

$$\frac{4\,(b c-a d)^{3/4}\sqrt{-\frac{d (a+b x)}{b c-a d}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{b^{3/4} d \sqrt{a+b x}}-\frac{4\,(b c-a d)^{3/4}\sqrt{-\frac{d (a+b x)}{b c-a d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{b^{3/4} d \sqrt{a+b x}}$$

Result (type 5, 73 leaves):

$$\frac{4\sqrt{\frac{d (a+b x)}{-b c+a d}}\,(c+d x)^{3/4}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]}{3 d \sqrt{a+b x}}$$

Problem 1652: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{3/2}\,(c+d x)^{1/4}}\,dx$$

Optimal (type 4, 191 leaves, 8 steps):

$$-\frac{2\,(c+d\,x)^{3/4}}{(b\,c-a\,d)\,\sqrt{a+b\,x}}+\frac{2\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],\,-1\right]}{b^{3/4}\,(b\,c-a\,d)^{1/4}\,\sqrt{a+b\,x}}-\frac{2\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],\,-1\right]}{b^{3/4}\,(b\,c-a\,d)^{1/4}\,\sqrt{a+b\,x}}$$

Result (type 5, 83 leaves):

$$\frac{2\,(c+d\,x)^{3/4}\left(-3+\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{3}{4},\,\frac{7}{4},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{3\,(b\,c-a\,d)\,\sqrt{a+b\,x}}$$

Problem 1653: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{5/2}\,(c+d\,x)^{1/4}}\,dx$$

Optimal (type 4, 224 leaves, 9 steps):

$$-\frac{2\,(c+d\,x)^{3/4}}{3\,(b\,c-a\,d)\,(a+b\,x)^{3/2}}+\frac{d\,(c+d\,x)^{3/4}}{(b\,c-a\,d)^{2}\,\sqrt{a+b\,x}}-$$
$$\frac{d\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],\,-1\right]}{b^{3/4}\,(b\,c-a\,d)^{5/4}\,\sqrt{a+b\,x}}+\frac{d\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],\,-1\right]}{b^{3/4}\,(b\,c-a\,d)^{5/4}\,\sqrt{a+b\,x}}$$

Result (type 5, 102 leaves):

$$\frac{(c+d\,x)^{3/4}\left(-2\,b\,c+5\,a\,d+3\,b\,d\,x-d\,(a+b\,x)\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{3}{4},\,\frac{7}{4},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{3\,(b\,c-a\,d)^{2}\,(a+b\,x)^{3/2}}$$

Problem 1654: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{3/2}}{(c+d\,x)^{3/4}}\,dx$$

Optimal (type 4, 144 leaves, 5 steps):

$$-\frac{8\,(b\,c-a\,d)\,\sqrt{a+b\,x}\,(c+d\,x)^{1/4}}{7\,d^{2}}+\frac{4\,(a+b\,x)^{3/2}\,(c+d\,x)^{1/4}}{7\,d}+\frac{16\,(b\,c-a\,d)^{9/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],\,-1\right]}{7\,b^{1/4}\,d^{3}\,\sqrt{a+b\,x}}$$

Result (type 5, 106 leaves):

$$\frac{1}{7 d^3 \sqrt{a+b x}} 4 (c+d x)^{1/4} \left(d (a+b x) (-2 b c+3 a d+b d x)+4 (b c-a d)^2 \sqrt{\frac{d (a+b x)}{-b c+a d}} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1655: Result unnecessarily involves higher level functions.

$$\int \frac{\sqrt{a+b x}}{(c+d x)^{3/4}} \, dx$$

Optimal (type 4, 111 leaves, 4 steps):

$$\frac{4 \sqrt{a+b x} (c+d x)^{1/4}}{3 d}-\frac{8 (b c-a d)^{5/4} \sqrt{-\frac{d (a+b x)}{b c-a d}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{3 b^{1/4} d^2 \sqrt{a+b x}}$$

Result (type 5, 77 leaves):

$$\frac{4 \sqrt{a+b x} (c+d x)^{1/4} \left(1+\frac{2 \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]}{\sqrt{\frac{d (a+b x)}{-b c+a d}}}\right)}{3 d}$$

Problem 1656: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{a+b x} (c+d x)^{3/4}} \, dx$$

Optimal (type 4, 83 leaves, 3 steps):

$$\frac{4 (b c-a d)^{1/4} \sqrt{-\frac{d (a+b x)}{b c-a d}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{b^{1/4} d \sqrt{a+b x}}$$

Result (type 5, 71 leaves):

$$\frac{4 \sqrt{\frac{d (a+b x)}{-b c+a d}} (c+d x)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]}{d \sqrt{a+b x}}$$

Problem 1657: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{3/2} (c+d x)^{3/4}} \, dx$$

Optimal (type 4, 111 leaves, 4 steps):

$$-\frac{2 (c+d x)^{1/4}}{(b c-a d) \sqrt{a+b x}}-\frac{2 \sqrt{-\frac{d (a+b x)}{b c-a d}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{b^{1/4} (b c-a d)^{3/4} \sqrt{a+b x}}$$

Result (type 5, 81 leaves):

$$-\frac{2 (c+d x)^{1/4} \left(1+\sqrt{\frac{d (a+b x)}{-b c+a d}} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)}{(b c-a d) \sqrt{a+b x}}$$

Problem 1658: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{5/2} (c+d x)^{3/4}} \, dx$$

Optimal (type 4, 149 leaves, 5 steps):

$$-\frac{2 (c+d x)^{1/4}}{3 (b c-a d) (a+b x)^{3/2}}+\frac{5 d (c+d x)^{1/4}}{3 (b c-a d)^2 \sqrt{a+b x}}+\frac{5 d \sqrt{-\frac{d (a+b x)}{b c-a d}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{3 b^{1/4} (b c-a d)^{7/4} \sqrt{a+b x}}$$

Result (type 5, 102 leaves):

$$\frac{(c+d x)^{1/4} \left(-2 b c+7 a d+5 b d x+5 d (a+b x) \sqrt{\frac{d (a+b x)}{-b c+a d}} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)}{3 (b c-a d)^2 (a+b x)^{3/2}}$$

Problem 1659: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{5/2}}{(c+d x)^{5/4}} \, dx$$

Optimal (type 4, 254 leaves, 10 steps):

$$-\frac{4\,(a+b\,x)^{5/2}}{d\,(c+d\,x)^{1/4}}-\frac{16\,b\,(b\,c-a\,d)\,\sqrt{a+b\,x}\,(c+d\,x)^{3/4}}{3\,d^3}+\frac{40\,b\,(a+b\,x)^{3/2}\,(c+d\,x)^{3/4}}{9\,d^2}+$$
$$\frac{32\,b^{1/4}\,(b\,c-a\,d)^{11/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{3\,d^4\,\sqrt{a+b\,x}}-\frac{32\,b^{1/4}\,(b\,c-a\,d)^{11/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{3\,d^4\,\sqrt{a+b\,x}}$$

Result (type 5, 131 leaves):

$$\frac{1}{9\,d^4\,\sqrt{a+b\,x}}$$
$$4\,(c+d\,x)^{3/4}\left(d\,(a+b\,x)\left(b\,(-3\,b\,c+4\,a\,d)+b^2\,d\,x-\frac{9\,(b\,c-a\,d)^2}{c+d\,x}\right)+8\,b\,(b\,c-a\,d)^2\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1660: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{3/2}}{(c+d\,x)^{5/4}}\,dx$$

Optimal (type 4, 220 leaves, 9 steps):

$$-\frac{4\,(a+b\,x)^{3/2}}{d\,(c+d\,x)^{1/4}}+\frac{24\,b\,\sqrt{a+b\,x}\,(c+d\,x)^{3/4}}{5\,d^2}-\frac{48\,b^{1/4}\,(b\,c-a\,d)^{7/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{5\,d^3\,\sqrt{a+b\,x}}+$$
$$\frac{48\,b^{1/4}\,(b\,c-a\,d)^{7/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{5\,d^3\,\sqrt{a+b\,x}}$$

Result (type 5, 98 leaves):

$$\frac{4\,\sqrt{a+b\,x}\,(c+d\,x)^{3/4}\left(\frac{6\,b\,c-5\,a\,d+b\,d\,x}{c+d\,x}+\frac{4\,b\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}}\right)}{5\,d^2}$$

Problem 1661: Result unnecessarily involves higher level functions.

$$\int \frac{\sqrt{a+b x}}{(c+d x)^{5/4}}\, dx$$

Optimal (type 4, 190 leaves, 8 steps):

$$-\frac{4 \sqrt{a+b x}}{d (c+d x)^{1/4}}+\frac{8 b^{1/4} (b c-a d)^{3/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\, \text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{d^2 \sqrt{a+b x}}-\frac{8 b^{1/4} (b c-a d)^{3/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\, \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{d^2 \sqrt{a+b x}}$$

Result (type 5, 90 leaves):

$$\frac{-12 d (a+b x)+8 b \sqrt{\frac{d (a+b x)}{-b c+a d}}\, (c+d x)\, \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]}{3 d^2 \sqrt{a+b x}\, (c+d x)^{1/4}}$$

Problem 1662: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{a+b x}\, (c+d x)^{5/4}}\, dx$$

Optimal (type 4, 197 leaves, 8 steps):

$$\frac{4 \sqrt{a+b x}}{(b c-a d) (c+d x)^{1/4}}-\frac{4 b^{1/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\, \text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{d (b c-a d)^{1/4} \sqrt{a+b x}}+\frac{4 b^{1/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\, \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{d (b c-a d)^{1/4} \sqrt{a+b x}}$$

Result (type 5, 100 leaves):

$$\frac{12 d (a+b x)-4 b \sqrt{\frac{d (a+b x)}{-b c+a d}}\, (c+d x)\, \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]}{3 d (b c-a d) \sqrt{a+b x}\, (c+d x)^{1/4}}$$

Problem 1663: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{3/2} (c+d x)^{5/4}} \, dx$$

Optimal (type 4, 222 leaves, 9 steps):

$$-\frac{2}{(b c-a d) \sqrt{a+b x} (c+d x)^{1/4}}-\frac{6 d \sqrt{a+b x}}{(b c-a d)^2 (c+d x)^{1/4}}+\frac{6 b^{1/4} \sqrt{-\frac{d (a+b x)}{b c-a d}} \text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{(b c-a d)^{5/4} \sqrt{a+b x}}-\frac{6 b^{1/4} \sqrt{-\frac{d (a+b x)}{b c-a d}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{(b c-a d)^{5/4} \sqrt{a+b x}}$$

Result (type 5, 99 leaves):

$$\frac{-4 a d-2 b (c+3 d x)+2 b \sqrt{\frac{d (a+b x)}{-b c+a d}} (c+d x) \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]}{(b c-a d)^2 \sqrt{a+b x} (c+d x)^{1/4}}$$

Problem 1664: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{5/2} (c+d x)^{5/4}} \, dx$$

Optimal (type 4, 261 leaves, 10 steps):

$$-\frac{2}{3 (b c-a d) (a+b x)^{3/2} (c+d x)^{1/4}}+\frac{7 d}{3 (b c-a d)^2 \sqrt{a+b x} (c+d x)^{1/4}}+\frac{7 d^2 \sqrt{a+b x}}{(b c-a d)^3 (c+d x)^{1/4}}-\frac{7 b^{1/4} d \sqrt{-\frac{d (a+b x)}{b c-a d}} \text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{(b c-a d)^{9/4} \sqrt{a+b x}}+\frac{7 b^{1/4} d \sqrt{-\frac{d (a+b x)}{b c-a d}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{(b c-a d)^{9/4} \sqrt{a+b x}}$$

Result (type 5, 139 leaves):

$$\left(-12 a^2 d^2-a b d (11 c+35 d x)+b^2 \left(2 c^2-7 c d x-21 d^2 x^2\right)+7 b d (a+b x) \sqrt{\frac{d (a+b x)}{-b c+a d}} (c+d x) \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]\right) \Big/ \left(3 (-b c+a d)^3 (a+b x)^{3/2} (c+d x)^{1/4}\right)$$

Problem 1665: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{7/2}}{(c+d x)^{7/4}} \, dx$$

Optimal (type 4, 207 leaves, 7 steps):

$$-\frac{4 (a+b x)^{7/2}}{3 d (c+d x)^{3/4}}+\frac{160 b (b c-a d)^2 \sqrt{a+b x} (c+d x)^{1/4}}{33 d^4}-\frac{80 b (b c-a d) (a+b x)^{3/2} (c+d x)^{1/4}}{33 d^3}+\frac{56 b (a+b x)^{5/2} (c+d x)^{1/4}}{33 d^2}-\frac{320 b^{3/4} (b c-a d)^{13/4} \sqrt{-\frac{d (a+b x)}{b c-a d}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{33 d^5 \sqrt{a+b x}}$$

Result (type 5, 181 leaves):

$$\frac{1}{33 d^5 \sqrt{a+b x}} 4 (c+d x)^{1/4} \left(\frac{1}{c+d x} d (a+b x) \left(11 (b c-a d)^3+b \left(29 b^2 c^2-67 a b c d+41 a^2 d^2\right) (c+d x)-3 b^2 d (3 b c-5 a d) x (c+d x)+3 b^3 d^2 x^2 (c+d x)\right)-80 b (b c-a d)^3 \sqrt{\frac{d (a+b x)}{-b c+a d}} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1666: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{3/2}}{(c+d x)^{7/4}} \, dx$$

Optimal (type 4, 137 leaves, 5 steps):

$$-\frac{4 (a+b x)^{3/2}}{3 d (c+d x)^{3/4}}+\frac{8 b \sqrt{a+b x} (c+d x)^{1/4}}{3 d^2}-\frac{16 b^{3/4} (b c-a d)^{5/4} \sqrt{-\frac{d (a+b x)}{b c-a d}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{3 d^3 \sqrt{a+b x}}$$

Result (type 5, 98 leaves):

$$\frac{4 \sqrt{a+b x}\,(c+d x)^{1/4}\left(\frac{2 b c-a d+b d x}{c+d x}+\frac{4 b\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]}{\sqrt{\frac{d (a+b x)}{-b c+a d}}}\right)}{3 d^2}$$

Problem 1667: Result unnecessarily involves higher level functions.

$$\int \frac{\sqrt{a+b x}}{(c+d x)^{7/4}}\,dx$$

Optimal (type 4, 111 leaves, 4 steps):

$$-\frac{4 \sqrt{a+b x}}{3 d (c+d x)^{3/4}}+\frac{8 b^{3/4} (b c-a d)^{1/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{3 d^2 \sqrt{a+b x}}$$

Result (type 5, 90 leaves):

$$\frac{-4 d (a+b x)+8 b \sqrt{\frac{d (a+b x)}{-b c+a d}}\ (c+d x)\ \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]}{3 d^2 \sqrt{a+b x}\ (c+d x)^{3/4}}$$

Problem 1668: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{a+b x}\ (c+d x)^{7/4}}\,dx$$

Optimal (type 4, 118 leaves, 4 steps):

$$\frac{4 \sqrt{a+b x}}{3 (b c-a d) (c+d x)^{3/4}}+\frac{4 b^{3/4} \sqrt{-\frac{d (a+b x)}{b c-a d}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{3 d (b c-a d)^{3/4} \sqrt{a+b x}}$$

Result (type 5, 98 leaves):

$$\frac{4 \left(d (a+b x)+b \sqrt{\frac{d (a+b x)}{-b c+a d}}\ (c+d x)\ \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)}{3 d (b c-a d) \sqrt{a+b x}\ (c+d x)^{3/4}}$$

Problem 1669: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{3/2} (c+d x)^{7/4}} \, dx$$

Optimal (type 4, 146 leaves, 5 steps):

$$-\frac{2}{(b c-a d) \sqrt{a+b x} (c+d x)^{3/4}}-\frac{10 d \sqrt{a+b x}}{3 (b c-a d)^2 (c+d x)^{3/4}}-\frac{10 b^{3/4} \sqrt{-\frac{d (a+b x)}{b c-a d}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{3 (b c-a d)^{7/4} \sqrt{a+b x}}$$

Result (type 5, 102 leaves):

$$-\frac{2 \left(3 b c+2 a d+5 b d x+5 b \sqrt{\frac{d (a+b x)}{-b c+a d}} (c+d x) \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)}{3 (b c-a d)^2 \sqrt{a+b x} (c+d x)^{3/4}}$$

Problem 1670: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{5/2} (c+d x)^{7/4}} \, dx$$

Optimal (type 4, 178 leaves, 6 steps):

$$-\frac{2}{3 (b c-a d) (a+b x)^{3/2} (c+d x)^{3/4}}+\frac{3 d}{(b c-a d)^2 \sqrt{a+b x} (c+d x)^{3/4}}+$$

$$\frac{5 d^2 \sqrt{a+b x}}{(b c-a d)^3 (c+d x)^{3/4}}+\frac{5 b^{3/4} d \sqrt{-\frac{d (a+b x)}{b c-a d}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{(b c-a d)^{11/4} \sqrt{a+b x}}$$

Result (type 5, 139 leaves):

$$\left(-4 a^2 d^2-a b d (13 c+21 d x)+b^2 \left(2 c^2-9 c d x-15 d^2 x^2\right)-15 b d (a+b x) \sqrt{\frac{d (a+b x)}{-b c+a d}} (c+d x) \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right) \Big/$$

$$\left(3 (-b c+a d)^3 (a+b x)^{3/2} (c+d x)^{3/4}\right)$$

Problem 1671: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{7/2}}{(c+d x)^{9/4}} \, dx$$

Optimal (type 4, 286 leaves, 11 steps):

$$-\frac{4 (a+b x)^{7/2}}{5 d (c+d x)^{5/4}}-\frac{56 b (a+b x)^{5/2}}{5 d^2 (c+d x)^{1/4}}-\frac{224 b^2 (b c-a d) \sqrt{a+b x} (c+d x)^{3/4}}{15 d^4}+\frac{112 b^2 (a+b x)^{3/2} (c+d x)^{3/4}}{9 d^3}+$$
$$\frac{448 b^{5/4} (b c-a d)^{11/4} \sqrt{-\frac{d (a+b x)}{b c-a d}} \, \text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{15 d^5 \sqrt{a+b x}}-\frac{448 b^{5/4} (b c-a d)^{11/4} \sqrt{-\frac{d (a+b x)}{b c-a d}} \, \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{15 d^5 \sqrt{a+b x}}$$

Result (type 5, 169 leaves):

$$\frac{1}{45 d^5 \sqrt{a+b x}} 4 (c+d x)^{3/4} \left(\frac{1}{(c+d x)^2} d (a+b x) \left(9 (b c-a d)^3-153 b (b c-a d)^2 (c+d x)-b^2 (24 b c-29 a d) (c+d x)^2+5 b^3 d x (c+d x)^2\right)+\right.$$
$$\left.112 b^2 (b c-a d)^2 \sqrt{\frac{d (a+b x)}{-b c+a d}} \, \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1672: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{5/2}}{(c+d x)^{9/4}} \, dx$$

Optimal (type 4, 248 leaves, 10 steps):

$$-\frac{4 (a+b x)^{5/2}}{5 d (c+d x)^{5/4}}-\frac{8 b (a+b x)^{3/2}}{d^2 (c+d x)^{1/4}}+\frac{48 b^2 \sqrt{a+b x} (c+d x)^{3/4}}{5 d^3}-$$
$$\frac{96 b^{5/4} (b c-a d)^{7/4} \sqrt{-\frac{d (a+b x)}{b c-a d}} \, \text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{5 d^4 \sqrt{a+b x}}+\frac{96 b^{5/4} (b c-a d)^{7/4} \sqrt{-\frac{d (a+b x)}{b c-a d}} \, \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{5 d^4 \sqrt{a+b x}}$$

Result (type 5, 141 leaves):

$$\frac{1}{5\,d^4\sqrt{a+b\,x}}4\,(c+d\,x)^{3/4}\left(-\frac{d\,(a+b\,x)\,\left((b\,c-a\,d)^2-12\,b\,(b\,c-a\,d)\,(c+d\,x)-b^2\,(c+d\,x)^2\right)}{(c+d\,x)^2}-8\,b^2\,(b\,c-a\,d)\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1673: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{3/2}}{(c+d\,x)^{9/4}}\,dx$$

Optimal (type 4, 222 leaves, 9 steps):

$$-\frac{4\,(a+b\,x)^{3/2}}{5\,d\,(c+d\,x)^{5/4}}-\frac{24\,b\,\sqrt{a+b\,x}}{5\,d^2\,(c+d\,x)^{1/4}}+\frac{48\,b^{5/4}\,(b\,c-a\,d)^{3/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{5\,d^3\,\sqrt{a+b\,x}}-$$
$$\frac{48\,b^{5/4}\,(b\,c-a\,d)^{3/4}\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}\,(c+d\,x)^{1/4}}{(b\,c-a\,d)^{1/4}}\right],-1\right]}{5\,d^3\,\sqrt{a+b\,x}}$$

Result (type 5, 107 leaves):

$$\frac{-4\,d\,(a+b\,x)\,(6\,b\,c+a\,d+7\,b\,d\,x)+16\,b^2\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,(c+d\,x)^2\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{5\,d^3\,\sqrt{a+b\,x}\,(c+d\,x)^{5/4}}$$

Problem 1674: Result unnecessarily involves higher level functions.

$$\int\frac{\sqrt{a+b\,x}}{(c+d\,x)^{9/4}}\,dx$$

Optimal (type 4, 232 leaves, 9 steps):

$$-\frac{4\sqrt{a+bx}}{5d(c+dx)^{5/4}}+\frac{8b\sqrt{a+bx}}{5d(bc-ad)(c+dx)^{1/4}}-\frac{8b^{5/4}\sqrt{-\frac{d(a+bx)}{bc-ad}}\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}(c+dx)^{1/4}}{(bc-ad)^{1/4}}\right],-1\right]}{5d^2(bc-ad)^{1/4}\sqrt{a+bx}}+\frac{8b^{5/4}\sqrt{-\frac{d(a+bx)}{bc-ad}}\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}(c+dx)^{1/4}}{(bc-ad)^{1/4}}\right],-1\right]}{5d^2(bc-ad)^{1/4}\sqrt{a+bx}}$$

Result (type 5, 116 leaves):

$$\frac{-12d(a+bx)(ad+b(c+2dx))+8b^2\sqrt{\frac{d(a+bx)}{-bc+ad}}(c+dx)^2\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b(c+dx)}{bc-ad}\right]}{15d^2(-bc+ad)\sqrt{a+bx}(c+dx)^{5/4}}$$

Problem 1675: Result unnecessarily involves higher level functions.

$$\int\frac{1}{\sqrt{a+bx}(c+dx)^{9/4}}\,dx$$

Optimal (type 4, 236 leaves, 9 steps):

$$\frac{4\sqrt{a+bx}}{5(bc-ad)(c+dx)^{5/4}}+\frac{12b\sqrt{a+bx}}{5(bc-ad)^2(c+dx)^{1/4}}-\frac{12b^{5/4}\sqrt{-\frac{d(a+bx)}{bc-ad}}\text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4}(c+dx)^{1/4}}{(bc-ad)^{1/4}}\right],-1\right]}{5d(bc-ad)^{5/4}\sqrt{a+bx}}+\frac{12b^{5/4}\sqrt{-\frac{d(a+bx)}{bc-ad}}\text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4}(c+dx)^{1/4}}{(bc-ad)^{1/4}}\right],-1\right]}{5d(bc-ad)^{5/4}\sqrt{a+bx}}$$

Result (type 5, 115 leaves):

$$-\frac{4\left(d(a+bx)(-4bc+ad-3bdx)+b^2\sqrt{\frac{d(a+bx)}{-bc+ad}}(c+dx)^2\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b(c+dx)}{bc-ad}\right]\right)}{5d(bc-ad)^2\sqrt{a+bx}(c+dx)^{5/4}}$$

Problem 1676: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+bx)^{3/2}(c+dx)^{9/4}}\,dx$$

Optimal (type 4, 262 leaves, 10 steps):

$$-\frac{2}{(b c-a d)\sqrt{a+b x}\,(c+d x)^{5/4}}-\frac{14 d\sqrt{a+b x}}{5 (b c-a d)^2 (c+d x)^{5/4}}-\frac{42 b d\sqrt{a+b x}}{5 (b c-a d)^3 (c+d x)^{1/4}}+$$

$$\frac{42 b^{5/4}\sqrt{-\frac{d (a+b x)}{b c-a d}}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{5 (b c-a d)^{9/4}\sqrt{a+b x}}-\frac{42 b^{5/4}\sqrt{-\frac{d (a+b x)}{b c-a d}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{5 (b c-a d)^{9/4}\sqrt{a+b x}}$$

Result (type 5, 138 leaves):

$$\left(-4 a^2 d^2+4 a b d (9 c+7 d x)+2 b^2 \left(5 c^2+28 c d x+21 d^2 x^2\right)-14 b^2\sqrt{\frac{d (a+b x)}{-b c+a d}}\,(c+d x)^2\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]\right)\Big/$$
$$\left(5 (-b c+a d)^3\sqrt{a+b x}\,(c+d x)^{5/4}\right)$$

Problem 1677: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b x)^{5/2} (c+d x)^{9/4}}\,dx$$

Optimal (type 4, 303 leaves, 11 steps):

$$-\frac{2}{3 (b c-a d) (a+b x)^{3/2} (c+d x)^{5/4}}+\frac{11 d}{3 (b c-a d)^2\sqrt{a+b x}\,(c+d x)^{5/4}}+\frac{77 d^2\sqrt{a+b x}}{15 (b c-a d)^3 (c+d x)^{5/4}}+\frac{77 b d^2\sqrt{a+b x}}{5 (b c-a d)^4 (c+d x)^{1/4}}-$$

$$\frac{77 b^{5/4} d\sqrt{-\frac{d (a+b x)}{b c-a d}}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{5 (b c-a d)^{13/4}\sqrt{a+b x}}+\frac{77 b^{5/4} d\sqrt{-\frac{d (a+b x)}{b c-a d}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{b^{1/4} (c+d x)^{1/4}}{(b c-a d)^{1/4}}\right],-1\right]}{5 (b c-a d)^{13/4}\sqrt{a+b x}}$$

Result (type 5, 156 leaves):

$$\frac{1}{15 (b c-a d)^4\sqrt{a+b x}}(c+d x)^{3/4}$$
$$\left(75 b^2 d-\frac{10 b^2 (b c-a d)}{a+b x}+\frac{12 d^2 (b c-a d) (a+b x)}{(c+d x)^2}+\frac{156 b d^2 (a+b x)}{c+d x}-77 b^2 d\sqrt{\frac{d (a+b x)}{-b c+a d}}\ \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1678: Result unnecessarily involves higher level functions.

$$\int (a+b x)^{3/4} (c+d x)^{5/4}\,dx$$

Optimal (type 3, 205 leaves, 8 steps):

$$\frac{5 (b c-a d)^2 (a+b x)^{3/4} (c+d x)^{1/4}}{96 b^2 d}+\frac{5 (b c-a d) (a+b x)^{7/4} (c+d x)^{1/4}}{24 b^2}+\frac{(a+b x)^{7/4} (c+d x)^{5/4}}{3 b}+\frac{5 (b c-a d)^3 \text{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{64 b^{9/4} d^{7/4}}-\frac{5 (b c-a d)^3 \text{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{64 b^{9/4} d^{7/4}}$$

Result (type 5, 143 leaves):

$$\frac{1}{96 b^2 d^2 (a+b x)^{1/4}} (c+d x)^{1/4} \left(-d (a+b x) \left(15 a^2 d^2-6 a b d (7 c+2 d x)-b^2 \left(5 c^2+52 c d x+32 d^2 x^2\right)\right)-15 (b c-a d)^3 \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1679: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{5/4}}{(a+b x)^{1/4}} \, dx$$

Optimal (type 3, 167 leaves, 7 steps):

$$\frac{5 (b c-a d) (a+b x)^{3/4} (c+d x)^{1/4}}{8 b^2}+\frac{(a+b x)^{3/4} (c+d x)^{5/4}}{2 b}-\frac{5 (b c-a d)^2 \text{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{16 b^{9/4} d^{3/4}}+\frac{5 (b c-a d)^2 \text{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{16 b^{9/4} d^{3/4}}$$

Result (type 5, 111 leaves):

$$\frac{1}{8 b^2 d (a+b x)^{1/4}} (c+d x)^{1/4} \left(-d (a+b x) (-9 b c+5 a d-4 b d x)+5 (b c-a d)^2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1680: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{5/4}}{(a+b x)^{5/4}} \, dx$$

Optimal (type 3, 152 leaves, 7 steps):

$$\frac{5 d (a+b x)^{3/4} (c+d x)^{1/4}}{b^2}-\frac{4 (c+d x)^{5/4}}{b (a+b x)^{1/4}}-\frac{5 d^{1/4} (b c-a d) \text{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{2 b^{9/4}}+\frac{5 d^{1/4} (b c-a d) \text{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{2 b^{9/4}}$$

Result (type 5, 93 leaves):

$$\frac{(c+d x)^{1/4} \left(-4 b c+5 a d+b d x+5 (b c-a d) \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)}{b^2 (a+b x)^{1/4}}$$

Problem 1681: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{5/4}}{(a+b x)^{9/4}} \, dx$$

Optimal (type 3, 134 leaves, 7 steps):

$$-\frac{4 d (c+d x)^{1/4}}{b^2 (a+b x)^{1/4}}-\frac{4 (c+d x)^{5/4}}{5 b (a+b x)^{5/4}}-\frac{2 d^{5/4} \text{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{b^{9/4}}+\frac{2 d^{5/4} \text{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{b^{9/4}}$$

Result (type 5, 94 leaves):

$$-\frac{4 (c+d x)^{1/4} \left(5 a d+b (c+6 d x)-5 d (a+b x) \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)}{5 b^2 (a+b x)^{5/4}}$$

Problem 1686: Result unnecessarily involves higher level functions.

$$\int (a+b x)^{5/4} (c+d x)^{5/4} \, dx$$

Optimal (type 4, 408 leaves, 7 steps):

$$-\frac{5 (b c-a d)^3 (a+b x)^{1/4} (c+d x)^{1/4}}{84 b^2 d^2}+\frac{(b c-a d)^2 (a+b x)^{5/4} (c+d x)^{1/4}}{42 b^2 d}+\frac{(b c-a d) (a+b x)^{9/4} (c+d x)^{1/4}}{7 b^2}+$$

$$\frac{2 (a+b x)^{9/4} (c+d x)^{5/4}}{7 b}+\left(5 (b c-a d)^{9/2} ((a+b x) (c+d x))^{3/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)\right.$$

$$\left.\sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}} \text{EllipticF}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right],\frac{1}{2}\right]\right)\Big/$$

$$\left(168 \sqrt{2} b^{9/4} d^{9/4} (a+b x)^{3/4} (c+d x)^{3/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)$$

Result (type 5, 183 leaves):

$$\frac{1}{84\, b^2\, d^3\, (a+b\,x)^{3/4}} (c+d\,x)^{1/4} \left(-d\,(a+b\,x)\,\left(5\,a^3\,d^3 - a^2\,b\,d^2\,(17\,c+2\,d\,x) - a\,b^2\,d\,(17\,c^2+68\,c\,d\,x+36\,d^2\,x^2) + b^3\,(5\,c^3-2\,c^2\,d\,x-36\,c\,d^2\,x^2-24\,d^3\,x^3)\right) + 5\,(b\,c-a\,d)^4 \left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{3/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1687: Result unnecessarily involves higher level functions.

$$\int (a+b\,x)^{1/4}\,(c+d\,x)^{5/4}\,dx$$

Optimal (type 4, 370 leaves, 6 steps):

$$\frac{(b\,c-a\,d)^2\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}}{6\,b^2\,d} + \frac{(b\,c-a\,d)\,(a+b\,x)^{5/4}\,(c+d\,x)^{1/4}}{3\,b^2} + \frac{2\,(a+b\,x)^{5/4}\,(c+d\,x)^{5/4}}{5\,b} - \left((b\,c-a\,d)^{7/2}\,((a+b\,x)\,(c+d\,x))^{3/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\ \text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right) \Big/ \left(12\,\sqrt{2}\,b^{9/4}\,d^{5/4}\,(a+b\,x)^{3/4}\,(c+d\,x)^{3/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 142 leaves):

$$\frac{1}{30\,b^2\,d^2\,(a+b\,x)^{3/4}}(c+d\,x)^{1/4}\left(-d\,(a+b\,x)\,\left(5\,a^2\,d^2-2\,a\,b\,d\,(6\,c+d\,x)-b^2\,(5\,c^2+22\,c\,d\,x+12\,d^2\,x^2)\right) - 5\,(b\,c-a\,d)^3\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{3/4}\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1688: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{5/4}}{(a+b x)^{3/4}}\, dx$$

Optimal (type 4, 332 leaves, 5 steps):

$$\frac{5 (b c-a d) (a+b x)^{1/4} (c+d x)^{1/4}}{3 b^2}+\frac{2 (a+b x)^{1/4} (c+d x)^{5/4}}{3 b}+\left(5 (b c-a d)^{5/2} \left((a+b x) (c+d x)\right)^{3/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right) \sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}}\ \text{EllipticF}\left[2 \text{ArcTan}\left[\frac{\sqrt{2}\, b^{1/4} d^{1/4} \left((a+b x) (c+d x)\right)^{1/4}}{\sqrt{b c-a d}}\right],\frac{1}{2}\right]\right) \Bigg/ \left(6 \sqrt{2}\, b^{9/4} d^{1/4} (a+b x)^{3/4} (c+d x)^{3/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)$$

Result (type 5, 111 leaves):

$$\frac{1}{3 b^2 d (a+b x)^{3/4}} (c+d x)^{1/4} \left(-d (a+b x) (-7 b c+5 a d-2 b d x)+5 (b c-a d)^2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{3/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1689: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{5/4}}{(a+b x)^{7/4}}\, dx$$

Optimal (type 4, 325 leaves, 5 steps):

$$\frac{10 d (a+b x)^{1/4} (c+d x)^{1/4}}{3 b^2}-\frac{4 (c+d x)^{5/4}}{3 b (a+b x)^{3/4}}+$$

$$\left(5 d^{3/4} (b c-a d)^{3/2} ((a+b x) (c+d x))^{3/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right) \sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Bigg/ \left(3 \sqrt{2} b^{9/4} (a+b x)^{3/4} (c+d x)^{3/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)$$

Result (type 5, 95 leaves):

$$-\frac{2 (c+d x)^{1/4} \left(2 b c-5 a d-3 b d x+\frac{5 d (a+b x) \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{b (c+d x)}{b c-a d}\right]}{\left(\frac{d (a+b x)}{-b c+a d}\right)^{1/4}}\right)}{3 b^2 (a+b x)^{3/4}}$$

Problem 1690: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{5/4}}{(a+b x)^{11/4}} \, dx$$

Optimal (type 4, 325 leaves, 5 steps):

$$-\frac{20 d (c+d x)^{1/4}}{21 b^2 (a+b x)^{3/4}}-\frac{4 (c+d x)^{5/4}}{7 b (a+b x)^{7/4}}+\left(5 \sqrt{2} d^{7/4} \sqrt{b c-a d} ((a+b x) (c+d x))^{3/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)\right.$$

$$\left.\sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}} \text{EllipticF}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Bigg/$$

$$\left(21 b^{9/4} (a+b x)^{3/4} (c+d x)^{3/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)$$

Result (type 5, 95 leaves) :

$$-\frac{4\,(c+d\,x)^{1/4}\,\left(3\,b\,c+5\,a\,d+8\,b\,d\,x-5\,d\,(a+b\,x)\,\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{3/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{21\,b^2\,(a+b\,x)^{7/4}}$$

Problem 1691: Result unnecessarily involves higher level functions.

$$\int\frac{(c+d\,x)^{5/4}}{(a+b\,x)^{15/4}}\,dx$$

Optimal (type 4, 363 leaves, 6 steps) :

$$-\frac{20\,d\,(c+d\,x)^{1/4}}{77\,b^2\,(a+b\,x)^{7/4}}-\frac{20\,d^2\,(c+d\,x)^{1/4}}{231\,b^2\,(b\,c-a\,d)\,(a+b\,x)^{3/4}}-\frac{4\,(c+d\,x)^{5/4}}{11\,b\,(a+b\,x)^{11/4}}-$$

$$\left(10\,\sqrt{2}\,d^{11/4}\,\left((a+b\,x)\,(c+d\,x)\right)^{3/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\right.$$

$$\left.\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/$$

$$\left(231\,b^{9/4}\,\sqrt{b\,c-a\,d}\,(a+b\,x)^{3/4}\,(c+d\,x)^{3/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 140 leaves) :

$$\left(4\,(c+d\,x)^{1/4}\,\left(-10\,a^2\,d^2-2\,a\,b\,d\,(3\,c+13\,d\,x)+b^2\,(21\,c^2+36\,c\,d\,x+5\,d^2\,x^2)+\right.\right.$$

$$\left.\left.10\,d^2\,(a+b\,x)^2\,\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{3/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)\right)\Big/\left(231\,b^2\,(-b\,c+a\,d)\,(a+b\,x)^{11/4}\right)$$

Problem 1692: Result unnecessarily involves higher level functions.

$$\int\frac{(c+d\,x)^{5/4}}{(a+b\,x)^{19/4}}\,dx$$

Optimal (type 4, 401 leaves, 7 steps):

$$-\frac{4\,d\,(c+d\,x)^{1/4}}{33\,b^2\,(a+b\,x)^{11/4}}-\frac{4\,d^2\,(c+d\,x)^{1/4}}{231\,b^2\,(b\,c-a\,d)\,(a+b\,x)^{7/4}}+\frac{8\,d^3\,(c+d\,x)^{1/4}}{231\,b^2\,(b\,c-a\,d)^2\,(a+b\,x)^{3/4}}-\frac{4\,(c+d\,x)^{5/4}}{15\,b\,(a+b\,x)^{15/4}}+\left(4\sqrt{2}\,d^{15/4}\,((a+b\,x)\,(c+d\,x))^{3/4}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\left(1+\frac{2\sqrt{b}\sqrt{d}\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\left(1+\frac{2\sqrt{b}\sqrt{d}\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/\left(231\,b^{9/4}\,(b\,c-a\,d)^{3/2}\,(a+b\,x)^{3/4}\,(c+d\,x)^{3/4}\,(b\,c+a\,d+2\,b\,d\,x)\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 179 leaves):

$$\left(4\,(c+d\,x)^{1/4}\left(-20\,a^3\,d^3-12\,a^2\,b\,d^2\,(c+6\,d\,x)+a\,b^2\,d\,(119\,c^2+214\,c\,d\,x+35\,d^2\,x^2)-b^3\,(77\,c^3+112\,c^2\,d\,x+5\,c\,d^2\,x^2-10\,d^3\,x^3)+20\,d^3\,(a+b\,x)^3\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{3/4}\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)\right)\Big/\left(1155\,b^2\,(b\,c-a\,d)^2\,(a+b\,x)^{15/4}\right)$$

Problem 1693: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{5/4}}{(c+d\,x)^{1/4}}\,dx$$

Optimal (type 3, 167 leaves, 7 steps):

$$-\frac{5\,(b\,c-a\,d)\,(a+b\,x)^{1/4}\,(c+d\,x)^{3/4}}{8\,d^2}+\frac{(a+b\,x)^{5/4}\,(c+d\,x)^{3/4}}{2\,d}+\frac{5\,(b\,c-a\,d)^2\,\text{ArcTan}\left[\frac{d^{1/4}\,(a+b\,x)^{1/4}}{b^{1/4}\,(c+d\,x)^{1/4}}\right]}{16\,b^{3/4}\,d^{9/4}}+\frac{5\,(b\,c-a\,d)^2\,\text{ArcTanh}\left[\frac{d^{1/4}\,(a+b\,x)^{1/4}}{b^{1/4}\,(c+d\,x)^{1/4}}\right]}{16\,b^{3/4}\,d^{9/4}}$$

Result (type 5, 108 leaves):

$$\frac{1}{24\,d^3\,(a+b\,x)^{3/4}}(c+d\,x)^{3/4}\left(3\,d\,(a+b\,x)\,(-5\,b\,c+9\,a\,d+4\,b\,d\,x)+5\,(b\,c-a\,d)^2\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{3/4}\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1694: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/4}}{(c+d x)^{1/4}} \, dx$$

Optimal (type 3, 127 leaves, 6 steps):

$$\frac{(a+b x)^{1/4} (c+d x)^{3/4}}{d}-\frac{(b c-a d) \text{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{2 b^{3/4} d^{5/4}}-\frac{(b c-a d) \text{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{2 b^{3/4} d^{5/4}}$$

Result (type 5, 76 leaves):

$$\frac{(a+b x)^{1/4} (c+d x)^{3/4} \left(3+\frac{\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]}{\left(\frac{d (a+b x)}{-b c+a d}\right)^{1/4}}\right)}{3 d}$$

Problem 1695: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{3/4} (c+d x)^{1/4}} \, dx$$

Optimal (type 3, 85 leaves, 5 steps):

$$\frac{2 \text{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{b^{3/4} d^{1/4}}+\frac{2 \text{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{b^{3/4} d^{1/4}}$$

Result (type 5, 73 leaves):

$$\frac{4 \left(\frac{d (a+b x)}{-b c+a d}\right)^{3/4} (c+d x)^{3/4} \text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]}{3 d (a+b x)^{3/4}}$$

Problem 1700: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{7/4}}{(c+d x)^{1/4}} \, dx$$

Optimal (type 4, 751 leaves, 7 steps):

$$-\frac{7\,(b\,c-a\,d)\,(a+b\,x)^{3/4}\,(c+d\,x)^{3/4}}{15\,d^2}+\frac{2\,(a+b\,x)^{7/4}\,(c+d\,x)^{3/4}}{5\,d}+\frac{7\,(b\,c-a\,d)\,\sqrt{(a+b\,x)\,(c+d\,x)}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}}{10\,\sqrt{b}\,d^{5/2}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)}-$$

$$\left(7\,(b\,c-a\,d)^{7/2}\,((a+b\,x)\,(c+d\,x))^{1/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\right.$$

$$\left.\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\ \text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/$$

$$\left(10\,\sqrt{2}\,b^{3/4}\,d^{11/4}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)+$$

$$\left(7\,(b\,c-a\,d)^{7/2}\,((a+b\,x)\,(c+d\,x))^{1/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\right.$$

$$\left.\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\ \text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/$$

$$\left(20\,\sqrt{2}\,b^{3/4}\,d^{11/4}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 107 leaves) :

$$\frac{1}{15\,d^3\,(a+b\,x)^{1/4}}(c+d\,x)^{3/4}\left(d\,(a+b\,x)\,(-7\,b\,c+13\,a\,d+6\,b\,d\,x)+7\,(b\,c-a\,d)^2\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/4}\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1701: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{3/4}}{(c+d\,x)^{1/4}}\,dx$$

Optimal (type 4, 705 leaves, 6 steps):

$$\frac{2 (a+b x)^{3/4} (c+d x)^{3/4}}{3 d}-\frac{\sqrt{(a+b x) (c+d x)} \sqrt{(b c+a d+2 b d x)^2} \sqrt{(a d+b (c+2 d x))^2}}{\sqrt{b} d^{3/2} (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)}+$$

$$\left((b c-a d)^{5/2} ((a+b x) (c+d x))^{1/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)\right.$$

$$\left.\sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}} \text{EllipticE}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Big/$$

$$\left(\sqrt{2} b^{3/4} d^{7/4} (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)-$$

$$\left((b c-a d)^{5/2} ((a+b x) (c+d x))^{1/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)\right.$$

$$\left.\sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}} \text{EllipticF}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Big/$$

$$\left(2 \sqrt{2} b^{3/4} d^{7/4} (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)$$

Result (type 5, 76 leaves):

$$\frac{2 (a+b x)^{3/4} (c+d x)^{3/4} \left(1+\frac{\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]}{\left(\frac{d (a+b x)}{-b c+a d}\right)^{3/4}}\right)}{3 d}$$

Problem 1702: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{1/4} (c+d x)^{1/4}} \, dx$$

Optimal (type 4, 688 leaves, 5 steps):

$$\frac{2 \sqrt{(a+b x) (c+d x)} \sqrt{(b c+a d+2 b d x)^2} \sqrt{(a d+b (c+2 d x))^2}}{\sqrt{b} \sqrt{d} (b c-a d) (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)} -$$

$$\left(\sqrt{2} (b c-a d)^{3/2} ((a+b x) (c+d x))^{1/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right) \sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}}\right.$$

$$\left. \text{EllipticE}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Big/ \left(b^{3/4} d^{3/4} (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right) +$$

$$\left((b c-a d)^{3/2} ((a+b x) (c+d x))^{1/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)\right.$$

$$\left. \sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}} \text{EllipticF}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Big/$$

$$\left(\sqrt{2} b^{3/4} d^{3/4} (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)$$

Result (type 5, 73 leaves):

$$\frac{4 \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/4} (c+d x)^{3/4} \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, \frac{b (c+d x)}{b c-a d}\right]}{3 d (a+b x)^{1/4}}$$

Problem 1703: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{5/4} (c+d x)^{1/4}} \, dx$$

Optimal (type 4, 718 leaves, 6 steps):

$$-\frac{4 (c+d x)^{3/4}}{(b c-a d) (a+b x)^{1/4}}+\frac{4 \sqrt{d} \sqrt{(a+b x) (c+d x)} \sqrt{(b c+a d+2 b d x)^2} \sqrt{(a d+b (c+2 d x))^2}}{\sqrt{b} (b c-a d)^2 (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)}-$$

$$\left(2 \sqrt{2} d^{1/4} \sqrt{b c-a d} ((a+b x) (c+d x))^{1/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)\right.$$

$$\left.\sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}} \text{EllipticE}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Big/$$

$$\left(b^{3/4} (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)+$$

$$\left(\sqrt{2} d^{1/4} \sqrt{b c-a d} ((a+b x) (c+d x))^{1/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right) \sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Big/ \left(b^{3/4} (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)$$

Result (type 5, 84 leaves):

$$\frac{4 (c+d x)^{3/4} \left(-3+2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, \frac{b (c+d x)}{b c-a d}\right]\right)}{3 (b c-a d) (a+b x)^{1/4}}$$

Problem 1704: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{9/4} (c+d x)^{1/4}} \, dx$$

Optimal (type 4, 760 leaves, 7 steps):

$$-\frac{4 (c+d x)^{3/4}}{5 (b c-a d) (a+b x)^{5/4}}+\frac{8 d (c+d x)^{3/4}}{5 (b c-a d)^2 (a+b x)^{1/4}}-\frac{8 d^{3/2} \sqrt{(a+b x) (c+d x)} \sqrt{(b c+a d+2 b d x)^2} \sqrt{(a d+b (c+2 d x))^2}}{5 \sqrt{b} (b c-a d)^3 (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)}+$$

$$\left(4 \sqrt{2} d^{5/4} ((a+b x) (c+d x))^{1/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right) \sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}} \text{EllipticE}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Big/$$

$$\left(5 b^{3/4} \sqrt{b c-a d} (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)-$$

$$\left(2 \sqrt{2} d^{5/4} ((a+b x) (c+d x))^{1/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right) \sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}} \text{EllipticF}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Big/$$

$$\left(5 b^{3/4} \sqrt{b c-a d} (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)$$

Result (type 5, 102 leaves):

$$-\frac{4\,(c+d\,x)^{3/4}\left(-9\,a\,d+3\,b\,(c-2\,d\,x)+4\,d\,(a+b\,x)\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/4}\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{15\,(b\,c-a\,d)^2\,(a+b\,x)^{5/4}}$$

Problem 1705: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{7/4}}{(c+d\,x)^{3/4}}\,dx$$

Optimal (type 3, 167 leaves, 7 steps):

$$-\frac{7\,(b\,c-a\,d)\,(a+b\,x)^{3/4}\,(c+d\,x)^{1/4}}{8\,d^2}+\frac{(a+b\,x)^{7/4}\,(c+d\,x)^{1/4}}{2\,d}-\frac{21\,(b\,c-a\,d)^2\,\text{ArcTan}\left[\frac{d^{1/4}\,(a+b\,x)^{1/4}}{b^{1/4}\,(c+d\,x)^{1/4}}\right]}{16\,b^{1/4}\,d^{11/4}}+\frac{21\,(b\,c-a\,d)^2\,\text{ArcTanh}\left[\frac{d^{1/4}\,(a+b\,x)^{1/4}}{b^{1/4}\,(c+d\,x)^{1/4}}\right]}{16\,b^{1/4}\,d^{11/4}}$$

Result (type 5, 107 leaves):

$$\frac{1}{8\,d^3\,(a+b\,x)^{1/4}}(c+d\,x)^{1/4}\left(d\,(a+b\,x)\,(-7\,b\,c+11\,a\,d+4\,b\,d\,x)+21\,(b\,c-a\,d)^2\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/4}\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1706: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{3/4}}{(c+d\,x)^{3/4}}\,dx$$

Optimal (type 3, 127 leaves, 6 steps):

$$\frac{(a+b\,x)^{3/4}\,(c+d\,x)^{1/4}}{d}+\frac{3\,(b\,c-a\,d)\,\text{ArcTan}\left[\frac{d^{1/4}\,(a+b\,x)^{1/4}}{b^{1/4}\,(c+d\,x)^{1/4}}\right]}{2\,b^{1/4}\,d^{7/4}}-\frac{3\,(b\,c-a\,d)\,\text{ArcTanh}\left[\frac{d^{1/4}\,(a+b\,x)^{1/4}}{b^{1/4}\,(c+d\,x)^{1/4}}\right]}{2\,b^{1/4}\,d^{7/4}}$$

Result (type 5, 74 leaves):

$$\frac{(a+b\,x)^{3/4}\,(c+d\,x)^{1/4}\left(1+\frac{3\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{3/4}}\right)}{d}$$

Problem 1707: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{1/4}\,(c+d\,x)^{3/4}}\,dx$$

Optimal (type 3, 85 leaves, 5 steps):

$$-\frac{2\,\text{ArcTan}\left[\frac{d^{1/4}\,(a+b\,x)^{1/4}}{b^{1/4}\,(c+d\,x)^{1/4}}\right]}{b^{1/4}\,d^{3/4}}+\frac{2\,\text{ArcTanh}\left[\frac{d^{1/4}\,(a+b\,x)^{1/4}}{b^{1/4}\,(c+d\,x)^{1/4}}\right]}{b^{1/4}\,d^{3/4}}$$

Result (type 5, 71 leaves):

$$\frac{4\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/4}(c+d\,x)^{1/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{d\,(a+b\,x)^{1/4}}$$

Problem 1712: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{5/4}}{(c+d\,x)^{3/4}}\,dx$$

Optimal (type 4, 332 leaves, 5 steps):

$$-\frac{5\,(b\,c-a\,d)\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}}{3\,d^2}+\frac{2\,(a+b\,x)^{5/4}\,(c+d\,x)^{1/4}}{3\,d}+$$

$$\left(5\,(b\,c-a\,d)^{5/2}\,\left((a+b\,x)\,(c+d\,x)\right)^{3/4}\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\left(1+\frac{2\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\right.$$

$$\left.\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\left(1+\frac{2\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\;\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Bigg/$$

$$\left(6\sqrt{2}\,b^{1/4}\,d^{9/4}\,(a+b\,x)^{3/4}\,(c+d\,x)^{3/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 107 leaves):

$$\frac{1}{3\,d^3\,(a+b\,x)^{3/4}}(c+d\,x)^{1/4}\left(d\,(a+b\,x)\,(-5\,b\,c+7\,a\,d+2\,b\,d\,x)+5\,(b\,c-a\,d)^2\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{3/4}\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1713: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{1/4}}{(c+d\,x)^{3/4}}\,dx$$

Optimal (type 4, 295 leaves, 4 steps):

$$\frac{2\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}}{d}-\left((b\,c-a\,d)^{3/2}\,\left((a+b\,x)\,(c+d\,x)\right)^{3/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\right.$$
$$\left.\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/$$
$$\left(\sqrt{2}\,b^{1/4}\,d^{5/4}\,(a+b\,x)^{3/4}\,(c+d\,x)^{3/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 74 leaves):

$$\frac{2\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\left(1+\frac{\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/4}}\right)}{d}$$

Problem 1714: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{3/4}\,(c+d\,x)^{3/4}}\,dx$$

Optimal (type 4, 270 leaves, 3 steps):

$$\left(\sqrt{2}\,\sqrt{b\,c-a\,d}\,\left((a+b\,x)\,(c+d\,x)\right)^{3/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\right.$$
$$\left.\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/\left(b^{1/4}\,d^{1/4}\,(a+b\,x)^{3/4}\,(c+d\,x)^{3/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 71 leaves):

$$\frac{4\left(\frac{d(a+bx)}{-bc+ad}\right)^{3/4}(c+dx)^{1/4}\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{b(c+dx)}{bc-ad}\right]}{d(a+bx)^{3/4}}$$

Problem 1715: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+bx)^{7/4}(c+dx)^{3/4}}\,dx$$

Optimal (type 4, 306 leaves, 4 steps):

$$-\frac{4(c+dx)^{1/4}}{3(bc-ad)(a+bx)^{3/4}}-\left(2\sqrt{2}\,d^{3/4}\left((a+bx)(c+dx)\right)^{3/4}\sqrt{(bc+ad+2bdx)^2}\left(1+\frac{2\sqrt{b}\sqrt{d}\sqrt{(a+bx)(c+dx)}}{bc-ad}\right)\sqrt{\frac{(ad+b(c+2dx))^2}{(bc-ad)^2\left(1+\frac{2\sqrt{b}\sqrt{d}\sqrt{(a+bx)(c+dx)}}{bc-ad}\right)^2}}\right.$$
$$\left.\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}d^{1/4}\left((a+bx)(c+dx)\right)^{1/4}}{\sqrt{bc-ad}}\right],\frac{1}{2}\right]\right)\Big/$$
$$\left(3b^{1/4}\sqrt{bc-ad}\,(a+bx)^{3/4}(c+dx)^{3/4}(bc+ad+2bdx)\sqrt{(ad+b(c+2dx))^2}\right)$$

Result (type 5, 84 leaves):

$$-\frac{4(c+dx)^{1/4}\left(1+2\left(\frac{d(a+bx)}{-bc+ad}\right)^{3/4}\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\frac{b(c+dx)}{bc-ad}\right]\right)}{3(bc-ad)(a+bx)^{3/4}}$$

Problem 1716: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+bx)^{11/4}(c+dx)^{3/4}}\,dx$$

Optimal (type 4, 339 leaves, 5 steps):

$$-\frac{4 (c+d x)^{1/4}}{7 (b c-a d) (a+b x)^{7/4}}+\frac{8 d (c+d x)^{1/4}}{7 (b c-a d)^2 (a+b x)^{3/4}}+$$

$$\left(4 \sqrt{2} d^{7/4} ((a+b x) (c+d x))^{3/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right) \sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Big/$$

$$\left(7 b^{1/4} (b c-a d)^{3/2} (a+b x)^{3/4} (c+d x)^{3/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)$$

Result (type 5, 102 leaves):

$$\frac{4 (c+d x)^{1/4} \left(-b c+3 a d+2 b d x+4 d (a+b x) \left(\frac{d (a+b x)}{-b c+a d}\right)^{3/4} \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{5}{4}, \frac{b (c+d x)}{b c-a d}\right]\right)}{7 (b c-a d)^2 (a+b x)^{7/4}}$$

Problem 1717: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{5/4}}{(c+d x)^{5/4}} \, dx$$

Optimal (type 3, 152 leaves, 7 steps):

$$-\frac{4 (a+b x)^{5/4}}{d (c+d x)^{1/4}}+\frac{5 b (a+b x)^{1/4} (c+d x)^{3/4}}{d^2}-\frac{5 b^{1/4} (b c-a d) \text{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{2 d^{9/4}}-\frac{5 b^{1/4} (b c-a d) \text{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{2 d^{9/4}}$$

Result (type 5, 99 leaves):

$$\frac{(a+b x)^{1/4} (c+d x)^{3/4} \left(\frac{3 (5 b c-4 a d+b d x)}{c+d x}+\frac{5 b \text{Hypergeometric2F1}\left[\frac{3}{4}, \frac{3}{4}, \frac{7}{4}, \frac{b (c+d x)}{b c-a d}\right]}{\left(\frac{d (a+b x)}{-b c+a d}\right)^{1/4}}\right)}{3 d^2}$$

Problem 1718: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/4}}{(c+d x)^{5/4}} \, dx$$

Optimal (type 3, 108 leaves, 6 steps):

$$-\frac{4 (a+b x)^{1/4}}{d (c+d x)^{1/4}}+\frac{2 b^{1/4} \operatorname{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{d^{5/4}}+\frac{2 b^{1/4} \operatorname{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{d^{5/4}}$$

Result (type 5, 89 leaves):

$$\frac{4 \left(-3 d (a+b x)+b \left(\frac{d (a+b x)}{-b c+a d}\right)^{3/4} (c+d x) \operatorname{Hypergeometric2F1}\left[\frac{3}{4}, \frac{3}{4}, \frac{7}{4}, \frac{b (c+d x)}{b c-a d}\right]\right)}{3 d^2 (a+b x)^{3/4} (c+d x)^{1/4}}$$

Problem 1723: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{11/4}}{(c+d x)^{5/4}} \, dx$$

Optimal (type 4, 776 leaves, 8 steps):

$$-\frac{4\,(a+b\,x)^{11/4}}{d\,(c+d\,x)^{1/4}}-\frac{77\,b\,(b\,c-a\,d)\,(a+b\,x)^{3/4}\,(c+d\,x)^{3/4}}{15\,d^3}+\frac{22\,b\,(a+b\,x)^{7/4}\,(c+d\,x)^{3/4}}{5\,d^2}+$$

$$\frac{77\,\sqrt{b}\,(b\,c-a\,d)\,\sqrt{(a+b\,x)\,(c+d\,x)}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}}{10\,d^{7/2}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)}-$$

$$\left(77\,b^{1/4}\,(b\,c-a\,d)^{7/2}\,((a+b\,x)\,(c+d\,x))^{1/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\right.$$

$$\left.\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\;\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/$$

$$\left(10\,\sqrt{2}\,d^{15/4}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)+$$

$$\left(77\,b^{1/4}\,(b\,c-a\,d)^{7/2}\,((a+b\,x)\,(c+d\,x))^{1/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\right.$$

$$\left.\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\;\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/$$

$$\left(20\,\sqrt{2}\,d^{15/4}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 132 leaves):

$$\frac{1}{15\,d^4\,(a+b\,x)^{1/4}}$$

$$(c+d\,x)^{3/4}\left(d\,(a+b\,x)\,\left(b\,(-17\,b\,c+23\,a\,d)+6\,b^2\,d\,x-\frac{60\,(b\,c-a\,d)^2}{c+d\,x}\right)+77\,b\,(b\,c-a\,d)^2\,\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/4}\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1724: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{7/4}}{(c+d x)^{5/4}}\, dx$$

Optimal (type 4, 730 leaves, 7 steps):

$$-\frac{4 (a+b x)^{7/4}}{d (c+d x)^{1/4}}+\frac{14 b (a+b x)^{3/4} (c+d x)^{3/4}}{3 d^2}-\frac{7 \sqrt{b} \sqrt{(a+b x) (c+d x)} \sqrt{(b c+a d+2 b d x)^2} \sqrt{(a d+b (c+2 d x))^2}}{d^{5/2} (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)}+$$

$$\left(7 b^{1/4} (b c-a d)^{5/2} ((a+b x) (c+d x))^{1/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)\right.$$

$$\left.\sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}}\ \text{EllipticE}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Big/$$

$$\left(\sqrt{2} d^{11/4} (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)-$$

$$\left(7 b^{1/4} (b c-a d)^{5/2} ((a+b x) (c+d x))^{1/4} \sqrt{(b c+a d+2 b d x)^2} \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)\right.$$

$$\left.\sqrt{\frac{(a d+b (c+2 d x))^2}{(b c-a d)^2 \left(1+\frac{2 \sqrt{b} \sqrt{d} \sqrt{(a+b x) (c+d x)}}{b c-a d}\right)^2}}\ \text{EllipticF}\left[2 \text{ArcTan}\left[\frac{\sqrt{2} b^{1/4} d^{1/4} ((a+b x) (c+d x))^{1/4}}{\sqrt{b c-a d}}\right], \frac{1}{2}\right]\right) \Big/$$

$$\left(2 \sqrt{2} d^{11/4} (a+b x)^{1/4} (c+d x)^{1/4} (b c+a d+2 b d x) \sqrt{(a d+b (c+2 d x))^2}\right)$$

Result (type 5, 98 leaves):

$$\frac{2\,(a+b\,x)^{3/4}\,(c+d\,x)^{3/4}\left(\frac{7\,b\,c-6\,a\,d+b\,d\,x}{c+d\,x}+\frac{7\,b\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{3/4}}\right)}{3\,d^2}$$

Problem 1725: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{3/4}}{(c+d\,x)^{5/4}}\,dx$$

Optimal (type 4, 712 leaves, 6 steps):

$$-\frac{4\,(a+b\,x)^{3/4}}{d\,(c+d\,x)^{1/4}}+\frac{6\,\sqrt{b}\,\sqrt{(a+b\,x)\,(c+d\,x)}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}}{d^{3/2}\,(b\,c-a\,d)\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)}-$$

$$\left(3\,\sqrt{2}\,b^{1/4}\,(b\,c-a\,d)^{3/2}\,((a+b\,x)\,(c+d\,x))^{1/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\right.$$

$$\left.\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/$$

$$\left(d^{7/4}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)+$$

$$\left(3\,b^{1/4}\,(b\,c-a\,d)^{3/2}\,((a+b\,x)\,(c+d\,x))^{1/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/\left(\sqrt{2}\,d^{7/4}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 87 leaves):

$$\frac{-4\,d\,(a+b\,x)+4\,b\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/4}(c+d\,x)\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{d^2\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}}$$

Problem 1726: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{1/4}\,(c+d\,x)^{5/4}}\,dx$$

Optimal (type 4, 719 leaves, 6 steps):

$$\frac{4\,(a+b\,x)^{3/4}}{(b\,c-a\,d)\,(c+d\,x)^{1/4}}-\frac{4\,\sqrt{b}\,\sqrt{(a+b\,x)\,(c+d\,x)}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}}{\sqrt{d}\,(b\,c-a\,d)^2\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)}+$$

$$\left(2\,\sqrt{2}\,b^{1/4}\,\sqrt{b\,c-a\,d}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\right.$$

$$\left.\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\;\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/$$

$$\left(d^{3/4}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)-$$

$$\left(\sqrt{2}\,b^{1/4}\,\sqrt{b\,c-a\,d}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,\left((a+b\,x)\,(c+d\,x)\right)^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/\left(d^{3/4}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 100 leaves):

$$\frac{12\,d\,(a+b\,x)-8\,b\,\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/4}\,(c+d\,x)\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{3\,d\,(b\,c-a\,d)\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}}$$

Problem 1727: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{5/4}\,(c+d\,x)^{5/4}}\,dx$$

Optimal (type 4, 750 leaves, 7 steps):

$$-\frac{4}{(b\,c-a\,d)\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}}-\frac{8\,d\,(a+b\,x)^{3/4}}{(b\,c-a\,d)^2\,(c+d\,x)^{1/4}}+\frac{8\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}}{(b\,c-a\,d)^3\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)}-$$

$$\left(4\,\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\right.$$

$$\left.\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/$$

$$\left(\sqrt{b\,c-a\,d}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)+$$

$$\left(2\,\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\right.$$

$$\left.\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}}{\sqrt{b\,c-a\,d}}\right],\frac{1}{2}\right]\right)\Big/$$

$$\left(\sqrt{b\,c-a\,d}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 102 leaves) :

$$-\frac{4\left(3\,a\,d+3\,b\,(c+2\,d\,x)-4\,b\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/4}(c+d\,x)\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{3\,(b\,c-a\,d)^2\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}}$$

Problem 1728: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{9/4}\,(c+d\,x)^{5/4}}\,dx$$

Optimal (type 4, 795 leaves, 8 steps) :

$$-\frac{4}{5\,(b\,c-a\,d)\,(a+b\,x)^{5/4}\,(c+d\,x)^{1/4}}+\frac{24\,d}{5\,(b\,c-a\,d)^2\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}}+$$

$$\frac{48\,d^2\,(a+b\,x)^{3/4}}{5\,(b\,c-a\,d)^3\,(c+d\,x)^{1/4}}-\frac{48\,\sqrt{b}\,d^{3/2}\,\sqrt{(a+b\,x)\,(c+d\,x)}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}}{5\,(b\,c-a\,d)^4\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)}+$$

$$\left(24\,\sqrt{2}\,b^{1/4}\,d^{5/4}\,((a+b\,x)\,(c+d\,x))^{1/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\right.$$

$$\left.\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}}{\sqrt{b\,c-a\,d}}\right],\,\frac{1}{2}\right]\right)\Big/$$

$$\left(5\,(b\,c-a\,d)^{3/2}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)-$$

$$\left(12\,\sqrt{2}\,b^{1/4}\,d^{5/4}\,((a+b\,x)\,(c+d\,x))^{1/4}\,\sqrt{(b\,c+a\,d+2\,b\,d\,x)^2}\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)\right.$$

$$\left.\sqrt{\frac{(a\,d+b\,(c+2\,d\,x))^2}{(b\,c-a\,d)^2\,\left(1+\frac{2\,\sqrt{b}\,\sqrt{d}\,\sqrt{(a+b\,x)\,(c+d\,x)}}{b\,c-a\,d}\right)^2}}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{\sqrt{2}\,b^{1/4}\,d^{1/4}\,((a+b\,x)\,(c+d\,x))^{1/4}}{\sqrt{b\,c-a\,d}}\right],\,\frac{1}{2}\right]\right)\Big/$$

$$\left(5\,(b\,c-a\,d)^{3/2}\,(a+b\,x)^{1/4}\,(c+d\,x)^{1/4}\,(b\,c+a\,d+2\,b\,d\,x)\,\sqrt{(a\,d+b\,(c+2\,d\,x))^2}\right)$$

Result (type 5, 139 leaves) :

$$-\left(\left(4\left(5\,a^2\,d^2+2\,a\,b\,d\,(4\,c+9\,d\,x)+b^2\,(-c^2+6\,c\,d\,x+12\,d^2\,x^2)-\right.\right.\right.$$

$$\left.\left.\left.8\,b\,d\,(a+b\,x)\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/4}(c+d\,x)\,\text{Hypergeometric2F1}\left[\frac{1}{4},\,\frac{3}{4},\,\frac{7}{4},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)\right)\Big/\left(5\,(-b\,c+a\,d)^3\,(a+b\,x)^{5/4}\,(c+d\,x)^{1/4}\right)\right)$$

Problem 1729: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(1-a x)^{1/4} (1+b x)^{3/4}} \, dx$$

Optimal (type 3, 279 leaves, 11 steps):

$$\frac{\sqrt{2}\ \text{ArcTan}\left[1-\frac{\sqrt{2}\ b^{1/4} (1-a x)^{1/4}}{a^{1/4} (1+b x)^{1/4}}\right]}{a^{1/4} b^{3/4}}-\frac{\sqrt{2}\ \text{ArcTan}\left[1+\frac{\sqrt{2}\ b^{1/4} (1-a x)^{1/4}}{a^{1/4} (1+b x)^{1/4}}\right]}{a^{1/4} b^{3/4}}-\frac{\text{Log}\left[\sqrt{a}+\frac{\sqrt{b}\ \sqrt{1-a x}}{\sqrt{1+b x}}-\frac{\sqrt{2}\ a^{1/4} b^{1/4} (1-a x)^{1/4}}{(1+b x)^{1/4}}\right]}{\sqrt{2}\ a^{1/4} b^{3/4}}+\frac{\text{Log}\left[\sqrt{a}+\frac{\sqrt{b}\ \sqrt{1-a x}}{\sqrt{1+b x}}+\frac{\sqrt{2}\ a^{1/4} b^{1/4} (1-a x)^{1/4}}{(1+b x)^{1/4}}\right]}{\sqrt{2}\ a^{1/4} b^{3/4}}$$

Result (type 5, 63 leaves):

$$\frac{4 (1+b x)^{1/4} \left(\frac{b-a b x}{a+b}\right)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{a+a b x}{a+b}\right]}{b (1-a x)^{1/4}}$$

Problem 1730: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(1-a x)^{1/4} (1+a x)^{3/4}} \, dx$$

Optimal (type 3, 193 leaves, 11 steps):

$$\frac{\sqrt{2}\ \text{ArcTan}\left[1-\frac{\sqrt{2}\ (1-a x)^{1/4}}{(1+a x)^{1/4}}\right]}{a}-\frac{\sqrt{2}\ \text{ArcTan}\left[1+\frac{\sqrt{2}\ (1-a x)^{1/4}}{(1+a x)^{1/4}}\right]}{a}-\frac{\text{Log}\left[1+\frac{\sqrt{1-a x}}{\sqrt{1+a x}}-\frac{\sqrt{2}\ (1-a x)^{1/4}}{(1+a x)^{1/4}}\right]}{\sqrt{2}\ a}+\frac{\text{Log}\left[1+\frac{\sqrt{1-a x}}{\sqrt{1+a x}}+\frac{\sqrt{2}\ (1-a x)^{1/4}}{(1+a x)^{1/4}}\right]}{\sqrt{2}\ a}$$

Result (type 5, 38 leaves):

$$\frac{2\times 2^{3/4} (1+a x)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{1}{2} (1+a x)\right]}{a}$$

Problem 1736: Result unnecessarily involves higher level functions.

$$\int (a+b x)^{5/2} (c+d x)^{1/6} \, dx$$

Optimal (type 4, 487 leaves, 6 steps):

$$\frac{81\,(b\,c-a\,d)^3\,\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}{1408\,b\,d^3}-\frac{9\,(b\,c-a\,d)^2\,(a+b\,x)^{3/2}\,(c+d\,x)^{1/6}}{352\,b\,d^2}+\frac{3\,(b\,c-a\,d)\,(a+b\,x)^{5/2}\,(c+d\,x)^{1/6}}{176\,b\,d}+$$

$$\frac{3\,(a+b\,x)^{7/2}\,(c+d\,x)^{1/6}}{11\,b}-\left(81\times 3^{3/4}\,(b\,c-a\,d)^{11/3}\,(c+d\,x)^{1/6}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\;\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}\right],\,\frac{1}{4}\,\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(2816\,b\,d^4\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 181 leaves):

$$-\frac{1}{1408\,b\,d^4\,\sqrt{a+b\,x}}$$

$$3\,(c+d\,x)^{1/6}\,\left(-d\,(a+b\,x)\,\left(81\,a^3\,d^3+a^2\,b\,d^2\,(113\,c+356\,d\,x)+a\,b^2\,d\,\left(-93\,c^2+40\,c\,d\,x+376\,d^2\,x^2\right)+b^3\,\left(27\,c^3-12\,c^2\,d\,x+8\,c\,d^2\,x^2+128\,d^3\,x^3\right)\right)+\right.$$

$$\left.81\,(b\,c-a\,d)^4\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{6},\,\frac{1}{2},\,\frac{7}{6},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1737: Result unnecessarily involves higher level functions.

$$\int (a+b\,x)^{3/2}\,(c+d\,x)^{1/6}\,dx$$

Optimal (type 4, 449 leaves, 5 steps):

$$-\frac{27\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}{320\,b\,d^2}+\frac{3\,(b\,c-a\,d)\,(a+b\,x)^{3/2}\,(c+d\,x)^{1/6}}{80\,b\,d}+$$

$$\frac{3\,(a+b\,x)^{5/2}\,(c+d\,x)^{1/6}}{8\,b}+\Bigg(27\times 3^{3/4}\,(b\,c-a\,d)^{8/3}\,(c+d\,x)^{1/6}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)$$

$$\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\;\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}\right],\,\frac{1}{4}\,\left(2+\sqrt{3}\right)\right]\Bigg)\Bigg/$$

$$\left(640\,b\,d^3\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 142 leaves) :

$$-\frac{1}{320\,b\,d^3\,\sqrt{a+b\,x}}3\,(c+d\,x)^{1/6}\,\Bigg(-d\,(a+b\,x)\,\left(27\,a^2\,d^2+2\,a\,b\,d\,(11\,c+38\,d\,x)+b^2\,\left(-9\,c^2+4\,c\,d\,x+40\,d^2\,x^2\right)\right)-$$

$$27\,(b\,c-a\,d)^3\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{6},\,\frac{1}{2},\,\frac{7}{6},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\Bigg)$$

Problem 1738: Result unnecessarily involves higher level functions.

$$\int\sqrt{a+b\,x}\,(c+d\,x)^{1/6}\,dx$$

Optimal (type 4, 411 leaves, 4 steps) :

$$\frac{3(bc-ad)\sqrt{a+bx}\,(c+dx)^{1/6}}{20\,b\,d}+\frac{3(a+bx)^{3/2}(c+dx)^{1/6}}{5\,b}-$$
$$\left(3\times 3^{3/4}(bc-ad)^{5/3}(c+dx)^{1/6}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)\sqrt{\frac{(bc-ad)^{2/3}+b^{1/3}(bc-ad)^{1/3}(c+dx)^{1/3}+b^{2/3}(c+dx)^{2/3}}{\left((bc-ad)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+dx)^{1/3}\right)^2}}\right.$$
$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(bc-ad)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}(c+dx)^{1/3}}{(bc-ad)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+dx)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$
$$\left(40\,b\,d^2\sqrt{a+bx}\sqrt{-\frac{b^{1/3}(c+dx)^{1/3}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)}{\left((bc-ad)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+dx)^{1/3}\right)^2}}\right)$$

Result (type 5, 109 leaves):

$$\frac{1}{20\,b\,d^2\sqrt{a+bx}}3(c+dx)^{1/6}\left(d(a+bx)(3ad+b(c+4dx))-3(bc-ad)^2\sqrt{\frac{d(a+bx)}{-bc+ad}}\,\text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{2},\frac{7}{6},\frac{b(c+dx)}{bc-ad}\right]\right)$$

Problem 1739: Result unnecessarily involves higher level functions.

$$\int\frac{(c+dx)^{1/6}}{\sqrt{a+bx}}\,dx$$

Optimal (type 4, 375 leaves, 3 steps):

$$\frac{3\sqrt{a+bx}\,(c+dx)^{1/6}}{2\,b}+$$
$$\left(3^{3/4}(bc-ad)^{2/3}(c+dx)^{1/6}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)\sqrt{\frac{(bc-ad)^{2/3}+b^{1/3}(bc-ad)^{1/3}(c+dx)^{1/3}+b^{2/3}(c+dx)^{2/3}}{\left((bc-ad)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+dx)^{1/3}\right)^2}}\right.$$
$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(bc-ad)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}(c+dx)^{1/3}}{(bc-ad)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+dx)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$
$$\left(4\,b\,d\sqrt{a+bx}\sqrt{-\frac{b^{1/3}(c+dx)^{1/3}\left((bc-ad)^{1/3}-b^{1/3}(c+dx)^{1/3}\right)}{\left((bc-ad)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+dx)^{1/3}\right)^2}}\right)$$

Result (type 5, 93 leaves) :

$$\frac{3\,(c+d\,x)^{1/6}\left(d\,(a+b\,x)+(b\,c-a\,d)\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{2},\frac{7}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{2\,b\,d\,\sqrt{a+b\,x}}$$

Problem 1740: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d\,x)^{1/6}}{(a+b\,x)^{3/2}}\,dx$$

Optimal (type 4, 367 leaves, 3 steps) :

$$-\frac{2\,(c+d\,x)^{1/6}}{b\,\sqrt{a+b\,x}}+\left((c+d\,x)^{1/6}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\;\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Bigg/\left(3^{1/4}\,b\,(b\,c-a\,d)^{1/3}\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 74 leaves) :

$$\frac{2\,(c+d\,x)^{1/6}\left(-1+\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{2},\frac{7}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{b\,\sqrt{a+b\,x}}$$

Problem 1741: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d\,x)^{1/6}}{(a+b\,x)^{5/2}}\,dx$$

Optimal (type 4, 409 leaves, 4 steps) :

$$-\frac{2\,(c+d\,x)^{1/6}}{3\,b\,(a+b\,x)^{3/2}}-\frac{2\,d\,(c+d\,x)^{1/6}}{9\,b\,(b\,c-a\,d)\,\sqrt{a+b\,x}}-$$

$$\left(2\,d\,(c+d\,x)^{1/6}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}\right],\,\frac{1}{4}\,\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(9\times 3^{1/4}\,b\,(b\,c-a\,d)^{4/3}\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 104 leaves):

$$\frac{2\,(c+d\,x)^{1/6}\,\left(3\,b\,c-2\,a\,d+b\,d\,x+2\,d\,(a+b\,x)\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{6},\,\frac{1}{2},\,\frac{7}{6},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{9\,b\,(-b\,c+a\,d)\,(a+b\,x)^{3/2}}$$

Problem 1742: Result unnecessarily involves higher level functions.

$$\int (a+b\,x)^{3/2}\,(c+d\,x)^{5/6}\,dx$$

Optimal (type 4, 896 leaves, 7 steps):

$$-\frac{27\,(b\,c-a\,d)^2\sqrt{a+b\,x}\,(c+d\,x)^{5/6}}{224\,b\,d^2}+\frac{3\,(b\,c-a\,d)\,(a+b\,x)^{3/2}\,(c+d\,x)^{5/6}}{28\,b\,d}+$$

$$\frac{3\,(a+b\,x)^{5/2}\,(c+d\,x)^{5/6}}{10\,b}-\frac{81\,\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^3\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}{448\,b^{5/3}\,d^2\,\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)}-$$

$$\left(81\times 3^{1/4}\,(b\,c-a\,d)^{10/3}\,(c+d\,x)^{1/6}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(448\,b^{5/3}\,d^3\sqrt{a+b\,x}\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)-$$

$$\left(27\times 3^{3/4}\,\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{10/3}\,(c+d\,x)^{1/6}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(896\,b^{5/3}\,d^3\sqrt{a+b\,x}\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 142 leaves) :

$$-\frac{1}{1120\,b\,d^3\sqrt{a+b\,x}}3\,(c+d\,x)^{5/6}\left(-d\,(a+b\,x)\,\left(27\,a^2\,d^2+2\,a\,b\,d\,(65\,c+92\,d\,x)+b^2\,\left(-45\,c^2+40\,c\,d\,x+112\,d^2\,x^2\right)\right)-\right.$$

$$\left.27\,(b\,c-a\,d)^3\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{6},\frac{11}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1743: Result unnecessarily involves higher level functions.

$$\int \sqrt{a+b x}\,(c+d x)^{5/6}\,dx$$

Optimal (type 4, 858 leaves, 6 steps):

$$\frac{15 (b c-a d) \sqrt{a+b x} (c+d x)^{5/6}}{56 b d}+\frac{3 (a+b x)^{3/2} (c+d x)^{5/6}}{7 b}+\frac{45 \left(1+\sqrt{3}\right) (b c-a d)^2 \sqrt{a+b x} (c+d x)^{1/6}}{112 b^{5/3} d \left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)}+\left(45\times 3^{1/4} (b c-a d)^{7/3} (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\ \text{EllipticE}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right],\frac{1}{4} \left(2+\sqrt{3}\right)\right]\right)\Bigg/\left(112 b^{5/3} d^2 \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)+\left(15\times 3^{3/4} \left(1-\sqrt{3}\right) (b c-a d)^{7/3} (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\ \text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right],\frac{1}{4} \left(2+\sqrt{3}\right)\right]\right)\Bigg/\left(224 b^{5/3} d^2 \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 110 leaves):

$$\frac{1}{56 b d^2 \sqrt{a+b x}} 3 (c+d x)^{5/6} \left(d (a+b x) (5 b c+3 a d+8 b d x)-3 (b c-a d)^2 \sqrt{\frac{d (a+b x)}{-b c+a d}}\ \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{6},\frac{11}{6},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1744: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{5/6}}{\sqrt{a+b x}} \, dx$$

Optimal (type 4, 817 leaves, 5 steps):

$$\frac{3 \sqrt{a+b x} \, (c+d x)^{5/6}}{4 b} - \frac{15 \left(1+\sqrt{3}\right) (b c-a d) \sqrt{a+b x} \, (c+d x)^{1/6}}{8 b^{5/3} \left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)} -$$

$$\left(15 \times 3^{1/4} (b c-a d)^{4/3} (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \Bigg/$$

$$\left(8 b^{5/3} d \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right) -$$

$$\left(5 \times 3^{3/4} \left(1-\sqrt{3}\right) (b c-a d)^{4/3} (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \Bigg/$$

$$\left(16 b^{5/3} d \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 93 leaves):

$$\frac{3 (c+d x)^{5/6} \left(d (a+b x)+(b c-a d) \sqrt{\frac{d (a+b x)}{-b c+a d}} \, \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{5}{6}, \frac{11}{6}, \frac{b (c+d x)}{b c-a d}\right]\right)}{4 b d \sqrt{a+b x}}$$

Problem 1745: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{5/6}}{(a+b x)^{3/2}}\, dx$$

Optimal (type 4, 798 leaves, 5 steps):

$$-\frac{2 (c+d x)^{5/6}}{b \sqrt{a+b x}}-\frac{5 \left(1+\sqrt{3}\right) d \sqrt{a+b x} (c+d x)^{1/6}}{b^{5/3} \left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)}-$$
$$\left(5\times 3^{1/4} (b c-a d)^{1/3} (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$
$$\left.\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right],\frac{1}{4} \left(2+\sqrt{3}\right)\right]\right)\Big/$$
$$\left(b^{5/3} \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)-\left(5 \left(1-\sqrt{3}\right) (b c-a d)^{1/3} (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)\right.$$
$$\left.\sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}} \text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right],\frac{1}{4} \left(2+\sqrt{3}\right)\right]\right)\Big/$$
$$\left(2\times 3^{1/4} b^{5/3} \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 74 leaves):

$$\frac{2 (c+d x)^{5/6} \left(-1+\sqrt{\frac{d (a+b x)}{-b c+a d}}\ \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{6},\frac{11}{6},\frac{b (c+d x)}{b c-a d}\right]\right)}{b \sqrt{a+b x}}$$

Problem 1746: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{5/6}}{(a+b x)^{5/2}} \, dx$$

Optimal (type 4, 854 leaves, 6 steps):

$$-\frac{2 (c+d x)^{5/6}}{3 b (a+b x)^{3/2}}-\frac{10 d (c+d x)^{5/6}}{9 b (b c-a d) \sqrt{a+b x}}-\frac{10 \left(1+\sqrt{3}\right) d^2 \sqrt{a+b x} (c+d x)^{1/6}}{9 b^{5/3} (b c-a d) \left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)}-$$

$$\left(10 d (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \Big/$$

$$\left(3\times 3^{3/4} b^{5/3} (b c-a d)^{2/3} \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)-$$

$$\left(5 \left(1-\sqrt{3}\right) d (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \Big/$$

$$\left(9\times 3^{1/4} b^{5/3} (b c-a d)^{2/3} \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 105 leaves):

$$-\frac{2 (c+d x)^{5/6} \left(3 b c+2 a d+5 b d x-2 d (a+b x) \sqrt{\frac{d (a+b x)}{-b c+a d}} \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{5}{6}, \frac{11}{6}, \frac{b (c+d x)}{b c-a d}\right]\right)}{9 b (b c-a d) (a+b x)^{3/2}}$$

Problem 1747: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{5/6}}{(a+b x)^{7/2}} \, dx$$

Optimal (type 4, 896 leaves, 7 steps):

$$-\frac{2 (c+d x)^{5/6}}{5 b (a+b x)^{5/2}}-\frac{2 d (c+d x)^{5/6}}{9 b (b c-a d) (a+b x)^{3/2}}+\frac{8 d^2 (c+d x)^{5/6}}{27 b (b c-a d)^2 \sqrt{a+b x}}+$$

$$\frac{8 \left(1+\sqrt{3}\right) d^3 \sqrt{a+b x} (c+d x)^{1/6}}{27 b^{5/3} (b c-a d)^2 \left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)}+\left(8 d^2 (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}} \text{EllipticE}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \Big/$$

$$\left(9\times 3^{3/4} b^{5/3} (b c-a d)^{5/3} \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)+$$

$$\left(4 \left(1-\sqrt{3}\right) d^2 (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \Big/$$

$$\left(27\times 3^{1/4} b^{5/3} (b c-a d)^{5/3} \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 140 leaves):

$$-\left(\left(2\,(c+d\,x)^{5/6}\left(-8\,a^2\,d^2-a\,b\,d\,(39\,c+55\,d\,x)+b^2\,(27\,c^2+15\,c\,d\,x-20\,d^2\,x^2)+\right.\right.\right.$$
$$\left.\left.\left.8\,d^2\,(a+b\,x)^2\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{6},\frac{11}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)\right)\Big/\left(135\,b\,(b\,c-a\,d)^2\,(a+b\,x)^{5/2}\right)\right)$$

Problem 1748: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{5/2}}{(c+d\,x)^{1/6}}\,dx$$

Optimal (type 4, 890 leaves, 7 steps) :

$$\frac{81\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}\,(c+d\,x)^{5/6}}{224\,d^3}-\frac{9\,(b\,c-a\,d)\,(a+b\,x)^{3/2}\,(c+d\,x)^{5/6}}{28\,d^2}+$$

$$\frac{3\,(a+b\,x)^{5/2}\,(c+d\,x)^{5/6}}{10\,d}+\frac{243\,\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^3\,\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}{448\,b^{2/3}\,d^3\,\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)}+$$

$$\left(243\times 3^{1/4}\,(b\,c-a\,d)^{10/3}\,(c+d\,x)^{1/6}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\,\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}\right],\,\frac{1}{4}\,\left(2+\sqrt{3}\right)\right]\right)\Bigg/$$

$$\left(448\,b^{2/3}\,d^4\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)+$$

$$\left(81\times 3^{3/4}\,\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{10/3}\,(c+d\,x)^{1/6}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\,\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}\right],\,\frac{1}{4}\,\left(2+\sqrt{3}\right)\right]\right)\Bigg/$$

$$\left(896\,b^{2/3}\,d^4\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 138 leaves):

$$\frac{1}{1120\,d^4\,\sqrt{a+b\,x}}3\,(c+d\,x)^{5/6}\,\left(d\,(a+b\,x)\,\left(367\,a^2\,d^2+2\,a\,b\,d\,(-195\,c+172\,d\,x)+b^2\,\left(135\,c^2-120\,c\,d\,x+112\,d^2\,x^2\right)\right)-\right.$$

$$\left.81\,(b\,c-a\,d)^3\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{5}{6},\,\frac{11}{6},\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1749: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{3/2}}{(c+d x)^{1/6}} \, dx$$

Optimal (type 4, 855 leaves, 6 steps):

$$-\frac{27 (b c-a d) \sqrt{a+b x} (c+d x)^{5/6}}{56 d^2}+\frac{3 (a+b x)^{3/2} (c+d x)^{5/6}}{7 d}-\frac{81 \left(1+\sqrt{3}\right) (b c-a d)^2 \sqrt{a+b x} (c+d x)^{1/6}}{112 b^{2/3} d^2 \left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)}-\left(81\times 3^{1/4} (b c-a d)^{7/3} (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}} \text{EllipticE}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right],\frac{1}{4} \left(2+\sqrt{3}\right)\right]\right)\Big/\left(112 b^{2/3} d^3 \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)-\left(27\times 3^{3/4} \left(1-\sqrt{3}\right) (b c-a d)^{7/3} (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}} \text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right],\frac{1}{4} \left(2+\sqrt{3}\right)\right]\right)\Big/\left(224 b^{2/3} d^3 \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 108 leaves):

$$\frac{1}{280 d^3 \sqrt{a+b x}} 3 (c+d x)^{5/6} \left(5 d (a+b x) (-9 b c+17 a d+8 b d x)+27 (b c-a d)^2 \sqrt{\frac{d (a+b x)}{-b c+a d}} \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{6},\frac{11}{6},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1750: Result unnecessarily involves higher level functions.

$$\int \frac{\sqrt{a+b x}}{(c+d x)^{1/6}}\,dx$$

Optimal (type 4, 820 leaves, 5 steps):

$$\frac{3\sqrt{a+b x}\,(c+d x)^{5/6}}{4 d}+\frac{9\left(1+\sqrt{3}\right)(b c-a d)\sqrt{a+b x}\,(c+d x)^{1/6}}{8 b^{2/3} d\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}\right)}+$$

$$\left(9\times 3^{1/4}(b c-a d)^{4/3}(c+d x)^{1/6}\left((b c-a d)^{1/3}-b^{1/3}(c+d x)^{1/3}\right)\sqrt{\frac{(b c-a d)^{2/3}+b^{1/3}(b c-a d)^{1/3}(c+d x)^{1/3}+b^{2/3}(c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Bigg/$$

$$\left(8 b^{2/3} d^2\sqrt{a+b x}\sqrt{-\frac{b^{1/3}(c+d x)^{1/3}\left((b c-a d)^{1/3}-b^{1/3}(c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}\right)^2}}\right)+$$

$$\left(3\times 3^{3/4}\left(1-\sqrt{3}\right)(b c-a d)^{4/3}(c+d x)^{1/6}\left((b c-a d)^{1/3}-b^{1/3}(c+d x)^{1/3}\right)\sqrt{\frac{(b c-a d)^{2/3}+b^{1/3}(b c-a d)^{1/3}(c+d x)^{1/3}+b^{2/3}(c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Bigg/$$

$$\left(16 b^{2/3} d^2\sqrt{a+b x}\sqrt{-\frac{b^{1/3}(c+d x)^{1/3}\left((b c-a d)^{1/3}-b^{1/3}(c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 77 leaves):

$$\frac{3\sqrt{a+b x}\,(c+d x)^{5/6}\left(5+\frac{3\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{6},\frac{11}{6},\frac{b(c+d x)}{b c-a d}\right]}{\sqrt{\frac{d(a+b x)}{-b c+a d}}}\right)}{20 d}$$

Problem 1751: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{a+b x}\,(c+d x)^{1/6}}\,dx$$

Optimal (type 4, 780 leaves, 4 steps):

$$-\frac{3\left(1+\sqrt{3}\right)\sqrt{a+b x}\,(c+d x)^{1/6}}{b^{2/3}\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+d x)^{1/3}\right)}-$$

$$\left(3\times 3^{1/4}(b c-a d)^{1/3}(c+d x)^{1/6}\left((b c-a d)^{1/3}-b^{1/3}(c+d x)^{1/3}\right)\sqrt{\frac{(b c-a d)^{2/3}+b^{1/3}(b c-a d)^{1/3}(c+d x)^{1/3}+b^{2/3}(c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}(c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+d x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(b^{2/3} d\sqrt{a+b x}\sqrt{-\frac{b^{1/3}(c+d x)^{1/3}\left((b c-a d)^{1/3}-b^{1/3}(c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+d x)^{1/3}\right)^2}}\right)-$$

$$\left(3^{3/4}\left(1-\sqrt{3}\right)(b c-a d)^{1/3}(c+d x)^{1/6}\left((b c-a d)^{1/3}-b^{1/3}(c+d x)^{1/3}\right)\sqrt{\frac{(b c-a d)^{2/3}+b^{1/3}(b c-a d)^{1/3}(c+d x)^{1/3}+b^{2/3}(c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}(c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+d x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(2 b^{2/3} d\sqrt{a+b x}\sqrt{-\frac{b^{1/3}(c+d x)^{1/3}\left((b c-a d)^{1/3}-b^{1/3}(c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}(c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 73 leaves):

$$\frac{6\sqrt{\frac{d(a+b x)}{-b c+a d}}\,(c+d x)^{5/6}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{6},\frac{11}{6},\frac{b(c+d x)}{b c-a d}\right]}{5 d\sqrt{a+b x}}$$

Problem 1752: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{3/2} (c+d x)^{1/6}} \, dx$$

Optimal (type 4, 813 leaves, 5 steps):

$$-\frac{2 (c+d x)^{5/6}}{(b c-a d) \sqrt{a+b x}}-\frac{2 \left(1+\sqrt{3}\right) d \sqrt{a+b x} (c+d x)^{1/6}}{b^{2/3} (b c-a d) \left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)}-$$
$$\left(2 \times 3^{1/4} (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$
$$\left.\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \Big/$$
$$\left(b^{2/3} (b c-a d)^{2/3} \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)-$$
$$\left(\left(1-\sqrt{3}\right) (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$
$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \Big/$$
$$\left(3^{1/4} b^{2/3} (b c-a d)^{2/3} \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 84 leaves):

$$\frac{2 (c+d x)^{5/6} \left(-5+2 \sqrt{\frac{d (a+b x)}{-b c+a d}} \, \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{5}{6}, \frac{11}{6}, \frac{b (c+d x)}{b c-a d}\right]\right)}{5 (b c-a d) \sqrt{a+b x}}$$

Problem 1753: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{5/2} (c+d x)^{1/6}} \, dx$$

Optimal (type 4, 858 leaves, 6 steps):

$$-\frac{2 (c+d x)^{5/6}}{3 (b c-a d) (a+b x)^{3/2}}+\frac{8 d (c+d x)^{5/6}}{9 (b c-a d)^2 \sqrt{a+b x}}+\frac{8 \left(1+\sqrt{3}\right) d^2 \sqrt{a+b x} (c+d x)^{1/6}}{9 b^{2/3} (b c-a d)^2 \left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)}+$$

$$\left(8 d (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \Big/$$

$$\left(3 \times 3^{3/4} b^{2/3} (b c-a d)^{5/3} \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)+$$

$$\left(4 \left(1-\sqrt{3}\right) d (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \Big/$$

$$\left(9 \times 3^{1/4} b^{2/3} (b c-a d)^{5/3} \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 105 leaves):

$$-\frac{1}{45 (b c-a d)^2 (a+b x)^{3/2}} 2 (c+d x)^{5/6} \left(-5 (-3 b c+7 a d+4 b d x)+8 d (a+b x) \sqrt{\frac{d (a+b x)}{-b c+a d}} \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{5}{6}, \frac{11}{6}, \frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1754: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{5/2}}{(c+d x)^{5/6}}\, dx$$

Optimal (type 4, 440 leaves, 5 steps):

$$\frac{81 (b c-a d)^2 \sqrt{a+b x} (c+d x)^{1/6}}{64 d^3}-\frac{9 (b c-a d) (a+b x)^{3/2} (c+d x)^{1/6}}{16 d^2}+\frac{3 (a+b x)^{5/2} (c+d x)^{1/6}}{8 d}-\left(81\times 3^{3/4} (b c-a d)^{8/3} (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)\sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\ \text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right],\frac{1}{4} \left(2+\sqrt{3}\right)\right]\right)\Bigg/\left(128 d^4 \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 138 leaves):

$$\frac{1}{64 d^4 \sqrt{a+b x}} 3 (c+d x)^{1/6} \left(d (a+b x) \left(47 a^2 d^2+2 a b d (-33 c+14 d x)+b^2 \left(27 c^2-12 c d x+8 d^2 x^2\right)\right)-81 (b c-a d)^3 \sqrt{\frac{d (a+b x)}{-b c+a d}}\ \text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{2},\frac{7}{6},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1755: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{3/2}}{(c+d x)^{5/6}}\, dx$$

Optimal (type 4, 405 leaves, 4 steps):

$$-\frac{27\,(b\,c-a\,d)\,\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}{20\,d^2}+\frac{3\,(a+b\,x)^{3/2}\,(c+d\,x)^{1/6}}{5\,d}+$$
$$\left(27\times 3^{3/4}\,(b\,c-a\,d)^{5/3}\,(c+d\,x)^{1/6}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$
$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$
$$\left(40\,d^3\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 107 leaves):

$$\frac{1}{20\,d^3\,\sqrt{a+b\,x}}3\,(c+d\,x)^{1/6}\left(d\,(a+b\,x)\,(-9\,b\,c+13\,a\,d+4\,b\,d\,x)+27\,(b\,c-a\,d)^2\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\ \text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{2},\frac{7}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1756: Result unnecessarily involves higher level functions.

$$\int\frac{\sqrt{a+b\,x}}{(c+d\,x)^{5/6}}\,dx$$

Optimal (type 4, 372 leaves, 3 steps):

$$\frac{3\,\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}{2\,d}-$$
$$\left(3\times 3^{3/4}\,(b\,c-a\,d)^{2/3}\,(c+d\,x)^{1/6}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$
$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$
$$\left(4\,d^2\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 77 leaves) :

$$\frac{3\sqrt{a+b\,x}\,\left(c+d\,x\right)^{1/6}\left(1+\frac{3\,\text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{2},\frac{7}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}}\right)}{2\,d}$$

Problem 1757: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{a+b\,x}\,\left(c+d\,x\right)^{5/6}}\,dx$$

Optimal (type 4, 343 leaves, 2 steps) :

$$\left(3^{3/4}\left(c+d\,x\right)^{1/6}\left(\left(b\,c-a\,d\right)^{1/3}-b^{1/3}\left(c+d\,x\right)^{1/3}\right)\sqrt{\frac{\left(b\,c-a\,d\right)^{2/3}+b^{1/3}\left(b\,c-a\,d\right)^{1/3}\left(c+d\,x\right)^{1/3}+b^{2/3}\left(c+d\,x\right)^{2/3}}{\left(\left(b\,c-a\,d\right)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\left(c+d\,x\right)^{1/3}\right)^{2}}}\right.$$
$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{\left(b\,c-a\,d\right)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}\left(c+d\,x\right)^{1/3}}{\left(b\,c-a\,d\right)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\left(c+d\,x\right)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$
$$\left(d\left(b\,c-a\,d\right)^{1/3}\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\left(c+d\,x\right)^{1/3}\left(\left(b\,c-a\,d\right)^{1/3}-b^{1/3}\left(c+d\,x\right)^{1/3}\right)}{\left(\left(b\,c-a\,d\right)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\left(c+d\,x\right)^{1/3}\right)^{2}}}\right)$$

Result (type 5, 71 leaves) :

$$\frac{6\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,\left(c+d\,x\right)^{1/6}\,\text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{2},\frac{7}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{d\sqrt{a+b\,x}}$$

Problem 1758: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\left(a+b\,x\right)^{3/2}\left(c+d\,x\right)^{5/6}}\,dx$$

Optimal (type 4, 372 leaves, 3 steps) :

$$-\frac{2\,(c+d\,x)^{1/6}}{(b\,c-a\,d)\,\sqrt{a+b\,x}}-\left(2\,(c+d\,x)^{1/6}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\;\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Bigg/\left(3^{1/4}\,(b\,c-a\,d)^{4/3}\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 82 leaves):

$$-\frac{2\,(c+d\,x)^{1/6}\left(1+2\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{2},\frac{7}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{(b\,c-a\,d)\,\sqrt{a+b\,x}}$$

Problem 1759: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{5/2}\,(c+d\,x)^{5/6}}\,dx$$

Optimal (type 4, 410 leaves, 4 steps):

$$-\frac{2\,(c+d\,x)^{1/6}}{3\,(b\,c-a\,d)\,(a+b\,x)^{3/2}}+\frac{16\,d\,(c+d\,x)^{1/6}}{9\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}}+\left(16\,d\,(c+d\,x)^{1/6}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\;\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Bigg/\left(9\times3^{1/4}\,(b\,c-a\,d)^{7/3}\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 102 leaves):

$$\frac{2\,(c+d\,x)^{1/6}\left(-3\,b\,c+11\,a\,d+8\,b\,d\,x+16\,d\,(a+b\,x)\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\;\text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{2},\frac{7}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{9\,(b\,c-a\,d)^2\,(a+b\,x)^{3/2}}$$

Problem 1760: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{5/2}}{(c+d\,x)^{7/6}}\,dx$$

Optimal (type 4, 880 leaves, 7 steps):

$$-\frac{6\,(a+b\,x)^{5/2}}{d\,(c+d\,x)^{1/6}}-\frac{405\,b\,(b\,c-a\,d)\,\sqrt{a+b\,x}\,(c+d\,x)^{5/6}}{56\,d^3}+\frac{45\,b\,(a+b\,x)^{3/2}\,(c+d\,x)^{5/6}}{7\,d^2}-$$

$$\frac{1215\,\left(1+\sqrt{3}\right)\,b^{1/3}\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}{112\,d^3\,\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)}-\left(1215\times 3^{1/4}\,b^{1/3}\,(b\,c-a\,d)^{7/3}\,(c+d\,x)^{1/6}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\;\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(112\,d^4\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)-$$

$$\left(405\times 3^{3/4}\,\left(1-\sqrt{3}\right)\,b^{1/3}\,(b\,c-a\,d)^{7/3}\,(c+d\,x)^{1/6}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\,\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(224\,d^4\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\,\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)\,b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 132 leaves):

$$\frac{1}{56\, d^4 \sqrt{a+b x}} 3 (c+d x)^{5/6} \left(d (a+b x) \left(b (-23 b c+31 a d)+8 b^2 d x-\frac{112 (b c-a d)^2}{c+d x}\right)+81 b (b c-a d)^2 \sqrt{\frac{d (a+b x)}{-b c+a d}}\ \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{6},\frac{11}{6},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1761: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{3/2}}{(c+d x)^{7/6}}\, dx$$

Optimal (type 4, 844 leaves, 6 steps):

$$-\frac{6 (a+b x)^{3/2}}{d (c+d x)^{1/6}}+\frac{27 b \sqrt{a+b x} (c+d x)^{5/6}}{4 d^2}+\frac{81 \left(1+\sqrt{3}\right) b^{1/3} (b c-a d) \sqrt{a+b x} (c+d x)^{1/6}}{8 d^2 \left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)}+$$

$$\left(81\times 3^{1/4} b^{1/3} (b c-a d)^{4/3} (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\ \text{EllipticE}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(8 d^3 \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)+$$

$$\left(27\times 3^{3/4} \left(1-\sqrt{3}\right) b^{1/3} (b c-a d)^{4/3} (c+d x)^{1/6} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right) \sqrt{\frac{(b c-a d)^{2/3}+b^{1/3} (b c-a d)^{1/3} (c+d x)^{1/3}+b^{2/3} (c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(16 d^3 \sqrt{a+b x} \sqrt{-\frac{b^{1/3} (c+d x)^{1/3} \left((b c-a d)^{1/3}-b^{1/3} (c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3} (c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 99 leaves):

$$\frac{3\sqrt{a+b x}\,(c+d x)^{5/6}\left(\frac{5\,(9 b c-8 a d+b d x)}{c+d x}+\frac{27\, b\, \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{6},\frac{11}{6},\frac{b (c+d x)}{b c-a d}\right]}{\sqrt{\frac{d (a+b x)}{-b c+a d}}}\right)}{20\, d^2}$$

Problem 1762: Result unnecessarily involves higher level functions.

$$\int \frac{\sqrt{a+b x}}{(c+d x)^{7/6}}\, dx$$

Optimal (type 4, 806 leaves, 5 steps):

$$-\frac{6\sqrt{a+b x}}{d\,(c+d x)^{1/6}}-\frac{9\left(1+\sqrt{3}\right) b^{1/3}\sqrt{a+b x}\,(c+d x)^{1/6}}{d\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}\right)}-$$

$$\left(9\times 3^{1/4}\, b^{1/3}\,(b c-a d)^{1/3}\,(c+d x)^{1/6}\left((b c-a d)^{1/3}-b^{1/3}(c+d x)^{1/3}\right)\sqrt{\frac{(b c-a d)^{2/3}+b^{1/3}(b c-a d)^{1/3}(c+d x)^{1/3}+b^{2/3}(c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(d^2\sqrt{a+b x}\sqrt{-\frac{b^{1/3}(c+d x)^{1/3}\left((b c-a d)^{1/3}-b^{1/3}(c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}\right)^2}}\right)-$$

$$\left(3\times 3^{3/4}\left(1-\sqrt{3}\right) b^{1/3}(b c-a d)^{1/3}(c+d x)^{1/6}\left((b c-a d)^{1/3}-b^{1/3}(c+d x)^{1/3}\right)\sqrt{\frac{(b c-a d)^{2/3}+b^{1/3}(b c-a d)^{1/3}(c+d x)^{1/3}+b^{2/3}(c+d x)^{2/3}}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b c-a d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}}{(b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(2 d^2\sqrt{a+b x}\sqrt{-\frac{b^{1/3}(c+d x)^{1/3}\left((b c-a d)^{1/3}-b^{1/3}(c+d x)^{1/3}\right)}{\left((b c-a d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}(c+d x)^{1/3}\right)^2}}\right)$$

Result (type 5, 90 leaves):

$$\frac{-30\, d\, (a+b\, x)+18\, b\, \sqrt{\frac{d\, (a+b\, x)}{-b\, c+a\, d}}\, (c+d\, x)\, \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{6},\frac{11}{6},\frac{b\, (c+d\, x)}{b\, c-a\, d}\right]}{5\, d^2\, \sqrt{a+b\, x}\, (c+d\, x)^{1/6}}$$

Problem 1763: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{a+b\, x}\, (c+d\, x)^{7/6}}\, dx$$

Optimal (type 4, 817 leaves, 5 steps):

$$\frac{6\sqrt{a+b\, x}}{(b\, c-a\, d)\, (c+d\, x)^{1/6}}+\frac{6\left(1+\sqrt{3}\right) b^{1/3}\sqrt{a+b\, x}\, (c+d\, x)^{1/6}}{(b\, c-a\, d)\left((b\, c-a\, d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}\, (c+d\, x)^{1/3}\right)}+$$

$$\left(6\times 3^{1/4}\, b^{1/3}\, (c+d\, x)^{1/6}\left((b\, c-a\, d)^{1/3}-b^{1/3}\, (c+d\, x)^{1/3}\right)\sqrt{\frac{(b\, c-a\, d)^{2/3}+b^{1/3}\, (b\, c-a\, d)^{1/3}\, (c+d\, x)^{1/3}+b^{2/3}\, (c+d\, x)^{2/3}}{\left((b\, c-a\, d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}\, (c+d\, x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b\, c-a\, d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3}\, (c+d\, x)^{1/3}}{(b\, c-a\, d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}\, (c+d\, x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Bigg/$$

$$\left(d\, (b\, c-a\, d)^{2/3}\sqrt{a+b\, x}\sqrt{-\frac{b^{1/3}\, (c+d\, x)^{1/3}\left((b\, c-a\, d)^{1/3}-b^{1/3}\, (c+d\, x)^{1/3}\right)}{\left((b\, c-a\, d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}\, (c+d\, x)^{1/3}\right)^2}}\right)+$$

$$\left(3^{3/4}\left(1-\sqrt{3}\right) b^{1/3}\, (c+d\, x)^{1/6}\left((b\, c-a\, d)^{1/3}-b^{1/3}\, (c+d\, x)^{1/3}\right)\sqrt{\frac{(b\, c-a\, d)^{2/3}+b^{1/3}\, (b\, c-a\, d)^{1/3}\, (c+d\, x)^{1/3}+b^{2/3}\, (c+d\, x)^{2/3}}{\left((b\, c-a\, d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}\, (c+d\, x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\, c-a\, d)^{1/3}-\left(1-\sqrt{3}\right) b^{1/3}\, (c+d\, x)^{1/3}}{(b\, c-a\, d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}\, (c+d\, x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Bigg/$$

$$\left(d\, (b\, c-a\, d)^{2/3}\sqrt{a+b\, x}\sqrt{-\frac{b^{1/3}\, (c+d\, x)^{1/3}\left((b\, c-a\, d)^{1/3}-b^{1/3}\, (c+d\, x)^{1/3}\right)}{\left((b\, c-a\, d)^{1/3}-\left(1+\sqrt{3}\right) b^{1/3}\, (c+d\, x)^{1/3}\right)^2}}\right)$$

Result (type 5, 100 leaves):

$$\frac{6\left(5\,d\,(a+b\,x)-2\,b\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,(c+d\,x)\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{6},\frac{11}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{5\,d\,(b\,c-a\,d)\,\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}$$

Problem 1764: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{3/2}\,(c+d\,x)^{7/6}}\,dx$$

Optimal (type 4, 844 leaves, 6 steps):

$$-\frac{2}{(b\,c-a\,d)\,\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}-\frac{8\,d\,\sqrt{a+b\,x}}{(b\,c-a\,d)^2\,(c+d\,x)^{1/6}}-\frac{8\left(1+\sqrt{3}\right)b^{1/3}\,d\,\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}{(b\,c-a\,d)^2\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)}-$$

$$\left(8\times 3^{1/4}\,b^{1/3}\,(c+d\,x)^{1/6}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\,\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left((b\,c-a\,d)^{5/3}\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)-$$

$$\left(4\left(1-\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/6}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(3^{1/4}\,(b\,c-a\,d)^{5/3}\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 102 leaves):

$$-\frac{2\left(15\,a\,d+5\,b\,(c+4\,d\,x)-8\,b\,\sqrt{\frac{d\,(a+b\,x)}{-b\,c+a\,d}}\,(c+d\,x)\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{6},\frac{11}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{5\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}$$

Problem 1765: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{5/2}\,(c+d\,x)^{7/6}}\,dx$$

Optimal (type 4, 893 leaves, 7 steps):

$$-\frac{2}{3\,(b\,c-a\,d)\,(a+b\,x)^{3/2}\,(c+d\,x)^{1/6}}+\frac{20\,d}{9\,(b\,c-a\,d)^2\,\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}+$$

$$\frac{80\,d^2\,\sqrt{a+b\,x}}{9\,(b\,c-a\,d)^3\,(c+d\,x)^{1/6}}+\frac{80\left(1+\sqrt{3}\right)b^{1/3}\,d^2\,\sqrt{a+b\,x}\,(c+d\,x)^{1/6}}{9\,(b\,c-a\,d)^3\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)}+$$

$$\left(80\,b^{1/3}\,d\,(c+d\,x)^{1/6}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(3\times 3^{3/4}\,(b\,c-a\,d)^{8/3}\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)+$$

$$\left(40\left(1-\sqrt{3}\right)b^{1/3}\,d\,(c+d\,x)^{1/6}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)\sqrt{\frac{(b\,c-a\,d)^{2/3}+b^{1/3}\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}+b^{2/3}\,(c+d\,x)^{2/3}}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcCos}\left[\frac{(b\,c-a\,d)^{1/3}-\left(1-\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}{(b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)\Big/$$

$$\left(9\times 3^{1/4}\,(b\,c-a\,d)^{8/3}\,\sqrt{a+b\,x}\,\sqrt{-\frac{b^{1/3}\,(c+d\,x)^{1/3}\left((b\,c-a\,d)^{1/3}-b^{1/3}\,(c+d\,x)^{1/3}\right)}{\left((b\,c-a\,d)^{1/3}-\left(1+\sqrt{3}\right)b^{1/3}\,(c+d\,x)^{1/3}\right)^2}}\right)$$

Result (type 5, 139 leaves):

$$-\left(\left(2\left(27 a^2 d^2+2 a b d (8 c+35 d x)+b^2\left(-3 c^2+10 c d x+40 d^2 x^2\right)-16 b d (a+b x) \sqrt{\frac{d (a+b x)}{-b c+a d}} (c+d x) \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{5}{6}, \frac{11}{6}, \frac{b (c+d x)}{b c-a d}\right]\right)\right) \Big/ \left(9 (-b c+a d)^3 (a+b x)^{3/2} (c+d x)^{1/6}\right)\right)$$

Problem 1766: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^{1/6} (c+d x)^{13/6} \, dx$$

Optimal (type 5, 84 leaves, 2 steps):

$$\frac{6 (b c-a d)^2 (a+b x)^{7/6} (c+d x)^{1/6} \text{Hypergeometric2F1}\left[-\frac{13}{6}, \frac{7}{6}, \frac{13}{6}, -\frac{d (a+b x)}{b c-a d}\right]}{7 b^3 \left(\frac{b (c+d x)}{b c-a d}\right)^{1/6}}$$

Result (type 5, 182 leaves):

$$-\frac{1}{2240 b^3 d^2 (a+b x)^{5/6}} 3 (c+d x)^{1/6} \left(-d (a+b x) \left(91 a^3 d^3-13 a^2 b d^2 (23 c+2 d x)+a b^2 d \left(341 c^2+84 c d x+16 d^2 x^2\right)+b^3 \left(91 c^3+614 c^2 d x+656 c d^2 x^2+224 d^3 x^3\right)\right)+91 (b c-a d)^4 \left(\frac{d (a+b x)}{-b c+a d}\right)^{5/6} \text{Hypergeometric2F1}\left[\frac{1}{6}, \frac{5}{6}, \frac{7}{6}, \frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1772: Result unnecessarily involves higher level functions.

$$\int (a+b x)^{1/6} (c+d x)^{5/6} \, dx$$

Optimal (type 3, 427 leaves, 14 steps):

$$\frac{5\,(b\,c-a\,d)\,(a+b\,x)^{1/6}\,(c+d\,x)^{5/6}}{12\,b\,d}+\frac{(a+b\,x)^{7/6}\,(c+d\,x)^{5/6}}{2\,b}+\frac{5\,(b\,c-a\,d)^2\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2\,d^{1/6}\,(a+b\,x)^{1/6}}{\sqrt{3}\,b^{1/6}\,(c+d\,x)^{1/6}}\right]}{24\,\sqrt{3}\,b^{11/6}\,d^{7/6}}-\frac{5\,(b\,c-a\,d)^2\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,d^{1/6}\,(a+b\,x)^{1/6}}{\sqrt{3}\,b^{1/6}\,(c+d\,x)^{1/6}}\right]}{24\,\sqrt{3}\,b^{11/6}\,d^{7/6}}-\frac{5\,(b\,c-a\,d)^2\,\text{ArcTanh}\left[\frac{d^{1/6}\,(a+b\,x)^{1/6}}{b^{1/6}\,(c+d\,x)^{1/6}}\right]}{36\,b^{11/6}\,d^{7/6}}+\frac{5\,(b\,c-a\,d)^2\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{(c+d\,x)^{1/3}}-\frac{b^{1/6}\,d^{1/6}\,(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\right]}{144\,b^{11/6}\,d^{7/6}}-\frac{5\,(b\,c-a\,d)^2\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{(c+d\,x)^{1/3}}+\frac{b^{1/6}\,d^{1/6}\,(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\right]}{144\,b^{11/6}\,d^{7/6}}$$

Result (type 5, 109 leaves):

$$\frac{1}{12\,b\,d^2\,(a+b\,x)^{5/6}}(c+d\,x)^{5/6}\left(d\,(a+b\,x)\,(5\,b\,c+a\,d+6\,b\,d\,x)-(b\,c-a\,d)^2\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{5/6}\text{Hypergeometric2F1}\left[\frac{5}{6},\frac{5}{6},\frac{11}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1773: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\,dx$$

Optimal (type 3, 378 leaves, 13 steps):

$$\frac{(a+b\,x)^{1/6}\,(c+d\,x)^{5/6}}{d}+\frac{(b\,c-a\,d)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2\,d^{1/6}\,(a+b\,x)^{1/6}}{\sqrt{3}\,b^{1/6}\,(c+d\,x)^{1/6}}\right]}{2\,\sqrt{3}\,b^{5/6}\,d^{7/6}}-\frac{(b\,c-a\,d)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,d^{1/6}\,(a+b\,x)^{1/6}}{\sqrt{3}\,b^{1/6}\,(c+d\,x)^{1/6}}\right]}{2\,\sqrt{3}\,b^{5/6}\,d^{7/6}}-\frac{(b\,c-a\,d)\,\text{ArcTanh}\left[\frac{d^{1/6}\,(a+b\,x)^{1/6}}{b^{1/6}\,(c+d\,x)^{1/6}}\right]}{3\,b^{5/6}\,d^{7/6}}+\frac{(b\,c-a\,d)\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{(c+d\,x)^{1/3}}-\frac{b^{1/6}\,d^{1/6}\,(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\right]}{12\,b^{5/6}\,d^{7/6}}-\frac{(b\,c-a\,d)\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{(c+d\,x)^{1/3}}+\frac{b^{1/6}\,d^{1/6}\,(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\right]}{12\,b^{5/6}\,d^{7/6}}$$

Result (type 5, 76 leaves):

$$\frac{(a+b\,x)^{1/6}\,(c+d\,x)^{5/6}\left(5+\frac{\text{Hypergeometric2F1}\left[\frac{5}{6},\frac{5}{6},\frac{11}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/6}}\right)}{5\,d}$$

Problem 1774: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{1/6}}{(c+d\,x)^{7/6}}\,dx$$

Optimal (type 3, 332 leaves, 13 steps):

$$-\frac{6\,(a+b\,x)^{1/6}}{d\,(c+d\,x)^{1/6}}-\frac{\sqrt{3}\,b^{1/6}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2\,d^{1/6}\,(a+b\,x)^{1/6}}{\sqrt{3}\,b^{1/6}\,(c+d\,x)^{1/6}}\right]}{d^{7/6}}+\frac{\sqrt{3}\,b^{1/6}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,d^{1/6}\,(a+b\,x)^{1/6}}{\sqrt{3}\,b^{1/6}\,(c+d\,x)^{1/6}}\right]}{d^{7/6}}+$$

$$\frac{2\,b^{1/6}\,\text{ArcTanh}\left[\frac{d^{1/6}\,(a+b\,x)^{1/6}}{b^{1/6}\,(c+d\,x)^{1/6}}\right]}{d^{7/6}}-\frac{b^{1/6}\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{(c+d\,x)^{1/3}}-\frac{b^{1/6}\,d^{1/6}\,(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\right]}{2\,d^{7/6}}+\frac{b^{1/6}\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{(c+d\,x)^{1/3}}+\frac{b^{1/6}\,d^{1/6}\,(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\right]}{2\,d^{7/6}}$$

Result (type 5, 89 leaves):

$$\frac{6\left(-5\,d\,(a+b\,x)+b\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{5/6}(c+d\,x)\,\text{Hypergeometric2F1}\left[\frac{5}{6},\frac{5}{6},\frac{11}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{5\,d^2\,(a+b\,x)^{5/6}\,(c+d\,x)^{1/6}}$$

Problem 1779: Result unnecessarily involves higher level functions.

$$\int (a+b\,x)^{5/6}\,(c+d\,x)^{1/6}\,dx$$

Optimal (type 3, 427 leaves, 14 steps):

$$\frac{(b\,c-a\,d)\,(a+b\,x)^{5/6}\,(c+d\,x)^{1/6}}{12\,b\,d}+\frac{(a+b\,x)^{11/6}\,(c+d\,x)^{1/6}}{2\,b}-\frac{5\,(b\,c-a\,d)^2\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2\,d^{1/6}\,(a+b\,x)^{1/6}}{\sqrt{3}\,b^{1/6}\,(c+d\,x)^{1/6}}\right]}{24\,\sqrt{3}\,b^{7/6}\,d^{11/6}}+$$

$$\frac{5\,(b\,c-a\,d)^2\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,d^{1/6}\,(a+b\,x)^{1/6}}{\sqrt{3}\,b^{1/6}\,(c+d\,x)^{1/6}}\right]}{24\,\sqrt{3}\,b^{7/6}\,d^{11/6}}-\frac{5\,(b\,c-a\,d)^2\,\text{ArcTanh}\left[\frac{d^{1/6}\,(a+b\,x)^{1/6}}{b^{1/6}\,(c+d\,x)^{1/6}}\right]}{36\,b^{7/6}\,d^{11/6}}+$$

$$\frac{5\,(b\,c-a\,d)^2\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{(c+d\,x)^{1/3}}-\frac{b^{1/6}\,d^{1/6}\,(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\right]}{144\,b^{7/6}\,d^{11/6}}-\frac{5\,(b\,c-a\,d)^2\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{(c+d\,x)^{1/3}}+\frac{b^{1/6}\,d^{1/6}\,(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\right]}{144\,b^{7/6}\,d^{11/6}}$$

Result (type 5, 109 leaves):

$$\frac{1}{12\,b\,d^2\,(a+b\,x)^{1/6}}(c+d\,x)^{1/6}\left(d\,(a+b\,x)\,(5\,a\,d+b\,(c+6\,d\,x))-5\,(b\,c-a\,d)^2\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/6}\text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{6},\frac{7}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)$$

Problem 1780: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b\,x)^{5/6}}{(c+d\,x)^{5/6}}\,dx$$

Optimal (type 3, 378 leaves, 13 steps):

$$\frac{(a+b x)^{5/6} (c+d x)^{1/6}}{d}-\frac{5 (b c-a d) \text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3} b^{1/6} (c+d x)^{1/6}}\right]}{2 \sqrt{3} b^{1/6} d^{11/6}}+\frac{5 (b c-a d) \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3} b^{1/6} (c+d x)^{1/6}}\right]}{2 \sqrt{3} b^{1/6} d^{11/6}}-\frac{5 (b c-a d) \text{ArcTanh}\left[\frac{d^{1/6} (a+b x)^{1/6}}{b^{1/6} (c+d x)^{1/6}}\right]}{3 b^{1/6} d^{11/6}}+\frac{5 (b c-a d) \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}-\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{12 b^{1/6} d^{11/6}}-\frac{5 (b c-a d) \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}+\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{12 b^{1/6} d^{11/6}}$$

Result (type 5, 74 leaves):

$$\frac{(a+b x)^{5/6} (c+d x)^{1/6} \left(1+\frac{5 \text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{6},\frac{7}{6},\frac{b (c+d x)}{b c-a d}\right]}{\left(\frac{d (a+b x)}{-b c+a d}\right)^{5/6}}\right)}{d}$$

Problem 1781: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{5/6}}{(c+d x)^{11/6}} \, dx$$

Optimal (type 3, 334 leaves, 13 steps):

$$-\frac{6 (a+b x)^{5/6}}{5 d (c+d x)^{5/6}}+\frac{\sqrt{3} b^{5/6} \text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3} b^{1/6} (c+d x)^{1/6}}\right]}{d^{11/6}}-\frac{\sqrt{3} b^{5/6} \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3} b^{1/6} (c+d x)^{1/6}}\right]}{d^{11/6}}+\frac{2 b^{5/6} \text{ArcTanh}\left[\frac{d^{1/6} (a+b x)^{1/6}}{b^{1/6} (c+d x)^{1/6}}\right]}{d^{11/6}}-\frac{b^{5/6} \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}-\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{2 d^{11/6}}+\frac{b^{5/6} \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}+\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{2 d^{11/6}}$$

Result (type 5, 90 leaves):

$$\frac{-6 d (a+b x)+30 b \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/6} (c+d x) \text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{6},\frac{7}{6},\frac{b (c+d x)}{b c-a d}\right]}{5 d^2 (a+b x)^{1/6} (c+d x)^{5/6}}$$

Problem 1792: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^{7/6} (c+d x)^{13/6} \, dx$$

Optimal (type 5, 84 leaves, 2 steps):

$$\frac{6 (b c-a d)^2 (a+b x)^{13/6} (c+d x)^{1/6} \text{Hypergeometric2F1}\left[-\frac{13}{6},\frac{13}{6},\frac{19}{6},-\frac{d (a+b x)}{b c-a d}\right]}{13 b^3 \left(\frac{b (c+d x)}{b c-a d}\right)^{1/6}}$$

Result (type 5, 234 leaves):

$$-\frac{1}{8320\, b^3\, d^3\, (a+b\,x)^{5/6}} 3\, (c+d\,x)^{1/6} \Big(-d\,(a+b\,x)\,\big(91\,a^4\,d^4-26\,a^3\,b\,d^3\,(15\,c+d\,x)+2\,a^2\,b^2\,d^2\,(320\,c^2+55\,c\,d\,x+8\,d^2\,x^2)+2\,a\,b^3\,d\,(195\,c^3+1225\,c^2\,d\,x+1280\,c\,d^2\,x^2+432\,d^3\,x^3)+b^4\,(-91\,c^4+26\,c^3\,d\,x+1264\,c^2\,d^2\,x^2+1696\,c\,d^3\,x^3+640\,d^4\,x^4)\big)-91\,(b\,c-a\,d)^5\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{5/6} \text{Hypergeometric2F1}\left[\frac{1}{6},\frac{5}{6},\frac{7}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\Big)$$

Problem 1793: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^{7/6}\,(c+d\,x)^{7/6}\,dx$$

Optimal (type 5, 82 leaves, 2 steps):

$$\frac{6\,(b\,c-a\,d)\,(a+b\,x)^{13/6}\,(c+d\,x)^{1/6}\,\text{Hypergeometric2F1}\left[-\frac{7}{6},\frac{13}{6},\frac{19}{6},-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]}{13\,b^2\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{1/6}}$$

Result (type 5, 183 leaves):

$$\frac{1}{320\,b^2\,d^3\,(a+b\,x)^{5/6}} 3\,(c+d\,x)^{1/6}\Big(-d\,(a+b\,x)\,\big(7\,a^3\,d^3-a^2\,b\,d^2\,(23\,c+2\,d\,x)-a\,b^2\,d\,(23\,c^2+92\,c\,d\,x+48\,d^2\,x^2)+b^3\,(7\,c^3-2\,c^2\,d\,x-48\,c\,d^2\,x^2-32\,d^3\,x^3)\big)+7\,(b\,c-a\,d)^4\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{5/6}\text{Hypergeometric2F1}\left[\frac{1}{6},\frac{5}{6},\frac{7}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\Big)$$

Problem 1798: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b\,x)^{7/6}}{(c+d\,x)^{1/6}}\,dx$$

Optimal (type 3, 424 leaves, 14 steps):

$$-\frac{7(bc-ad)(a+bx)^{1/6}(c+dx)^{5/6}}{12d^2}+\frac{(a+bx)^{7/6}(c+dx)^{5/6}}{2d}-\frac{7(bc-ad)^2\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2d^{1/6}(a+bx)^{1/6}}{\sqrt{3}\,b^{1/6}(c+dx)^{1/6}}\right]}{24\sqrt{3}\,b^{5/6}d^{13/6}}+$$
$$\frac{7(bc-ad)^2\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2d^{1/6}(a+bx)^{1/6}}{\sqrt{3}\,b^{1/6}(c+dx)^{1/6}}\right]}{24\sqrt{3}\,b^{5/6}d^{13/6}}+\frac{7(bc-ad)^2\,\text{ArcTanh}\left[\frac{d^{1/6}(a+bx)^{1/6}}{b^{1/6}(c+dx)^{1/6}}\right]}{36\,b^{5/6}d^{13/6}}-$$
$$\frac{7(bc-ad)^2\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}(a+bx)^{1/3}}{(c+dx)^{1/3}}-\frac{b^{1/6}d^{1/6}(a+bx)^{1/6}}{(c+dx)^{1/6}}\right]}{144\,b^{5/6}d^{13/6}}+\frac{7(bc-ad)^2\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}(a+bx)^{1/3}}{(c+dx)^{1/3}}+\frac{b^{1/6}d^{1/6}(a+bx)^{1/6}}{(c+dx)^{1/6}}\right]}{144\,b^{5/6}d^{13/6}}$$

Result (type 5, 108 leaves):

$$\frac{1}{60d^3(a+bx)^{5/6}}(c+dx)^{5/6}\left(5d(a+bx)(-7bc+13ad+6bdx)+7(bc-ad)^2\left(\frac{d(a+bx)}{-bc+ad}\right)^{5/6}\text{Hypergeometric2F1}\left[\frac{5}{6},\frac{5}{6},\frac{11}{6},\frac{b(c+dx)}{bc-ad}\right]\right)$$

Problem 1799: Result unnecessarily involves higher level functions.

$$\int\frac{(a+bx)^{7/6}}{(c+dx)^{7/6}}\,dx$$

Optimal (type 3, 403 leaves, 14 steps):

$$-\frac{6(a+bx)^{7/6}}{d(c+dx)^{1/6}}+\frac{7b(a+bx)^{1/6}(c+dx)^{5/6}}{d^2}+\frac{7b^{1/6}(bc-ad)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2d^{1/6}(a+bx)^{1/6}}{\sqrt{3}\,b^{1/6}(c+dx)^{1/6}}\right]}{2\sqrt{3}\,d^{13/6}}-$$
$$\frac{7b^{1/6}(bc-ad)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2d^{1/6}(a+bx)^{1/6}}{\sqrt{3}\,b^{1/6}(c+dx)^{1/6}}\right]}{2\sqrt{3}\,d^{13/6}}-\frac{7b^{1/6}(bc-ad)\,\text{ArcTanh}\left[\frac{d^{1/6}(a+bx)^{1/6}}{b^{1/6}(c+dx)^{1/6}}\right]}{3d^{13/6}}+$$
$$\frac{7b^{1/6}(bc-ad)\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}(a+bx)^{1/3}}{(c+dx)^{1/3}}-\frac{b^{1/6}d^{1/6}(a+bx)^{1/6}}{(c+dx)^{1/6}}\right]}{12d^{13/6}}-\frac{7b^{1/6}(bc-ad)\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}(a+bx)^{1/3}}{(c+dx)^{1/3}}+\frac{b^{1/6}d^{1/6}(a+bx)^{1/6}}{(c+dx)^{1/6}}\right]}{12d^{13/6}}$$

Result (type 5, 99 leaves):

$$\frac{(a+bx)^{1/6}(c+dx)^{5/6}\left(\frac{5(7bc-6ad+bdx)}{c+dx}+\frac{7b\,\text{Hypergeometric2F1}\left[\frac{5}{6},\frac{5}{6},\frac{11}{6},\frac{b(c+dx)}{bc-ad}\right]}{\left(\frac{d(a+bx)}{-bc+ad}\right)^{1/6}}\right)}{5d^2}$$

Problem 1800: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{7/6}}{(c+d x)^{13/6}}\,dx$$

Optimal (type 3, 358 leaves, 14 steps):

$$-\frac{6 (a+b x)^{7/6}}{7 d (c+d x)^{7/6}}-\frac{6 b (a+b x)^{1/6}}{d^2 (c+d x)^{1/6}}-\frac{\sqrt{3}\, b^{7/6} \text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3}\, b^{1/6} (c+d x)^{1/6}}\right]}{d^{13/6}}+\frac{\sqrt{3}\, b^{7/6} \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3}\, b^{1/6} (c+d x)^{1/6}}\right]}{d^{13/6}}+\frac{2 b^{7/6} \text{ArcTanh}\left[\frac{d^{1/6} (a+b x)^{1/6}}{b^{1/6} (c+d x)^{1/6}}\right]}{d^{13/6}}-\frac{b^{7/6} \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}-\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{2 d^{13/6}}+\frac{b^{7/6} \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}+\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{2 d^{13/6}}$$

Result (type 5, 107 leaves):

$$\frac{-30 d (a+b x) (7 b c+a d+8 b d x)+42 b^2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{5/6} (c+d x)^2 \text{Hypergeometric2F1}\left[\frac{5}{6},\frac{5}{6},\frac{11}{6},\frac{b (c+d x)}{b c-a d}\right]}{35 d^3 (a+b x)^{5/6} (c+d x)^{7/6}}$$

Problem 1805: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{7/6}}{(a+b x)^{1/6}}\,dx$$

Optimal (type 3, 424 leaves, 14 steps):

$$\frac{7 (b c-a d) (a+b x)^{5/6} (c+d x)^{1/6}}{12 b^2}+\frac{(a+b x)^{5/6} (c+d x)^{7/6}}{2 b}+\frac{7 (b c-a d)^2 \text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3}\, b^{1/6} (c+d x)^{1/6}}\right]}{24 \sqrt{3}\, b^{13/6} d^{5/6}}-\frac{7 (b c-a d)^2 \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3}\, b^{1/6} (c+d x)^{1/6}}\right]}{24 \sqrt{3}\, b^{13/6} d^{5/6}}+\frac{7 (b c-a d)^2 \text{ArcTanh}\left[\frac{d^{1/6} (a+b x)^{1/6}}{b^{1/6} (c+d x)^{1/6}}\right]}{36 b^{13/6} d^{5/6}}-\frac{7 (b c-a d)^2 \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}-\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{144 b^{13/6} d^{5/6}}+\frac{7 (b c-a d)^2 \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}+\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{144 b^{13/6} d^{5/6}}$$

Result (type 5, 111 leaves):

$$\frac{1}{12 b^2 d (a+b x)^{1/6}} (c+d x)^{1/6} \left(-d (a+b x) (-13 b c+7 a d-6 b d x)+7 (b c-a d)^2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/6} \text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{6},\frac{7}{6},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1806: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d\,x)^{1/6}}{(a+b\,x)^{1/6}}\,dx$$

Optimal (type 3, 378 leaves, 13 steps):

$$\frac{(a+b\,x)^{5/6}\,(c+d\,x)^{1/6}}{b}+\frac{(b\,c-a\,d)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2\,d^{1/6}\,(a+b\,x)^{1/6}}{\sqrt{3}\,b^{1/6}\,(c+d\,x)^{1/6}}\right]}{2\,\sqrt{3}\,b^{7/6}\,d^{5/6}}-\frac{(b\,c-a\,d)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,d^{1/6}\,(a+b\,x)^{1/6}}{\sqrt{3}\,b^{1/6}\,(c+d\,x)^{1/6}}\right]}{2\,\sqrt{3}\,b^{7/6}\,d^{5/6}}+$$
$$\frac{(b\,c-a\,d)\,\text{ArcTanh}\left[\frac{d^{1/6}\,(a+b\,x)^{1/6}}{b^{1/6}\,(c+d\,x)^{1/6}}\right]}{3\,b^{7/6}\,d^{5/6}}-\frac{(b\,c-a\,d)\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{(c+d\,x)^{1/3}}-\frac{b^{1/6}\,d^{1/6}\,(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\right]}{12\,b^{7/6}\,d^{5/6}}+\frac{(b\,c-a\,d)\,\text{Log}\left[b^{1/3}+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{(c+d\,x)^{1/3}}+\frac{b^{1/6}\,d^{1/6}\,(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\right]}{12\,b^{7/6}\,d^{5/6}}$$

Result (type 5, 90 leaves):

$$\frac{(c+d\,x)^{1/6}\left(d\,(a+b\,x)+(b\,c-a\,d)\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/6}\text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{6},\frac{7}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{b\,d\,(a+b\,x)^{1/6}}$$

Problem 1807: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b\,x)^{1/6}\,(c+d\,x)^{5/6}}\,dx$$

Optimal (type 3, 309 leaves, 12 steps):

$$\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2\,d^{1/6}\,(a+b\,x)^{1/6}}{\sqrt{3}\,b^{1/6}\,(c+d\,x)^{1/6}}\right]}{b^{1/6}\,d^{5/6}}-\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,d^{1/6}\,(a+b\,x)^{1/6}}{\sqrt{3}\,b^{1/6}\,(c+d\,x)^{1/6}}\right]}{b^{1/6}\,d^{5/6}}+$$
$$\frac{2\,\text{ArcTanh}\left[\frac{d^{1/6}\,(a+b\,x)^{1/6}}{b^{1/6}\,(c+d\,x)^{1/6}}\right]}{b^{1/6}\,d^{5/6}}-\frac{\text{Log}\left[b^{1/3}+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{(c+d\,x)^{1/3}}-\frac{b^{1/6}\,d^{1/6}\,(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\right]}{2\,b^{1/6}\,d^{5/6}}+\frac{\text{Log}\left[b^{1/3}+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{(c+d\,x)^{1/3}}+\frac{b^{1/6}\,d^{1/6}\,(a+b\,x)^{1/6}}{(c+d\,x)^{1/6}}\right]}{2\,b^{1/6}\,d^{5/6}}$$

Result (type 5, 71 leaves):

$$\frac{6\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/6}(c+d\,x)^{1/6}\,\text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{6},\frac{7}{6},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{d\,(a+b\,x)^{1/6}}$$

Problem 1824: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{11/6}}{(a+b x)^{5/6}} \, dx$$

Optimal (type 3, 424 leaves, 14 steps):

$$\frac{11 (b c-a d) (a+b x)^{1/6} (c+d x)^{5/6}}{12 b^2}+\frac{(a+b x)^{1/6} (c+d x)^{11/6}}{2 b}-\frac{55 (b c-a d)^2 \text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3} b^{1/6} (c+d x)^{1/6}}\right]}{24 \sqrt{3} b^{17/6} d^{1/6}}+$$
$$\frac{55 (b c-a d)^2 \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3} b^{1/6} (c+d x)^{1/6}}\right]}{24 \sqrt{3} b^{17/6} d^{1/6}}+\frac{55 (b c-a d)^2 \text{ArcTanh}\left[\frac{d^{1/6} (a+b x)^{1/6}}{b^{1/6} (c+d x)^{1/6}}\right]}{36 b^{17/6} d^{1/6}}-$$
$$\frac{55 (b c-a d)^2 \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}-\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{144 b^{17/6} d^{1/6}}+\frac{55 (b c-a d)^2 \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}+\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{144 b^{17/6} d^{1/6}}$$

Result (type 5, 111 leaves):

$$\frac{1}{12 b^2 d (a+b x)^{5/6}}(c+d x)^{5/6} \left(-d (a+b x) (-17 b c+11 a d-6 b d x)+11 (b c-a d)^2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{5/6} \text{Hypergeometric2F1}\left[\frac{5}{6},\frac{5}{6},\frac{11}{6},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1825: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{5/6}}{(a+b x)^{5/6}} \, dx$$

Optimal (type 3, 378 leaves, 13 steps):

$$\frac{(a+b x)^{1/6} (c+d x)^{5/6}}{b}-\frac{5 (b c-a d) \text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3} b^{1/6} (c+d x)^{1/6}}\right]}{2 \sqrt{3} b^{11/6} d^{1/6}}+\frac{5 (b c-a d) \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3} b^{1/6} (c+d x)^{1/6}}\right]}{2 \sqrt{3} b^{11/6} d^{1/6}}+$$
$$\frac{5 (b c-a d) \text{ArcTanh}\left[\frac{d^{1/6} (a+b x)^{1/6}}{b^{1/6} (c+d x)^{1/6}}\right]}{3 b^{11/6} d^{1/6}}-\frac{5 (b c-a d) \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}-\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{12 b^{11/6} d^{1/6}}+\frac{5 (b c-a d) \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}+\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{12 b^{11/6} d^{1/6}}$$

Result (type 5, 90 leaves):

$$\frac{(c+d x)^{5/6} \left(d (a+b x)+(b c-a d) \left(\frac{d (a+b x)}{-b c+a d}\right)^{5/6} \text{Hypergeometric2F1}\left[\frac{5}{6},\frac{5}{6},\frac{11}{6},\frac{b (c+d x)}{b c-a d}\right]\right)}{b d (a+b x)^{5/6}}$$

Problem 1826: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{5/6} (c+d x)^{1/6}} \, dx$$

Optimal (type 3, 309 leaves, 12 steps):

$$-\frac{\sqrt{3}\ \text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3}\ b^{1/6} (c+d x)^{1/6}}\right]}{b^{5/6} d^{1/6}}+\frac{\sqrt{3}\ \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3}\ b^{1/6} (c+d x)^{1/6}}\right]}{b^{5/6} d^{1/6}}+$$
$$\frac{2\ \text{ArcTanh}\left[\frac{d^{1/6} (a+b x)^{1/6}}{b^{1/6} (c+d x)^{1/6}}\right]}{b^{5/6} d^{1/6}}-\frac{\text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}-\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{2 b^{5/6} d^{1/6}}+\frac{\text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}+\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{2 b^{5/6} d^{1/6}}$$

Result (type 5, 73 leaves):

$$\frac{6 \left(\frac{d (a+b x)}{-b c+a d}\right)^{5/6} (c+d x)^{5/6}\ \text{Hypergeometric2F1}\left[\frac{5}{6}, \frac{5}{6}, \frac{11}{6}, \frac{b (c+d x)}{b c-a d}\right]}{5 d (a+b x)^{5/6}}$$

Problem 1831: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{13/6}}{(a+b x)^{7/6}} \, dx$$

Optimal (type 3, 449 leaves, 15 steps):

$$\frac{91 d (b c-a d) (a+b x)^{5/6} (c+d x)^{1/6}}{12 b^3}+\frac{13 d (a+b x)^{5/6} (c+d x)^{7/6}}{2 b^2}-\frac{6 (c+d x)^{13/6}}{b (a+b x)^{1/6}}+$$
$$\frac{91 d^{1/6} (b c-a d)^2\ \text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3}\ b^{1/6} (c+d x)^{1/6}}\right]}{24 \sqrt{3}\ b^{19/6}}-\frac{91 d^{1/6} (b c-a d)^2\ \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3}\ b^{1/6} (c+d x)^{1/6}}\right]}{24 \sqrt{3}\ b^{19/6}}+\frac{91 d^{1/6} (b c-a d)^2\ \text{ArcTanh}\left[\frac{d^{1/6} (a+b x)^{1/6}}{b^{1/6} (c+d x)^{1/6}}\right]}{36 b^{19/6}}-$$
$$\frac{91 d^{1/6} (b c-a d)^2\ \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}-\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{144 b^{19/6}}+\frac{91 d^{1/6} (b c-a d)^2\ \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}+\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{144 b^{19/6}}$$

Result (type 5, 129 leaves):

$$\frac{1}{12 b^3 (a+b x)^{1/6}} (c+d x)^{1/6}$$
$$\left(-91 a^2 d^2-13 a b d (-13 c+d x)+b^2 \left(-72 c^2+25 c d x+6 d^2 x^2\right)+91 (b c-a d)^2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/6}\ \text{Hypergeometric2F1}\left[\frac{1}{6}, \frac{1}{6}, \frac{7}{6}, \frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 1832: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{7/6}}{(a+b x)^{7/6}} \, dx$$

Optimal (type 3, 403 leaves, 14 steps):

$$\frac{7 d (a+b x)^{5/6} (c+d x)^{1/6}}{b^2}-\frac{6 (c+d x)^{7/6}}{b (a+b x)^{1/6}}+\frac{7 d^{1/6} (b c-a d) \text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3} b^{1/6} (c+d x)^{1/6}}\right]}{2 \sqrt{3} b^{13/6}}-\frac{7 d^{1/6} (b c-a d) \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3} b^{1/6} (c+d x)^{1/6}}\right]}{2 \sqrt{3} b^{13/6}}+\frac{7 d^{1/6} (b c-a d) \text{ArcTanh}\left[\frac{d^{1/6} (a+b x)^{1/6}}{b^{1/6} (c+d x)^{1/6}}\right]}{3 b^{13/6}}-\frac{7 d^{1/6} (b c-a d) \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}-\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{12 b^{13/6}}+\frac{7 d^{1/6} (b c-a d) \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}+\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{12 b^{13/6}}$$

Result (type 5, 93 leaves):

$$\frac{(c+d x)^{1/6} \left(-6 b c+7 a d+b d x+7 (b c-a d) \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/6} \text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{6},\frac{7}{6},\frac{b (c+d x)}{b c-a d}\right]\right)}{b^2 (a+b x)^{1/6}}$$

Problem 1833: Result unnecessarily involves higher level functions.

$$\int \frac{(c+d x)^{1/6}}{(a+b x)^{7/6}} \, dx$$

Optimal (type 3, 332 leaves, 13 steps):

$$-\frac{6 (c+d x)^{1/6}}{b (a+b x)^{1/6}}+\frac{\sqrt{3} d^{1/6} \text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3} b^{1/6} (c+d x)^{1/6}}\right]}{b^{7/6}}-\frac{\sqrt{3} d^{1/6} \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/6} (a+b x)^{1/6}}{\sqrt{3} b^{1/6} (c+d x)^{1/6}}\right]}{b^{7/6}}+\frac{2 d^{1/6} \text{ArcTanh}\left[\frac{d^{1/6} (a+b x)^{1/6}}{b^{1/6} (c+d x)^{1/6}}\right]}{b^{7/6}}-\frac{d^{1/6} \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}-\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{2 b^{7/6}}+\frac{d^{1/6} \text{Log}\left[b^{1/3}+\frac{d^{1/3} (a+b x)^{1/3}}{(c+d x)^{1/3}}+\frac{b^{1/6} d^{1/6} (a+b x)^{1/6}}{(c+d x)^{1/6}}\right]}{2 b^{7/6}}$$

Result (type 5, 74 leaves):

$$\frac{6 (c+d x)^{1/6} \left(-1+\left(\frac{d (a+b x)}{-b c+a d}\right)^{1/6} \text{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{6},\frac{7}{6},\frac{b (c+d x)}{b c-a d}\right]\right)}{b (a+b x)^{1/6}}$$

Problem 1843: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(a+b x)^{7/6} (c+d x)^{19/6}} \, dx$$

Optimal (type 5, 82 leaves, 2 steps):

$$-\frac{6 b^2 \left(\frac{b (c+d x)}{b c-a d}\right)^{1/6} \text{Hypergeometric2F1}\left[-\frac{1}{6}, \frac{19}{6}, \frac{5}{6}, -\frac{d (a+b x)}{b c-a d}\right]}{(b c-a d)^3 (a+b x)^{1/6} (c+d x)^{1/6}}$$

Result (type 5, 179 leaves):

$$\left(-30 \left(a^3 d^3-a^2 b d^2 (5 c+2 d x)+a b^2 d \left(23 c^2+36 c d x+16 d^2 x^2\right)+b^3 \left(13 c^3+62 c^2 d x+80 c d^2 x^2+32 d^3 x^3\right)\right)+ 768 b^3 \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/6} (c+d x)^3 \text{Hypergeometric2F1}\left[\frac{1}{6}, \frac{5}{6}, \frac{11}{6}, \frac{b (c+d x)}{b c-a d}\right]\right) \Big/ \left(65 (b c-a d)^4 (a+b x)^{1/6} (c+d x)^{13/6}\right)$$

Problem 1850: Unable to integrate problem.

$$\int \frac{(a+b x)^m}{(c+d x)^2} \, dx$$

Optimal (type 5, 52 leaves, 1 step):

$$\frac{b (a+b x)^{1+m} \text{Hypergeometric2F1}\left[2, 1+m, 2+m, -\frac{d (a+b x)}{b c-a d}\right]}{(b c-a d)^2 (1+m)}$$

Result (type 8, 17 leaves):

$$\int \frac{(a+b x)^m}{(c+d x)^2} \, dx$$

Problem 1851: Unable to integrate problem.

$$\int \frac{(a+b x)^m}{(c+d x)^3} \, dx$$

Optimal (type 5, 54 leaves, 1 step):

$$\frac{b^2 (a+b x)^{1+m} \text{Hypergeometric2F1}\left[3,1+m,2+m,-\frac{d (a+b x)}{b c-a d}\right]}{(b c-a d)^3 (1+m)}$$

Result (type 8, 17 leaves):

$$\int \frac{(a+b x)^m}{(c+d x)^3} \, dx$$

Problem 1857: Unable to integrate problem.

$$\int \frac{(c+d x)^n}{(a+b x)^2} \, dx$$

Optimal (type 5, 51 leaves, 1 step):

$$\frac{d (c+d x)^{1+n} \text{Hypergeometric2F1}\left[2,1+n,2+n,\frac{b (c+d x)}{b c-a d}\right]}{(b c-a d)^2 (1+n)}$$

Result (type 8, 17 leaves):

$$\int \frac{(c+d x)^n}{(a+b x)^2} \, dx$$

Problem 1858: Unable to integrate problem.

$$\int \frac{(c+d x)^n}{(a+b x)^3} \, dx$$

Optimal (type 5, 54 leaves, 1 step):

$$-\frac{d^2 (c+d x)^{1+n} \text{Hypergeometric2F1}\left[3,1+n,2+n,\frac{b (c+d x)}{b c-a d}\right]}{(b c-a d)^3 (1+n)}$$

Result (type 8, 17 leaves):

$$\int \frac{(c+d x)^n}{(a+b x)^3} \, dx$$

Problem 1864: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b x)^{1+n} (c+d x)^{-n} \, dx$$

Optimal (type 5, 72 leaves, 2 steps):

$$\frac{(a+b x)^{2+n} (c+d x)^{-n} \left(\frac{b (c+d x)}{b c-a d}\right)^n \text{Hypergeometric2F1}\left[n, 2+n, 3+n, -\frac{d (a+b x)}{b c-a d}\right]}{b (2+n)}$$

Result (type 6, 200 leaves):

$$a (a+b x)^n (c+d x)^{-n} \left(\left(3 b c x^2 \text{AppellF1}\left[2, -n, n, 3, -\frac{b x}{a}, -\frac{d x}{c}\right]\right) \Big/ \left(6 a c \text{AppellF1}\left[2, -n, n, 3, -\frac{b x}{a}, -\frac{d x}{c}\right] + 2 n x \left(b c \text{AppellF1}\left[3, 1-n, n, 4, -\frac{b x}{a}, -\frac{d x}{c}\right] - a d \text{AppellF1}\left[3, -n, 1+n, 4, -\frac{b x}{a}, -\frac{d x}{c}\right]\right)\right) - \frac{\left(\frac{d (a+b x)}{-b c+a d}\right)^{-n} (c+d x) \text{Hypergeometric2F1}\left[1-n, -n, 2-n, \frac{b (c+d x)}{b c-a d}\right]}{d (-1+n)}\right)$$

Problem 1865: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b x)^{2+n} (c+d x)^{-n} \, dx$$

Optimal (type 5, 72 leaves, 2 steps):

$$\frac{(a+b x)^{3+n} (c+d x)^{-n} \left(\frac{b (c+d x)}{b c-a d}\right)^n \text{Hypergeometric2F1}\left[n, 3+n, 4+n, -\frac{d (a+b x)}{b c-a d}\right]}{b (3+n)}$$

Result (type 6, 317 leaves):

$$a\,(a+b\,x)^n\,(c+d\,x)^{-n}\left(\left(3\,a\,b\,c\,x^2\,\text{AppellF1}\left[2,-n,n,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/\left(3\,a\,c\,\text{AppellF1}\left[2,-n,n,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+n\,x\left(b\,c\,\text{AppellF1}\left[3,1-n,n,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-a\,d\,\text{AppellF1}\left[3,-n,1+n,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)+\left(4\,b^2\,c\,x^3\,\text{AppellF1}\left[3,-n,n,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/\left(12\,a\,c\,\text{AppellF1}\left[3,-n,n,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+3\,b\,c\,n\,x\,\text{AppellF1}\left[4,1-n,n,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-3\,a\,d\,n\,x\,\text{AppellF1}\left[4,-n,1+n,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)-\frac{a\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-n}(c+d\,x)\,\text{Hypergeometric2F1}\left[1-n,-n,2-n,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{d\,(-1+n)}\right)$$

Problem 1882: Result unnecessarily involves higher level functions.

$$\int (a+b\,x)^m\,(a\,c\,(1+m)+b\,c\,(2+m)\,x)^{-3-m}\,dx$$

Optimal (type 3, 95 leaves, 2 steps):

$$-\frac{(a+b\,x)^{1+m}\,(a\,c\,(1+m)+b\,c\,(2+m)\,x)^{-2-m}}{a\,b\,c\,(2+m)}+\frac{(a+b\,x)^{1+m}\,(a\,c\,(1+m)+b\,c\,(2+m)\,x)^{-1-m}}{a^2\,b\,c^2\,(1+m)\,(2+m)}$$

Result (type 5, 82 leaves):

$$-\frac{1}{a^3\,b\,c^3\,(1+m)}(a+b\,x)^{1+m}\,(c\,(a\,(1+m)+b\,(2+m)\,x))^{-m}\left(-1-m-\frac{b\,(2+m)\,x}{a}\right)^m\,\text{Hypergeometric2F1}\left[1+m,3+m,2+m,\frac{(2+m)\,(a+b\,x)}{a}\right]$$

Problem 1884: Result unnecessarily involves higher level functions.

$$\int (a+b\,x)^{\frac{-2\,b\,c+a\,d}{b\,c-a\,d}}\,(c+d\,x)^{\frac{b\,c-2\,a\,d}{-b\,c+a\,d}}\,dx$$

Optimal (type 3, 97 leaves, 2 steps):

$$-\frac{(a+b\,x)^{-\frac{b\,c}{b\,c-a\,d}}\,(c+d\,x)^{\frac{a\,d}{b\,c-a\,d}}}{b\,c}+\frac{(a+b\,x)^{-\frac{a\,d}{b\,c-a\,d}}\,(c+d\,x)^{\frac{a\,d}{b\,c-a\,d}}}{a\,b\,c}$$

Result (type 5, 159 leaves):

$$\frac{1}{a\,d^2}(b\,c-a\,d)\,(a+b\,x)^{\frac{-2\,b\,c+a\,d}{b\,c-a\,d}}\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{\frac{-2\,b\,c+a\,d}{-b\,c+a\,d}}(c+d\,x)^{\frac{a\,d}{b\,c-a\,d}}\,\text{Hypergeometric2F1}\left[\frac{a\,d}{b\,c-a\,d},\frac{-2\,b\,c+a\,d}{-b\,c+a\,d},\frac{b\,c}{b\,c-a\,d},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]$$

Test results for the 3201 problems in "1.1.1.3 (a+b x)^m (c+d x)^n (e+f x)^p.m"

Problem 7: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x) (a c-b c x)^3}{x^3} \, dx$$

Optimal (type 1, 18 leaves, 1 step):

$$-\frac{c^3 (a-b x)^4}{2 x^2}$$

Result (type 1, 41 leaves):

$$c^3 \left(-\frac{a^4}{2 x^2}+\frac{2 a^3 b}{x}+2 a b^3 x-\frac{b^4 x^2}{2}\right)$$

Problem 24: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x) (a c-b c x)^4}{x^7} \, dx$$

Optimal (type 1, 41 leaves, 2 steps):

$$-\frac{c^4 (a-b x)^5}{6 x^6}-\frac{7 b c^4 (a-b x)^5}{30 a x^5}$$

Result (type 1, 85 leaves):

$$-\frac{a^5 c^4}{6 x^6}+\frac{3 a^4 b c^4}{5 x^5}-\frac{a^3 b^2 c^4}{2 x^4}-\frac{2 a^2 b^3 c^4}{3 x^3}+\frac{3 a b^4 c^4}{2 x^2}-\frac{b^5 c^4}{x}$$

Problem 35: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x) (a c-b c x)^5}{x^4} \, dx$$

Optimal (type 1, 18 leaves, 1 step):

$$-\frac{c^5 (a-b x)^6}{3 x^3}$$

Result (type 1, 63 leaves):

$$c^5\left(-\frac{a^6}{3x^3}+\frac{2a^5 b}{x^2}-\frac{5a^4 b^2}{x}-5a^2 b^4 x+2a b^5 x^2-\frac{b^6 x^3}{3}\right)$$

Problem 45: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b x)(a c-b c x)^6}{x^9}\,dx$$

Optimal (type 1, 41 leaves, 2 steps):

$$-\frac{c^6(a-b x)^7}{8x^8}-\frac{9 b c^6(a-b x)^7}{56 a x^7}$$

Result (type 1, 112 leaves):

$$-\frac{a^7 c^6}{8x^8}+\frac{5a^6 b c^6}{7x^7}-\frac{3a^5 b^2 c^6}{2x^6}+\frac{a^4 b^3 c^6}{x^5}+\frac{5a^3 b^4 c^6}{4x^4}-\frac{3a^2 b^5 c^6}{x^3}+\frac{5 a b^6 c^6}{2x^2}-\frac{b^7 c^6}{x}$$

Problem 61: Result unnecessarily involves higher level functions.

$$\int\frac{(e x)^m}{(2-2 a x)^4(1+a x)^3}\,dx$$

Optimal (type 5, 86 leaves, 5 steps):

$$\frac{(e x)^{1+m}\,\text{Hypergeometric2F1}\left[4,\frac{1+m}{2},\frac{3+m}{2},a^2 x^2\right]}{16 e(1+m)}+\frac{a(e x)^{2+m}\,\text{Hypergeometric2F1}\left[4,\frac{2+m}{2},\frac{4+m}{2},a^2 x^2\right]}{16 e^2(2+m)}$$

Result (type 6, 120 leaves):

$$\left((2+m)\,x\,(e x)^m\,\text{AppellF1}[1+m,4,3,2+m,a x,-a x]\right)\Big/\left(16(1+m)(-1+a x)^4(1+a x)^3\left((2+m)\,\text{AppellF1}[1+m,4,3,2+m,a x,-a x]+\right.\right.$$
$$\left.\left.a x\left(4\,\text{AppellF1}[2+m,5,3,3+m,a x,-a x]-3\,\text{HypergeometricPFQ}\left[\left\{4,1+\frac{m}{2}\right\},\left\{2+\frac{m}{2}\right\},a^2 x^2\right]\right)\right)\right)$$

Problem 66: Result unnecessarily involves higher level functions.

$$\int\frac{(e x)^m}{(a+b x)^2(a d-b d x)^3}\,dx$$

Optimal (type 5, 98 leaves, 5 steps):

$$\frac{(e\,x)^{1+m}\,\text{Hypergeometric2F1}\left[3,\frac{1+m}{2},\frac{3+m}{2},\frac{b^2 x^2}{a^2}\right]}{a^5\,d^3\,e\,(1+m)}+\frac{b\,(e\,x)^{2+m}\,\text{Hypergeometric2F1}\left[3,\frac{2+m}{2},\frac{4+m}{2},\frac{b^2 x^2}{a^2}\right]}{a^6\,d^3\,e^2\,(2+m)}$$

Result (type 6, 144 leaves):

$$\left(a\,(2+m)\,x\,(e\,x)^m\,\text{AppellF1}\left[1+m,3,2,2+m,\frac{b\,x}{a},-\frac{b\,x}{a}\right]\right)\Big/\left(d^3\,(1+m)\,(a-b\,x)^3\,(a+b\,x)^2\left(a\,(2+m)\,\text{AppellF1}\left[1+m,3,2,2+m,\frac{b\,x}{a},-\frac{b\,x}{a}\right]+b\,x\left(3\,\text{AppellF1}\left[2+m,4,2,3+m,\frac{b\,x}{a},-\frac{b\,x}{a}\right]-2\,\text{HypergeometricPFQ}\left[\left\{3,1+\frac{m}{2}\right\},\left\{2+\frac{m}{2}\right\},\frac{b^2 x^2}{a^2}\right]\right)\right)\right)$$

Problem 67: Result unnecessarily involves higher level functions.

$$\int \frac{(e\,x)^m}{(a+b\,x)^3\,(a\,d-b\,d\,x)^4}\,dx$$

Optimal (type 5, 98 leaves, 5 steps):

$$\frac{(e\,x)^{1+m}\,\text{Hypergeometric2F1}\left[4,\frac{1+m}{2},\frac{3+m}{2},\frac{b^2 x^2}{a^2}\right]}{a^7\,d^4\,e\,(1+m)}+\frac{b\,(e\,x)^{2+m}\,\text{Hypergeometric2F1}\left[4,\frac{2+m}{2},\frac{4+m}{2},\frac{b^2 x^2}{a^2}\right]}{a^8\,d^4\,e^2\,(2+m)}$$

Result (type 6, 144 leaves):

$$\left(a\,(2+m)\,x\,(e\,x)^m\,\text{AppellF1}\left[1+m,4,3,2+m,\frac{b\,x}{a},-\frac{b\,x}{a}\right]\right)\Big/\left(d^4\,(1+m)\,(a-b\,x)^4\,(a+b\,x)^3\left(a\,(2+m)\,\text{AppellF1}\left[1+m,4,3,2+m,\frac{b\,x}{a},-\frac{b\,x}{a}\right]+b\,x\left(4\,\text{AppellF1}\left[2+m,5,3,3+m,\frac{b\,x}{a},-\frac{b\,x}{a}\right]-3\,\text{HypergeometricPFQ}\left[\left\{4,1+\frac{m}{2}\right\},\left\{2+\frac{m}{2}\right\},\frac{b^2 x^2}{a^2}\right]\right)\right)\right)$$

Problem 124: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^5\,(A+B\,x)\,dx$$

Optimal (type 1, 38 leaves, 2 steps):

$$\frac{(A\,b-a\,B)\,(a+b\,x)^6}{6\,b^2}+\frac{B\,(a+b\,x)^7}{7\,b^2}$$

Result (type 1, 109 leaves):

$$a^5\,A\,x+\frac{1}{2}\,a^4\,(5\,A\,b+a\,B)\,x^2+\frac{5}{3}\,a^3\,b\,(2\,A\,b+a\,B)\,x^3+\frac{5}{2}\,a^2\,b^2\,(A\,b+a\,B)\,x^4+a\,b^3\,(A\,b+2\,a\,B)\,x^5+\frac{1}{6}\,b^4\,(A\,b+5\,a\,B)\,x^6+\frac{1}{7}\,b^5\,B\,x^7$$

Problem 132: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^5 (A+B x)}{x^8} \, dx$$

Optimal (type 1, 44 leaves, 2 steps):

$$-\frac{A (a+b x)^6}{7 a x^7}+\frac{(A b-7 a B) (a+b x)^6}{42 a^2 x^6}$$

Result (type 1, 104 leaves):

$$-\frac{1}{42 x^7}\left(21 b^5 x^5 (A+2 B x)+35 a b^4 x^4 (2 A+3 B x)+35 a^2 b^3 x^3 (3 A+4 B x)+21 a^3 b^2 x^2 (4 A+5 B x)+7 a^4 b x (5 A+6 B x)+a^5 (6 A+7 B x)\right)$$

Problem 144: Result more than twice size of optimal antiderivative.

$$\int x^3 (a+b x)^{10} (A+B x) \, dx$$

Optimal (type 1, 112 leaves, 2 steps):

$$-\frac{a^3 (A b-a B) (a+b x)^{11}}{11 b^5}+\frac{a^2 (3 A b-4 a B) (a+b x)^{12}}{12 b^5}-\frac{3 a (A b-2 a B) (a+b x)^{13}}{13 b^5}+\frac{(A b-4 a B) (a+b x)^{14}}{14 b^5}+\frac{B (a+b x)^{15}}{15 b^5}$$

Result (type 1, 231 leaves):

$$\frac{1}{4} a^{10} A x^4+\frac{1}{5} a^9 (10 A b+a B) x^5+\frac{5}{6} a^8 b (9 A b+2 a B) x^6+\frac{15}{7} a^7 b^2 (8 A b+3 a B) x^7+\frac{15}{4} a^6 b^3 (7 A b+4 a B) x^8+\frac{14}{3} a^5 b^4 (6 A b+5 a B) x^9+$$
$$\frac{21}{5} a^4 b^5 (5 A b+6 a B) x^{10}+\frac{30}{11} a^3 b^6 (4 A b+7 a B) x^{11}+\frac{5}{4} a^2 b^7 (3 A b+8 a B) x^{12}+\frac{5}{13} a b^8 (2 A b+9 a B) x^{13}+\frac{1}{14} b^9 (A b+10 a B) x^{14}+\frac{1}{15} b^{10} B x^{15}$$

Problem 145: Result more than twice size of optimal antiderivative.

$$\int x^2 (a+b x)^{10} (A+B x) \, dx$$

Optimal (type 1, 87 leaves, 2 steps):

$$\frac{a^2 (A b-a B) (a+b x)^{11}}{11 b^4}-\frac{a (2 A b-3 a B) (a+b x)^{12}}{12 b^4}+\frac{(A b-3 a B) (a+b x)^{13}}{13 b^4}+\frac{B (a+b x)^{14}}{14 b^4}$$

Result (type 1, 226 leaves):

$$\frac{1}{3} a^{10} A x^3 + \frac{1}{4} a^9 \left(10 A b + a B\right) x^4 + a^8 b \left(9 A b + 2 a B\right) x^5 + \frac{5}{2} a^7 b^2 \left(8 A b + 3 a B\right) x^6 + \frac{30}{7} a^6 b^3 \left(7 A b + 4 a B\right) x^7 + \frac{21}{4} a^5 b^4 \left(6 A b + 5 a B\right) x^8 + \frac{14}{3} a^4 b^5 \left(5 A b + 6 a B\right) x^9 + 3 a^3 b^6 \left(4 A b + 7 a B\right) x^{10} + \frac{15}{11} a^2 b^7 \left(3 A b + 8 a B\right) x^{11} + \frac{5}{12} a b^8 \left(2 A b + 9 a B\right) x^{12} + \frac{1}{13} b^9 \left(A b + 10 a B\right) x^{13} + \frac{1}{14} b^{10} B x^{14}$$

Problem 146: Result more than twice size of optimal antiderivative.

$$\int x \left(a + b x\right)^{10} \left(A + B x\right) dx$$

Optimal (type 1, 61 leaves, 2 steps):

$$-\frac{a \left(A b - a B\right) \left(a + b x\right)^{11}}{11 b^3} + \frac{\left(A b - 2 a B\right) \left(a + b x\right)^{12}}{12 b^3} + \frac{B \left(a + b x\right)^{13}}{13 b^3}$$

Result (type 1, 218 leaves):

$$\frac{1}{6} a^{10} x^2 \left(3 A + 2 B x\right) + \frac{5}{6} a^9 b x^3 \left(4 A + 3 B x\right) + \frac{9}{4} a^8 b^2 x^4 \left(5 A + 4 B x\right) + 4 a^7 b^3 x^5 \left(6 A + 5 B x\right) + 5 a^6 b^4 x^6 \left(7 A + 6 B x\right) + \frac{9}{2} a^5 b^5 x^7 \left(8 A + 7 B x\right) + \frac{35}{12} a^4 b^6 x^8 \left(9 A + 8 B x\right) + \frac{4}{3} a^3 b^7 x^9 \left(10 A + 9 B x\right) + \frac{9}{22} a^2 b^8 x^{10} \left(11 A + 10 B x\right) + \frac{5}{66} a b^9 x^{11} \left(12 A + 11 B x\right) + \frac{1}{156} b^{10} x^{12} \left(13 A + 12 B x\right)$$

Problem 147: Result more than twice size of optimal antiderivative.

$$\int \left(a + b x\right)^{10} \left(A + B x\right) dx$$

Optimal (type 1, 38 leaves, 2 steps):

$$\frac{\left(A b - a B\right) \left(a + b x\right)^{11}}{11 b^2} + \frac{B \left(a + b x\right)^{12}}{12 b^2}$$

Result (type 1, 198 leaves):

$$\frac{1}{132} x \left(66 a^{10} \left(2 A + B x\right) + 220 a^9 b x \left(3 A + 2 B x\right) + 495 a^8 b^2 x^2 \left(4 A + 3 B x\right) + 792 a^7 b^3 x^3 \left(5 A + 4 B x\right) + 924 a^6 b^4 x^4 \left(6 A + 5 B x\right) + 792 a^5 b^5 x^5 \left(7 A + 6 B x\right) + 495 a^4 b^6 x^6 \left(8 A + 7 B x\right) + 220 a^3 b^7 x^7 \left(9 A + 8 B x\right) + 66 a^2 b^8 x^8 \left(10 A + 9 B x\right) + 12 a b^9 x^9 \left(11 A + 10 B x\right) + b^{10} x^{10} \left(12 A + 11 B x\right)\right)$$

Problem 160: Result more than twice size of optimal antiderivative.

$$\int \frac{\left(a + b x\right)^{10} \left(A + B x\right)}{x^{13}} dx$$

Optimal (type 1, 44 leaves, 2 steps):

$$-\frac{A (a+b x)^{11}}{12 a x^{12}}+\frac{(A b-12 a B) (a+b x)^{11}}{132 a^2 x^{11}}$$

Result (type 1, 199 leaves):

$$-\frac{1}{132 x^{12}}\left(66 b^{10} x^{10} (A+2 B x)+220 a b^9 x^9 (2 A+3 B x)+495 a^2 b^8 x^8 (3 A+4 B x)+792 a^3 b^7 x^7 (4 A+5 B x)+924 a^4 b^6 x^6 (5 A+6 B x)+792 a^5 b^5 x^5 (6 A+7 B x)+495 a^6 b^4 x^4 (7 A+8 B x)+220 a^7 b^3 x^3 (8 A+9 B x)+66 a^8 b^2 x^2 (9 A+10 B x)+12 a^9 b x (10 A+11 B x)+a^{10} (11 A+12 B x)\right)$$

Problem 161: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{10} (A+B x)}{x^{14}} \, dx$$

Optimal (type 1, 72 leaves, 3 steps):

$$-\frac{A (a+b x)^{11}}{13 a x^{13}}+\frac{(2 A b-13 a B) (a+b x)^{11}}{156 a^2 x^{12}}-\frac{b (2 A b-13 a B) (a+b x)^{11}}{1716 a^3 x^{11}}$$

Result (type 1, 202 leaves):

$$-\frac{1}{1716 x^{13}}\left(286 b^{10} x^{10} (2 A+3 B x)+1430 a b^9 x^9 (3 A+4 B x)+3861 a^2 b^8 x^8 (4 A+5 B x)+6864 a^3 b^7 x^7 (5 A+6 B x)+8580 a^4 b^6 x^6 (6 A+7 B x)+7722 a^5 b^5 x^5 (7 A+8 B x)+5005 a^6 b^4 x^4 (8 A+9 B x)+2288 a^7 b^3 x^3 (9 A+10 B x)+702 a^8 b^2 x^2 (10 A+11 B x)+130 a^9 b x (11 A+12 B x)+11 a^{10} (12 A+13 B x)\right)$$

Problem 169: Result more than twice size of optimal antiderivative.

$$\int x^3 (a+b x) (c+d x)^{16} \, dx$$

Optimal (type 1, 114 leaves, 2 steps):

$$\frac{c^3 (b c-a d) (c+d x)^{17}}{17 d^5}-\frac{c^2 (4 b c-3 a d) (c+d x)^{18}}{18 d^5}+\frac{3 c (2 b c-a d) (c+d x)^{19}}{19 d^5}-\frac{(4 b c-a d) (c+d x)^{20}}{20 d^5}+\frac{b (c+d x)^{21}}{21 d^5}$$

Result (type 1, 359 leaves):

$$\frac{1}{4} a c^{16} x^4 + \frac{1}{5} c^{15} (b c + 16 a d) x^5 + \frac{4}{3} c^{14} d (2 b c + 15 a d) x^6 + \frac{40}{7} c^{13} d^2 (3 b c + 14 a d) x^7 + \frac{35}{2} c^{12} d^3 (4 b c + 13 a d) x^8 + \frac{364}{9} c^{11} d^4 (5 b c + 12 a d) x^9 + \frac{364}{5} c^{10} d^5 (6 b c + 11 a d) x^{10} + 104 c^9 d^6 (7 b c + 10 a d) x^{11} + \frac{715}{6} c^8 d^7 (8 b c + 9 a d) x^{12} + 110 c^7 d^8 (9 b c + 8 a d) x^{13} + \frac{572}{7} c^6 d^9 (10 b c + 7 a d) x^{14} + \frac{728}{15} c^5 d^{10} (11 b c + 6 a d) x^{15} + \frac{91}{4} c^4 d^{11} (12 b c + 5 a d) x^{16} + \frac{140}{17} c^3 d^{12} (13 b c + 4 a d) x^{17} + \frac{20}{9} c^2 d^{13} (14 b c + 3 a d) x^{18} + \frac{8}{19} c d^{14} (15 b c + 2 a d) x^{19} + \frac{1}{20} d^{15} (16 b c + a d) x^{20} + \frac{1}{21} b d^{16} x^{21}$$

Problem 170: Result more than twice size of optimal antiderivative.

$$\int x^2 (a + b x) (c + d x)^{16} \, dx$$

Optimal (type 1, 88 leaves, 2 steps):

$$-\frac{c^2 (b c - a d) (c + d x)^{17}}{17 d^4} + \frac{c (3 b c - 2 a d) (c + d x)^{18}}{18 d^4} - \frac{(3 b c - a d) (c + d x)^{19}}{19 d^4} + \frac{b (c + d x)^{20}}{20 d^4}$$

Result (type 1, 355 leaves):

$$\frac{1}{3} a c^{16} x^3 + \frac{1}{4} c^{15} (b c + 16 a d) x^4 + \frac{8}{5} c^{14} d (2 b c + 15 a d) x^5 + \frac{20}{3} c^{13} d^2 (3 b c + 14 a d) x^6 + 20 c^{12} d^3 (4 b c + 13 a d) x^7 + \frac{91}{2} c^{11} d^4 (5 b c + 12 a d) x^8 + \frac{728}{9} c^{10} d^5 (6 b c + 11 a d) x^9 + \frac{572}{5} c^9 d^6 (7 b c + 10 a d) x^{10} + 130 c^8 d^7 (8 b c + 9 a d) x^{11} + \frac{715}{6} c^7 d^8 (9 b c + 8 a d) x^{12} + 88 c^6 d^9 (10 b c + 7 a d) x^{13} + 52 c^5 d^{10} (11 b c + 6 a d) x^{14} + \frac{364}{15} c^4 d^{11} (12 b c + 5 a d) x^{15} + \frac{35}{4} c^3 d^{12} (13 b c + 4 a d) x^{16} + \frac{40}{17} c^2 d^{13} (14 b c + 3 a d) x^{17} + \frac{4}{9} c d^{14} (15 b c + 2 a d) x^{18} + \frac{1}{19} d^{15} (16 b c + a d) x^{19} + \frac{1}{20} b d^{16} x^{20}$$

Problem 171: Result more than twice size of optimal antiderivative.

$$\int x (a + b x) (c + d x)^{16} \, dx$$

Optimal (type 1, 62 leaves, 2 steps):

$$\frac{c (b c - a d) (c + d x)^{17}}{17 d^3} - \frac{(2 b c - a d) (c + d x)^{18}}{18 d^3} + \frac{b (c + d x)^{19}}{19 d^3}$$

Result (type 1, 347 leaves):

$$\frac{1}{2} a c^{16} x^2 + \frac{1}{3} c^{15} (b c + 16 a d) x^3 + 2 c^{14} d (2 b c + 15 a d) x^4 + 8 c^{13} d^2 (3 b c + 14 a d) x^5 + \frac{70}{3} c^{12} d^3 (4 b c + 13 a d) x^6 + 52 c^{11} d^4 (5 b c + 12 a d) x^7 + 91 c^{10} d^5 (6 b c + 11 a d) x^8 + \frac{1144}{9} c^9 d^6 (7 b c + 10 a d) x^9 + 143 c^8 d^7 (8 b c + 9 a d) x^{10} + 130 c^7 d^8 (9 b c + 8 a d) x^{11} + \frac{286}{3} c^6 d^9 (10 b c + 7 a d) x^{12} + 56 c^5 d^{10} (11 b c + 6 a d) x^{13} + 26 c^4 d^{11} (12 b c + 5 a d) x^{14} + \frac{28}{3} c^3 d^{12} (13 b c + 4 a d) x^{15} + \frac{5}{2} c^2 d^{13} (14 b c + 3 a d) x^{16} + \frac{8}{17} c d^{14} (15 b c + 2 a d) x^{17} + \frac{1}{18} d^{15} (16 b c + a d) x^{18} + \frac{1}{19} b d^{16} x^{19}$$

Problem 172: Result more than twice size of optimal antiderivative.

$$\int (a + b x) (c + d x)^{16} \, dx$$

Optimal (type 1, 38 leaves, 2 steps):

$$-\frac{(b c - a d) (c + d x)^{17}}{17 d^2} + \frac{b (c + d x)^{18}}{18 d^2}$$

Result (type 1, 342 leaves):

$$a c^{16} x + \frac{1}{2} c^{15} (b c + 16 a d) x^2 + \frac{8}{3} c^{14} d (2 b c + 15 a d) x^3 + 10 c^{13} d^2 (3 b c + 14 a d) x^4 + 28 c^{12} d^3 (4 b c + 13 a d) x^5 + \frac{182}{3} c^{11} d^4 (5 b c + 12 a d) x^6 + 104 c^{10} d^5 (6 b c + 11 a d) x^7 + 143 c^9 d^6 (7 b c + 10 a d) x^8 + \frac{1430}{9} c^8 d^7 (8 b c + 9 a d) x^9 + 143 c^7 d^8 (9 b c + 8 a d) x^{10} + 104 c^6 d^9 (10 b c + 7 a d) x^{11} + \frac{182}{3} c^5 d^{10} (11 b c + 6 a d) x^{12} + 28 c^4 d^{11} (12 b c + 5 a d) x^{13} + 10 c^3 d^{12} (13 b c + 4 a d) x^{14} + \frac{8}{3} c^2 d^{13} (14 b c + 3 a d) x^{15} + \frac{1}{2} c d^{14} (15 b c + 2 a d) x^{16} + \frac{1}{17} d^{15} (16 b c + a d) x^{17} + \frac{1}{18} b d^{16} x^{18}$$

Problem 173: Result more than twice size of optimal antiderivative.

$$\int x^2 (2 + x)^5 (2 + 3 x) \, dx$$

Optimal (type 1, 12 leaves, 1 step):

$$\frac{1}{3} x^3 (2 + x)^6$$

Result (type 1, 42 leaves):

$$\frac{64 x^3}{3} + 64 x^4 + 80 x^5 + \frac{160 x^6}{3} + 20 x^7 + 4 x^8 + \frac{x^9}{3}$$

Problem 202: Result more than twice size of optimal antiderivative.

$$\int x^3 (a+b x)^2 (c+d x)^{16} \, dx$$

Optimal (type 1, 177 leaves, 2 steps):

$$-\frac{c^3 (b c-a d)^2 (c+d x)^{17}}{17 d^6}+\frac{c^2 (5 b c-3 a d) (b c-a d) (c+d x)^{18}}{18 d^6}-\frac{c \left(10 b^2 c^2-12 a b c d+3 a^2 d^2\right) (c+d x)^{19}}{19 d^6}+\frac{\left(10 b^2 c^2-8 a b c d+a^2 d^2\right) (c+d x)^{20}}{20 d^6}-\frac{b (5 b c-2 a d) (c+d x)^{21}}{21 d^6}+\frac{b^2 (c+d x)^{22}}{22 d^6}$$

Result (type 1, 589 leaves):

$$\frac{1}{4} a^2 c^{16} x^4+\frac{2}{5} a c^{15} (b c+8 a d) x^5+\frac{1}{6} c^{14} \left(b^2 c^2+32 a b c d+120 a^2 d^2\right) x^6+\frac{16}{7} c^{13} d \left(b^2 c^2+15 a b c d+35 a^2 d^2\right) x^7+\frac{5}{2} c^{12} d^2 \left(6 b^2 c^2+56 a b c d+91 a^2 d^2\right) x^8+\frac{56}{9} c^{11} d^3 \left(10 b^2 c^2+65 a b c d+78 a^2 d^2\right) x^9+\frac{182}{5} c^{10} d^4 \left(5 b^2 c^2+24 a b c d+22 a^2 d^2\right) x^{10}+\frac{208}{11} c^9 d^5 \left(21 b^2 c^2+77 a b c d+55 a^2 d^2\right) x^{11}+\frac{143}{6} c^8 d^6 \left(28 b^2 c^2+80 a b c d+45 a^2 d^2\right) x^{12}+220 c^7 d^7 \left(4 b^2 c^2+9 a b c d+4 a^2 d^2\right) x^{13}+\frac{143}{7} c^6 d^8 \left(45 b^2 c^2+80 a b c d+28 a^2 d^2\right) x^{14}+\frac{208}{15} c^5 d^9 \left(55 b^2 c^2+77 a b c d+21 a^2 d^2\right) x^{15}+\frac{91}{4} c^4 d^{10} \left(22 b^2 c^2+24 a b c d+5 a^2 d^2\right) x^{16}+\frac{56}{17} c^3 d^{11} \left(78 b^2 c^2+65 a b c d+10 a^2 d^2\right) x^{17}+\frac{10}{9} c^2 d^{12} \left(91 b^2 c^2+56 a b c d+6 a^2 d^2\right) x^{18}+\frac{16}{19} c d^{13} \left(35 b^2 c^2+15 a b c d+a^2 d^2\right) x^{19}+\frac{1}{20} d^{14} \left(120 b^2 c^2+32 a b c d+a^2 d^2\right) x^{20}+\frac{2}{21} b d^{15} (8 b c+a d) x^{21}+\frac{1}{22} b^2 d^{16} x^{22}$$

Problem 203: Result more than twice size of optimal antiderivative.

$$\int x^2 (a+b x)^2 (c+d x)^{16} \, dx$$

Optimal (type 1, 137 leaves, 2 steps):

$$\frac{c^2 (b c-a d)^2 (c+d x)^{17}}{17 d^5}-\frac{c (b c-a d) (2 b c-a d) (c+d x)^{18}}{9 d^5}+\frac{\left(6 b^2 c^2-6 a b c d+a^2 d^2\right) (c+d x)^{19}}{19 d^5}-\frac{b (2 b c-a d) (c+d x)^{20}}{10 d^5}+\frac{b^2 (c+d x)^{21}}{21 d^5}$$

Result (type 1, 585 leaves):

$$\frac{1}{3} a^2 c^{16} x^3 + \frac{1}{2} a c^{15} (b c + 8 a d) x^4 + \frac{1}{5} c^{14} (b^2 c^2 + 32 a b c d + 120 a^2 d^2) x^5 + \frac{8}{3} c^{13} d (b^2 c^2 + 15 a b c d + 35 a^2 d^2) x^6 + \frac{20}{7} c^{12} d^2 (6 b^2 c^2 + 56 a b c d + 91 a^2 d^2) x^7 + 7 c^{11} d^3 (10 b^2 c^2 + 65 a b c d + 78 a^2 d^2) x^8 + \frac{364}{9} c^{10} d^4 (5 b^2 c^2 + 24 a b c d + 22 a^2 d^2) x^9 + \frac{104}{5} c^9 d^5 (21 b^2 c^2 + 77 a b c d + 55 a^2 d^2) x^{10} + 26 c^8 d^6 (28 b^2 c^2 + 80 a b c d + 45 a^2 d^2) x^{11} + \frac{715}{3} c^7 d^7 (4 b^2 c^2 + 9 a b c d + 4 a^2 d^2) x^{12} + 22 c^6 d^8 (45 b^2 c^2 + 80 a b c d + 28 a^2 d^2) x^{13} + \frac{104}{7} c^5 d^9 (55 b^2 c^2 + 77 a b c d + 21 a^2 d^2) x^{14} + \frac{364}{15} c^4 d^{10} (22 b^2 c^2 + 24 a b c d + 5 a^2 d^2) x^{15} + \frac{7}{2} c^3 d^{11} (78 b^2 c^2 + 65 a b c d + 10 a^2 d^2) x^{16} + \frac{20}{17} c^2 d^{12} (91 b^2 c^2 + 56 a b c d + 6 a^2 d^2) x^{17} + \frac{8}{9} c d^{13} (35 b^2 c^2 + 15 a b c d + a^2 d^2) x^{18} + \frac{1}{19} d^{14} (120 b^2 c^2 + 32 a b c d + a^2 d^2) x^{19} + \frac{1}{10} b d^{15} (8 b c + a d) x^{20} + \frac{1}{21} b^2 d^{16} x^{21}$$

Problem 204: Result more than twice size of optimal antiderivative.

$$\int x (a + b x)^2 (c + d x)^{16} \, dx$$

Optimal (type 1, 98 leaves, 2 steps):

$$-\frac{c (b c - a d)^2 (c + d x)^{17}}{17 d^4} + \frac{(b c - a d) (3 b c - a d) (c + d x)^{18}}{18 d^4} - \frac{b (3 b c - 2 a d) (c + d x)^{19}}{19 d^4} + \frac{b^2 (c + d x)^{20}}{20 d^4}$$

Result (type 1, 583 leaves):

$$\frac{1}{2} a^2 c^{16} x^2 + \frac{2}{3} a c^{15} (b c + 8 a d) x^3 + \frac{1}{4} c^{14} (b^2 c^2 + 32 a b c d + 120 a^2 d^2) x^4 + \frac{16}{5} c^{13} d (b^2 c^2 + 15 a b c d + 35 a^2 d^2) x^5 + \frac{10}{3} c^{12} d^2 (6 b^2 c^2 + 56 a b c d + 91 a^2 d^2) x^6 + 8 c^{11} d^3 (10 b^2 c^2 + 65 a b c d + 78 a^2 d^2) x^7 + \frac{91}{2} c^{10} d^4 (5 b^2 c^2 + 24 a b c d + 22 a^2 d^2) x^8 + \frac{208}{9} c^9 d^5 (21 b^2 c^2 + 77 a b c d + 55 a^2 d^2) x^9 + \frac{143}{5} c^8 d^6 (28 b^2 c^2 + 80 a b c d + 45 a^2 d^2) x^{10} + 260 c^7 d^7 (4 b^2 c^2 + 9 a b c d + 4 a^2 d^2) x^{11} + \frac{143}{6} c^6 d^8 (45 b^2 c^2 + 80 a b c d + 28 a^2 d^2) x^{12} + 16 c^5 d^9 (55 b^2 c^2 + 77 a b c d + 21 a^2 d^2) x^{13} + 26 c^4 d^{10} (22 b^2 c^2 + 24 a b c d + 5 a^2 d^2) x^{14} + \frac{56}{15} c^3 d^{11} (78 b^2 c^2 + 65 a b c d + 10 a^2 d^2) x^{15} + \frac{5}{4} c^2 d^{12} (91 b^2 c^2 + 56 a b c d + 6 a^2 d^2) x^{16} + \frac{16}{17} c d^{13} (35 b^2 c^2 + 15 a b c d + a^2 d^2) x^{17} + \frac{1}{18} d^{14} (120 b^2 c^2 + 32 a b c d + a^2 d^2) x^{18} + \frac{2}{19} b d^{15} (8 b c + a d) x^{19} + \frac{1}{20} b^2 d^{16} x^{20}$$

Problem 383: Result unnecessarily involves higher level functions.

$$\int \frac{x^m}{(a + b x) (c + d x)^2} \, dx$$

Optimal (type 5, 125 leaves, 4 steps):

$$-\frac{d\,x^{1+m}}{c\,(b\,c-a\,d)\,(c+d\,x)}+\frac{b^2\,x^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{b\,x}{a}\right]}{a\,(b\,c-a\,d)^2\,(1+m)}-\frac{d\,(b\,c\,(1-m)+a\,d\,m)\,x^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{d\,x}{c}\right]}{c^2\,(b\,c-a\,d)^2\,(1+m)}$$

Result (type 6, 142 leaves):

$$\left(a\,c\,(2+m)\,x^{1+m}\,\text{AppellF1}\left[1+m,\,2,\,1,\,2+m,\,-\frac{d\,x}{c},\,-\frac{b\,x}{a}\right]\right)\Big/\left((1+m)\,(a+b\,x)\,(c+d\,x)^2\left(a\,c\,(2+m)\,\text{AppellF1}\left[1+m,\,2,\,1,\,2+m,\,-\frac{d\,x}{c},\,-\frac{b\,x}{a}\right]-x\left(b\,c\,\text{AppellF1}\left[2+m,\,2,\,2,\,3+m,\,-\frac{d\,x}{c},\,-\frac{b\,x}{a}\right]+2\,a\,d\,\text{AppellF1}\left[2+m,\,3,\,1,\,3+m,\,-\frac{d\,x}{c},\,-\frac{b\,x}{a}\right]\right)\right)\right)$$

Problem 384: Result unnecessarily involves higher level functions.

$$\int \frac{x^m}{(a+b\,x)\,(c+d\,x)^3}\,dx$$

Optimal (type 5, 206 leaves, 5 steps):

$$-\frac{d\,x^{1+m}}{2\,c\,(b\,c-a\,d)\,(c+d\,x)^2}+\frac{d\,(a\,d\,(1-m)-b\,c\,(3-m))\,x^{1+m}}{2\,c^2\,(b\,c-a\,d)^2\,(c+d\,x)}+\frac{b^3\,x^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{b\,x}{a}\right]}{a\,(b\,c-a\,d)^3\,(1+m)}+\frac{d\,\left(a^2\,d^2\,(1-m)\,m-2\,a\,b\,c\,d\,(2-m)\,m-b^2\,c^2\,\left(2-3\,m+m^2\right)\right)\,x^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{d\,x}{c}\right]}{2\,c^3\,(b\,c-a\,d)^3\,(1+m)}$$

Result (type 6, 142 leaves):

$$\left(a\,c\,(2+m)\,x^{1+m}\,\text{AppellF1}\left[1+m,\,3,\,1,\,2+m,\,-\frac{d\,x}{c},\,-\frac{b\,x}{a}\right]\right)\Big/\left((1+m)\,(a+b\,x)\,(c+d\,x)^3\left(a\,c\,(2+m)\,\text{AppellF1}\left[1+m,\,3,\,1,\,2+m,\,-\frac{d\,x}{c},\,-\frac{b\,x}{a}\right]-x\left(b\,c\,\text{AppellF1}\left[2+m,\,3,\,2,\,3+m,\,-\frac{d\,x}{c},\,-\frac{b\,x}{a}\right]+3\,a\,d\,\text{AppellF1}\left[2+m,\,4,\,1,\,3+m,\,-\frac{d\,x}{c},\,-\frac{b\,x}{a}\right]\right)\right)\right)$$

Problem 463: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x^{1/3}\,\sqrt{c+d\,x}\,(4\,c+d\,x)}\,dx$$

Optimal (type 3, 199 leaves, 2 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{3}\,c^{1/6}\,\left(c^{1/3}+2^{1/3}\,d^{1/3}\,x^{1/3}\right)}{\sqrt{c+d\,x}}\right]}{2^{2/3}\,\sqrt{3}\,c^{5/6}\,d^{2/3}}+\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,x}}{\sqrt{3}\,\sqrt{c}}\right]}{2^{2/3}\,\sqrt{3}\,c^{5/6}\,d^{2/3}}-\frac{\text{ArcTanh}\left[\frac{c^{1/6}\,\left(c^{1/3}-2^{1/3}\,d^{1/3}\,x^{1/3}\right)}{\sqrt{c+d\,x}}\right]}{2^{2/3}\,c^{5/6}\,d^{2/3}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,x}}{\sqrt{c}}\right]}{3\times 2^{2/3}\,c^{5/6}\,d^{2/3}}$$

Result (type 6, 147 leaves):

$$\left(30\,c\,x^{2/3}\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{2},1,\frac{5}{3},-\frac{d\,x}{c},-\frac{d\,x}{4\,c}\right]\right)\Big/\left(\sqrt{c+d\,x}\,\left(4\,c+d\,x\right)\left(20\,c\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{2},1,\frac{5}{3},-\frac{d\,x}{c},-\frac{d\,x}{4\,c}\right]-3\,d\,x\left(\text{AppellF1}\left[\frac{5}{3},\frac{1}{2},2,\frac{8}{3},-\frac{d\,x}{c},-\frac{d\,x}{4\,c}\right]+2\,\text{AppellF1}\left[\frac{5}{3},\frac{3}{2},1,\frac{8}{3},-\frac{d\,x}{c},-\frac{d\,x}{4\,c}\right]\right)\right)\right)$$

Problem 464: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x^{1/3}\left(8\,c-d\,x\right)\sqrt{c+d\,x}}\,dx$$

Optimal (type 3, 143 leaves, 9 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{3}\,c^{1/6}\left(c^{1/3}+d^{1/3}\,x^{1/3}\right)}{\sqrt{c+d\,x}}\right]}{2\,\sqrt{3}\,c^{5/6}\,d^{2/3}}+\frac{\text{ArcTanh}\left[\frac{\left(c^{1/3}+d^{1/3}\,x^{1/3}\right)^2}{3\,c^{1/6}\,\sqrt{c+d\,x}}\right]}{6\,c^{5/6}\,d^{2/3}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,x}}{3\,\sqrt{c}}\right]}{6\,c^{5/6}\,d^{2/3}}$$

Result (type 6, 148 leaves):

$$\left(60\,c\,x^{2/3}\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{2},1,\frac{5}{3},-\frac{d\,x}{c},\frac{d\,x}{8\,c}\right]\right)\Big/\left(\left(8\,c-d\,x\right)\sqrt{c+d\,x}\left(40\,c\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{2},1,\frac{5}{3},-\frac{d\,x}{c},\frac{d\,x}{8\,c}\right]+3\,d\,x\left(\text{AppellF1}\left[\frac{5}{3},\frac{1}{2},2,\frac{8}{3},-\frac{d\,x}{c},\frac{d\,x}{8\,c}\right]-4\,\text{AppellF1}\left[\frac{5}{3},\frac{3}{2},1,\frac{8}{3},-\frac{d\,x}{c},\frac{d\,x}{8\,c}\right]\right)\right)\right)$$

Problem 728: Result more than twice size of optimal antiderivative.

$$\int \frac{\left(1+x\right)^{3/2}}{\sqrt{1-x}\,x}\,dx$$

Optimal (type 3, 43 leaves, 6 steps):

$$-\sqrt{1-x}\,\sqrt{1+x}+2\,\text{ArcSin}[x]-\text{ArcTanh}\left[\sqrt{1-x}\,\sqrt{1+x}\right]$$

Result (type 3, 96 leaves):

$$-\sqrt{1-x^2}+4\,\text{ArcSin}\left[\frac{\sqrt{1+x}}{\sqrt{2}}\right]+\text{Log}\left[1-\sqrt{1+x}\right]-\text{Log}\left[2+\sqrt{1-x}-\sqrt{1+x}\right]-\text{Log}\left[1+\sqrt{1+x}\right]+\text{Log}\left[2+\sqrt{1-x}+\sqrt{1+x}\right]$$

Problem 758: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{x\,\sqrt{1-a-b\,x}\,\sqrt{1+a+b\,x}}\,dx$$

Optimal (type 3, 54 leaves, 2 steps):

$$-\frac{2\,\text{ArcTanh}\left[\frac{\sqrt{1-a}\,\sqrt{1+a+b\,x}}{\sqrt{1+a}\,\sqrt{1-a-b\,x}}\right]}{\sqrt{1-a^2}}$$

Result (type 3, 107 leaves):

$$-\frac{i\,\sqrt{-1+a+b\,x}\,\sqrt{1+a+b\,x}\,\text{Log}\left[\frac{2\sqrt{-1+a+b\,x}\,\sqrt{1+a+b\,x}}{x}+\frac{2\,i\,\left(-1+a^2+a\,b\,x\right)}{\sqrt{1-a^2}\,x}\right]}{\sqrt{1-a^2}\,\sqrt{-\left(-1+a+b\,x\right)\,\left(1+a+b\,x\right)}}$$

Problem 838: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{-1+x}\,\sqrt{1+x}}\,dx$$

Optimal (type 3, 2 leaves, 1 step):

$$\text{ArcCosh}[x]$$

Result (type 3, 16 leaves):

$$2\,\text{ArcSinh}\left[\frac{\sqrt{-1+x}}{\sqrt{2}}\right]$$

Problem 855: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{x}\,\sqrt{2-b\,x}\,\sqrt{2+b\,x}}\,dx$$

Optimal (type 4, 30 leaves, 1 step):

$$\frac{\sqrt{2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b}\,\sqrt{x}}{\sqrt{2}}\right],-1\right]}{\sqrt{b}}$$

Result (type 4, 70 leaves):

$$-\frac{2\,i\,\sqrt{-\frac{1}{b}}\,b\,\sqrt{1-\frac{4}{b^2\,x^2}}\,x\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{1}{b}}}{\sqrt{x}}\right],-1\right]}{\sqrt{8-2\,b^2\,x^2}}$$

Problem 856: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{-x}\,\sqrt{2-b\,x}\,\sqrt{2+b\,x}}\,dx$$

Optimal (type 4, 33 leaves, 1 step):

$$-\frac{\sqrt{2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b}\,\sqrt{-x}}{\sqrt{2}}\right],-1\right]}{\sqrt{b}}$$

Result (type 4, 78 leaves):

$$\frac{2\,i\,\sqrt{-\frac{1}{b}}\,b\,\sqrt{1-\frac{4}{b^2\,x^2}}\,\sqrt{-x^2}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{1}{b}}}{\sqrt{x}}\right],-1\right]}{\sqrt{8-2\,b^2\,x^2}}$$

Problem 857: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{\sqrt{e\,x}\,\sqrt{2-b\,x}\,\sqrt{2+b\,x}}\,dx$$

Optimal (type 4, 42 leaves, 1 step):

$$\frac{\sqrt{2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b}\,\sqrt{e\,x}}{\sqrt{2}\,\sqrt{e}}\right],-1\right]}{\sqrt{b}\,\sqrt{e}}$$

Result (type 4, 81 leaves):

$$-\frac{2\,i\,\sqrt{-\frac{1}{b}}\,b\,\sqrt{1-\frac{4}{b^2\,x^2}}\,x^{3/2}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{1}{b}}}{\sqrt{x}}\right],-1\right]}{\sqrt{e\,x}\,\sqrt{8-2\,b^2\,x^2}}$$

Problem 861: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{1-x}\,\sqrt{x}\,\sqrt{1+x}}\,dx$$

Optimal (type 4, 10 leaves, 1 step):

$$2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{x}\right],-1\right]$$

Result (type 4, 66 leaves):

$$\frac{2\,i\,\sqrt{1+\frac{1}{-1+x}}\,\sqrt{1+\frac{2}{-1+x}}\,(-1+x)^{3/2}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{1}{\sqrt{-1+x}}\right],2\right]}{\sqrt{-(-1+x)\,x}\,\sqrt{1+x}}$$

Problem 862: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{1+x}\,\sqrt{x-x^2}}\,dx$$

Optimal (type 4, 10 leaves, 2 steps):

$$2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{x}\right],-1\right]$$

Result (type 4, 66 leaves):

$$\frac{2\,i\,\sqrt{1+\frac{1}{-1+x}}\,\sqrt{1+\frac{2}{-1+x}}\,(-1+x)^{3/2}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{1}{\sqrt{-1+x}}\right],2\right]}{\sqrt{-(-1+x)\,x}\,\sqrt{1+x}}$$

Problem 863: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{b\,x}\,\sqrt{1-c\,x}\,\sqrt{1+c\,x}}\,dx$$

Optimal (type 4, 33 leaves, 1 step):

$$\frac{2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{c}\,\sqrt{b\,x}}{\sqrt{b}}\right],-1\right]}{\sqrt{b}\,\sqrt{c}}$$

Result (type 4, 76 leaves):

$$-\frac{2\,i\,\sqrt{-\frac{1}{c}}\,c\,\sqrt{1-\frac{1}{c^2\,x^2}}\,x^{3/2}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{1}{c}}}{\sqrt{x}}\right],-1\right]}{\sqrt{b\,x}\,\sqrt{1-c^2\,x^2}}$$

Problem 864: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{b x} \sqrt{1-c x} \sqrt{1+d x}} \, dx$$

Optimal (type 4, 38 leaves, 1 step):

$$\frac{2 \, \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{c} \sqrt{b x}}{\sqrt{b}}\right], -\frac{d}{c}\right]}{\sqrt{b} \sqrt{c}}$$

Result (type 4, 89 leaves):

$$-\frac{2 \sqrt{\frac{c-\frac{1}{x}}{c}} \sqrt{\frac{d+\frac{1}{x}}{d}} \, x^{3/2} \, \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{1}{c}}}{\sqrt{x}}\right], -\frac{c}{d}\right]}{\sqrt{\frac{1}{c}} \sqrt{b x} \sqrt{1-c x} \sqrt{1+d x}}$$

Problem 865: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{1+x}}{\sqrt{1-x} \sqrt{x}} \, dx$$

Optimal (type 4, 10 leaves, 1 step):

$$2 \, \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{x}\right], -1\right]$$

Result (type 4, 104 leaves):

$$\frac{2 \sqrt{\frac{-1+x}{1+x}} \sqrt{\frac{1+x}{-1+x}} \left(\sqrt{-1+x} \, x \sqrt{\frac{1+x}{-1+x}} + \frac{i \sqrt{2} \, x \, \text{EllipticE}\left[i \, \text{ArcSinh}\left[\frac{\sqrt{2}}{\sqrt{-1+x}}\right], \frac{1}{2}\right]}{\sqrt{\frac{x}{-1+x}}}\right)}{\sqrt{-(-1+x) \, x}}$$

Problem 866: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{1+x}}{\sqrt{x-x^2}} \, dx$$

Optimal (type 4, 10 leaves, 2 steps):

$$2\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{x}\right],-1\right]$$

Result (type 4, 104 leaves):

$$\frac{2\sqrt{\frac{-1+x}{1+x}}\sqrt{\frac{1+x}{-1+x}}\left(\sqrt{-1+x}\;x\sqrt{\frac{1+x}{-1+x}}+\frac{i\sqrt{2}\;x\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}}{\sqrt{-1+x}}\right],\frac{1}{2}\right]}{\sqrt{\frac{x}{-1+x}}}\right)}{\sqrt{-(-1+x)\;x}}$$

Problem 867: Result more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{1+c\,x}}{\sqrt{b\,x}\;\sqrt{1-c\,x}}\,dx$$

Optimal (type 4, 33 leaves, 1 step):

$$\frac{2\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{c}\;\sqrt{b\,x}}{\sqrt{b}}\right],-1\right]}{\sqrt{b}\;\sqrt{c}}$$

Result (type 4, 119 leaves):

$$-\frac{2\sqrt{-\frac{1}{c}}\;(-1+c\,x)\left(\sqrt{-\frac{1}{c}}\sqrt{1-\frac{1}{c\,x}}\;(1+c\,x)-\sqrt{1+\frac{1}{c\,x}}\;\sqrt{x}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{-\frac{1}{c}}}{\sqrt{x}}\right],-1\right]\right)}{\sqrt{1-\frac{1}{c\,x}}\;\sqrt{b\,x}\;\sqrt{1-c^2\,x^2}}$$

Problem 868: Result more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{1+c\,x}}{\sqrt{b\,x}\;\sqrt{1-d\,x}}\,dx$$

Optimal (type 4, 38 leaves, 1 step):

$$\frac{2\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\;\sqrt{b\,x}}{\sqrt{b}}\right],-\frac{c}{d}\right]}{\sqrt{b}\;\sqrt{d}}$$

Result (type 4, 102 leaves):

$$\frac{2\sqrt{1-d\,x}\left(-1-c\,x+\frac{\sqrt{1+\frac{1}{c\,x}}\,\sqrt{x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{-\frac{1}{c}}}{\sqrt{x}}\right],-\frac{c}{d}\right]}{\sqrt{-\frac{1}{c}}\,\sqrt{1-\frac{1}{d\,x}}}\right)}{d\sqrt{b\,x}\,\sqrt{1+c\,x}}$$

Problem 871: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{1-c\,x}}{\sqrt{b\,x}\,\sqrt{1+c\,x}}\,dx$$

Optimal (type 4, 37 leaves, 1 step):

$$-\frac{2\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{c}\,\sqrt{b\,x}}{\sqrt{-b}}\right],-1\right]}{\sqrt{-b}\,\sqrt{c}}$$

Result (type 4, 77 leaves):

$$\frac{2\,c\left(\frac{1}{c^2}-x^2-\sqrt{\frac{1}{c}}\,\sqrt{1-\frac{1}{c^2\,x^2}}\,x^{3/2}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{1}{c}}}{\sqrt{x}}\right],-1\right]\right)}{\sqrt{b\,x}\,\sqrt{1-c^2\,x^2}}$$

Problem 872: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{1-c\,x}}{\sqrt{b\,x}\,\sqrt{1+d\,x}}\,dx$$

Optimal (type 4, 42 leaves, 1 step):

$$-\frac{2\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{b\,x}}{\sqrt{-b}}\right],-\frac{c}{d}\right]}{\sqrt{-b}\,\sqrt{d}}$$

Result (type 4, 112 leaves):

$$\frac{-\frac{2\sqrt{\frac{1}{c}}\,(-1+c\,x)\,(1+d\,x)}{d}-2\sqrt{1-\frac{1}{c\,x}}\,\sqrt{1+\frac{1}{d\,x}}\,x^{3/2}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{1}{c}}}{\sqrt{x}}\right],-\frac{c}{d}\right]}{\sqrt{\frac{1}{c}}\,\sqrt{b\,x}\,\sqrt{1-c\,x}\,\sqrt{1+d\,x}}$$

Problem 874: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{d+e x}}{\sqrt{2-3 x}\,\sqrt{x}}\,dx$$

Optimal (type 4, 51 leaves, 2 steps):

$$\frac{2\sqrt{d+e x}\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{3}{2}}\,\sqrt{x}\right],-\frac{2 e}{3 d}\right]}{\sqrt{3}\,\sqrt{1+\frac{e x}{d}}}$$

Result (type 4, 125 leaves):

$$\frac{2\sqrt{x}\left(\frac{3\,(d+e x)}{\sqrt{2-3 x}}-\frac{(3 d+2 e)\sqrt{\frac{d+e x}{e\,(-2+3 x)}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{2+\frac{3 d}{e}}}{\sqrt{2-3 x}}\right],\frac{2 e}{3 d+2 e}\right]}{\sqrt{2+\frac{3 d}{e}}\,\sqrt{\frac{x}{-2+3 x}}}\right)}{3\sqrt{d+e x}}$$

Problem 875: Result unnecessarily involves higher level functions.

$$\int \frac{x^4}{(1-x)^{1/3}\,(2-x)^{1/3}}\,dx$$

Optimal (type 4, 752 leaves, 8 steps):

$$\frac{99}{130}(1-x)^{2/3}(2-x)^{2/3}x^2+\frac{3}{13}(1-x)^{2/3}(2-x)^{2/3}x^3+\frac{27}{455}(1-x)^{2/3}(2-x)^{2/3}(89+34x)-$$

$$\frac{891\times 2^{2/3}\sqrt{(3-2x)^2}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}}{91(3-2x)(1-x)^{1/3}(2-x)^{1/3}\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)}+\left(891\times 3^{1/4}\sqrt{2-\sqrt{3}}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(91\times 2^{1/3}(3-2x)\sqrt{(3-2x)^2}(1-x)^{1/3}(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)-$$

$$\left(594\times 2^{1/6}\times 3^{3/4}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(91(3-2x)\sqrt{(3-2x)^2}(1-x)^{1/3}(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)$$

Result (type 5, 54 leaves):

$$\frac{3}{910}(1-x)^{2/3}\left((2-x)^{2/3}\left(1602+612x+231x^2+70x^3\right)-2970\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},-1+x\right]\right)$$

Problem 876: Result unnecessarily involves higher level functions.

$$\int\frac{x^3}{(1-x)^{1/3}(2-x)^{1/3}}\,dx$$

Optimal (type 4, 727 leaves, 7 steps):

$$\frac{3}{10}(1-x)^{2/3}(2-x)^{2/3}x^2+\frac{9}{70}(1-x)^{2/3}(2-x)^{2/3}(23+8x)-\frac{81\sqrt{(3-2x)^2}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}}{7\times 2^{1/3}(3-2x)(1-x)^{1/3}(2-x)^{1/3}\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)}+$$

$$\left(81\times 3^{1/4}\sqrt{2-\sqrt{3}}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(14\times 2^{1/3}(3-2x)\sqrt{(3-2x)^2}(1-x)^{1/3}(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)-$$

$$\left(27\times 2^{1/6}\times 3^{3/4}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(7(3-2x)\sqrt{(3-2x)^2}(1-x)^{1/3}(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)$$

Result (type 5, 49 leaves):

$$\frac{3}{70}(1-x)^{2/3}\left((2-x)^{2/3}\left(69+24x+7x^2\right)-135\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},-1+x\right]\right)$$

Problem 877: Result unnecessarily involves higher level functions.

$$\int\frac{x^2}{(1-x)^{1/3}(2-x)^{1/3}}\,dx$$

Optimal (type 4, 720 leaves, 7 steps):

$$\frac{45}{28}(1-x)^{2/3}(2-x)^{2/3}+\frac{3}{7}(1-x)^{2/3}(2-x)^{2/3}x-\frac{99\sqrt{(3-2x)^2}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}}{14\times 2^{1/3}(3-2x)(1-x)^{1/3}(2-x)^{1/3}\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)}+$$

$$\left(99\times 3^{1/4}\sqrt{2-\sqrt{3}}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(28\times 2^{1/3}(3-2x)\sqrt{(3-2x)^2}(1-x)^{1/3}(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)-$$

$$\left(33\times 3^{3/4}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(7\times 2^{5/6}(3-2x)\sqrt{(3-2x)^2}(1-x)^{1/3}(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)$$

Result (type 5, 44 leaves):

$$\frac{3}{28}(1-x)^{2/3}\left((2-x)^{2/3}(15+4x)-33\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},-1+x\right]\right)$$

Problem 878: Result unnecessarily involves higher level functions.

$$\int\frac{x}{(1-x)^{1/3}(2-x)^{1/3}}\,dx$$

Optimal (type 4, 695 leaves, 6 steps):

$$\frac{3}{4}(1-x)^{2/3}(2-x)^{2/3}-\frac{9\sqrt{(3-2x)^2}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}}{2\times 2^{1/3}(3-2x)(1-x)^{1/3}(2-x)^{1/3}\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)}+$$

$$\left(9\times 3^{1/4}\sqrt{2-\sqrt{3}}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(4\times 2^{1/3}(3-2x)\sqrt{(3-2x)^2}(1-x)^{1/3}(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)-$$

$$\left(3\times 3^{3/4}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(2^{5/6}(3-2x)\sqrt{(3-2x)^2}(1-x)^{1/3}(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)$$

Result (type 5, 38 leaves):

$$\frac{3}{4}(1-x)^{2/3}\left((2-x)^{2/3}-3\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},-1+x\right]\right)$$

Problem 879: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(1-x)^{1/3}(2-x)^{1/3}}\,dx$$

Optimal (type 4, 671 leaves, 5 steps):

$$-\frac{3\sqrt{(3-2x)^2}\ \sqrt{(-3+2x)^2}\ \left(2-3x+x^2\right)^{1/3}}{2^{1/3}\,(3-2x)\,(1-x)^{1/3}\,(2-x)^{1/3}\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)}+$$

$$\left(3\times 3^{1/4}\sqrt{2-\sqrt{3}}\ \sqrt{(-3+2x)^2}\ \left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Bigg/$$

$$\left(2\times 2^{1/3}\,(3-2x)\sqrt{(3-2x)^2}\ (1-x)^{1/3}\,(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)-$$

$$\left(2^{1/6}\times 3^{3/4}\sqrt{(-3+2x)^2}\ \left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Bigg/$$

$$\left((3-2x)\sqrt{(3-2x)^2}\ (1-x)^{1/3}\,(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)$$

Result (type 5, 26 leaves):

$$-\frac{3}{2}(1-x)^{2/3}\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},-1+x\right]$$

Problem 880: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(1-x)^{1/3}\,(2-x)^{1/3}\,x}\,dx$$

Optimal (type 3, 99 leaves, 1 step):

$$-\frac{\sqrt{3}\ \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2^{1/3}\,(2-x)^{2/3}}{\sqrt{3}\,(1-x)^{1/3}}\right]}{2\times 2^{1/3}}+\frac{3\,\text{Log}\left[-(1-x)^{1/3}+\frac{(2-x)^{2/3}}{2^{2/3}}\right]}{4\times 2^{1/3}}-\frac{\text{Log}[x]}{2\times 2^{1/3}}$$

Result (type 6, 115 leaves):

$$\left(15\,(1-x)^{2/3}\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},-1+x,1-x\right]\right)\Big/\left(2\,(2-x)^{1/3}\,x\left(-5\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},-1+x,1-x\right]+(-1+x)\left(3\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},2,\frac{8}{3},-1+x,1-x\right]-\text{AppellF1}\left[\frac{5}{3},\frac{4}{3},1,\frac{8}{3},-1+x,1-x\right]\right)\right)\right)$$

Problem 881: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(1-x)^{1/3}\,(2-x)^{1/3}\,x^2}\,dx$$

Optimal (type 4, 796 leaves, 8 steps):

$$-\frac{(1-x)^{2/3}\,(2-x)^{2/3}}{2\,x}-\frac{\sqrt{(3-2x)^2}\,\sqrt{(-3+2x)^2}\,\left(2-3x+x^2\right)^{1/3}}{2\times 2^{1/3}\,(3-2x)\,(1-x)^{1/3}\,(2-x)^{1/3}\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)}-\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2^{1/3}\,(2-x)^{2/3}}{\sqrt{3}\,(1-x)^{1/3}}\right]}{4\times 2^{1/3}}+$$
$$\left(3^{1/4}\sqrt{2-\sqrt{3}}\,\sqrt{(-3+2x)^2}\,\left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$
$$\left(4\times 2^{1/3}\,(3-2x)\,\sqrt{(3-2x)^2}\,(1-x)^{1/3}\,(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)-$$
$$\left(\sqrt{(-3+2x)^2}\,\left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$
$$\left(2^{5/6}\times 3^{1/4}\,(3-2x)\,\sqrt{(3-2x)^2}\,(1-x)^{1/3}\,(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)+\frac{3\,\text{Log}\left[-(1-x)^{1/3}+\frac{(2-x)^{2/3}}{2^{2/3}}\right]}{8\times 2^{1/3}}-\frac{\text{Log}[x]}{4\times 2^{1/3}}$$

Result (type 6, 219 leaves):

$$\frac{1}{10\,(2-x)^{1/3}\,x}(1-x)^{2/3}\left(5\,(-2+x)-\left(50\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},-1+x,1-x\right]\right)\Big/\right.$$
$$\left(5\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},-1+x,1-x\right]-(-1+x)\left(3\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},2,\frac{8}{3},-1+x,1-x\right]-\text{AppellF1}\left[\frac{5}{3},\frac{4}{3},1,\frac{8}{3},-1+x,1-x\right]\right)\right)+$$
$$\left(8\,(-1+x)\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},-1+x,1-x\right]\right)\Big/$$
$$\left.\left(-8\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},-1+x,1-x\right]+(-1+x)\left(3\,\text{AppellF1}\left[\frac{8}{3},\frac{1}{3},2,\frac{11}{3},-1+x,1-x\right]-\text{AppellF1}\left[\frac{8}{3},\frac{4}{3},1,\frac{11}{3},-1+x,1-x\right]\right)\right)\right)$$

Problem 882: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(1-x)^{1/3}\,(2-x)^{1/3}\,x^3}\,dx$$

Optimal (type 4, 821 leaves, 9 steps) :

$$-\frac{(1-x)^{2/3}(2-x)^{2/3}}{4x^2}-\frac{(1-x)^{2/3}(2-x)^{2/3}}{2x}-\frac{\sqrt{(3-2x)^2}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}}{2\times 2^{1/3}(3-2x)(1-x)^{1/3}(2-x)^{1/3}\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)}-$$

$$\frac{\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2^{1/3}(2-x)^{2/3}}{\sqrt{3}(1-x)^{1/3}}\right]}{2\times 2^{1/3}\sqrt{3}}+\left(3^{1/4}\sqrt{2-\sqrt{3}}\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\right.$$

$$\left.\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(4\times 2^{1/3}(3-2x)\sqrt{(3-2x)^2}(1-x)^{1/3}(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)-$$

$$\left(\sqrt{(-3+2x)^2}\left(2-3x+x^2\right)^{1/3}\left(1+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)\sqrt{\frac{1-2^{2/3}\left(2-3x+x^2\right)^{1/3}+2\times 2^{1/3}\left(2-3x+x^2\right)^{2/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(2^{5/6}\times 3^{1/4}(3-2x)\sqrt{(3-2x)^2}(1-x)^{1/3}(2-x)^{1/3}\sqrt{\frac{1+2^{2/3}\left(2-3x+x^2\right)^{1/3}}{\left(1+\sqrt{3}+2^{2/3}\left(2-3x+x^2\right)^{1/3}\right)^2}}\right)+\frac{\text{Log}\left[-(1-x)^{1/3}+\frac{(2-x)^{2/3}}{2^{2/3}}\right]}{4\times 2^{1/3}}-\frac{\text{Log}[x]}{6\times 2^{1/3}}$$

Result (type 6, 225 leaves):

$$\frac{1}{20(2-x)^{1/3}x^2}(1-x)^{2/3}\left(5(-2+x)(1+2x)+\left(75\,x\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},-1+x,1-x\right]\right)\Big/\right.$$

$$\left(-5\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},-1+x,1-x\right]+(-1+x)\left(3\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},2,\frac{8}{3},-1+x,1-x\right]-\text{AppellF1}\left[\frac{5}{3},\frac{4}{3},1,\frac{8}{3},-1+x,1-x\right]\right)\right)+$$

$$\left(16(-1+x)\,x\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},-1+x,1-x\right]\right)\Big/$$

$$\left.\left(-8\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},-1+x,1-x\right]+(-1+x)\left(3\,\text{AppellF1}\left[\frac{8}{3},\frac{1}{3},2,\frac{11}{3},-1+x,1-x\right]-\text{AppellF1}\left[\frac{8}{3},\frac{4}{3},1,\frac{11}{3},-1+x,1-x\right]\right)\right)\right)$$

Problem 883: Result unnecessarily involves higher level functions.

$$\int \frac{x^3 (a+b x)^{1/4}}{(c+d x)^{1/4}} \, dx$$

Optimal (type 3, 340 leaves, 8 steps):

$$-\frac{\left(195 b^3 c^3+135 a b^2 c^2 d+105 a^2 b c d^2+77 a^3 d^3\right) (a+b x)^{1/4} (c+d x)^{3/4}}{512 b^3 d^4}+\frac{x^2 (a+b x)^{5/4} (c+d x)^{3/4}}{4 b d}+\frac{(a+b x)^{5/4} (c+d x)^{3/4} \left(117 b^2 c^2+94 a b c d+77 a^2 d^2-8 b d (13 b c+11 a d) x\right)}{384 b^3 d^3}+\frac{(b c-a d) \left(195 b^3 c^3+135 a b^2 c^2 d+105 a^2 b c d^2+77 a^3 d^3\right) \text{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{1024 b^{15/4} d^{17/4}}+\frac{(b c-a d) \left(195 b^3 c^3+135 a b^2 c^2 d+105 a^2 b c d^2+77 a^3 d^3\right) \text{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{1024 b^{15/4} d^{17/4}}$$

Result (type 5, 221 leaves):

$$\frac{1}{1536 b^3 d^5 (a+b x)^{3/4}} (c+d x)^{3/4} \Big(d (a+b x) \left(77 a^3 d^3+a^2 b d^2 (61 c-44 d x)+a b^2 d \left(63 c^2-40 c d x+32 d^2 x^2\right)+b^3 \left(-585 c^3+468 c^2 d x-416 c d^2 x^2+384 d^3 x^3\right)\right)- \left(-195 b^4 c^4+60 a b^3 c^3 d+30 a^2 b^2 c^2 d^2+28 a^3 b c d^3+77 a^4 d^4\right) \left(\frac{d (a+b x)}{-b c+a d}\right)^{3/4} \text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]\Big)$$

Problem 884: Result unnecessarily involves higher level functions.

$$\int \frac{x^2 (a+b x)^{1/4}}{(c+d x)^{1/4}} \, dx$$

Optimal (type 3, 268 leaves, 8 steps):

$$\frac{\left(15 b^2 c^2+10 a b c d+7 a^2 d^2\right) (a+b x)^{1/4} (c+d x)^{3/4}}{32 b^2 d^3}-\frac{(9 b c+7 a d) (a+b x)^{5/4} (c+d x)^{3/4}}{24 b^2 d^2}+\frac{x (a+b x)^{5/4} (c+d x)^{3/4}}{3 b d}-\frac{(b c-a d) \left(15 b^2 c^2+10 a b c d+7 a^2 d^2\right) \text{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{64 b^{11/4} d^{13/4}}-\frac{(b c-a d) \left(15 b^2 c^2+10 a b c d+7 a^2 d^2\right) \text{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{64 b^{11/4} d^{13/4}}$$

Result (type 5, 168 leaves):

$$\frac{1}{96\, b^2\, d^4\, (a+b x)^{3/4}} (c+d x)^{3/4} \left(-d\, (a+b x)\, \left(7 a^2 d^2+2 a b d\, (3 c-2 d x)+b^2\, \left(-45 c^2+36 c d x-32 d^2 x^2\right)\right)+\right.$$
$$\left.\left(-15 b^3 c^3+5 a b^2 c^2 d+3 a^2 b c d^2+7 a^3 d^3\right) \left(\frac{d\, (a+b x)}{-b c+a d}\right)^{3/4} \text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{b\, (c+d x)}{b c-a d}\right]\right)$$

Problem 885: Result unnecessarily involves higher level functions.

$$\int \frac{x\, (a+b x)^{1/4}}{(c+d x)^{1/4}}\, dx$$

Optimal (type 3, 188 leaves, 7 steps):

$$-\frac{(5 b c+3 a d)\, (a+b x)^{1/4}\, (c+d x)^{3/4}}{8 b d^2}+\frac{(a+b x)^{5/4}\, (c+d x)^{3/4}}{2 b d}+$$
$$\frac{(b c-a d)\, (5 b c+3 a d)\, \text{ArcTan}\left[\frac{d^{1/4}\, (a+b x)^{1/4}}{b^{1/4}\, (c+d x)^{1/4}}\right]}{16 b^{7/4} d^{9/4}}+\frac{(b c-a d)\, (5 b c+3 a d)\, \text{ArcTanh}\left[\frac{d^{1/4}\, (a+b x)^{1/4}}{b^{1/4}\, (c+d x)^{1/4}}\right]}{16 b^{7/4} d^{9/4}}$$

Result (type 5, 122 leaves):

$$\frac{1}{24\, b\, d^3\, (a+b x)^{3/4}}$$
$$(c+d x)^{3/4} \left(3 d\, (a+b x)\, (-5 b c+a d+4 b d x)+\left(5 b^2 c^2-2 a b c d-3 a^2 d^2\right) \left(\frac{d\, (a+b x)}{-b c+a d}\right)^{3/4} \text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{b\, (c+d x)}{b c-a d}\right]\right)$$

Problem 886: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/4}}{(c+d x)^{1/4}}\, dx$$

Optimal (type 3, 127 leaves, 6 steps):

$$\frac{(a+b x)^{1/4}\, (c+d x)^{3/4}}{d}-\frac{(b c-a d)\, \text{ArcTan}\left[\frac{d^{1/4}\, (a+b x)^{1/4}}{b^{1/4}\, (c+d x)^{1/4}}\right]}{2 b^{3/4} d^{5/4}}-\frac{(b c-a d)\, \text{ArcTanh}\left[\frac{d^{1/4}\, (a+b x)^{1/4}}{b^{1/4}\, (c+d x)^{1/4}}\right]}{2 b^{3/4} d^{5/4}}$$

Result (type 5, 76 leaves):

$$\frac{(a+b x)^{1/4} (c+d x)^{3/4} \left(3+\frac{\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]}{\left(\frac{d (a+b x)}{-b c+a d}\right)^{1/4}}\right)}{3 d}$$

Problem 887: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/4}}{x (c+d x)^{1/4}} \, dx$$

Optimal (type 3, 169 leaves, 11 steps):

$$-\frac{2 a^{1/4} \text{ArcTan}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{c^{1/4}}+\frac{2 b^{1/4} \text{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{d^{1/4}}-\frac{2 a^{1/4} \text{ArcTanh}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{c^{1/4}}+\frac{2 b^{1/4} \text{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{d^{1/4}}$$

Result (type 6, 216 leaves):

$$\left(36 a (b c-a d) (a+b x)^{5/4} \text{AppellF1}\left[\frac{5}{4},\frac{1}{4},1,\frac{9}{4},\frac{d (a+b x)}{-b c+a d},1+\frac{b x}{a}\right]\right) \Big/ \left(5 b x (c+d x)^{1/4} \left(9 a (b c-a d) \text{AppellF1}\left[\frac{5}{4},\frac{1}{4},1,\frac{9}{4},\frac{d (a+b x)}{-b c+a d},1+\frac{b x}{a}\right]-(a+b x) \left((-4 b c+4 a d) \text{AppellF1}\left[\frac{9}{4},\frac{1}{4},2,\frac{13}{4},\frac{d (a+b x)}{-b c+a d},1+\frac{b x}{a}\right]+a d \text{AppellF1}\left[\frac{9}{4},\frac{5}{4},1,\frac{13}{4},\frac{d (a+b x)}{-b c+a d},1+\frac{b x}{a}\right]\right)\right)\right)$$

Problem 888: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/4}}{x^2 (c+d x)^{1/4}} \, dx$$

Optimal (type 3, 131 leaves, 5 steps):

$$-\frac{(a+b x)^{1/4} (c+d x)^{3/4}}{c x}-\frac{(b c-a d) \text{ArcTan}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{2 a^{3/4} c^{5/4}}-\frac{(b c-a d) \text{ArcTanh}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{2 a^{3/4} c^{5/4}}$$

Result (type 6, 176 leaves):

$$\frac{-(a+b x) (c+d x)+\frac{2 b d (b c-a d) x^2 \text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b x},-\frac{c}{d x}\right]}{-8 b d x \text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b x},-\frac{c}{d x}\right]+b c \text{AppellF1}\left[2,\frac{3}{4},\frac{5}{4},3,-\frac{a}{b x},-\frac{c}{d x}\right]+3 a d \text{AppellF1}\left[2,\frac{7}{4},\frac{1}{4},3,-\frac{a}{b x},-\frac{c}{d x}\right]}}{c x (a+b x)^{3/4} (c+d x)^{1/4}}$$

Problem 889: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/4}}{x^3 (c+d x)^{1/4}} \, dx$$

Optimal (type 3, 194 leaves, 6 steps):

$$\frac{(3 b c+5 a d) (a+b x)^{1/4} (c+d x)^{3/4}}{8 a c^2 x}-\frac{(a+b x)^{5/4} (c+d x)^{3/4}}{2 a c x^2}+\frac{(b c-a d) (3 b c+5 a d) \text{ArcTan}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{16 a^{7/4} c^{9/4}}+\frac{(b c-a d) (3 b c+5 a d) \text{ArcTanh}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{16 a^{7/4} c^{9/4}}$$

Result (type 6, 211 leaves):

$$\left((a+b x) (c+d x) (-4 a c-b c x+5 a d x)+\left(2 b d \left(-3 b^2 c^2-2 a b c d+5 a^2 d^2\right) x^3 \text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b x},-\frac{c}{d x}\right]\right)\Big/\left(-8 b d x \text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b x},-\frac{c}{d x}\right]+b c \text{AppellF1}\left[2,\frac{3}{4},\frac{5}{4},3,-\frac{a}{b x},-\frac{c}{d x}\right]+3 a d \text{AppellF1}\left[2,\frac{7}{4},\frac{1}{4},3,-\frac{a}{b x},-\frac{c}{d x}\right]\right)\right)\Big/\left(8 a c^2 x^2 (a+b x)^{3/4} (c+d x)^{1/4}\right)$$

Problem 890: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/4}}{x^4 (c+d x)^{1/4}} \, dx$$

Optimal (type 3, 266 leaves, 8 steps):

$$-\frac{(a+b x)^{1/4} (c+d x)^{3/4}}{3 c x^3}-\frac{(b c-9 a d) (a+b x)^{1/4} (c+d x)^{3/4}}{24 a c^2 x^2}+\frac{(7 b c-15 a d) (b c+3 a d) (a+b x)^{1/4} (c+d x)^{3/4}}{96 a^2 c^3 x}-\frac{(b c-a d) \left(7 b^2 c^2+10 a b c d+15 a^2 d^2\right) \text{ArcTan}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{64 a^{11/4} c^{13/4}}-\frac{(b c-a d) \left(7 b^2 c^2+10 a b c d+15 a^2 d^2\right) \text{ArcTanh}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{64 a^{11/4} c^{13/4}}$$

Result (type 6, 260 leaves):

$$\left(-(a+b x) (c+d x) \left(-7 b^2 c^2 x^2+2 a b c x (2 c-3 d x)+a^2 \left(32 c^2-36 c d x+45 d^2 x^2\right)\right)+\left(6 b d \left(7 b^3 c^3+3 a b^2 c^2 d+5 a^2 b c d^2-15 a^3 d^3\right) x^4 \text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b x},-\frac{c}{d x}\right]\right)\Big/\left(-8 b d x \text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b x},-\frac{c}{d x}\right]+b c \text{AppellF1}\left[2,\frac{3}{4},\frac{5}{4},3,-\frac{a}{b x},-\frac{c}{d x}\right]+3 a d \text{AppellF1}\left[2,\frac{7}{4},\frac{1}{4},3,-\frac{a}{b x},-\frac{c}{d x}\right]\right)\right)\Big/\left(96 a^2 c^3 x^3 (a+b x)^{3/4} (c+d x)^{1/4}\right)$$

Problem 891: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/4}}{x^5 (c+d x)^{1/4}} \, dx$$

Optimal (type 3, 368 leaves, 9 steps):

$$-\frac{(a+b x)^{1/4} (c+d x)^{3/4}}{4 c x^4}-\frac{(b c-13 a d) (a+b x)^{1/4} (c+d x)^{3/4}}{48 a c^2 x^3}+\frac{\left(11 b^2 c^2+10 a b c d-117 a^2 d^2\right) (a+b x)^{1/4} (c+d x)^{3/4}}{384 a^2 c^3 x^2}-\frac{\left(77 b^3 c^3+61 a b^2 c^2 d+63 a^2 b c d^2-585 a^3 d^3\right) (a+b x)^{1/4} (c+d x)^{3/4}}{1536 a^3 c^4 x}+\frac{(b c-a d) \left(77 b^3 c^3+105 a b^2 c^2 d+135 a^2 b c d^2+195 a^3 d^3\right) \text{ArcTan}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{1024 a^{15/4} c^{17/4}}+\frac{(b c-a d) \left(77 b^3 c^3+105 a b^2 c^2 d+135 a^2 b c d^2+195 a^3 d^3\right) \text{ArcTanh}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{1024 a^{15/4} c^{17/4}}$$

Result (type 6, 315 leaves):

$$\Big((a+b x) (c+d x) \left(-77 b^3 c^3 x^3+a b^2 c^2 x^2 (44 c-61 d x)+a^2 b c x \left(-32 c^2+40 c d x-63 d^2 x^2\right)+a^3 \left(-384 c^3+416 c^2 d x-468 c d^2 x^2+585 d^3 x^3\right)\right)-\left(6 b d \left(77 b^4 c^4+28 a b^3 c^3 d+30 a^2 b^2 c^2 d^2+60 a^3 b c d^3-195 a^4 d^4\right) x^5 \text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b x},-\frac{c}{d x}\right]\right)\Big/\left(-8 b d x \text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b x},-\frac{c}{d x}\right]+b c \text{AppellF1}\left[2,\frac{3}{4},\frac{5}{4},3,-\frac{a}{b x},-\frac{c}{d x}\right]+3 a d \text{AppellF1}\left[2,\frac{7}{4},\frac{1}{4},3,-\frac{a}{b x},-\frac{c}{d x}\right]\right)\Big)\Big/\left(1536 a^3 c^4 x^4 (a+b x)^{3/4} (c+d x)^{1/4}\right)$$

Problem 892: Result unnecessarily involves higher level functions.

$$\int \frac{x^2 (1+x)^{1/4}}{(1-x)^{1/4}} \, dx$$

Optimal (type 3, 234 leaves, 14 steps):

$$-\frac{3}{8} (1-x)^{3/4} (1+x)^{1/4}-\frac{1}{12} (1-x)^{3/4} (1+x)^{5/4}-\frac{1}{3} (1-x)^{3/4} x (1+x)^{5/4}+\frac{3 \text{ArcTan}\left[1-\frac{\sqrt{2} (1-x)^{1/4}}{(1+x)^{1/4}}\right]}{8 \sqrt{2}}-\frac{3 \text{ArcTan}\left[1+\frac{\sqrt{2} (1-x)^{1/4}}{(1+x)^{1/4}}\right]}{8 \sqrt{2}}-\frac{3 \text{Log}\left[1+\frac{\sqrt{1-x}}{\sqrt{1+x}}-\frac{\sqrt{2} (1-x)^{1/4}}{(1+x)^{1/4}}\right]}{16 \sqrt{2}}+\frac{3 \text{Log}\left[1+\frac{\sqrt{1-x}}{\sqrt{1+x}}+\frac{\sqrt{2} (1-x)^{1/4}}{(1+x)^{1/4}}\right]}{16 \sqrt{2}}$$

Result (type 5, 57 leaves):

$$\frac{1}{24} (1+x)^{1/4} \left(-(1-x)^{3/4} \left(11+10 x+8 x^2\right)+9\times 2^{3/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{1+x}{2}\right]\right)$$

Problem 893: Result unnecessarily involves higher level functions.

$$\int \frac{x (1+x)^{1/4}}{(1-x)^{1/4}} \, dx$$

Optimal (type 3, 213 leaves, 13 steps):

$$-\frac{1}{4} (1-x)^{3/4} (1+x)^{1/4}-\frac{1}{2} (1-x)^{3/4} (1+x)^{5/4}+\frac{\text{ArcTan}\left[1-\frac{\sqrt{2} (1-x)^{1/4}}{(1+x)^{1/4}}\right]}{4 \sqrt{2}}-\frac{\text{ArcTan}\left[1+\frac{\sqrt{2} (1-x)^{1/4}}{(1+x)^{1/4}}\right]}{4 \sqrt{2}}-\frac{\text{Log}\left[1+\frac{\sqrt{1-x}}{\sqrt{1+x}}-\frac{\sqrt{2} (1-x)^{1/4}}{(1+x)^{1/4}}\right]}{8 \sqrt{2}}+\frac{\text{Log}\left[1+\frac{\sqrt{1-x}}{\sqrt{1+x}}+\frac{\sqrt{2} (1-x)^{1/4}}{(1+x)^{1/4}}\right]}{8 \sqrt{2}}$$

Result (type 5, 51 leaves):

$$\frac{1}{4} (1+x)^{1/4} \left(-(1-x)^{3/4} (3+2 x)+2^{3/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{1+x}{2}\right]\right)$$

Problem 894: Result unnecessarily involves higher level functions.

$$\int \frac{(1+x)^{1/4}}{(1-x)^{1/4}} \, dx$$

Optimal (type 3, 186 leaves, 12 steps):

$$-(1-x)^{3/4} (1+x)^{1/4}+\frac{\text{ArcTan}\left[1-\frac{\sqrt{2} (1-x)^{1/4}}{(1+x)^{1/4}}\right]}{\sqrt{2}}-\frac{\text{ArcTan}\left[1+\frac{\sqrt{2} (1-x)^{1/4}}{(1+x)^{1/4}}\right]}{\sqrt{2}}-\frac{\text{Log}\left[1+\frac{\sqrt{1-x}}{\sqrt{1+x}}-\frac{\sqrt{2} (1-x)^{1/4}}{(1+x)^{1/4}}\right]}{2 \sqrt{2}}+\frac{\text{Log}\left[1+\frac{\sqrt{1-x}}{\sqrt{1+x}}+\frac{\sqrt{2} (1-x)^{1/4}}{(1+x)^{1/4}}\right]}{2 \sqrt{2}}$$

Result (type 5, 43 leaves):

$$(1+x)^{1/4} \left(-(1-x)^{3/4}+2^{3/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\frac{1+x}{2}\right]\right)$$

Problem 895: Result unnecessarily involves higher level functions.

$$\int \frac{(1+x)^{1/4}}{(1-x)^{1/4}\, x}\, dx$$

Optimal (type 3, 203 leaves, 16 steps):

$$-2\,\text{ArcTan}\left[\frac{(1+x)^{1/4}}{(1-x)^{1/4}}\right]+\sqrt{2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,(1-x)^{1/4}}{(1+x)^{1/4}}\right]-\sqrt{2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,(1-x)^{1/4}}{(1+x)^{1/4}}\right]-2\,\text{ArcTanh}\left[\frac{(1+x)^{1/4}}{(1-x)^{1/4}}\right]-\frac{\text{Log}\left[1+\frac{\sqrt{1-x}}{\sqrt{1+x}}-\frac{\sqrt{2}\,(1-x)^{1/4}}{(1+x)^{1/4}}\right]}{\sqrt{2}}+\frac{\text{Log}\left[1+\frac{\sqrt{1-x}}{\sqrt{1+x}}+\frac{\sqrt{2}\,(1-x)^{1/4}}{(1+x)^{1/4}}\right]}{\sqrt{2}}$$

Result (type 6, 119 leaves):

$$\left(72\,(1+x)^{5/4}\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{4},1,\frac{9}{4},\frac{1+x}{2},1+x\right]\right)\Big/\left(5\,(1-x)^{1/4}\,x\,\left(18\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{4},1,\frac{9}{4},\frac{1+x}{2},1+x\right]+(1+x)\,\left(8\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{4},2,\frac{13}{4},\frac{1+x}{2},1+x\right]+\text{AppellF1}\left[\frac{9}{4},\frac{5}{4},1,\frac{13}{4},\frac{1+x}{2},1+x\right]\right)\right)\right)$$

Problem 896: Result unnecessarily involves higher level functions.

$$\int \frac{(1+x)^{1/4}}{(1-x)^{1/4}\, x^2}\, dx$$

Optimal (type 3, 62 leaves, 5 steps):

$$-\frac{(1-x)^{3/4}\,(1+x)^{1/4}}{x}-\text{ArcTan}\left[\frac{(1+x)^{1/4}}{(1-x)^{1/4}}\right]-\text{ArcTanh}\left[\frac{(1+x)^{1/4}}{(1-x)^{1/4}}\right]$$

Result (type 6, 106 leaves):

$$\frac{-1+x^2-\frac{4\,x^2\,\text{AppellF1}\left[1,\frac{1}{4},\frac{3}{4},2,\frac{1}{x},-\frac{1}{x}\right]}{8\,x\,\text{AppellF1}\left[1,\frac{1}{4},\frac{3}{4},2,\frac{1}{x},-\frac{1}{x}\right]-3\,\text{AppellF1}\left[2,\frac{1}{4},\frac{7}{4},3,\frac{1}{x},-\frac{1}{x}\right]+\text{AppellF1}\left[2,\frac{5}{4},\frac{3}{4},3,\frac{1}{x},-\frac{1}{x}\right]}}{(1-x)^{1/4}\,x\,(1+x)^{3/4}}$$

Problem 897: Result unnecessarily involves higher level functions.

$$\int \frac{(1+x)^{1/4}}{(1-x)^{1/4}\, x^3}\, dx$$

Optimal (type 3, 91 leaves, 6 steps):

$$-\frac{(1-x)^{3/4}(1+x)^{1/4}}{4x}-\frac{(1-x)^{3/4}(1+x)^{5/4}}{2x^2}-\frac{1}{4}\text{ArcTan}\left[\frac{(1+x)^{1/4}}{(1-x)^{1/4}}\right]-\frac{1}{4}\text{ArcTanh}\left[\frac{(1+x)^{1/4}}{(1-x)^{1/4}}\right]$$

Result (type 6, 114 leaves):

$$\frac{2-\frac{2}{x^2}-\frac{3}{x}+3x-\frac{4x\,\text{AppellF1}\left[1,\frac{1}{4},\frac{3}{4},2,\frac{1}{x},-\frac{1}{x}\right]}{8x\,\text{AppellF1}\left[1,\frac{1}{4},\frac{3}{4},2,\frac{1}{x},-\frac{1}{x}\right]-3\,\text{AppellF1}\left[2,\frac{1}{4},\frac{7}{4},3,\frac{1}{x},-\frac{1}{x}\right]+\text{AppellF1}\left[2,\frac{5}{4},\frac{3}{4},3,\frac{1}{x},-\frac{1}{x}\right]}}{4(1-x)^{1/4}(1+x)^{3/4}}$$

Problem 898: Result unnecessarily involves higher level functions.

$$\int\frac{(1+x)^{1/4}}{(1-x)^{1/4}x^4}\,dx$$

Optimal (type 3, 114 leaves, 8 steps):

$$-\frac{(1-x)^{3/4}(1+x)^{1/4}}{3x^3}-\frac{5(1-x)^{3/4}(1+x)^{1/4}}{12x^2}-\frac{11(1-x)^{3/4}(1+x)^{1/4}}{24x}-\frac{3}{8}\text{ArcTan}\left[\frac{(1+x)^{1/4}}{(1-x)^{1/4}}\right]-\frac{3}{8}\text{ArcTanh}\left[\frac{(1+x)^{1/4}}{(1-x)^{1/4}}\right]$$

Result (type 6, 119 leaves):

$$\frac{10-\frac{8}{x^3}-\frac{10}{x^2}-\frac{3}{x}+11x-\frac{36x\,\text{AppellF1}\left[1,\frac{1}{4},\frac{3}{4},2,\frac{1}{x},-\frac{1}{x}\right]}{8x\,\text{AppellF1}\left[1,\frac{1}{4},\frac{3}{4},2,\frac{1}{x},-\frac{1}{x}\right]-3\,\text{AppellF1}\left[2,\frac{1}{4},\frac{7}{4},3,\frac{1}{x},-\frac{1}{x}\right]+\text{AppellF1}\left[2,\frac{5}{4},\frac{3}{4},3,\frac{1}{x},-\frac{1}{x}\right]}}{24(1-x)^{1/4}(1+x)^{3/4}}$$

Problem 899: Result unnecessarily involves higher level functions.

$$\int\frac{(1+x)^{1/4}}{(1-x)^{1/4}x^5}\,dx$$

Optimal (type 3, 137 leaves, 9 steps):

$$-\frac{(1-x)^{3/4}(1+x)^{1/4}}{4x^4}-\frac{7(1-x)^{3/4}(1+x)^{1/4}}{24x^3}-\frac{29(1-x)^{3/4}(1+x)^{1/4}}{96x^2}-\frac{83(1-x)^{3/4}(1+x)^{1/4}}{192x}-\frac{11}{64}\text{ArcTan}\left[\frac{(1+x)^{1/4}}{(1-x)^{1/4}}\right]-\frac{11}{64}\text{ArcTanh}\left[\frac{(1+x)^{1/4}}{(1-x)^{1/4}}\right]$$

Result (type 6, 124 leaves):

$$\frac{58-\frac{48}{x^4}-\frac{56}{x^3}-\frac{10}{x^2}-\frac{27}{x}+83x-\frac{132x\,\text{AppellF1}\left[1,\frac{1}{4},\frac{3}{4},2,\frac{1}{x},-\frac{1}{x}\right]}{8x\,\text{AppellF1}\left[1,\frac{1}{4},\frac{3}{4},2,\frac{1}{x},-\frac{1}{x}\right]-3\,\text{AppellF1}\left[2,\frac{1}{4},\frac{7}{4},3,\frac{1}{x},-\frac{1}{x}\right]+\text{AppellF1}\left[2,\frac{5}{4},\frac{3}{4},3,\frac{1}{x},-\frac{1}{x}\right]}}{192(1-x)^{1/4}(1+x)^{3/4}}$$

Problem 900: Result unnecessarily involves higher level functions.

$$\int \frac{x^3}{(a+b x)^{3/4} (c+d x)^{1/4}} \, dx$$

Optimal (type 3, 259 leaves, 7 steps):

$$\frac{x^2 (a+b x)^{1/4} (c+d x)^{3/4}}{3 b d}+\frac{(a+b x)^{1/4} (c+d x)^{3/4} \left(45 b^2 c^2+54 a b c d+77 a^2 d^2-4 b d (9 b c+11 a d) x\right)}{96 b^3 d^3}-\frac{\left(15 b^3 c^3+15 a b^2 c^2 d+21 a^2 b c d^2+77 a^3 d^3\right) \text{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{64 b^{15/4} d^{13/4}}-\frac{\left(15 b^3 c^3+15 a b^2 c^2 d+21 a^2 b c d^2+77 a^3 d^3\right) \text{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{64 b^{15/4} d^{13/4}}$$

Result (type 5, 168 leaves):

$$\frac{1}{96 b^3 d^4 (a+b x)^{3/4}} (c+d x)^{3/4} \left(d (a+b x) \left(77 a^2 d^2+2 a b d (27 c-22 d x)+b^2 \left(45 c^2-36 c d x+32 d^2 x^2\right)\right)-\left(15 b^3 c^3+15 a b^2 c^2 d+21 a^2 b c d^2+77 a^3 d^3\right) \left(\frac{d (a+b x)}{-b c+a d}\right)^{3/4} \text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 901: Result unnecessarily involves higher level functions.

$$\int \frac{x^2}{(a+b x)^{3/4} (c+d x)^{1/4}} \, dx$$

Optimal (type 3, 201 leaves, 7 steps):

$$-\frac{(5 b c+7 a d) (a+b x)^{1/4} (c+d x)^{3/4}}{8 b^2 d^2}+\frac{x (a+b x)^{1/4} (c+d x)^{3/4}}{2 b d}+\frac{\left(5 b^2 c^2+6 a b c d+21 a^2 d^2\right) \text{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{16 b^{11/4} d^{9/4}}+\frac{\left(5 b^2 c^2+6 a b c d+21 a^2 d^2\right) \text{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{16 b^{11/4} d^{9/4}}$$

Result (type 5, 123 leaves):

$$\frac{1}{24 b^2 d^3 (a+b x)^{3/4}} (c+d x)^{3/4} \left(-3 d (a+b x) (5 b c+7 a d-4 b d x)+\left(5 b^2 c^2+6 a b c d+21 a^2 d^2\right) \left(\frac{d (a+b x)}{-b c+a d}\right)^{3/4} \text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 902: Result unnecessarily involves higher level functions.

$$\int \frac{x}{(a+b x)^{3/4} (c+d x)^{1/4}} \, dx$$

Optimal (type 3, 130 leaves, 6 steps):

$$\frac{(a+b x)^{1/4} (c+d x)^{3/4}}{b d}-\frac{(b c+3 a d) \operatorname{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{2 b^{7/4} d^{5/4}}-\frac{(b c+3 a d) \operatorname{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{2 b^{7/4} d^{5/4}}$$

Result (type 5, 95 leaves):

$$\frac{(c+d x)^{3/4} \left(3 d (a+b x)-(b c+3 a d) \left(\frac{d (a+b x)}{-b c+a d}\right)^{3/4} \text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]\right)}{3 b d^2 (a+b x)^{3/4}}$$

Problem 903: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{3/4} (c+d x)^{1/4}} \, dx$$

Optimal (type 3, 85 leaves, 5 steps):

$$\frac{2 \operatorname{ArcTan}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{b^{3/4} d^{1/4}}+\frac{2 \operatorname{ArcTanh}\left[\frac{d^{1/4} (a+b x)^{1/4}}{b^{1/4} (c+d x)^{1/4}}\right]}{b^{3/4} d^{1/4}}$$

Result (type 5, 73 leaves):

$$\frac{4 \left(\frac{d (a+b x)}{-b c+a d}\right)^{3/4} (c+d x)^{3/4} \text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\frac{b (c+d x)}{b c-a d}\right]}{3 d (a+b x)^{3/4}}$$

Problem 904: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x (a+b x)^{3/4} (c+d x)^{1/4}} \, dx$$

Optimal (type 3, 85 leaves, 4 steps):

$$-\frac{2 \operatorname{ArcTan}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{a^{3/4} c^{1/4}}-\frac{2 \operatorname{ArcTanh}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{a^{3/4} c^{1/4}}$$

Result (type 6, 146 leaves):

$$\left(8\,b\,d\,x\,\text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b\,x},-\frac{c}{d\,x}\right]\right)\Big/\left((a+b\,x)^{3/4}\,(c+d\,x)^{1/4}\left(-8\,b\,d\,x\,\text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b\,x},-\frac{c}{d\,x}\right]+b\,c\,\text{AppellF1}\left[2,\frac{3}{4},\frac{5}{4},3,-\frac{a}{b\,x},-\frac{c}{d\,x}\right]+3\,a\,d\,\text{AppellF1}\left[2,\frac{7}{4},\frac{1}{4},3,-\frac{a}{b\,x},-\frac{c}{d\,x}\right]\right)\right)$$

Problem 905: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x^2\,(a+b\,x)^{3/4}\,(c+d\,x)^{1/4}}\,dx$$

Optimal (type 3, 134 leaves, 5 steps):

$$-\frac{(a+b\,x)^{1/4}\,(c+d\,x)^{3/4}}{a\,c\,x}+\frac{(3\,b\,c+a\,d)\,\text{ArcTan}\left[\frac{c^{1/4}\,(a+b\,x)^{1/4}}{a^{1/4}\,(c+d\,x)^{1/4}}\right]}{2\,a^{7/4}\,c^{5/4}}+\frac{(3\,b\,c+a\,d)\,\text{ArcTanh}\left[\frac{c^{1/4}\,(a+b\,x)^{1/4}}{a^{1/4}\,(c+d\,x)^{1/4}}\right]}{2\,a^{7/4}\,c^{5/4}}$$

Result (type 6, 180 leaves):

$$\frac{-(a+b\,x)\,(c+d\,x)+\frac{2\,b\,d\,(3\,b\,c+a\,d)\,x^2\,\text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b\,x},-\frac{c}{d\,x}\right]}{8\,b\,d\,x\,\text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b\,x},-\frac{c}{d\,x}\right]-b\,c\,\text{AppellF1}\left[2,\frac{3}{4},\frac{5}{4},3,-\frac{a}{b\,x},-\frac{c}{d\,x}\right]-3\,a\,d\,\text{AppellF1}\left[2,\frac{7}{4},\frac{1}{4},3,-\frac{a}{b\,x},-\frac{c}{d\,x}\right]}}{a\,c\,x\,(a+b\,x)^{3/4}\,(c+d\,x)^{1/4}}$$

Problem 906: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x^3\,(a+b\,x)^{3/4}\,(c+d\,x)^{1/4}}\,dx$$

Optimal (type 3, 206 leaves, 7 steps):

$$-\frac{(a+b\,x)^{1/4}\,(c+d\,x)^{3/4}}{2\,a\,c\,x^2}+\frac{(7\,b\,c+5\,a\,d)\,(a+b\,x)^{1/4}\,(c+d\,x)^{3/4}}{8\,a^2\,c^2\,x}-\frac{\left(21\,b^2\,c^2+6\,a\,b\,c\,d+5\,a^2\,d^2\right)\,\text{ArcTan}\left[\frac{c^{1/4}\,(a+b\,x)^{1/4}}{a^{1/4}\,(c+d\,x)^{1/4}}\right]}{16\,a^{11/4}\,c^{9/4}}-\frac{\left(21\,b^2\,c^2+6\,a\,b\,c\,d+5\,a^2\,d^2\right)\,\text{ArcTanh}\left[\frac{c^{1/4}\,(a+b\,x)^{1/4}}{a^{1/4}\,(c+d\,x)^{1/4}}\right]}{16\,a^{11/4}\,c^{9/4}}$$

Result (type 6, 211 leaves):

$$\left((a+b\,x)\,(c+d\,x)\,(-4\,a\,c+7\,b\,c\,x+5\,a\,d\,x)+\left(2\,b\,d\,\left(21\,b^2\,c^2+6\,a\,b\,c\,d+5\,a^2\,d^2\right)\,x^3\,\text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b\,x},-\frac{c}{d\,x}\right]\right)\Big/\left(-8\,b\,d\,x\,\text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b\,x},-\frac{c}{d\,x}\right]+b\,c\,\text{AppellF1}\left[2,\frac{3}{4},\frac{5}{4},3,-\frac{a}{b\,x},-\frac{c}{d\,x}\right]+3\,a\,d\,\text{AppellF1}\left[2,\frac{7}{4},\frac{1}{4},3,-\frac{a}{b\,x},-\frac{c}{d\,x}\right]\right)\right)\Big/\left(8\,a^2\,c^2\,x^2\,(a+b\,x)^{3/4}\,(c+d\,x)^{1/4}\right)$$

Problem 907: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x^4 (a+b x)^{3/4} (c+d x)^{1/4}} \, dx$$

Optimal (type 3, 288 leaves, 8 steps):

$$-\frac{(a+b x)^{1/4} (c+d x)^{3/4}}{3 a c x^3}+\frac{(11 b c+9 a d) (a+b x)^{1/4} (c+d x)^{3/4}}{24 a^2 c^2 x^2}-\frac{\left(77 b^2 c^2+54 a b c d+45 a^2 d^2\right) (a+b x)^{1/4} (c+d x)^{3/4}}{96 a^3 c^3 x}+\frac{\left(77 b^3 c^3+21 a b^2 c^2 d+15 a^2 b c d^2+15 a^3 d^3\right) \text{ArcTan}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{64 a^{15/4} c^{13/4}}+\frac{\left(77 b^3 c^3+21 a b^2 c^2 d+15 a^2 b c d^2+15 a^3 d^3\right) \text{ArcTanh}\left[\frac{c^{1/4} (a+b x)^{1/4}}{a^{1/4} (c+d x)^{1/4}}\right]}{64 a^{15/4} c^{13/4}}$$

Result (type 6, 259 leaves):

$$-\left(\left((a+b x) (c+d x) \left(77 b^2 c^2 x^2+2 a b c x (-22 c+27 d x)+a^2 \left(32 c^2-36 c d x+45 d^2 x^2\right)\right)+\left(6 b d \left(77 b^3 c^3+21 a b^2 c^2 d+15 a^2 b c d^2+15 a^3 d^3\right) x^4 \text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b x},-\frac{c}{d x}\right]\right)\Big/\left(-8 b d x \text{AppellF1}\left[1,\frac{3}{4},\frac{1}{4},2,-\frac{a}{b x},-\frac{c}{d x}\right]+b c \text{AppellF1}\left[2,\frac{3}{4},\frac{5}{4},3,-\frac{a}{b x},-\frac{c}{d x}\right]+3 a d \text{AppellF1}\left[2,\frac{7}{4},\frac{1}{4},3,-\frac{a}{b x},-\frac{c}{d x}\right]\right)\right)\Big/\left(96 a^3 c^3 x^3 (a+b x)^{3/4} (c+d x)^{1/4}\right)\right)$$

Problem 908: Result unnecessarily involves higher level functions.

$$\int \frac{(e x)^{3/2}}{(1-x)^{1/4} (1+x)^{1/4}} \, dx$$

Optimal (type 3, 244 leaves, 13 steps):

$$-\frac{1}{2} e \sqrt{e x} \left(1-x^2\right)^{3/4}-\frac{e^{3/2} \text{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{e x}}{\sqrt{e} \left(1-x^2\right)^{1/4}}\right]}{4 \sqrt{2}}+\frac{e^{3/2} \text{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{e x}}{\sqrt{e} \left(1-x^2\right)^{1/4}}\right]}{4 \sqrt{2}}-\frac{e^{3/2} \text{Log}\left[\sqrt{e}+\frac{\sqrt{e} x}{\sqrt{1-x^2}}-\frac{\sqrt{2} \sqrt{e x}}{\left(1-x^2\right)^{1/4}}\right]}{8 \sqrt{2}}+\frac{e^{3/2} \text{Log}\left[\sqrt{e}+\frac{\sqrt{e} x}{\sqrt{1-x^2}}+\frac{\sqrt{2} \sqrt{e x}}{\left(1-x^2\right)^{1/4}}\right]}{8 \sqrt{2}}$$

Result (type 5, 39 leaves):

$$\frac{1}{2} e \sqrt{e x} \left(-\left(1-x^2\right)^{3/4}+\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},x^2\right]\right)$$

Problem 909: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(1-x)^{1/4}\sqrt{e\,x}\,(1+x)^{1/4}}\,dx$$

Optimal (type 3, 216 leaves, 12 steps):

$$-\frac{\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{e\,x}}{\sqrt{e}\,(1-x^2)^{1/4}}\right]}{\sqrt{2}\,\sqrt{e}}+\frac{\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{e\,x}}{\sqrt{e}\,(1-x^2)^{1/4}}\right]}{\sqrt{2}\,\sqrt{e}}-\frac{\text{Log}\left[\sqrt{e}+\frac{\sqrt{e}\,x}{\sqrt{1-x^2}}-\frac{\sqrt{2}\,\sqrt{e\,x}}{(1-x^2)^{1/4}}\right]}{2\sqrt{2}\,\sqrt{e}}+\frac{\text{Log}\left[\sqrt{e}+\frac{\sqrt{e}\,x}{\sqrt{1-x^2}}+\frac{\sqrt{2}\,\sqrt{e\,x}}{(1-x^2)^{1/4}}\right]}{2\sqrt{2}\,\sqrt{e}}$$

Result (type 5, 23 leaves):

$$\frac{2\,x\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},x^2\right]}{\sqrt{e\,x}}$$

Problem 913: Result unnecessarily involves higher level functions.

$$\int \frac{(e\,x)^{5/2}}{(1-x)^{1/4}\,(1+x)^{1/4}}\,dx$$

Optimal (type 4, 93 leaves, 6 steps):

$$-\frac{e^3\,(1-x^2)^{3/4}}{2\sqrt{e\,x}}-\frac{1}{3}\,e\,(e\,x)^{3/2}\,(1-x^2)^{3/4}+\frac{e^2\left(1-\frac{1}{x^2}\right)^{1/4}\sqrt{e\,x}\,\text{EllipticE}\left[\frac{\text{ArcCsc}[x]}{2},2\right]}{2\,(1-x^2)^{1/4}}$$

Result (type 5, 39 leaves):

$$-\frac{1}{3}\,e\,(e\,x)^{3/2}\left((1-x^2)^{3/4}-\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},x^2\right]\right)$$

Problem 914: Result unnecessarily involves higher level functions.

$$\int \frac{\sqrt{e\,x}}{(1-x)^{1/4}\,(1+x)^{1/4}}\,dx$$

Optimal (type 4, 60 leaves, 5 steps):

$$-\frac{e\,(1-x^2)^{3/4}}{\sqrt{e\,x}}+\frac{\left(1-\frac{1}{x^2}\right)^{1/4}\sqrt{e\,x}\,\text{EllipticE}\left[\frac{\text{ArcCsc}[x]}{2},2\right]}{(1-x^2)^{1/4}}$$

Result (type 5, 25 leaves):

$$\frac{2}{3} x \sqrt{e x} \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, x^2\right]$$

Problem 915: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(1-x)^{1/4} (e x)^{3/2} (1+x)^{1/4}} \, dx$$

Optimal (type 4, 42 leaves, 4 steps):

$$-\frac{2 \left(1-\frac{1}{x^2}\right)^{1/4} \sqrt{e x} \text{EllipticE}\left[\frac{\text{ArcCsc}[x]}{2}, 2\right]}{e^2 \left(1-x^2\right)^{1/4}}$$

Result (type 5, 44 leaves):

$$-\frac{2 x \left(3 \left(1-x^2\right)^{3/4}+2 x^2 \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, x^2\right]\right)}{3 (e x)^{3/2}}$$

Problem 916: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(1-x)^{1/4} (e x)^{7/2} (1+x)^{1/4}} \, dx$$

Optimal (type 4, 70 leaves, 5 steps):

$$-\frac{2 \left(1-x^2\right)^{3/4}}{5 e (e x)^{5/2}}-\frac{4 \left(1-\frac{1}{x^2}\right)^{1/4} \sqrt{e x} \text{EllipticE}\left[\frac{\text{ArcCsc}[x]}{2}, 2\right]}{5 e^4 \left(1-x^2\right)^{1/4}}$$

Result (type 5, 51 leaves):

$$\frac{x \left(-6 \left(1-x^2\right)^{3/4} \left(1+2 x^2\right)-8 x^4 \text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, x^2\right]\right)}{15 (e x)^{7/2}}$$

Problem 917: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(1-x)^{1/4} (e x)^{11/2} (1+x)^{1/4}} \, dx$$

Optimal (type 4, 95 leaves, 6 steps):

$$-\frac{2\left(1-x^2\right)^{3/4}}{9 e (e x)^{9/2}}-\frac{4\left(1-x^2\right)^{3/4}}{15 e^3 (e x)^{5/2}}-\frac{8\left(1-\frac{1}{x^2}\right)^{1/4}\sqrt{e x}\,\text{EllipticE}\left[\frac{\text{ArcCsc}[x]}{2},2\right]}{15 e^6\left(1-x^2\right)^{1/4}}$$

Result (type 5, 60 leaves):

$$-\frac{2\sqrt{e x}\left(\left(1-x^2\right)^{3/4}\left(5+6 x^2+12 x^4\right)+8 x^6\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},x^2\right]\right)}{45 e^6 x^5}$$

Problem 942: Result unnecessarily involves higher level functions.

$$\int\frac{x^3 (a+b x)^n}{(c+d x)^2}\,dx$$

Optimal (type 5, 203 leaves, 3 steps):

$$\frac{x^2 (a+b x)^{1+n}}{b d (2+n) (c+d x)}-\Big((a+b x)^{1+n}\left(c\left(b c (2+n)(a d+b c (3+n))-a d (a d+b c (5+3 n))\right)+d (b c-a d)(a d+b c (3+n))\,x\right)\Big)\Big/\left(b^2 d^3 (b c-a d)(1+n)(2+n)(c+d x)\right)-\frac{c^2 (3 a d-b c (3+n))(a+b x)^{1+n}\,\text{Hypergeometric2F1}\left[1,1+n,2+n,-\frac{d (a+b x)}{b c-a d}\right]}{d^3 (b c-a d)^2 (1+n)}$$

Result (type 6, 126 leaves):

$$\left(5 a c x^4 (a+b x)^n\,\text{AppellF1}\left[4,-n,2,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\Big(4 (c+d x)^2\Big(5 a c\,\text{AppellF1}\left[4,-n,2,5,-\frac{b x}{a},-\frac{d x}{c}\right]+b c n x\,\text{AppellF1}\left[5,1-n,2,6,-\frac{b x}{a},-\frac{d x}{c}\right]-2 a d x\,\text{AppellF1}\left[5,-n,3,6,-\frac{b x}{a},-\frac{d x}{c}\right]\Big)\Big)$$

Problem 943: Result unnecessarily involves higher level functions.

$$\int\frac{x^2 (a+b x)^n}{(c+d x)^2}\,dx$$

Optimal (type 5, 122 leaves, 3 steps):

$$\frac{(a+b x)^{1+n}}{b d^2 (1+n)}+\frac{c^2 (a+b x)^{1+n}}{d^2 (b c-a d)(c+d x)}+\frac{c (2 a d-b c (2+n))(a+b x)^{1+n}\,\text{Hypergeometric2F1}\left[1,1+n,2+n,-\frac{d (a+b x)}{b c-a d}\right]}{d^2 (b c-a d)^2 (1+n)}$$

Result (type 6, 126 leaves):

$$\left(4\,a\,c\,x^3\,(a+b\,x)^n\,\text{AppellF1}\left[3,-n,2,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/\left(3\,(c+d\,x)^2\left(4\,a\,c\,\text{AppellF1}\left[3,-n,2,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+b\,c\,n\,x\,\text{AppellF1}\left[4,1-n,2,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-2\,a\,d\,x\,\text{AppellF1}\left[4,-n,3,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)$$

Problem 944: Result unnecessarily involves higher level functions.

$$\int\frac{x\,(a+b\,x)^n}{(c+d\,x)^2}\,dx$$

Optimal (type 5, 99 leaves, 2 steps):

$$-\frac{c\,(a+b\,x)^{1+n}}{d\,(b\,c-a\,d)\,(c+d\,x)}-\frac{(a\,d-b\,c\,(1+n))\,(a+b\,x)^{1+n}\,\text{Hypergeometric2F1}\left[1,1+n,2+n,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]}{d\,(b\,c-a\,d)^2\,(1+n)}$$

Result (type 6, 126 leaves):

$$\left(3\,a\,c\,x^2\,(a+b\,x)^n\,\text{AppellF1}\left[2,-n,2,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/\left(2\,(c+d\,x)^2\left(3\,a\,c\,\text{AppellF1}\left[2,-n,2,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+b\,c\,n\,x\,\text{AppellF1}\left[3,1-n,2,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-2\,a\,d\,x\,\text{AppellF1}\left[3,-n,3,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)$$

Problem 945: Unable to integrate problem.

$$\int\frac{(a+b\,x)^n}{(c+d\,x)^2}\,dx$$

Optimal (type 5, 52 leaves, 1 step):

$$\frac{b\,(a+b\,x)^{1+n}\,\text{Hypergeometric2F1}\left[2,1+n,2+n,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]}{(b\,c-a\,d)^2\,(1+n)}$$

Result (type 8, 17 leaves):

$$\int\frac{(a+b\,x)^n}{(c+d\,x)^2}\,dx$$

Problem 946: Unable to integrate problem.

$$\int\frac{(a+b\,x)^n}{x\,(c+d\,x)^2}\,dx$$

Optimal (type 5, 139 leaves, 4 steps):

$$-\frac{d\,(a+b\,x)^{1+n}}{c\,(b\,c-a\,d)\,(c+d\,x)}+\frac{d\,(a\,d-b\,c\,(1-n))\,(a+b\,x)^{1+n}\,\text{Hypergeometric2F1}\left[1,1+n,2+n,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]}{c^2\,(b\,c-a\,d)^2\,(1+n)}-\frac{(a+b\,x)^{1+n}\,\text{Hypergeometric2F1}\left[1,1+n,2+n,1+\frac{b\,x}{a}\right]}{a\,c^2\,(1+n)}$$

Result (type 8, 20 leaves):

$$\int\frac{(a+b\,x)^n}{x\,(c+d\,x)^2}\,dx$$

Problem 947: Unable to integrate problem.

$$\int\frac{(a+b\,x)^n}{x^2\,(c+d\,x)^2}\,dx$$

Optimal (type 5, 190 leaves, 5 steps):

$$-\frac{d\,(b\,c-2\,a\,d)\,(a+b\,x)^{1+n}}{a\,c^2\,(b\,c-a\,d)\,(c+d\,x)}-\frac{(a+b\,x)^{1+n}}{a\,c\,x\,(c+d\,x)}-\frac{d^2\,(2\,a\,d-b\,c\,(2-n))\,(a+b\,x)^{1+n}\,\text{Hypergeometric2F1}\left[1,1+n,2+n,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]}{c^3\,(b\,c-a\,d)^2\,(1+n)}+\frac{(2\,a\,d-b\,c\,n)\,(a+b\,x)^{1+n}\,\text{Hypergeometric2F1}\left[1,1+n,2+n,1+\frac{b\,x}{a}\right]}{a^2\,c^3\,(1+n)}$$

Result (type 8, 20 leaves):

$$\int\frac{(a+b\,x)^n}{x^2\,(c+d\,x)^2}\,dx$$

Problem 950: Result more than twice size of optimal antiderivative.

$$\int\frac{(b\,x)^{5/2}\,(c+d\,x)^n}{e+f\,x}\,dx$$

Optimal (type 6, 61 leaves, 3 steps):

$$\frac{2\,(b\,x)^{7/2}\,(c+d\,x)^n\,\left(1+\frac{d\,x}{c}\right)^{-n}\,\text{AppellF1}\left[\frac{7}{2},-n,1,\frac{9}{2},-\frac{d\,x}{c},-\frac{f\,x}{e}\right]}{7\,b\,e}$$

Result (type 6, 239 leaves):

$$\frac{1}{15 f^3 x^2} 2 (b x)^{5/2} (c+d x)^n \left(-\left(\left(45 c e^4 \text{AppellF1}\left[\frac{1}{2},-n,1,\frac{3}{2},-\frac{d x}{c},-\frac{f x}{e}\right]\right)\Big/\left((e+f x) \left(3 c e \text{AppellF1}\left[\frac{1}{2},-n,1,\frac{3}{2},-\frac{d x}{c},-\frac{f x}{e}\right]+2 d e n x \text{AppellF1}\left[\frac{3}{2},1-n,1,\frac{5}{2},-\frac{d x}{c},-\frac{f x}{e}\right]-2 c f x \text{AppellF1}\left[\frac{3}{2},-n,2,\frac{5}{2},-\frac{d x}{c},-\frac{f x}{e}\right]\right)\right)\right)+\left(1+\frac{d x}{c}\right)^{-n} \left(15 e^2 \text{Hypergeometric2F1}\left[\frac{1}{2},-n,\frac{3}{2},-\frac{d x}{c}\right]+f x \left(-5 e \text{Hypergeometric2F1}\left[\frac{3}{2},-n,\frac{5}{2},-\frac{d x}{c}\right]+3 f x \text{Hypergeometric2F1}\left[\frac{5}{2},-n,\frac{7}{2},-\frac{d x}{c}\right]\right)\right)\right)$$

Problem 951: Result more than twice size of optimal antiderivative.

$$\int \frac{(b x)^{5/2} (c+d x)^n}{(e+f x)^2} \, dx$$

Optimal (type 6, 61 leaves, 3 steps):

$$\frac{2 (b x)^{7/2} (c+d x)^n \left(1+\frac{d x}{c}\right)^{-n} \text{AppellF1}\left[\frac{7}{2},-n,2,\frac{9}{2},-\frac{d x}{c},-\frac{f x}{e}\right]}{7 b e^2}$$

Result (type 6, 345 leaves):

$$\frac{1}{3 f^3} 2 b^2 \sqrt{b x} (c+d x)^n \left(\left(27 c e^3 \text{AppellF1}\left[\frac{1}{2},-n,1,\frac{3}{2},-\frac{d x}{c},-\frac{f x}{e}\right]\right)\Big/\left((e+f x) \left(3 c e \text{AppellF1}\left[\frac{1}{2},-n,1,\frac{3}{2},-\frac{d x}{c},-\frac{f x}{e}\right]+2 d e n x \text{AppellF1}\left[\frac{3}{2},1-n,1,\frac{5}{2},-\frac{d x}{c},-\frac{f x}{e}\right]-2 c f x \text{AppellF1}\left[\frac{3}{2},-n,2,\frac{5}{2},-\frac{d x}{c},-\frac{f x}{e}\right]\right)\right)-\left(9 c e^4 \text{AppellF1}\left[\frac{1}{2},-n,2,\frac{3}{2},-\frac{d x}{c},-\frac{f x}{e}\right]\right)\Big/\left((e+f x)^2 \left(3 c e \text{AppellF1}\left[\frac{1}{2},-n,2,\frac{3}{2},-\frac{d x}{c},-\frac{f x}{e}\right]+2 d e n x \text{AppellF1}\left[\frac{3}{2},1-n,2,\frac{5}{2},-\frac{d x}{c},-\frac{f x}{e}\right]-4 c f x \text{AppellF1}\left[\frac{3}{2},-n,3,\frac{5}{2},-\frac{d x}{c},-\frac{f x}{e}\right]\right)\right)+\left(1+\frac{d x}{c}\right)^{-n} \left(-6 e \text{Hypergeometric2F1}\left[\frac{1}{2},-n,\frac{3}{2},-\frac{d x}{c}\right]+f x \text{Hypergeometric2F1}\left[\frac{3}{2},-n,\frac{5}{2},-\frac{d x}{c}\right]\right)\right)$$

Problem 954: Result more than twice size of optimal antiderivative.

$$\int \frac{(b x)^m (c+d x)^n}{e+f x} \, dx$$

Optimal (type 6, 63 leaves, 2 steps):

$$\frac{(b\,x)^{1+m}\,(c+d\,x)^n\,\left(1+\frac{d\,x}{c}\right)^{-n}\,\text{AppellF1}\left[1+m,\,-n,\,1,\,2+m,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\right]}{b\,e\,(1+m)}$$

Result (type 6, 153 leaves):

$$\left(c\,e\,(2+m)\,x\,(b\,x)^m\,(c+d\,x)^n\,\text{AppellF1}\left[1+m,\,-n,\,1,\,2+m,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\right]\right)\Big/ \left((1+m)\,(e+f\,x)\,\left(c\,e\,(2+m)\,\text{AppellF1}\left[1+m,\,-n,\,1,\,2+m,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\right]+ x\,\left(d\,e\,n\,\text{AppellF1}\left[2+m,\,1-n,\,1,\,3+m,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\right]-c\,f\,\text{AppellF1}\left[2+m,\,-n,\,2,\,3+m,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\right]\right)\right)\right)$$

Problem 955: Result more than twice size of optimal antiderivative.

$$\int \frac{(b\,x)^m\,(c+d\,x)^n}{(e+f\,x)^2}\,dx$$

Optimal (type 6, 63 leaves, 2 steps):

$$\frac{(b\,x)^{1+m}\,(c+d\,x)^n\,\left(1+\frac{d\,x}{c}\right)^{-n}\,\text{AppellF1}\left[1+m,\,-n,\,2,\,2+m,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\right]}{b\,e^2\,(1+m)}$$

Result (type 6, 153 leaves):

$$\left(c\,e\,(2+m)\,x\,(b\,x)^m\,(c+d\,x)^n\,\text{AppellF1}\left[1+m,\,-n,\,2,\,2+m,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\right]\right)\Big/ \left((1+m)\,(e+f\,x)^2\,\left(c\,e\,(2+m)\,\text{AppellF1}\left[1+m,\,-n,\,2,\,2+m,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\right]+ x\,\left(d\,e\,n\,\text{AppellF1}\left[2+m,\,1-n,\,2,\,3+m,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\right]-2\,c\,f\,\text{AppellF1}\left[2+m,\,-n,\,3,\,3+m,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\right]\right)\right)\right)$$

Problem 956: Result more than twice size of optimal antiderivative.

$$\int (b\,x)^m\,(c+d\,x)^n\,(e+f\,x)^p\,dx$$

Optimal (type 6, 81 leaves, 3 steps):

$$\frac{(b\,x)^{1+m}\,(c+d\,x)^n\,\left(1+\frac{d\,x}{c}\right)^{-n}\,(e+f\,x)^p\,\left(1+\frac{f\,x}{e}\right)^{-p}\,\text{AppellF1}\left[1+m,\,-n,\,-p,\,2+m,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\right]}{b\,(1+m)}$$

Result (type 6, 163 leaves):

$$\left(c\,e\,(2+m)\,x\,(b\,x)^m\,(c+d\,x)^n\,(e+f\,x)^p\,\text{AppellF1}\left[1+m,-n,-p,2+m,-\frac{d\,x}{c},-\frac{f\,x}{e}\right]\right)\Big/$$
$$\left((1+m)\left(c\,e\,(2+m)\,\text{AppellF1}\left[1+m,-n,-p,2+m,-\frac{d\,x}{c},-\frac{f\,x}{e}\right]+\right.\right.$$
$$\left.\left.x\left(d\,e\,n\,\text{AppellF1}\left[2+m,1-n,-p,3+m,-\frac{d\,x}{c},-\frac{f\,x}{e}\right]+c\,f\,p\,\text{AppellF1}\left[2+m,-n,1-p,3+m,-\frac{d\,x}{c},-\frac{f\,x}{e}\right]\right)\right)\right)$$

Problem 958: Result unnecessarily involves higher level functions.

$$\int x^2\,(a+b\,x)^n\,(c+d\,x)^p\,dx$$

Optimal (type 5, 206 leaves, 4 steps):

$$-\frac{(b\,c\,(2+n)+a\,d\,(2+p))\,(a+b\,x)^{1+n}\,(c+d\,x)^{1+p}}{b^2\,d^2\,(2+n+p)\,(3+n+p)}+\frac{x\,(a+b\,x)^{1+n}\,(c+d\,x)^{1+p}}{b\,d\,(3+n+p)}-$$
$$\left(\left(b^2\,c^2\,(2+3\,n+n^2)+2\,a\,b\,c\,d\,(1+n)\,(1+p)+a^2\,d^2\,(2+3\,p+p^2)\right)\,(a+b\,x)^{1+n}\,(c+d\,x)^{1+p}\,\text{Hypergeometric2F1}\left[1,2+n+p,2+p,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)\Big/$$
$$\left(b^2\,d^2\,(b\,c-a\,d)\,(1+p)\,(2+n+p)\,(3+n+p)\right)$$

Result (type 6, 136 leaves):

$$\left(4\,a\,c\,x^3\,(a+b\,x)^n\,(c+d\,x)^p\,\text{AppellF1}\left[3,-n,-p,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(3\left(4\,a\,c\,\text{AppellF1}\left[3,-n,-p,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+b\,c\,n\,x\,\text{AppellF1}\left[4,1-n,-p,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+a\,d\,p\,x\,\text{AppellF1}\left[4,-n,1-p,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)$$

Problem 959: Result unnecessarily involves higher level functions.

$$\int x\,(a+b\,x)^n\,(c+d\,x)^p\,dx$$

Optimal (type 5, 117 leaves, 3 steps):

$$\frac{(a+b\,x)^{1+n}\,(c+d\,x)^{1+p}}{b\,d\,(2+n+p)}+\frac{(b\,c\,(1+n)+a\,d\,(1+p))\,(a+b\,x)^{1+n}\,(c+d\,x)^{1+p}\,\text{Hypergeometric2F1}\left[1,2+n+p,2+p,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{b\,d\,(b\,c-a\,d)\,(1+p)\,(2+n+p)}$$

Result (type 6, 136 leaves):

$$\left(3\,a\,c\,x^2\,(a+b\,x)^n\,(c+d\,x)^p\,\text{AppellF1}\left[2,-n,-p,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(6\,a\,c\,\text{AppellF1}\left[2,-n,-p,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+2\,b\,c\,n\,x\,\text{AppellF1}\left[3,1-n,-p,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+2\,a\,d\,p\,x\,\text{AppellF1}\left[3,-n,1-p,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)$$

Problem 961: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^n (c+d x)^p}{x} \, dx$$

Optimal (type 6, 85 leaves, 2 steps):

$$-\frac{(a+b x)^{1+n} (c+d x)^p \left(\frac{b (c+d x)}{b c-a d}\right)^{-p} \text{AppellF1}\left[1+n,-p,1,2+n,-\frac{d (a+b x)}{b c-a d},\frac{a+b x}{a}\right]}{a (1+n)}$$

Result (type 6, 214 leaves):

$$\left(b d (-1+n+p) x (a+b x)^n (c+d x)^p \text{AppellF1}\left[-n-p,-n,-p,1-n-p,-\frac{a}{b x},-\frac{c}{d x}\right]\right) \Big/ \left((n+p) \left(b d (-1+n+p) x \text{AppellF1}\left[-n-p,-n,-p,1-n-p,-\frac{a}{b x},-\frac{c}{d x}\right]-a d n \text{AppellF1}\left[1-n-p,1-n,-p,2-n-p,-\frac{a}{b x},-\frac{c}{d x}\right]-b c p \text{AppellF1}\left[1-n-p,-n,1-p,2-n-p,-\frac{a}{b x},-\frac{c}{d x}\right]\right)\right)$$

Problem 962: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^n (c+d x)^p}{x^2} \, dx$$

Optimal (type 6, 85 leaves, 2 steps):

$$\frac{b (a+b x)^{1+n} (c+d x)^p \left(\frac{b (c+d x)}{b c-a d}\right)^{-p} \text{AppellF1}\left[1+n,-p,2,2+n,-\frac{d (a+b x)}{b c-a d},\frac{a+b x}{a}\right]}{a^2 (1+n)}$$

Result (type 6, 216 leaves):

$$\left(b d (-2+n+p) (a+b x)^n (c+d x)^p \text{AppellF1}\left[1-n-p,-n,-p,2-n-p,-\frac{a}{b x},-\frac{c}{d x}\right]\right) \Big/ \left((-1+n+p) \left(b d (-2+n+p) x \text{AppellF1}\left[1-n-p,-n,-p,2-n-p,-\frac{a}{b x},-\frac{c}{d x}\right]-a d n \text{AppellF1}\left[2-n-p,1-n,-p,3-n-p,-\frac{a}{b x},-\frac{c}{d x}\right]-b c p \text{AppellF1}\left[2-n-p,-n,1-p,3-n-p,-\frac{a}{b x},-\frac{c}{d x}\right]\right)\right)$$

Problem 963: Result more than twice size of optimal antiderivative.

$$\int (b x)^{3/2} (c+d x)^n (e+f x)^p \, dx$$

Optimal (type 6, 79 leaves, 3 steps):

$$\frac{2\,(b\,x)^{5/2}\,(c+d\,x)^n\left(1+\frac{d\,x}{c}\right)^{-n}(e+f\,x)^p\left(1+\frac{f\,x}{e}\right)^{-p}\text{AppellF1}\left[\frac{5}{2},-n,-p,\frac{7}{2},-\frac{d\,x}{c},-\frac{f\,x}{e}\right]}{5\,b}$$

Result (type 6, 159 leaves):

$$\left(14\,c\,e\,x\,(b\,x)^{3/2}\,(c+d\,x)^n\,(e+f\,x)^p\,\text{AppellF1}\left[\frac{5}{2},-n,-p,\frac{7}{2},-\frac{d\,x}{c},-\frac{f\,x}{e}\right]\right)\Big/\left(5\left(7\,c\,e\,\text{AppellF1}\left[\frac{5}{2},-n,-p,\frac{7}{2},-\frac{d\,x}{c},-\frac{f\,x}{e}\right]+2\,x\left(d\,e\,n\,\text{AppellF1}\left[\frac{7}{2},1-n,-p,\frac{9}{2},-\frac{d\,x}{c},-\frac{f\,x}{e}\right]+c\,f\,p\,\text{AppellF1}\left[\frac{7}{2},-n,1-p,\frac{9}{2},-\frac{d\,x}{c},-\frac{f\,x}{e}\right]\right)\right)\right)$$

Problem 965: Result more than twice size of optimal antiderivative.

$$\int\frac{(c+d\,x)^n\,(e+f\,x)^p}{\sqrt{b\,x}}\,dx$$

Optimal (type 6, 77 leaves, 3 steps):

$$\frac{2\,\sqrt{b\,x}\,(c+d\,x)^n\left(1+\frac{d\,x}{c}\right)^{-n}(e+f\,x)^p\left(1+\frac{f\,x}{e}\right)^{-p}\text{AppellF1}\left[\frac{1}{2},-n,-p,\frac{3}{2},-\frac{d\,x}{c},-\frac{f\,x}{e}\right]}{b}$$

Result (type 6, 157 leaves):

$$\left(6\,c\,e\,x\,(c+d\,x)^n\,(e+f\,x)^p\,\text{AppellF1}\left[\frac{1}{2},-n,-p,\frac{3}{2},-\frac{d\,x}{c},-\frac{f\,x}{e}\right]\right)\Big/\left(\sqrt{b\,x}\left(3\,c\,e\,\text{AppellF1}\left[\frac{1}{2},-n,-p,\frac{3}{2},-\frac{d\,x}{c},-\frac{f\,x}{e}\right]+2\,d\,e\,n\,x\,\text{AppellF1}\left[\frac{3}{2},1-n,-p,\frac{5}{2},-\frac{d\,x}{c},-\frac{f\,x}{e}\right]+2\,c\,f\,p\,x\,\text{AppellF1}\left[\frac{3}{2},-n,1-p,\frac{5}{2},-\frac{d\,x}{c},-\frac{f\,x}{e}\right]\right)\right)$$

Problem 966: Result more than twice size of optimal antiderivative.

$$\int(b\,x)^m\,(\pi+d\,x)^n\,(e+f\,x)^p\,dx$$

Optimal (type 6, 49 leaves, 1 step):

$$\frac{e^p\,\pi^n\,(b\,x)^{1+m}\,\text{AppellF1}\left[1+m,-n,-p,2+m,-\frac{d\,x}{\pi},-\frac{f\,x}{e}\right]}{b\,(1+m)}$$

Result (type 6, 163 leaves):

$$\left(e\,(2+m)\,\pi\,x\,(b\,x)^m\,(\pi+d\,x)^n\,(e+f\,x)^p\,\text{AppellF1}\left[1+m,\,-n,\,-p,\,2+m,\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]\right)\Big/$$
$$\left((1+m)\,\left(e\,(2+m)\,\pi\,\text{AppellF1}\left[1+m,\,-n,\,-p,\,2+m,\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]+\right.\right.$$
$$\left.\left.x\,\left(d\,e\,n\,\text{AppellF1}\left[2+m,\,1-n,\,-p,\,3+m,\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]+f\,p\,\pi\,\text{AppellF1}\left[2+m,\,-n,\,1-p,\,3+m,\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]\right)\right)\right)$$

Problem 967: Result more than twice size of optimal antiderivative.

$$\int (b\,x)^m\,(\pi+d\,x)^n\,(e+f\,x)^p\,dx$$

Optimal (type 6, 65 leaves, 2 steps):

$$\frac{\pi^n\,(b\,x)^{1+m}\,(e+f\,x)^p\,\left(1+\frac{f\,x}{e}\right)^{-p}\,\text{AppellF1}\left[1+m,\,-n,\,-p,\,2+m,\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]}{b\,(1+m)}$$

Result (type 6, 163 leaves):

$$\left(e\,(2+m)\,\pi\,x\,(b\,x)^m\,(\pi+d\,x)^n\,(e+f\,x)^p\,\text{AppellF1}\left[1+m,\,-n,\,-p,\,2+m,\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]\right)\Big/$$
$$\left((1+m)\,\left(e\,(2+m)\,\pi\,\text{AppellF1}\left[1+m,\,-n,\,-p,\,2+m,\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]+\right.\right.$$
$$\left.\left.x\,\left(d\,e\,n\,\text{AppellF1}\left[2+m,\,1-n,\,-p,\,3+m,\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]+f\,p\,\pi\,\text{AppellF1}\left[2+m,\,-n,\,1-p,\,3+m,\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]\right)\right)\right)$$

Problem 968: Result more than twice size of optimal antiderivative.

$$\int (b\,x)^{5/2}\,(\pi+d\,x)^n\,(e+f\,x)^p\,dx$$

Optimal (type 6, 47 leaves, 1 step):

$$\frac{2\,e^p\,\pi^n\,(b\,x)^{7/2}\,\text{AppellF1}\left[\frac{7}{2},\,-n,\,-p,\,\frac{9}{2},\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]}{7\,b}$$

Result (type 6, 159 leaves):

$$\left(18\,e\,\pi\,x\,(b\,x)^{5/2}\,(\pi+d\,x)^n\,(e+f\,x)^p\,\text{AppellF1}\left[\frac{7}{2},\,-n,\,-p,\,\frac{9}{2},\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]\right)\Big/\left(7\,\left(9\,e\,\pi\,\text{AppellF1}\left[\frac{7}{2},\,-n,\,-p,\,\frac{9}{2},\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]+\right.\right.$$
$$\left.\left.2\,x\,\left(d\,e\,n\,\text{AppellF1}\left[\frac{9}{2},\,1-n,\,-p,\,\frac{11}{2},\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]+f\,p\,\pi\,\text{AppellF1}\left[\frac{9}{2},\,-n,\,1-p,\,\frac{11}{2},\,-\frac{d\,x}{\pi},\,-\frac{f\,x}{e}\right]\right)\right)\right)$$

Problem 969: Result more than twice size of optimal antiderivative.

$$\int (b x)^{5/2} (\pi + d x)^n (e + f x)^p \, dx$$

Optimal (type 6, 63 leaves, 2 steps):

$$\frac{2 \pi^n (b x)^{7/2} (e + f x)^p \left(1 + \frac{f x}{e}\right)^{-p} \text{AppellF1}\left[\frac{7}{2}, -n, -p, \frac{9}{2}, -\frac{d x}{\pi}, -\frac{f x}{e}\right]}{7 b}$$

Result (type 6, 159 leaves):

$$\left(18 e \pi x (b x)^{5/2} (\pi + d x)^n (e + f x)^p \text{AppellF1}\left[\frac{7}{2}, -n, -p, \frac{9}{2}, -\frac{d x}{\pi}, -\frac{f x}{e}\right]\right) \Big/ \left(7 \left(9 e \pi \text{AppellF1}\left[\frac{7}{2}, -n, -p, \frac{9}{2}, -\frac{d x}{\pi}, -\frac{f x}{e}\right] + 2 x \left(d e n \text{AppellF1}\left[\frac{9}{2}, 1 - n, -p, \frac{11}{2}, -\frac{d x}{\pi}, -\frac{f x}{e}\right] + f p \pi \text{AppellF1}\left[\frac{9}{2}, -n, 1 - p, \frac{11}{2}, -\frac{d x}{\pi}, -\frac{f x}{e}\right]\right)\right)\right)$$

Problem 970: Result unnecessarily involves higher level functions.

$$\int x^3 (a + b x)^n (c + d x)^{-n} \, dx$$

Optimal (type 5, 295 leaves, 4 steps):

$$\frac{x^2 (a + b x)^{1+n} (c + d x)^{1-n}}{4 b d} + \frac{1}{24 b^3 d^3} (a + b x)^{1+n} (c + d x)^{1-n} \left(2 a b c d (3 - n^2) + a^2 d^2 (6 - 5 n + n^2) + b^2 c^2 (6 + 5 n + n^2) - 2 b d (a d (3 - n) + b c (3 + n)) x\right) - \frac{1}{24 b^4 d^3 (1 + n)} \left(3 a b^2 c^2 d (2 + n - 2 n^2 - n^3) + a^3 d^3 (6 - 11 n + 6 n^2 - n^3) + 3 a^2 b c d^2 (2 - n - 2 n^2 + n^3) + b^3 c^3 (6 + 11 n + 6 n^2 + n^3)\right) (a + b x)^{1+n} (c + d x)^{-n} \left(\frac{b (c + d x)}{b c - a d}\right)^n \text{Hypergeometric2F1}\left[n, 1 + n, 2 + n, -\frac{d (a + b x)}{b c - a d}\right]$$

Result (type 6, 130 leaves):

$$\left(5 a c x^4 (a + b x)^n (c + d x)^{-n} \text{AppellF1}\left[4, -n, n, 5, -\frac{b x}{a}, -\frac{d x}{c}\right]\right) \Big/ \left(20 a c \text{AppellF1}\left[4, -n, n, 5, -\frac{b x}{a}, -\frac{d x}{c}\right] + 4 b c n x \text{AppellF1}\left[5, 1 - n, n, 6, -\frac{b x}{a}, -\frac{d x}{c}\right] - 4 a d n x \text{AppellF1}\left[5, -n, 1 + n, 6, -\frac{b x}{a}, -\frac{d x}{c}\right]\right)$$

Problem 971: Result unnecessarily involves higher level functions.

$$\int x^2 (a + b x)^n (c + d x)^{-n} \, dx$$

Optimal (type 5, 199 leaves, 4 steps):

$$-\frac{(a d (2-n)+b c (2+n)) (a+b x)^{1+n} (c+d x)^{1-n}}{6 b^2 d^2}+\frac{x (a+b x)^{1+n} (c+d x)^{1-n}}{3 b d}+\frac{1}{6 b^3 d^2 (1+n)}$$
$$\left(2 a b c d \left(1-n^2\right)+a^2 d^2 \left(2-3 n+n^2\right)+b^2 c^2 \left(2+3 n+n^2\right)\right) (a+b x)^{1+n} (c+d x)^{-n} \left(\frac{b (c+d x)}{b c-a d}\right)^n \text{Hypergeometric2F1}\left[n,1+n,2+n,-\frac{d (a+b x)}{b c-a d}\right]$$

Result (type 6, 130 leaves):

$$\left(4 a c x^3 (a+b x)^n (c+d x)^{-n} \text{AppellF1}\left[3,-n,n,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/$$
$$\left(12 a c \text{AppellF1}\left[3,-n,n,4,-\frac{b x}{a},-\frac{d x}{c}\right]+3 b c n x \text{AppellF1}\left[4,1-n,n,5,-\frac{b x}{a},-\frac{d x}{c}\right]-3 a d n x \text{AppellF1}\left[4,-n,1+n,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)$$

Problem 972: Result unnecessarily involves higher level functions.

$$\int x (a+b x)^n (c+d x)^{-n} \, dx$$

Optimal (type 5, 124 leaves, 3 steps):

$$\frac{(a+b x)^{1+n} (c+d x)^{1-n}}{2 b d}-\frac{(a d (1-n)+b c (1+n)) (a+b x)^{1+n} (c+d x)^{-n} \left(\frac{b (c+d x)}{b c-a d}\right)^n \text{Hypergeometric2F1}\left[n,1+n,2+n,-\frac{d (a+b x)}{b c-a d}\right]}{2 b^2 d (1+n)}$$

Result (type 6, 130 leaves):

$$\left(3 a c x^2 (a+b x)^n (c+d x)^{-n} \text{AppellF1}\left[2,-n,n,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/$$
$$\left(6 a c \text{AppellF1}\left[2,-n,n,3,-\frac{b x}{a},-\frac{d x}{c}\right]+2 n x \left(b c \text{AppellF1}\left[3,1-n,n,4,-\frac{b x}{a},-\frac{d x}{c}\right]-a d \text{AppellF1}\left[3,-n,1+n,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\right)$$

Problem 974: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^n (c+d x)^{-n}}{x} \, dx$$

Optimal (type 5, 108 leaves, 5 steps):

$$-\frac{(a+b x)^n (c+d x)^{-n} \text{Hypergeometric2F1}\left[1,n,1+n,\frac{c (a+b x)}{a (c+d x)}\right]}{n}+\frac{(a+b x)^n (c+d x)^{-n} \left(\frac{b (c+d x)}{b c-a d}\right)^n \text{Hypergeometric2F1}\left[n,n,1+n,-\frac{d (a+b x)}{b c-a d}\right]}{n}$$

Result (type 6, 216 leaves):

$$\left(a\,(-b\,c+a\,d)\,(2+n)\,(a+b\,x)^{1+n}\,(c+d\,x)^{-n}\,\text{AppellF1}\left[1+n,\,n,\,1,\,2+n,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,1+\frac{b\,x}{a}\right]\right)\Big/$$
$$\left(b\,(1+n)\,x\,\left(a\,(-b\,c+a\,d)\,(2+n)\,\text{AppellF1}\left[1+n,\,n,\,1,\,2+n,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,1+\frac{b\,x}{a}\right]+\right.\right.$$
$$\left.\left.(a+b\,x)\,\left((-b\,c+a\,d)\,\text{AppellF1}\left[2+n,\,n,\,2,\,3+n,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,1+\frac{b\,x}{a}\right]+a\,d\,n\,\text{AppellF1}\left[2+n,\,1+n,\,1,\,3+n,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,1+\frac{b\,x}{a}\right]\right)\right)\right)$$

Problem 975: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,x)^n\,(c+d\,x)^{-n}}{x^2}\,dx$$

Optimal (type 5, 62 leaves, 1 step):

$$\frac{(b\,c-a\,d)\,(a+b\,x)^{1+n}\,(c+d\,x)^{-1-n}\,\text{Hypergeometric2F1}\left[2,\,1+n,\,2+n,\,\frac{c\,(a+b\,x)}{a\,(c+d\,x)}\right]}{a^2\,(1+n)}$$

Result (type 6, 141 leaves):

$$-\left(\left(2\,b\,d\,(a+b\,x)^n\,(c+d\,x)^{-n}\,\text{AppellF1}\left[1,\,-n,\,n,\,2,\,-\frac{a}{b\,x},\,-\frac{c}{d\,x}\right]\right)\Big/\right.$$
$$\left.\left(2\,b\,d\,x\,\text{AppellF1}\left[1,\,-n,\,n,\,2,\,-\frac{a}{b\,x},\,-\frac{c}{d\,x}\right]+a\,d\,n\,\text{AppellF1}\left[2,\,1-n,\,n,\,3,\,-\frac{a}{b\,x},\,-\frac{c}{d\,x}\right]-b\,c\,n\,\text{AppellF1}\left[2,\,-n,\,1+n,\,3,\,-\frac{a}{b\,x},\,-\frac{c}{d\,x}\right]\right)\right)$$

Problem 976: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b\,x)^n\,(c+d\,x)^{-n}}{x^3}\,dx$$

Optimal (type 5, 117 leaves, 2 steps):

$$-\frac{(a+b\,x)^{1+n}\,(c+d\,x)^{1-n}}{2\,a\,c\,x^2}-\frac{(b\,c-a\,d)\,(a\,d\,(1+n)+b\,(c-c\,n))\,(a+b\,x)^{1+n}\,(c+d\,x)^{-1-n}\,\text{Hypergeometric2F1}\left[2,\,1+n,\,2+n,\,\frac{c\,(a+b\,x)}{a\,(c+d\,x)}\right]}{2\,a^3\,c\,(1+n)}$$

Result (type 6, 146 leaves):

$$-\left(\left(3\,b\,d\,(a+b\,x)^n\,(c+d\,x)^{-n}\,\text{AppellF1}\left[2,\,-n,\,n,\,3,\,-\frac{a}{b\,x},\,-\frac{c}{d\,x}\right]\right)\Big/\right.$$
$$\left.\left(6\,b\,d\,x^2\,\text{AppellF1}\left[2,\,-n,\,n,\,3,\,-\frac{a}{b\,x},\,-\frac{c}{d\,x}\right]+2\,a\,d\,n\,x\,\text{AppellF1}\left[3,\,1-n,\,n,\,4,\,-\frac{a}{b\,x},\,-\frac{c}{d\,x}\right]-2\,b\,c\,n\,x\,\text{AppellF1}\left[3,\,-n,\,1+n,\,4,\,-\frac{a}{b\,x},\,-\frac{c}{d\,x}\right]\right)\right)$$

Problem 977: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^n (c+d x)^{-n}}{x^4} \, dx$$

Optimal (type 5, 194 leaves, 4 steps):

$$-\frac{(a+b x)^{1+n} (c+d x)^{1-n}}{3 a c x^3}+\frac{(b c (2-n)+a d (2+n)) (a+b x)^{1+n} (c+d x)^{1-n}}{6 a^2 c^2 x^2}+\frac{1}{6 a^4 c^2 (1+n)}$$
$$(b c-a d) \left(2 a b c d \left(1-n^2\right)+b^2 c^2 \left(2-3 n+n^2\right)+a^2 d^2 \left(2+3 n+n^2\right)\right) (a+b x)^{1+n} (c+d x)^{-1-n} \text{Hypergeometric2F1}\left[2, 1+n, 2+n, \frac{c (a+b x)}{a (c+d x)}\right]$$

Result (type 6, 146 leaves):

$$-\left(\left(4 b d (a+b x)^n (c+d x)^{-n} \text{AppellF1}\left[3, -n, n, 4, -\frac{a}{b x}, -\frac{c}{d x}\right]\right) \Big/ \left(3 x^2 \left(4 b d x \text{AppellF1}\left[3, -n, n, 4, -\frac{a}{b x}, -\frac{c}{d x}\right]+a d n \text{AppellF1}\left[4, 1-n, n, 5, -\frac{a}{b x}, -\frac{c}{d x}\right]-b c n \text{AppellF1}\left[4, -n, 1+n, 5, -\frac{a}{b x}, -\frac{c}{d x}\right]\right)\right)\right)$$

Problem 978: Result unnecessarily involves higher level functions.

$$\int (1-x)^n x^3 (1+x)^{-n} \, dx$$

Optimal (type 5, 105 leaves, 3 steps):

$$-\frac{1}{4} (1-x)^{1+n} x^2 (1+x)^{1-n}-\frac{1}{12} (1-x)^{1+n} (1+x)^{1-n} \left(3+2 n^2-2 n x\right)+\frac{2^{-n} n \left(2+n^2\right) (1-x)^{1+n} \text{Hypergeometric2F1}\left[n, 1+n, 2+n, \frac{1-x}{2}\right]}{3 (1+n)}$$

Result (type 6, 79 leaves):

$$\left(5 (1-x)^n x^4 (1+x)^{-n} \text{AppellF1}[4, -n, n, 5, x, -x]\right) \Big/ \left(4 \left(5 \text{AppellF1}[4, -n, n, 5, x, -x]-n x (\text{AppellF1}[5, 1-n, n, 6, x, -x]+\text{AppellF1}[5, -n, 1+n, 6, x, -x])\right)\right)$$

Problem 979: Result unnecessarily involves higher level functions.

$$\int (1-x)^n x^2 (1+x)^{-n} \, dx$$

Optimal (type 5, 94 leaves, 3 steps):

$$\frac{1}{3} n (1-x)^{1+n} (1+x)^{1-n}-\frac{1}{3} (1-x)^{1+n} x (1+x)^{1-n}-\frac{2^{-n} \left(1+2 n^2\right) (1-x)^{1+n} \text{Hypergeometric2F1}\left[n, 1+n, 2+n, \frac{1-x}{2}\right]}{3 (1+n)}$$

Result (type 6, 79 leaves):

$$\left(4\,(1-x)^n\,x^3\,(1+x)^{-n}\,\text{AppellF1}[3,-n,n,4,x,-x]\right)\Big/\left(3\,\left(4\,\text{AppellF1}[3,-n,n,4,x,-x]-n\,x\,\left(\text{AppellF1}[4,1-n,n,5,x,-x]+\text{AppellF1}[4,-n,1+n,5,x,-x]\right)\right)\right)$$

Problem 980: Result unnecessarily involves higher level functions.

$$\int (1-x)^n\,x\,(1+x)^{-n}\,dx$$

Optimal (type 5, 61 leaves, 2 steps):

$$-\frac{1}{2}\,(1-x)^{1+n}\,(1+x)^{1-n}+\frac{2^{-n}\,n\,(1-x)^{1+n}\,\text{Hypergeometric2F1}\left[n,1+n,2+n,\frac{1-x}{2}\right]}{1+n}$$

Result (type 6, 79 leaves):

$$\left(3\,(1-x)^n\,x^2\,(1+x)^{-n}\,\text{AppellF1}[2,-n,n,3,x,-x]\right)\Big/\left(2\,\left(3\,\text{AppellF1}[2,-n,n,3,x,-x]-n\,x\,\left(\text{AppellF1}[3,1-n,n,4,x,-x]+\text{AppellF1}[3,-n,1+n,4,x,-x]\right)\right)\right)$$

Problem 982: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(1-x)^n\,(1+x)^{-n}}{x}\,dx$$

Optimal (type 5, 68 leaves, 3 steps):

$$-\frac{(1-x)^n\,(1+x)^{-n}\,\text{Hypergeometric2F1}\left[1,n,1+n,\frac{1-x}{1+x}\right]}{n}+\frac{2^{-n}\,(1-x)^n\,\text{Hypergeometric2F1}\left[n,n,1+n,\frac{1-x}{2}\right]}{n}$$

Result (type 6, 140 leaves):

$$\left(2\,(2+n)\,(1-x)^{1+n}\,(1+x)^{-n}\,\text{AppellF1}\left[1+n,n,1,2+n,\frac{1-x}{2},1-x\right]\right)\Big/\left((1+n)\,x\,\left(-2\,(2+n)\,\text{AppellF1}\left[1+n,n,1,2+n,\frac{1-x}{2},1-x\right]+(-1+x)\,\left(2\,\text{AppellF1}\left[2+n,n,2,3+n,\frac{1-x}{2},1-x\right]+n\,\text{AppellF1}\left[2+n,1+n,1,3+n,\frac{1-x}{2},1-x\right]\right)\right)\right)$$

Problem 983: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(1-x)^n\,(1+x)^{-n}}{x^2}\,dx$$

Optimal (type 5, 44 leaves, 1 step):

$$-\frac{2\,(1-x)^{1+n}\,(1+x)^{-1-n}\,\text{Hypergeometric2F1}\left[2,\,1+n,\,2+n,\,\frac{1-x}{1+x}\right]}{1+n}$$

Result (type 6, 90 leaves):

$$-\left(\left(2\,(1-x)^{n}\,(1+x)^{-n}\,\text{AppellF1}\left[1,\,-n,\,n,\,2,\,\frac{1}{x},\,-\frac{1}{x}\right]\right)\Big/\left(2\,x\,\text{AppellF1}\left[1,\,-n,\,n,\,2,\,\frac{1}{x},\,-\frac{1}{x}\right]-n\left(\text{AppellF1}\left[2,\,1-n,\,n,\,3,\,\frac{1}{x},\,-\frac{1}{x}\right]+\text{AppellF1}\left[2,\,-n,\,1+n,\,3,\,\frac{1}{x},\,-\frac{1}{x}\right]\right)\right)\right)$$

Problem 984: Result unnecessarily involves higher level functions.

$$\int\frac{(1-x)^{n}\,(1+x)^{-n}}{x^{3}}\,dx$$

Optimal (type 5, 71 leaves, 2 steps):

$$-\frac{(1-x)^{1+n}\,(1+x)^{1-n}}{2\,x^{2}}+\frac{2\,n\,(1-x)^{1+n}\,(1+x)^{-1-n}\,\text{Hypergeometric2F1}\left[2,\,1+n,\,2+n,\,\frac{1-x}{1+x}\right]}{1+n}$$

Result (type 6, 95 leaves):

$$-\left(\left(3\,(1-x)^{n}\,(1+x)^{-n}\,\text{AppellF1}\left[2,\,-n,\,n,\,3,\,\frac{1}{x},\,-\frac{1}{x}\right]\right)\Big/\left(2\,x\left(3\,x\,\text{AppellF1}\left[2,\,-n,\,n,\,3,\,\frac{1}{x},\,-\frac{1}{x}\right]-n\left(\text{AppellF1}\left[3,\,1-n,\,n,\,4,\,\frac{1}{x},\,-\frac{1}{x}\right]+\text{AppellF1}\left[3,\,-n,\,1+n,\,4,\,\frac{1}{x},\,-\frac{1}{x}\right]\right)\right)\right)\right)$$

Problem 985: Result unnecessarily involves higher level functions.

$$\int\frac{(1-x)^{n}\,(1+x)^{-n}}{x^{4}}\,dx$$

Optimal (type 5, 105 leaves, 4 steps):

$$-\frac{(1-x)^{1+n}\,(1+x)^{1-n}}{3\,x^{3}}+\frac{n\,(1-x)^{1+n}\,(1+x)^{1-n}}{3\,x^{2}}-\frac{2\,(1+2\,n^{2})\,(1-x)^{1+n}\,(1+x)^{-1-n}\,\text{Hypergeometric2F1}\left[2,\,1+n,\,2+n,\,\frac{1-x}{1+x}\right]}{3\,(1+n)}$$

Result (type 6, 95 leaves):

$$-\left(\left(4\,(1-x)^n\,(1+x)^{-n}\,\text{AppellF1}\left[3,-n,n,4,\frac{1}{x},-\frac{1}{x}\right]\right)\Big/\left(3\,x^2\left(4\,x\,\text{AppellF1}\left[3,-n,n,4,\frac{1}{x},-\frac{1}{x}\right]-n\left(\text{AppellF1}\left[4,1-n,n,5,\frac{1}{x},-\frac{1}{x}\right]+\text{AppellF1}\left[4,-n,1+n,5,\frac{1}{x},-\frac{1}{x}\right]\right)\right)\right)\right)$$

Problem 993: Result unnecessarily involves higher level functions.

$$\int x^m\,(3-2\,a\,x)^{-1+n}\,(6+4\,a\,x)^n\,dx$$

Optimal (type 5, 104 leaves, 5 steps):

$$\frac{2^n\times 3^{-1+2\,n}\,x^{1+m}\,\text{Hypergeometric2F1}\left[\frac{1+m}{2},1-n,\frac{3+m}{2},\frac{4\,a^2\,x^2}{9}\right]}{1+m}+\frac{2^{1+n}\times 9^{-1+n}\,a\,x^{2+m}\,\text{Hypergeometric2F1}\left[\frac{2+m}{2},1-n,\frac{4+m}{2},\frac{4\,a^2\,x^2}{9}\right]}{2+m}$$

Result (type 6, 168 leaves):

$$-\left(\left(3\,(2+m)\,x^{1+m}\,(18-8\,a^2\,x^2)^n\,\text{AppellF1}\left[1+m,1-n,-n,2+m,\frac{2\,a\,x}{3},-\frac{2\,a\,x}{3}\right]\right)\Big/\left((1+m)\,(-3+2\,a\,x)\left(3\,(2+m)\,\text{AppellF1}\left[1+m,1-n,-n,2+m,\frac{2\,a\,x}{3},-\frac{2\,a\,x}{3}\right]+2\,a\,x\left(-(-1+n)\,\text{AppellF1}\left[2+m,2-n,-n,3+m,\frac{2\,a\,x}{3},-\frac{2\,a\,x}{3}\right]+n\,\text{HypergeometricPFQ}\left[\left\{1+\frac{m}{2},1-n\right\},\left\{2+\frac{m}{2}\right\},\frac{4\,a^2\,x^2}{9}\right]\right)\right)\right)\right)$$

Problem 994: Result unnecessarily involves higher level functions.

$$\int x^m\,(3-2\,a\,x)^{-2+n}\,(6+4\,a\,x)^n\,dx$$

Optimal (type 5, 158 leaves, 8 steps):

$$\frac{2^n\times 9^{-1+n}\,x^{1+m}\,\text{Hypergeometric2F1}\left[\frac{1+m}{2},2-n,\frac{3+m}{2},\frac{4\,a^2\,x^2}{9}\right]}{1+m}+\frac{2^{2+n}\times 3^{-3+2\,n}\,a\,x^{2+m}\,\text{Hypergeometric2F1}\left[\frac{2+m}{2},2-n,\frac{4+m}{2},\frac{4\,a^2\,x^2}{9}\right]}{2+m}+\frac{2^{2+n}\times 9^{-2+n}\,a^2\,x^{3+m}\,\text{Hypergeometric2F1}\left[\frac{3+m}{2},2-n,\frac{5+m}{2},\frac{4\,a^2\,x^2}{9}\right]}{3+m}$$

Result (type 6, 163 leaves):

$$\left(3\,(2+m)\,x^{1+m}\,(3-2\,a\,x)^{-2+n}\,(6+4\,a\,x)^n\,\text{AppellF1}\left[1+m,\,2-n,\,-n,\,2+m,\,\frac{2\,a\,x}{3},\,-\frac{2\,a\,x}{3}\right]\right)\Big/\left((1+m)\left(3\,(2+m)\,\text{AppellF1}\left[1+m,\,2-n,\,-n,\,2+m,\,\frac{2\,a\,x}{3},\,-\frac{2\,a\,x}{3}\right]+2\,a\,x\left(n\,\text{AppellF1}\left[2+m,\,2-n,\,1-n,\,3+m,\,\frac{2\,a\,x}{3},\,-\frac{2\,a\,x}{3}\right]-(-2+n)\,\text{AppellF1}\left[2+m,\,3-n,\,-n,\,3+m,\,\frac{2\,a\,x}{3},\,-\frac{2\,a\,x}{3}\right]\right)\right)\right)$$

Problem 995: Result more than twice size of optimal antiderivative.

$$\int x^m\,(a+b\,x)^{1+n}\,(c+d\,x)^n\,dx$$

Optimal (type 6, 79 leaves, 3 steps):

$$\frac{a\,x^{1+m}\,(a+b\,x)^n\,\left(1+\frac{b\,x}{a}\right)^{-n}\,(c+d\,x)^n\,\left(1+\frac{d\,x}{c}\right)^{-n}\,\text{AppellF1}\left[1+m,\,-1-n,\,-n,\,2+m,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]}{1+m}$$

Result (type 6, 308 leaves):

$$\frac{1}{2+m}a\,c\,x^{1+m}\,(a+b\,x)^n\,(c+d\,x)^n\left(\left(a\,(2+m)^2\,\text{AppellF1}\left[1+m,\,-n,\,-n,\,2+m,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]\right)\Big/\left((1+m)\left(a\,c\,(2+m)\,\text{AppellF1}\left[1+m,\,-n,\,-n,\,2+m,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]+n\,x\left(b\,c\,\text{AppellF1}\left[2+m,\,1-n,\,-n,\,3+m,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]+a\,d\,\text{AppellF1}\left[2+m,\,-n,\,1-n,\,3+m,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]\right)\right)\right)+\left(b\,(3+m)\,x\,\text{AppellF1}\left[2+m,\,-n,\,-n,\,3+m,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]\right)\Big/\left(a\,c\,(3+m)\,\text{AppellF1}\left[2+m,\,-n,\,-n,\,3+m,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]+n\,x\left(b\,c\,\text{AppellF1}\left[3+m,\,1-n,\,-n,\,4+m,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]+a\,d\,\text{AppellF1}\left[3+m,\,-n,\,1-n,\,4+m,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]\right)\right)\right)$$

Problem 998: Result unnecessarily involves higher level functions.

$$\int \frac{\left(1-\frac{x}{a}\right)^{-n/2}\,\left(1+\frac{x}{a}\right)^{n/2}}{x^2}\,dx$$

Optimal (type 5, 70 leaves, 1 step):

$$-\frac{4\,\left(1-\frac{x}{a}\right)^{1-\frac{n}{2}}\,\left(1+\frac{x}{a}\right)^{\frac{1}{2}(-2+n)}\,\text{Hypergeometric2F1}\left[2,\,1-\frac{n}{2},\,2-\frac{n}{2},\,\frac{a-x}{a+x}\right]}{a\,(2-n)}$$

Result (type 6, 139 leaves):

$$-\left(\left(4\left(\frac{a+x}{a}\right)^{n/2}\left(1-\frac{x}{a}\right)^{-n/2}\text{AppellF1}\left[1,-\frac{n}{2},\frac{n}{2},2,-\frac{a}{x},\frac{a}{x}\right]\right)\Big/\left(4\,x\,\text{AppellF1}\left[1,-\frac{n}{2},\frac{n}{2},2,-\frac{a}{x},\frac{a}{x}\right]+a\,n\left(\text{AppellF1}\left[2,1-\frac{n}{2},\frac{n}{2},3,-\frac{a}{x},\frac{a}{x}\right]+\text{AppellF1}\left[2,-\frac{n}{2},\frac{2+n}{2},3,-\frac{a}{x},\frac{a}{x}\right]\right)\right)\right)$$

Problem 1000: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(1-a\,x)^{-n}\,(1+a\,x)^{n}}{x}\,dx$$

Optimal (type 5, 86 leaves, 3 steps):

$$\frac{(1-a\,x)^{-n}\,(1+a\,x)^{n}\,\text{Hypergeometric2F1}\left[1,-n,1-n,\frac{1-a\,x}{1+a\,x}\right]}{n}-\frac{2^{n}\,(1-a\,x)^{-n}\,\text{Hypergeometric2F1}\left[-n,-n,1-n,\frac{1}{2}\,(1-a\,x)\right]}{n}$$

Result (type 6, 182 leaves):

$$\left(2\,(-2+n)\,(1-a\,x)^{1-n}\,(1+a\,x)^{n}\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{1}{2}\,(1-a\,x),1-a\,x\right]\right)\Big/\left(a\,(1-n)\,x\left(-2\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{1}{2}\,(1-a\,x),1-a\,x\right]+(-1+a\,x)\left(n\,\text{AppellF1}\left[2-n,1-n,1,3-n,\frac{1}{2}\,(1-a\,x),1-a\,x\right]-2\,\text{AppellF1}\left[2-n,-n,2,3-n,\frac{1}{2}\,(1-a\,x),1-a\,x\right]\right)\right)\right)$$

Problem 1001: Result unnecessarily involves higher level functions.

$$\int \frac{(1-a\,x)^{1-n}\,(1+a\,x)^{1+n}}{x^{2}}\,dx$$

Optimal (type 5, 106 leaves, 3 steps):

$$-\frac{2\,a\,(1-a\,x)^{1-n}\,(1+a\,x)^{-1+n}\,\text{Hypergeometric2F1}\left[2,1-n,2-n,\frac{1-a\,x}{1+a\,x}\right]}{1-n}+\frac{2^{n}\,a\,(1-a\,x)^{1-n}\,\text{Hypergeometric2F1}\left[1-n,-n,2-n,\frac{1}{2}\,(1-a\,x)\right]}{1-n}$$

Result (type 6, 158 leaves):

$$a\,(1+a\,x)^n\left(-\left(\left(2\,(1-a\,x)^{-n}\,\text{AppellF1}\left[1,\,n,\,-n,\,2,\,\frac{1}{a\,x},\,-\frac{1}{a\,x}\right]\right)\Big/\right.\right.$$
$$\left(2\,a\,x\,\text{AppellF1}\left[1,\,n,\,-n,\,2,\,\frac{1}{a\,x},\,-\frac{1}{a\,x}\right]+n\left(\text{AppellF1}\left[2,\,n,\,1-n,\,3,\,\frac{1}{a\,x},\,-\frac{1}{a\,x}\right]+\text{AppellF1}\left[2,\,1+n,\,-n,\,3,\,\frac{1}{a\,x},\,-\frac{1}{a\,x}\right]\right)\right)\Bigg)-$$
$$\left.\frac{2^{-n}\,(1+a\,x)\,\text{Hypergeometric2F1}\left[n,\,1+n,\,2+n,\,\frac{1}{2}\,(1+a\,x)\right]}{1+n}\right)$$

Problem 1006: Result unnecessarily involves higher level functions.

$$\int\frac{(a-b\,x)^{-n}\,(a+b\,x)^{1+n}}{x}\,dx$$

Optimal (type 5, 142 leaves, 6 steps):

$$\frac{(a-b\,x)^{1-n}\,(a+b\,x)^n}{2\,n}-\frac{a\,(a-b\,x)^{-n}\,(a+b\,x)^n\,\text{Hypergeometric2F1}\left[1,\,n,\,1+n,\,\frac{a+b\,x}{a-b\,x}\right]}{n}+$$
$$\frac{2^{-1-n}\,(1+2\,n)\,(a-b\,x)^{-n}\left(\frac{a-b\,x}{a}\right)^n\,(a+b\,x)^{1+n}\,\text{Hypergeometric2F1}\left[n,\,1+n,\,2+n,\,\frac{a+b\,x}{2\,a}\right]}{n\,(1+n)}$$

Result (type 6, 262 leaves):

$$(a-b\,x)^{-n}\,(a+b\,x)^n\left(\left(2\,a^2\,(-2+n)\,(a-b\,x)\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\,\frac{a-b\,x}{2\,a},\,1-\frac{b\,x}{a}\right]\right)\Big/\right.$$
$$\left(b\,(-1+n)\,x\left(2\,a\,(-2+n)\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\,\frac{a-b\,x}{2\,a},\,1-\frac{b\,x}{a}\right]+(a-b\,x)\left(n\,\text{AppellF1}\left[2-n,\,1-n,\,1,\,3-n,\,\frac{a-b\,x}{2\,a},\,1-\frac{b\,x}{a}\right]-\right.\right.\right.$$
$$\left.\left.\left.\left.2\,\text{AppellF1}\left[2-n,\,-n,\,2,\,3-n,\,\frac{a-b\,x}{2\,a},\,1-\frac{b\,x}{a}\right]\right)\right)\right)+\frac{(a+b\,x)\left(1-\frac{a+b\,x}{2\,a}\right)^n\,\text{Hypergeometric2F1}\left[n,\,1+n,\,2+n,\,\frac{a+b\,x}{2\,a}\right]}{1+n}\right)$$

Problem 1007: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(a-b\,x)^{-n}\,(a+b\,x)^{1+n}}{x^2}\,dx$$

Optimal (type 5, 140 leaves, 5 steps):

$$-\frac{(a-b\,x)^{-n}\,(a+b\,x)^{1+n}}{x}+\frac{b\,(1+2\,n)\,(a-b\,x)^{-n}\,(a+b\,x)^{n}\,\text{Hypergeometric2F1}\left[1,\,-n,\,1-n,\,\frac{a-b\,x}{a+b\,x}\right]}{n}-\frac{2^{n}\,b\,(a-b\,x)^{-n}\,(a+b\,x)^{n}\,\left(\frac{a+b\,x}{a}\right)^{-n}\,\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,\frac{a-b\,x}{2\,a}\right]}{n}$$

Result (type 6, 324 leaves):

$$2\,a\,(a-b\,x)^{-n}\,(a+b\,x)^{n}\,\left(-\left(\left(b\,\text{AppellF1}\left[1,\,n,\,-n,\,2,\,\frac{a}{b\,x},\,-\frac{a}{b\,x}\right]\right)\Big/\left(2\,b\,x\,\text{AppellF1}\left[1,\,n,\,-n,\,2,\,\frac{a}{b\,x},\,-\frac{a}{b\,x}\right]+a\,n\,\left(\text{AppellF1}\left[2,\,n,\,1-n,\,3,\,\frac{a}{b\,x},\,-\frac{a}{b\,x}\right]+\text{AppellF1}\left[2,\,1+n,\,-n,\,3,\,\frac{a}{b\,x},\,-\frac{a}{b\,x}\right]\right)\right)\right)+\left((-2+n)\,(a-b\,x)\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\,\frac{a-b\,x}{2\,a},\,1-\frac{b\,x}{a}\right]\right)\Big/\left((-1+n)\,x\,\left(2\,a\,(-2+n)\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\,\frac{a-b\,x}{2\,a},\,1-\frac{b\,x}{a}\right]+(a-b\,x)\,\left(n\,\text{AppellF1}\left[2-n,\,1-n,\,1,\,3-n,\,\frac{a-b\,x}{2\,a},\,1-\frac{b\,x}{a}\right]-2\,\text{AppellF1}\left[2-n,\,-n,\,2,\,3-n,\,\frac{a-b\,x}{2\,a},\,1-\frac{b\,x}{a}\right]\right)\right)\right)\right)$$

Problem 1008: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(a-b\,x)^{-n}\,(a+b\,x)^{1+n}}{x^{3}}\,dx$$

Optimal (type 5, 62 leaves, 1 step):

$$-\frac{4\,b^{2}\,(a-b\,x)^{1-n}\,(a+b\,x)^{-1+n}\,\text{Hypergeometric2F1}\left[3,\,1-n,\,2-n,\,\frac{a-b\,x}{a+b\,x}\right]}{a\,(1-n)}$$

Result (type 6, 254 leaves):

$$\frac{1}{2}\,b\,(a-b\,x)^{-n}\,(a+b\,x)^{n}\,\left(-\left(\left(4\,b\,\text{AppellF1}\left[1,\,n,\,-n,\,2,\,\frac{a}{b\,x},\,-\frac{a}{b\,x}\right]\right)\Big/\left(2\,b\,x\,\text{AppellF1}\left[1,\,n,\,-n,\,2,\,\frac{a}{b\,x},\,-\frac{a}{b\,x}\right]+a\,n\,\left(\text{AppellF1}\left[2,\,n,\,1-n,\,3,\,\frac{a}{b\,x},\,-\frac{a}{b\,x}\right]+\text{AppellF1}\left[2,\,1+n,\,-n,\,3,\,\frac{a}{b\,x},\,-\frac{a}{b\,x}\right]\right)\right)\right)-\left(3\,a\,\text{AppellF1}\left[2,\,n,\,-n,\,3,\,\frac{a}{b\,x},\,-\frac{a}{b\,x}\right]\right)\Big/\left(x\,\left(3\,b\,x\,\text{AppellF1}\left[2,\,n,\,-n,\,3,\,\frac{a}{b\,x},\,-\frac{a}{b\,x}\right]+a\,n\,\left(\text{AppellF1}\left[3,\,n,\,1-n,\,4,\,\frac{a}{b\,x},\,-\frac{a}{b\,x}\right]+\text{AppellF1}\left[3,\,1+n,\,-n,\,4,\,\frac{a}{b\,x},\,-\frac{a}{b\,x}\right]\right)\right)\right)\right)$$

Problem 1009: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(a-b\,x)^{-n}\,(a+b\,x)^{1+n}}{x^{4}}\,dx$$

Optimal (type 5, 101 leaves, 2 steps):

$$-\frac{(a-b x)^{1-n} (a+b x)^{2+n}}{3 a^2 x^3}-\frac{4 b^3 (1+2 n) (a-b x)^{1-n} (a+b x)^{-1+n} \text{Hypergeometric2F1}\left[3,1-n,2-n,\frac{a-b x}{a+b x}\right]}{3 a^2 (1-n)}$$

Result (type 6, 255 leaves):

$$\frac{1}{6 x^2}b (a-b x)^{-n} (a+b x)^n \left(-\left(\left(9 b x \text{AppellF1}\left[2,n,-n,3,\frac{a}{b x},-\frac{a}{b x}\right]\right)\Big/\left(3 b x \text{AppellF1}\left[2,n,-n,3,\frac{a}{b x},-\frac{a}{b x}\right]+a n \left(\text{AppellF1}\left[3,n,1-n,4,\frac{a}{b x},-\frac{a}{b x}\right]+\text{AppellF1}\left[3,1+n,-n,4,\frac{a}{b x},-\frac{a}{b x}\right]\right)\right)\right)-\left(8 a \text{AppellF1}\left[3,n,-n,4,\frac{a}{b x},-\frac{a}{b x}\right]\right)\Big/\left(4 b x \text{AppellF1}\left[3,n,-n,4,\frac{a}{b x},-\frac{a}{b x}\right]+a n \left(\text{AppellF1}\left[4,n,1-n,5,\frac{a}{b x},-\frac{a}{b x}\right]+\text{AppellF1}\left[4,1+n,-n,5,\frac{a}{b x},-\frac{a}{b x}\right]\right)\right)\right)$$

Problem 1010: Result unnecessarily involves higher level functions.

$$\int \frac{(a-b x)^{-n} (a+b x)^{1+n}}{x^5} \, dx$$

Optimal (type 5, 139 leaves, 4 steps):

$$-\frac{(a-b x)^{1-n} (a+b x)^{2+n}}{4 a^2 x^4}-\frac{b (1+2 n) (a-b x)^{1-n} (a+b x)^{2+n}}{12 a^3 x^3}-\frac{4 b^4 \left(1+n+n^2\right) (a-b x)^{1-n} (a+b x)^{-1+n} \text{Hypergeometric2F1}\left[3,1-n,2-n,\frac{a-b x}{a+b x}\right]}{3 a^3 (1-n)}$$

Result (type 6, 255 leaves):

$$\frac{1}{12 x^3}b (a-b x)^{-n} (a+b x)^n \left(-\left(\left(16 b x \text{AppellF1}\left[3,n,-n,4,\frac{a}{b x},-\frac{a}{b x}\right]\right)\Big/\left(4 b x \text{AppellF1}\left[3,n,-n,4,\frac{a}{b x},-\frac{a}{b x}\right]+a n \left(\text{AppellF1}\left[4,n,1-n,5,\frac{a}{b x},-\frac{a}{b x}\right]+\text{AppellF1}\left[4,1+n,-n,5,\frac{a}{b x},-\frac{a}{b x}\right]\right)\right)\right)-\left(15 a \text{AppellF1}\left[4,n,-n,5,\frac{a}{b x},-\frac{a}{b x}\right]\right)\Big/\left(5 b x \text{AppellF1}\left[4,n,-n,5,\frac{a}{b x},-\frac{a}{b x}\right]+a n \left(\text{AppellF1}\left[5,n,1-n,6,\frac{a}{b x},-\frac{a}{b x}\right]+\text{AppellF1}\left[5,1+n,-n,6,\frac{a}{b x},-\frac{a}{b x}\right]\right)\right)\right)$$

Problem 1011: Result more than twice size of optimal antiderivative.

$$\int (a+b x) (A+B x) (d+e x)^4 \, dx$$

Optimal (type 1, 77 leaves, 2 steps):

$$\frac{(b d-a e) (B d-A e) (d+e x)^5}{5 e^3}-\frac{(2 b B d-A b e-a B e) (d+e x)^6}{6 e^3}+\frac{b B (d+e x)^7}{7 e^3}$$

Result (type 1, 172 leaves):

$$a A d^4 x+\frac{1}{2} d^3 (A b d+a B d+4 a A e) x^2+\frac{1}{3} d^2 (2 a e (2 B d+3 A e)+b d (B d+4 A e)) x^3+\frac{1}{2} d e (a e (3 B d+2 A e)+b d (2 B d+3 A e)) x^4+\frac{1}{5} e^2 (a e (4 B d+A e)+2 b d (3 B d+2 A e)) x^5+\frac{1}{6} e^3 (4 b B d+A b e+a B e) x^6+\frac{1}{7} b B e^4 x^7$$

Problem 1022: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^2 (A+B x) (d+e x)^4 \, dx$$

Optimal (type 1, 120 leaves, 2 steps):

$$-\frac{(b d-a e)^2 (B d-A e) (d+e x)^5}{5 e^4}+\frac{(b d-a e) (3 b B d-2 A b e-a B e) (d+e x)^6}{6 e^4}-\frac{b (3 b B d-A b e-2 a B e) (d+e x)^7}{7 e^4}+\frac{b^2 B (d+e x)^8}{8 e^4}$$

Result (type 1, 283 leaves):

$$a^2 A d^4 x+\frac{1}{2} a d^3 (2 A b d+a B d+4 a A e) x^2+\frac{1}{3} d^2 \left(2 a B d (b d+2 a e)+A \left(b^2 d^2+8 a b d e+6 a^2 e^2\right)\right) x^3+\frac{1}{4} d \left(2 a^2 e^2 (3 B d+2 A e)+4 a b d e (2 B d+3 A e)+b^2 d^2 (B d+4 A e)\right) x^4+\frac{1}{5} e \left(a^2 e^2 (4 B d+A e)+4 a b d e (3 B d+2 A e)+2 b^2 d^2 (2 B d+3 A e)\right) x^5+\frac{1}{6} e^2 \left(a^2 B e^2+2 a b e (4 B d+A e)+2 b^2 d (3 B d+2 A e)\right) x^6+\frac{1}{7} b e^3 (4 b B d+A b e+2 a B e) x^7+\frac{1}{8} b^2 B e^4 x^8$$

Problem 1035: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^3 (A+B x) (d+e x)^5 \, dx$$

Optimal (type 1, 163 leaves, 2 steps):

$$\frac{(b d-a e)^3 (B d-A e) (d+e x)^6}{6 e^5}-\frac{(b d-a e)^2 (4 b B d-3 A b e-a B e) (d+e x)^7}{7 e^5}+\frac{3 b (b d-a e) (2 b B d-A b e-a B e) (d+e x)^8}{8 e^5}-\frac{b^2 (4 b B d-A b e-3 a B e) (d+e x)^9}{9 e^5}+\frac{b^3 B (d+e x)^{10}}{10 e^5}$$

Result (type 1, 471 leaves):

$$a^3 A d^5 x + \frac{1}{2} a^2 d^4 (3 A b d + a B d + 5 a A e) x^2 + \frac{1}{3} a d^3 (a B d (3 b d + 5 a e) + A (3 b^2 d^2 + 15 a b d e + 10 a^2 e^2)) x^3 +$$
$$\frac{1}{4} d^2 (a B d (3 b^2 d^2 + 15 a b d e + 10 a^2 e^2) + A (b^3 d^3 + 15 a b^2 d^2 e + 30 a^2 b d e^2 + 10 a^3 e^3)) x^4 +$$
$$\frac{1}{5} d (30 a^2 b d e^2 (B d + A e) + 5 a^3 e^3 (2 B d + A e) + 15 a b^2 d^2 e (B d + 2 A e) + b^3 d^3 (B d + 5 A e)) x^5 +$$
$$\frac{1}{6} e (30 a b^2 d^2 e (B d + A e) + 15 a^2 b d e^2 (2 B d + A e) + a^3 e^3 (5 B d + A e) + 5 b^3 d^3 (B d + 2 A e)) x^6 +$$
$$\frac{1}{7} e^2 (a^3 B e^3 + 10 b^3 d^2 (B d + A e) + 15 a b^2 d e (2 B d + A e) + 3 a^2 b e^2 (5 B d + A e)) x^7 +$$
$$\frac{1}{8} b e^3 (3 a^2 B e^2 + 5 b^2 d (2 B d + A e) + 3 a b e (5 B d + A e)) x^8 + \frac{1}{9} b^2 e^4 (5 b B d + A b e + 3 a B e) x^9 + \frac{1}{10} b^3 B e^5 x^{10}$$

Problem 1036: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^3 (A + B x) (d + e x)^4 \, dx$$

Optimal (type 1, 163 leaves, 2 steps):

$$\frac{(b d - a e)^3 (B d - A e) (d + e x)^5}{5 e^5} - \frac{(b d - a e)^2 (4 b B d - 3 A b e - a B e) (d + e x)^6}{6 e^5} +$$
$$\frac{3 b (b d - a e) (2 b B d - A b e - a B e) (d + e x)^7}{7 e^5} - \frac{b^2 (4 b B d - A b e - 3 a B e) (d + e x)^8}{8 e^5} + \frac{b^3 B (d + e x)^9}{9 e^5}$$

Result (type 1, 397 leaves):

$$a^3 A d^4 x + \frac{1}{2} a^2 d^3 (3 A b d + a B d + 4 a A e) x^2 + \frac{1}{3} a d^2 (a B d (3 b d + 4 a e) + 3 A (b^2 d^2 + 4 a b d e + 2 a^2 e^2)) x^3 +$$
$$\frac{1}{4} d (3 a B d (b^2 d^2 + 4 a b d e + 2 a^2 e^2) + A (b^3 d^3 + 12 a b^2 d^2 e + 18 a^2 b d e^2 + 4 a^3 e^3)) x^4 +$$
$$\frac{1}{5} (a^3 e^3 (4 B d + A e) + 6 a^2 b d e^2 (3 B d + 2 A e) + 6 a b^2 d^2 e (2 B d + 3 A e) + b^3 d^3 (B d + 4 A e)) x^5 +$$
$$\frac{1}{6} e (a^3 B e^3 + 3 a^2 b e^2 (4 B d + A e) + 6 a b^2 d e (3 B d + 2 A e) + 2 b^3 d^2 (2 B d + 3 A e)) x^6 +$$
$$\frac{1}{7} b e^2 (3 a^2 B e^2 + 3 a b e (4 B d + A e) + 2 b^2 d (3 B d + 2 A e)) x^7 + \frac{1}{8} b^2 e^3 (4 b B d + A b e + 3 a B e) x^8 + \frac{1}{9} b^3 B e^4 x^9$$

Problem 1046: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^3 (A+B x)}{(d+e x)^6} \, dx$$

Optimal (type 1, 86 leaves, 2 steps):

$$-\frac{(B d-A e) (a+b x)^4}{5 e (b d-a e) (d+e x)^5}+\frac{(4 b B d+A b e-5 a B e) (a+b x)^4}{20 e (b d-a e)^2 (d+e x)^4}$$

Result (type 1, 211 leaves):

$$-\frac{1}{20 e^5 (d+e x)^5}\left(a^3 e^3 (4 A e+B (d+5 e x))+a^2 b e^2 \left(3 A e (d+5 e x)+2 B \left(d^2+5 d e x+10 e^2 x^2\right)\right)+a b^2 e \left(2 A e \left(d^2+5 d e x+10 e^2 x^2\right)+3 B \left(d^3+5 d^2 e x+10 d e^2 x^2+10 e^3 x^3\right)\right)+b^3 \left(A e \left(d^3+5 d^2 e x+10 d e^2 x^2+10 e^3 x^3\right)+4 B \left(d^4+5 d^3 e x+10 d^2 e^2 x^2+10 d e^3 x^3+5 e^4 x^4\right)\right)\right)$$

Problem 1051: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^6 (A+B x) (d+e x)^8 \, dx$$

Optimal (type 1, 292 leaves, 2 steps):

$$-\frac{(b d-a e)^6 (B d-A e) (d+e x)^9}{9 e^8}+\frac{(b d-a e)^5 (7 b B d-6 A b e-a B e) (d+e x)^{10}}{10 e^8}-\frac{3 b (b d-a e)^4 (7 b B d-5 A b e-2 a B e) (d+e x)^{11}}{11 e^8}+\frac{5 b^2 (b d-a e)^3 (7 b B d-4 A b e-3 a B e) (d+e x)^{12}}{12 e^8}-\frac{5 b^3 (b d-a e)^2 (7 b B d-3 A b e-4 a B e) (d+e x)^{13}}{13 e^8}+\frac{3 b^4 (b d-a e) (7 b B d-2 A b e-5 a B e) (d+e x)^{14}}{14 e^8}-\frac{b^5 (7 b B d-A b e-6 a B e) (d+e x)^{15}}{15 e^8}+\frac{b^6 B (d+e x)^{16}}{16 e^8}$$

Result (type 1, 1385 leaves):

$$a^6 A d^8 x + \frac{1}{2} a^5 d^7 (6 A b d + a B d + 8 a A e) x^2 + \frac{1}{3} a^4 d^6 \left(2 a B d (3 b d + 4 a e) + A \left(15 b^2 d^2 + 48 a b d e + 28 a^2 e^2\right)\right) x^3 +$$
$$\frac{1}{4} a^3 d^5 \left(a B d \left(15 b^2 d^2 + 48 a b d e + 28 a^2 e^2\right) + 4 A \left(5 b^3 d^3 + 30 a b^2 d^2 e + 42 a^2 b d e^2 + 14 a^3 e^3\right)\right) x^4 +$$
$$\frac{1}{5} a^2 d^4 \left(4 a B d \left(5 b^3 d^3 + 30 a b^2 d^2 e + 42 a^2 b d e^2 + 14 a^3 e^3\right) + A \left(15 b^4 d^4 + 160 a b^3 d^3 e + 420 a^2 b^2 d^2 e^2 + 336 a^3 b d e^3 + 70 a^4 e^4\right)\right) x^5 +$$
$$\frac{1}{6} a d^3 \left(a B d \left(15 b^4 d^4 + 160 a b^3 d^3 e + 420 a^2 b^2 d^2 e^2 + 336 a^3 b d e^3 + 70 a^4 e^4\right) + 2 A \left(3 b^5 d^5 + 60 a b^4 d^4 e + 280 a^2 b^3 d^3 e^2 + 420 a^3 b^2 d^2 e^3 + 210 a^4 b d e^4 + 28 a^5 e^5\right)\right) x^6 +$$
$$\frac{1}{7} d^2 \left(2 a B d \left(3 b^5 d^5 + 60 a b^4 d^4 e + 280 a^2 b^3 d^3 e^2 + 420 a^3 b^2 d^2 e^3 + 210 a^4 b d e^4 + 28 a^5 e^5\right) + A \left(b^6 d^6 + 48 a b^5 d^5 e + 420 a^2 b^4 d^4 e^2 + 1120 a^3 b^3 d^3 e^3 + 1050 a^4 b^2 d^2 e^4 + 336 a^5 b d e^5 + 28 a^6 e^6\right)\right) x^7 +$$
$$\frac{1}{8} d \left(168 a^5 b d e^5 (2 B d + A e) + 420 a^2 b^4 d^4 e^2 (B d + 2 A e) + 4 a^6 e^6 (7 B d + 2 A e) + 210 a^4 b^2 d^2 e^4 (5 B d + 4 A e) + 280 a^3 b^3 d^3 e^3 (4 B d + 5 A e) + 24 a b^5 d^5 e (2 B d + 7 A e) + b^6 d^6 (B d + 8 A e)\right) x^8 +$$
$$\frac{1}{9} e \left(420 a^4 b^2 d^2 e^4 (2 B d + A e) + a^6 e^6 (8 B d + A e) + 168 a b^5 d^5 e (B d + 2 A e) + 24 a^5 b d e^5 (7 B d + 2 A e) + 280 a^3 b^3 d^3 e^3 (5 B d + 4 A e) + 210 a^2 b^4 d^4 e^2 (4 B d + 5 A e) + 4 b^6 d^6 (2 B d + 7 A e)\right) x^9 +$$
$$\frac{1}{10} e^2 \left(a^6 B e^6 + 560 a^3 b^3 d^2 e^3 (2 B d + A e) + 6 a^5 b e^5 (8 B d + A e) + 28 b^6 d^5 (B d + 2 A e) + 60 a^4 b^2 d e^4 (7 B d + 2 A e) + 210 a^2 b^4 d^3 e^2 (5 B d + 4 A e) + 84 a b^5 d^4 e (4 B d + 5 A e)\right) x^{10} + \frac{1}{11} b e^3$$
$$\left(6 a^5 B e^5 + 420 a^2 b^3 d^2 e^2 (2 B d + A e) + 15 a^4 b e^4 (8 B d + A e) + 80 a^3 b^2 d e^3 (7 B d + 2 A e) + 84 a b^4 d^3 e (5 B d + 4 A e) + 14 b^5 d^4 (4 B d + 5 A e)\right) x^{11} +$$
$$\frac{1}{12} b^2 e^4 \left(15 a^4 B e^4 + 168 a b^3 d^2 e (2 B d + A e) + 20 a^3 b e^3 (8 B d + A e) + 60 a^2 b^2 d e^2 (7 B d + 2 A e) + 14 b^4 d^3 (5 B d + 4 A e)\right) x^{12} +$$
$$\frac{1}{13} b^3 e^5 \left(20 a^3 B e^3 + 28 b^3 d^2 (2 B d + A e) + 15 a^2 b e^2 (8 B d + A e) + 24 a b^2 d e (7 B d + 2 A e)\right) x^{13} +$$
$$\frac{1}{14} b^4 e^6 \left(15 a^2 B e^2 + 6 a b e (8 B d + A e) + 4 b^2 d (7 B d + 2 A e)\right) x^{14} +$$
$$\frac{1}{15} b^5 e^7 (8 b B d + A b e + 6 a B e) x^{15} + \frac{1}{16} b^6 B e^8 x^{16}$$

Problem 1052: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^6 (A + B x) (d + e x)^7 \, dx$$

Optimal (type 1, 292 leaves, 2 steps):

$$-\frac{(b d-a e)^6 (B d-A e) (d+e x)^8}{8 e^8}+\frac{(b d-a e)^5 (7 b B d-6 A b e-a B e) (d+e x)^9}{9 e^8}-\frac{3 b (b d-a e)^4 (7 b B d-5 A b e-2 a B e) (d+e x)^{10}}{10 e^8}+\frac{5 b^2 (b d-a e)^3 (7 b B d-4 A b e-3 a B e) (d+e x)^{11}}{11 e^8}-\frac{5 b^3 (b d-a e)^2 (7 b B d-3 A b e-4 a B e) (d+e x)^{12}}{12 e^8}+\frac{3 b^4 (b d-a e) (7 b B d-2 A b e-5 a B e) (d+e x)^{13}}{13 e^8}-\frac{b^5 (7 b B d-A b e-6 a B e) (d+e x)^{14}}{14 e^8}+\frac{b^6 B (d+e x)^{15}}{15 e^8}$$

Result (type 1, 1224 leaves):

$$a^6 A d^7 x+\frac{1}{2} a^5 d^6 (6 A b d+a B d+7 a A e) x^2+\frac{1}{3} a^4 d^5 \left(a B d (6 b d+7 a e)+3 A \left(5 b^2 d^2+14 a b d e+7 a^2 e^2\right)\right) x^3+\frac{1}{4} a^3 d^4 \left(3 a B d \left(5 b^2 d^2+14 a b d e+7 a^2 e^2\right)+A \left(20 b^3 d^3+105 a b^2 d^2 e+126 a^2 b d e^2+35 a^3 e^3\right)\right) x^4+\frac{1}{5} a^2 d^3 \left(a B d \left(20 b^3 d^3+105 a b^2 d^2 e+126 a^2 b d e^2+35 a^3 e^3\right)+5 A \left(3 b^4 d^4+28 a b^3 d^3 e+63 a^2 b^2 d^2 e^2+42 a^3 b d e^3+7 a^4 e^4\right)\right) x^5+\frac{1}{6} a d^2 \left(5 a B d \left(3 b^4 d^4+28 a b^3 d^3 e+63 a^2 b^2 d^2 e^2+42 a^3 b d e^3+7 a^4 e^4\right)+3 A \left(2 b^5 d^5+35 a b^4 d^4 e+140 a^2 b^3 d^3 e^2+175 a^3 b^2 d^2 e^3+70 a^4 b d e^4+7 a^5 e^5\right)\right) x^6+\frac{1}{7} d \left(3 a B d \left(2 b^5 d^5+35 a b^4 d^4 e+140 a^2 b^3 d^3 e^2+175 a^3 b^2 d^2 e^3+70 a^4 b d e^4+7 a^5 e^5\right)+A \left(b^6 d^6+42 a b^5 d^5 e+315 a^2 b^4 d^4 e^2+700 a^3 b^3 d^3 e^3+525 a^4 b^2 d^2 e^4+126 a^5 b d e^5+7 a^6 e^6\right)\right) x^7+\frac{1}{8} \left(700 a^3 b^3 d^3 e^3 (B d+A e)+42 a^5 b d e^5 (3 B d+A e)+a^6 e^6 (7 B d+A e)+42 a b^5 d^5 e (B d+3 A e)+105 a^4 b^2 d^2 e^4 (5 B d+3 A e)+105 a^2 b^4 d^4 e^2 (3 B d+5 A e)+b^6 d^6 (B d+7 A e)\right) x^8+\frac{1}{9} e \left(a^6 B e^6+525 a^2 b^4 d^3 e^2 (B d+A e)+105 a^4 b^2 d e^4 (3 B d+A e)+6 a^5 b e^5 (7 B d+A e)+7 b^6 d^5 (B d+3 A e)+140 a^3 b^3 d^2 e^3 (5 B d+3 A e)+42 a b^5 d^4 e (3 B d+5 A e)\right) x^9+\frac{1}{10} b e^2 \left(6 a^5 B e^5+210 a b^4 d^3 e (B d+A e)+140 a^3 b^2 d e^3 (3 B d+A e)+15 a^4 b e^4 (7 B d+A e)+105 a^2 b^3 d^2 e^2 (5 B d+3 A e)+7 b^5 d^4 (3 B d+5 A e)\right) x^{10}+\frac{1}{11} b^2 e^3 \left(15 a^4 B e^4+35 b^4 d^3 (B d+A e)+105 a^2 b^2 d e^2 (3 B d+A e)+20 a^3 b e^3 (7 B d+A e)+42 a b^3 d^2 e (5 B d+3 A e)\right) x^{11}+\frac{1}{12} b^3 e^4 \left(20 a^3 B e^3+42 a b^2 d e (3 B d+A e)+15 a^2 b e^2 (7 B d+A e)+7 b^3 d^2 (5 B d+3 A e)\right) x^{12}+\frac{1}{13} b^4 e^5 \left(15 a^2 B e^2+7 b^2 d (3 B d+A e)+6 a b e (7 B d+A e)\right) x^{13}+\frac{1}{14} b^5 e^6 (7 b B d+A b e+6 a B e) x^{14}+\frac{1}{15} b^6 B e^7 x^{15}$$

Problem 1053: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^6 (A+B x) (d+e x)^6 \, dx$$

Optimal (type 1, 290 leaves, 2 steps):

$$\frac{(A b-a B)(b d-a e)^6 (a+b x)^7}{7 b^8}+\frac{(b d-a e)^5 (b B d+6 A b e-7 a B e)(a+b x)^8}{8 b^8}+\frac{e (b d-a e)^4 (2 b B d+5 A b e-7 a B e)(a+b x)^9}{3 b^8}+$$
$$\frac{e^2 (b d-a e)^3 (3 b B d+4 A b e-7 a B e)(a+b x)^{10}}{2 b^8}+\frac{5 e^3 (b d-a e)^2 (4 b B d+3 A b e-7 a B e)(a+b x)^{11}}{11 b^8}+$$
$$\frac{e^4 (b d-a e)(5 b B d+2 A b e-7 a B e)(a+b x)^{12}}{4 b^8}+\frac{e^5 (6 b B d+A b e-7 a B e)(a+b x)^{13}}{13 b^8}+\frac{B e^6 (a+b x)^{14}}{14 b^8}$$

Result (type 1, 1069 leaves):

$$a^6 A d^6 x+\frac{1}{2} a^5 d^5 (a B d+6 A (b d+a e)) x^2+a^4 d^4 \left(2 a B d (b d+a e)+A \left(5 b^2 d^2+12 a b d e+5 a^2 e^2\right)\right) x^3+$$
$$\frac{1}{4} a^3 d^3 \left(3 a B d \left(5 b^2 d^2+12 a b d e+5 a^2 e^2\right)+10 A \left(2 b^3 d^3+9 a b^2 d^2 e+9 a^2 b d e^2+2 a^3 e^3\right)\right) x^4+$$
$$a^2 d^2 \left(2 a B d \left(2 b^3 d^3+9 a b^2 d^2 e+9 a^2 b d e^2+2 a^3 e^3\right)+3 A \left(b^4 d^4+8 a b^3 d^3 e+15 a^2 b^2 d^2 e^2+8 a^3 b d e^3+a^4 e^4\right)\right) x^5+$$
$$\frac{1}{2} a d \left(5 a B d \left(b^4 d^4+8 a b^3 d^3 e+15 a^2 b^2 d^2 e^2+8 a^3 b d e^3+a^4 e^4\right)+2 A \left(b^5 d^5+15 a b^4 d^4 e+50 a^2 b^3 d^3 e^2+50 a^3 b^2 d^2 e^3+15 a^4 b d e^4+a^5 e^5\right)\right) x^6+$$
$$\frac{1}{7} \left(6 a B d \left(b^5 d^5+15 a b^4 d^4 e+50 a^2 b^3 d^3 e^2+50 a^3 b^2 d^2 e^3+15 a^4 b d e^4+a^5 e^5\right)+\right.$$
$$\left.A \left(b^6 d^6+36 a b^5 d^5 e+225 a^2 b^4 d^4 e^2+400 a^3 b^3 d^3 e^3+225 a^4 b^2 d^2 e^4+36 a^5 b d e^5+a^6 e^6\right)\right) x^7+\frac{1}{8} \left(a^6 B e^6+6 a^5 b e^5 (6 B d+A e)+\right.$$
$$\left.45 a^4 b^2 d e^4 (5 B d+2 A e)+100 a^3 b^3 d^2 e^3 (4 B d+3 A e)+75 a^2 b^4 d^3 e^2 (3 B d+4 A e)+18 a b^5 d^4 e (2 B d+5 A e)+b^6 d^5 (B d+6 A e)\right) x^8+$$
$$\frac{1}{3} b e \left(2 a^5 B e^5+5 a^4 b e^4 (6 B d+A e)+20 a^3 b^2 d e^3 (5 B d+2 A e)+25 a^2 b^3 d^2 e^2 (4 B d+3 A e)+10 a b^4 d^3 e (3 B d+4 A e)+b^5 d^4 (2 B d+5 A e)\right) x^9+$$
$$\frac{1}{2} b^2 e^2 \left(3 a^4 B e^4+4 a^3 b e^3 (6 B d+A e)+9 a^2 b^2 d e^2 (5 B d+2 A e)+6 a b^3 d^2 e (4 B d+3 A e)+b^4 d^3 (3 B d+4 A e)\right) x^{10}+$$
$$\frac{1}{11} b^3 e^3 \left(20 a^3 B e^3+15 a^2 b e^2 (6 B d+A e)+18 a b^2 d e (5 B d+2 A e)+5 b^3 d^2 (4 B d+3 A e)\right) x^{11}+$$
$$\frac{1}{4} b^4 e^4 \left(5 a^2 B e^2+2 a b e (6 B d+A e)+b^2 d (5 B d+2 A e)\right) x^{12}+\frac{1}{13} b^5 e^5 (6 b B d+A b e+6 a B e) x^{13}+\frac{1}{14} b^6 B e^6 x^{14}$$

Problem 1054: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^6 (A+B x)(d+e x)^5 \, dx$$

Optimal (type 1, 240 leaves, 2 steps):

$$\frac{(A b-a B)(b d-a e)^5 (a+b x)^7}{7 b^7}+\frac{(b d-a e)^4 (b B d+5 A b e-6 a B e) (a+b x)^8}{8 b^7}+\frac{5 e (b d-a e)^3 (b B d+2 A b e-3 a B e) (a+b x)^9}{9 b^7}+\frac{e^2 (b d-a e)^2 (b B d+A b e-2 a B e) (a+b x)^{10}}{b^7}+\frac{5 e^3 (b d-a e) (2 b B d+A b e-3 a B e) (a+b x)^{11}}{11 b^7}+\frac{e^4 (5 b B d+A b e-6 a B e) (a+b x)^{12}}{12 b^7}+\frac{B e^5 (a+b x)^{13}}{13 b^7}$$

Result (type 1, 907 leaves):

$$a^6 A d^5 x+\frac{1}{2} a^5 d^4 (6 A b d+a B d+5 a A e) x^2+\frac{1}{3} a^4 d^3 \left(a B d (6 b d+5 a e)+5 A \left(3 b^2 d^2+6 a b d e+2 a^2 e^2\right)\right) x^3+\frac{5}{4} a^3 d^2 \left(a B d \left(3 b^2 d^2+6 a b d e+2 a^2 e^2\right)+A \left(4 b^3 d^3+15 a b^2 d^2 e+12 a^2 b d e^2+2 a^3 e^3\right)\right) x^4+a^2 d \left(a B d \left(4 b^3 d^3+15 a b^2 d^2 e+12 a^2 b d e^2+2 a^3 e^3\right)+A \left(3 b^4 d^4+20 a b^3 d^3 e+30 a^2 b^2 d^2 e^2+12 a^3 b d e^3+a^4 e^4\right)\right) x^5+\frac{1}{6} a \left(5 a B d \left(3 b^4 d^4+20 a b^3 d^3 e+30 a^2 b^2 d^2 e^2+12 a^3 b d e^3+a^4 e^4\right)+A \left(6 b^5 d^5+75 a b^4 d^4 e+200 a^2 b^3 d^3 e^2+150 a^3 b^2 d^2 e^3+30 a^4 b d e^4+a^5 e^5\right)\right) x^6+\frac{1}{7} \left(a B \left(6 b^5 d^5+75 a b^4 d^4 e+200 a^2 b^3 d^3 e^2+150 a^3 b^2 d^2 e^3+30 a^4 b d e^4+a^5 e^5\right)+A b \left(b^5 d^5+30 a b^4 d^4 e+150 a^2 b^3 d^3 e^2+200 a^3 b^2 d^2 e^3+75 a^4 b d e^4+6 a^5 e^5\right)\right) x^7+\frac{1}{8} b \left(6 a^5 B e^5+150 a^2 b^3 d^2 e^2 (B d+A e)+100 a^3 b^2 d e^3 (2 B d+A e)+15 a^4 b e^4 (5 B d+A e)+30 a b^4 d^3 e (B d+2 A e)+b^5 d^4 (B d+5 A e)\right) x^8+\frac{5}{9} b^2 e \left(3 a^4 B e^4+12 a b^3 d^2 e (B d+A e)+15 a^2 b^2 d e^2 (2 B d+A e)+4 a^3 b e^3 (5 B d+A e)+b^4 d^3 (B d+2 A e)\right) x^9+\frac{1}{2} b^3 e^2 \left(4 a^3 B e^3+2 b^3 d^2 (B d+A e)+6 a b^2 d e (2 B d+A e)+3 a^2 b e^2 (5 B d+A e)\right) x^{10}+\frac{1}{11} b^4 e^3 \left(15 a^2 B e^2+5 b^2 d (2 B d+A e)+6 a b e (5 B d+A e)\right) x^{11}+\frac{1}{12} b^5 e^4 (5 b B d+A b e+6 a B e) x^{12}+\frac{1}{13} b^6 B e^5 x^{13}$$

Problem 1055: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^6 (A+B x) (d+e x)^4 \, dx$$

Optimal (type 1, 204 leaves, 2 steps):

$$\frac{(A b-a B)(b d-a e)^4 (a+b x)^7}{7 b^6}+\frac{(b d-a e)^3 (b B d+4 A b e-5 a B e) (a+b x)^8}{8 b^6}+\frac{2 e (b d-a e)^2 (2 b B d+3 A b e-5 a B e) (a+b x)^9}{9 b^6}+\frac{e^2 (b d-a e) (3 b B d+2 A b e-5 a B e) (a+b x)^{10}}{5 b^6}+\frac{e^3 (4 b B d+A b e-5 a B e) (a+b x)^{11}}{11 b^6}+\frac{B e^4 (a+b x)^{12}}{12 b^6}$$

Result (type 1, 762 leaves):

$$a^6 A d^4 x + \frac{1}{2} a^5 d^3 (6 A b d + a B d + 4 a A e) x^2 + \frac{1}{3} a^4 d^2 (2 a B d (3 b d + 2 a e) + 3 A (5 b^2 d^2 + 8 a b d e + 2 a^2 e^2)) x^3 +$$
$$\frac{1}{4} a^3 d (3 a B d (5 b^2 d^2 + 8 a b d e + 2 a^2 e^2) + 4 A (5 b^3 d^3 + 15 a b^2 d^2 e + 9 a^2 b d e^2 + a^3 e^3)) x^4 +$$
$$\frac{1}{5} a^2 (4 a B d (5 b^3 d^3 + 15 a b^2 d^2 e + 9 a^2 b d e^2 + a^3 e^3) + A (15 b^4 d^4 + 80 a b^3 d^3 e + 90 a^2 b^2 d^2 e^2 + 24 a^3 b d e^3 + a^4 e^4)) x^5 +$$
$$\frac{1}{6} a (6 A b (b^4 d^4 + 10 a b^3 d^3 e + 20 a^2 b^2 d^2 e^2 + 10 a^3 b d e^3 + a^4 e^4) + a B (15 b^4 d^4 + 80 a b^3 d^3 e + 90 a^2 b^2 d^2 e^2 + 24 a^3 b d e^3 + a^4 e^4)) x^6 +$$
$$\frac{1}{7} b (6 a B (b^4 d^4 + 10 a b^3 d^3 e + 20 a^2 b^2 d^2 e^2 + 10 a^3 b d e^3 + a^4 e^4) + A b (b^4 d^4 + 24 a b^3 d^3 e + 90 a^2 b^2 d^2 e^2 + 80 a^3 b d e^3 + 15 a^4 e^4)) x^7 +$$
$$\frac{1}{8} b^2 (15 a^4 B e^4 + 20 a^3 b e^3 (4 B d + A e) + 30 a^2 b^2 d e^2 (3 B d + 2 A e) + 12 a b^3 d^2 e (2 B d + 3 A e) + b^4 d^3 (B d + 4 A e)) x^8 +$$
$$\frac{1}{9} b^3 e (20 a^3 B e^3 + 15 a^2 b e^2 (4 B d + A e) + 12 a b^2 d e (3 B d + 2 A e) + 2 b^3 d^2 (2 B d + 3 A e)) x^9 +$$
$$\frac{1}{10} b^4 e^2 (15 a^2 B e^2 + 6 a b e (4 B d + A e) + 2 b^2 d (3 B d + 2 A e)) x^{10} + \frac{1}{11} b^5 e^3 (4 b B d + A b e + 6 a B e) x^{11} + \frac{1}{12} b^6 B e^4 x^{12}$$

Problem 1056: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^6 (A + B x) (d + e x)^3 \, dx$$

Optimal (type 1, 159 leaves, 2 steps):

$$\frac{(A b - a B) (b d - a e)^3 (a + b x)^7}{7 b^5} + \frac{(b d - a e)^2 (b B d + 3 A b e - 4 a B e) (a + b x)^8}{8 b^5} +$$
$$\frac{e (b d - a e) (b B d + A b e - 2 a B e) (a + b x)^9}{3 b^5} + \frac{e^2 (3 b B d + A b e - 4 a B e) (a + b x)^{10}}{10 b^5} + \frac{B e^3 (a + b x)^{11}}{11 b^5}$$

Result (type 1, 586 leaves):

$$a^6 A d^3 x+\frac{1}{2} a^5 d^2 (6 A b d+a B d+3 a A e) x^2+a^4 d (a B d (2 b d+a e)+A (5 b^2 d^2+6 a b d e+a^2 e^2)) x^3+\frac{1}{4} a^3 (3 a B d (5 b^2 d^2+6 a b d e+a^2 e^2)+A (20 b^3 d^3+45 a b^2 d^2 e+18 a^2 b d e^2+a^3 e^3)) x^4+\frac{1}{5} a^2 (a B (20 b^3 d^3+45 a b^2 d^2 e+18 a^2 b d e^2+a^3 e^3)+3 A b (5 b^3 d^3+20 a b^2 d^2 e+15 a^2 b d e^2+2 a^3 e^3)) x^5+\frac{1}{2} a b (a B (5 b^3 d^3+20 a b^2 d^2 e+15 a^2 b d e^2+2 a^3 e^3)+A b (2 b^3 d^3+15 a b^2 d^2 e+20 a^2 b d e^2+5 a^3 e^3)) x^6+\frac{1}{7} b^2 (3 a B (2 b^3 d^3+15 a b^2 d^2 e+20 a^2 b d e^2+5 a^3 e^3)+A b (b^3 d^3+18 a b^2 d^2 e+45 a^2 b d e^2+20 a^3 e^3)) x^7+\frac{1}{8} b^3 (20 a^3 B e^3+18 a b^2 d e (B d+A e)+15 a^2 b e^2 (3 B d+A e)+b^3 d^2 (B d+3 A e)) x^8+\frac{1}{3} b^4 e (5 a^2 B e^2+b^2 d (B d+A e)+2 a b e (3 B d+A e)) x^9+\frac{1}{10} b^5 e^2 (3 b B d+A b e+6 a B e) x^{10}+\frac{1}{11} b^6 B e^3 x^{11}$$

Problem 1057: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^6 (A+B x) (d+e x)^2 \, dx$$

Optimal (type 1, 118 leaves, 2 steps):

$$\frac{(A b-a B) (b d-a e)^2 (a+b x)^7}{7 b^4}+\frac{(b d-a e) (b B d+2 A b e-3 a B e) (a+b x)^8}{8 b^4}+\frac{e (2 b B d+A b e-3 a B e) (a+b x)^9}{9 b^4}+\frac{B e^2 (a+b x)^{10}}{10 b^4}$$

Result (type 1, 386 leaves):

$$\frac{1}{2520} x (210 a^6 (4 A (3 d^2+3 d e x+e^2 x^2)+B x (6 d^2+8 d e x+3 e^2 x^2))+252 a^5 b x (5 A (6 d^2+8 d e x+3 e^2 x^2)+2 B x (10 d^2+15 d e x+6 e^2 x^2))+630 a^4 b^2 x^2 (2 A (10 d^2+15 d e x+6 e^2 x^2)+B x (15 d^2+24 d e x+10 e^2 x^2))+120 a^3 b^3 x^3 (7 A (15 d^2+24 d e x+10 e^2 x^2)+4 B x (21 d^2+35 d e x+15 e^2 x^2))+45 a^2 b^4 x^4 (8 A (21 d^2+35 d e x+15 e^2 x^2)+5 B x (28 d^2+48 d e x+21 e^2 x^2))+30 a b^5 x^5 (3 A (28 d^2+48 d e x+21 e^2 x^2)+2 B x (36 d^2+63 d e x+28 e^2 x^2))+b^6 x^6 (10 A (36 d^2+63 d e x+28 e^2 x^2)+7 B x (45 d^2+80 d e x+36 e^2 x^2)))$$

Problem 1058: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^6 (A+B x) (d+e x) \, dx$$

Optimal (type 1, 75 leaves, 2 steps):

$$\frac{(A b-a B) (b d-a e) (a+b x)^7}{7 b^3}+\frac{(b B d+A b e-2 a B e) (a+b x)^8}{8 b^3}+\frac{B e (a+b x)^9}{9 b^3}$$

Result (type 1, 231 leaves):

$$\frac{1}{504} x \left(84 a^6 \left(3 A (2 d + e x) + B x (3 d + 2 e x)\right) + 126 a^4 b^2 x^2 \left(5 A (4 d + 3 e x) + 3 B x (5 d + 4 e x)\right) + 252 a^5 b x \left(B x (4 d + 3 e x) + A (6 d + 4 e x)\right) + 168 a^3 b^3 x^3 \left(3 A (5 d + 4 e x) + 2 B x (6 d + 5 e x)\right) + 36 a^2 b^4 x^4 \left(7 A (6 d + 5 e x) + 5 B x (7 d + 6 e x)\right) + 18 a b^5 x^5 \left(4 A (7 d + 6 e x) + 3 B x (8 d + 7 e x)\right) + b^6 x^6 \left(9 A (8 d + 7 e x) + 7 B x (9 d + 8 e x)\right)\right)$$

Problem 1059: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^6 (A + B x) \, dx$$

Optimal (type 1, 38 leaves, 2 steps):

$$\frac{(A b - a B) (a + b x)^7}{7 b^2} + \frac{B (a + b x)^8}{8 b^2}$$

Result (type 1, 122 leaves):

$$\frac{1}{56} x \left(28 a^6 (2 A + B x) + 56 a^5 b x (3 A + 2 B x) + 70 a^4 b^2 x^2 (4 A + 3 B x) + 56 a^3 b^3 x^3 (5 A + 4 B x) + 28 a^2 b^4 x^4 (6 A + 5 B x) + 8 a b^5 x^5 (7 A + 6 B x) + b^6 x^6 (8 A + 7 B x)\right)$$

Problem 1060: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + b x)^6 (A + B x)}{d + e x} \, dx$$

Optimal (type 3, 220 leaves, 2 steps):

$$\frac{b (b d - a e)^5 (B d - A e) x}{e^7} - \frac{(b d - a e)^4 (B d - A e) (a + b x)^2}{2 e^6} + \frac{(b d - a e)^3 (B d - A e) (a + b x)^3}{3 e^5} - \frac{(b d - a e)^2 (B d - A e) (a + b x)^4}{4 e^4} + \frac{(b d - a e) (B d - A e) (a + b x)^5}{5 e^3} - \frac{(B d - A e) (a + b x)^6}{6 e^2} + \frac{B (a + b x)^7}{7 b e} - \frac{(b d - a e)^6 (B d - A e) \text{Log}[d + e x]}{e^8}$$

Result (type 3, 501 leaves):

$$\frac{1}{420 e^8}\Big(e x\,\big(420 a^6 B e^6+1260 a^5 b e^5 (-2 B d+2 A e+B e x)+1050 a^4 b^2 e^4 \left(3 A e (-2 d+e x)+B \left(6 d^2-3 d e x+2 e^2 x^2\right)\right)+700 a^3 b^3 e^3 \left(2 A e \left(6 d^2-3 d e x+2 e^2 x^2\right)+B \left(-12 d^3+6 d^2 e x-4 d e^2 x^2+3 e^3 x^3\right)\right)+105 a^2 b^4 e^2 \left(5 A e \left(-12 d^3+6 d^2 e x-4 d e^2 x^2+3 e^3 x^3\right)+B \left(60 d^4-30 d^3 e x+20 d^2 e^2 x^2-15 d e^3 x^3+12 e^4 x^4\right)\right)+42 a b^5 e \left(A e \left(60 d^4-30 d^3 e x+20 d^2 e^2 x^2-15 d e^3 x^3+12 e^4 x^4\right)+B \left(-60 d^5+30 d^4 e x-20 d^3 e^2 x^2+15 d^2 e^3 x^3-12 d e^4 x^4+10 e^5 x^5\right)\right)+b^6 \left(7 A e \left(-60 d^5+30 d^4 e x-20 d^3 e^2 x^2+15 d^2 e^3 x^3-12 d e^4 x^4+10 e^5 x^5\right)+B \left(420 d^6-210 d^5 e x+140 d^4 e^2 x^2-105 d^3 e^3 x^3+84 d^2 e^4 x^4-70 d e^5 x^5+60 e^6 x^6\right)\right)\big)-420 (b d-a e)^6 (B d-A e) \operatorname{Log}[d+e x]\Big)$$

Problem 1061: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^6 (A+B x)}{(d+e x)^2}\,dx$$

Optimal (type 3, 277 leaves, 2 steps):

$$-\frac{3 b (b d-a e)^4 (7 b B d-5 A b e-2 a B e) x}{e^7}+\frac{(b d-a e)^6 (B d-A e)}{e^8 (d+e x)}+\frac{5 b^2 (b d-a e)^3 (7 b B d-4 A b e-3 a B e) (d+e x)^2}{2 e^8}-\frac{5 b^3 (b d-a e)^2 (7 b B d-3 A b e-4 a B e) (d+e x)^3}{3 e^8}+\frac{3 b^4 (b d-a e) (7 b B d-2 A b e-5 a B e) (d+e x)^4}{4 e^8}-\frac{b^5 (7 b B d-A b e-6 a B e) (d+e x)^5}{5 e^8}+\frac{b^6 B (d+e x)^6}{6 e^8}+\frac{(b d-a e)^5 (7 b B d-6 A b e-a B e) \operatorname{Log}[d+e x]}{e^8}$$

Result (type 3, 643 leaves):

$$\frac{1}{60 e^8 (d+e x)}\Big(60 a^6 e^6 (B d-A e)+360 a^5 b e^5 \left(A d e+B \left(-d^2+d e x+e^2 x^2\right)\right)+450 a^4 b^2 e^4 \left(2 A e \left(-d^2+d e x+e^2 x^2\right)+B \left(2 d^3-4 d^2 e x-3 d e^2 x^2+e^3 x^3\right)\right)+200 a^3 b^3 e^3 \left(3 A e \left(2 d^3-4 d^2 e x-3 d e^2 x^2+e^3 x^3\right)+2 B \left(-3 d^4+9 d^3 e x+6 d^2 e^2 x^2-2 d e^3 x^3+e^4 x^4\right)\right)+75 a^2 b^4 e^2 \left(4 A e \left(-3 d^4+9 d^3 e x+6 d^2 e^2 x^2-2 d e^3 x^3+e^4 x^4\right)+B \left(12 d^5-48 d^4 e x-30 d^3 e^2 x^2+10 d^2 e^3 x^3-5 d e^4 x^4+3 e^5 x^5\right)\right)+6 a b^5 e \left(5 A e \left(12 d^5-48 d^4 e x-30 d^3 e^2 x^2+10 d^2 e^3 x^3-5 d e^4 x^4+3 e^5 x^5\right)-6 B \left(10 d^6-50 d^5 e x-30 d^4 e^2 x^2+10 d^3 e^3 x^3-5 d^2 e^4 x^4+3 d e^5 x^5-2 e^6 x^6\right)\right)+b^6 \left(6 A e \left(-10 d^6+50 d^5 e x+30 d^4 e^2 x^2-10 d^3 e^3 x^3+5 d^2 e^4 x^4-3 d e^5 x^5+2 e^6 x^6\right)+B \left(60 d^7-360 d^6 e x-210 d^5 e^2 x^2+70 d^4 e^3 x^3-35 d^3 e^4 x^4+21 d^2 e^5 x^5-14 d e^6 x^6+10 e^7 x^7\right)\right)+60 (b d-a e)^5 (7 b B d-6 A b e-a B e) (d+e x) \operatorname{Log}[d+e x]\Big)$$

Problem 1065: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^6 (A+B x)}{(d+e x)^6}\,dx$$

Optimal (type 3, 272 leaves, 2 steps):

$$-\frac{b^5 (6 b B d - A b e - 6 a B e) x}{e^7}+\frac{b^6 B x^2}{2 e^6}+\frac{(b d - a e)^6 (B d - A e)}{5 e^8 (d + e x)^5}-\frac{(b d - a e)^5 (7 b B d - 6 A b e - a B e)}{4 e^8 (d + e x)^4}+\frac{b (b d - a e)^4 (7 b B d - 5 A b e - 2 a B e)}{e^8 (d + e x)^3}-\frac{5 b^2 (b d - a e)^3 (7 b B d - 4 A b e - 3 a B e)}{2 e^8 (d + e x)^2}+\frac{5 b^3 (b d - a e)^2 (7 b B d - 3 A b e - 4 a B e)}{e^8 (d + e x)}+\frac{3 b^4 (b d - a e) (7 b B d - 2 A b e - 5 a B e) \mathrm{Log}[d + e x]}{e^8}$$

Result (type 3, 633 leaves):

$$\frac{1}{20 e^8 (d + e x)^5}\Big(-a^6 e^6 (4 A e + B (d + 5 e x)) - 2 a^5 b e^5 (3 A e (d + 5 e x) + 2 B (d^2 + 5 d e x + 10 e^2 x^2)) -$$
$$5 a^4 b^2 e^4 (2 A e (d^2 + 5 d e x + 10 e^2 x^2) + 3 B (d^3 + 5 d^2 e x + 10 d e^2 x^2 + 10 e^3 x^3)) -$$
$$20 a^3 b^3 e^3 (A e (d^3 + 5 d^2 e x + 10 d e^2 x^2 + 10 e^3 x^3) + 4 B (d^4 + 5 d^3 e x + 10 d^2 e^2 x^2 + 10 d e^3 x^3 + 5 e^4 x^4)) +$$
$$5 a^2 b^4 e^2 (-12 A e (d^4 + 5 d^3 e x + 10 d^2 e^2 x^2 + 10 d e^3 x^3 + 5 e^4 x^4) + B d (137 d^4 + 625 d^3 e x + 1100 d^2 e^2 x^2 + 900 d e^3 x^3 + 300 e^4 x^4)) +$$
$$2 a b^5 e (A d e (137 d^4 + 625 d^3 e x + 1100 d^2 e^2 x^2 + 900 d e^3 x^3 + 300 e^4 x^4) -$$
$$6 B (87 d^6 + 375 d^5 e x + 600 d^4 e^2 x^2 + 400 d^3 e^3 x^3 + 50 d^2 e^4 x^4 - 50 d e^5 x^5 - 10 e^6 x^6)) +$$
$$b^6 (-2 A e (87 d^6 + 375 d^5 e x + 600 d^4 e^2 x^2 + 400 d^3 e^3 x^3 + 50 d^2 e^4 x^4 - 50 d e^5 x^5 - 10 e^6 x^6) +$$
$$B (459 d^7 + 1875 d^6 e x + 2700 d^5 e^2 x^2 + 1300 d^4 e^3 x^3 - 400 d^3 e^4 x^4 - 500 d^2 e^5 x^5 - 70 d e^6 x^6 + 10 e^7 x^7)) +$$
$$60 b^4 (b d - a e) (7 b B d - 2 A b e - 5 a B e) (d + e x)^5 \mathrm{Log}[d + e x]\Big)$$

Problem 1066: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + b x)^6 (A + B x)}{(d + e x)^7} \, dx$$

Optimal (type 3, 278 leaves, 2 steps):

$$\frac{b^6 B x}{e^7}+\frac{(b d - a e)^6 (B d - A e)}{6 e^8 (d + e x)^6}-\frac{(b d - a e)^5 (7 b B d - 6 A b e - a B e)}{5 e^8 (d + e x)^5}+\frac{3 b (b d - a e)^4 (7 b B d - 5 A b e - 2 a B e)}{4 e^8 (d + e x)^4}-\frac{5 b^2 (b d - a e)^3 (7 b B d - 4 A b e - 3 a B e)}{3 e^8 (d + e x)^3}+\frac{5 b^3 (b d - a e)^2 (7 b B d - 3 A b e - 4 a B e)}{2 e^8 (d + e x)^2}-\frac{3 b^4 (b d - a e) (7 b B d - 2 A b e - 5 a B e)}{e^8 (d + e x)}-\frac{b^5 (7 b B d - A b e - 6 a B e) \mathrm{Log}[d + e x]}{e^8}$$

Result (type 3, 619 leaves):

$$-\frac{1}{60\,e^8\,(d+e\,x)^6}\Big(2\,a^6\,e^6\,(5\,A\,e+B\,(d+6\,e\,x))+6\,a^5\,b\,e^5\,(2\,A\,e\,(d+6\,e\,x)+B\,(d^2+6\,d\,e\,x+15\,e^2\,x^2))+15\,a^4\,b^2\,e^4\,(A\,e\,(d^2+6\,d\,e\,x+15\,e^2\,x^2)+B\,(d^3+6\,d^2\,e\,x+15\,d\,e^2\,x^2+20\,e^3\,x^3))+20\,a^3\,b^3\,e^3\,(A\,e\,(d^3+6\,d^2\,e\,x+15\,d\,e^2\,x^2+20\,e^3\,x^3)+2\,B\,(d^4+6\,d^3\,e\,x+15\,d^2\,e^2\,x^2+20\,d\,e^3\,x^3+15\,e^4\,x^4))+30\,a^2\,b^4\,e^2\,(A\,e\,(d^4+6\,d^3\,e\,x+15\,d^2\,e^2\,x^2+20\,d\,e^3\,x^3+15\,e^4\,x^4)+5\,B\,(d^5+6\,d^4\,e\,x+15\,d^3\,e^2\,x^2+20\,d^2\,e^3\,x^3+15\,d\,e^4\,x^4+6\,e^5\,x^5))-6\,a\,b^5\,e\,(-10\,A\,e\,(d^5+6\,d^4\,e\,x+15\,d^3\,e^2\,x^2+20\,d^2\,e^3\,x^3+15\,d\,e^4\,x^4+6\,e^5\,x^5)+B\,d\,(147\,d^5+822\,d^4\,e\,x+1875\,d^3\,e^2\,x^2+2200\,d^2\,e^3\,x^3+1350\,d\,e^4\,x^4+360\,e^5\,x^5))-b^6\,(A\,d\,e\,(147\,d^5+822\,d^4\,e\,x+1875\,d^3\,e^2\,x^2+2200\,d^2\,e^3\,x^3+1350\,d\,e^4\,x^4+360\,e^5\,x^5)-B\,(669\,d^7+3594\,d^6\,e\,x+7725\,d^5\,e^2\,x^2+8200\,d^4\,e^3\,x^3+4050\,d^3\,e^4\,x^4+360\,d^2\,e^5\,x^5-360\,d\,e^6\,x^6-60\,e^7\,x^7))+60\,b^5\,(7\,b\,B\,d-A\,b\,e-6\,a\,B\,e)\,(d+e\,x)^6\,\mathrm{Log}[d+e\,x]\Big)$$

Problem 1067: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,x)^6\,(A+B\,x)}{(d+e\,x)^8}\,dx$$

Optimal (type 3, 213 leaves, 3 steps):

$$-\frac{(B\,d-A\,e)\,(a+b\,x)^7}{7\,e\,(b\,d-a\,e)\,(d+e\,x)^7}-\frac{B\,(b\,d-a\,e)^6}{6\,e^8\,(d+e\,x)^6}+\frac{6\,b\,B\,(b\,d-a\,e)^5}{5\,e^8\,(d+e\,x)^5}-\frac{15\,b^2\,B\,(b\,d-a\,e)^4}{4\,e^8\,(d+e\,x)^4}+\frac{20\,b^3\,B\,(b\,d-a\,e)^3}{3\,e^8\,(d+e\,x)^3}-\frac{15\,b^4\,B\,(b\,d-a\,e)^2}{2\,e^8\,(d+e\,x)^2}+\frac{6\,b^5\,B\,(b\,d-a\,e)}{e^8\,(d+e\,x)}+\frac{b^6\,B\,\mathrm{Log}[d+e\,x]}{e^8}$$

Result (type 3, 615 leaves):

$$-\frac{1}{420\,e^8\,(d+e\,x)^7}\Big(10\,a^6\,e^6\,(6\,A\,e+B\,(d+7\,e\,x))+12\,a^5\,b\,e^5\,(5\,A\,e\,(d+7\,e\,x)+2\,B\,(d^2+7\,d\,e\,x+21\,e^2\,x^2))+15\,a^4\,b^2\,e^4\,(4\,A\,e\,(d^2+7\,d\,e\,x+21\,e^2\,x^2)+3\,B\,(d^3+7\,d^2\,e\,x+21\,d\,e^2\,x^2+35\,e^3\,x^3))+20\,a^3\,b^3\,e^3\,(3\,A\,e\,(d^3+7\,d^2\,e\,x+21\,d\,e^2\,x^2+35\,e^3\,x^3)+4\,B\,(d^4+7\,d^3\,e\,x+21\,d^2\,e^2\,x^2+35\,d\,e^3\,x^3+35\,e^4\,x^4))+30\,a^2\,b^4\,e^2\,(2\,A\,e\,(d^4+7\,d^3\,e\,x+21\,d^2\,e^2\,x^2+35\,d\,e^3\,x^3+35\,e^4\,x^4)+5\,B\,(d^5+7\,d^4\,e\,x+21\,d^3\,e^2\,x^2+35\,d^2\,e^3\,x^3+35\,d\,e^4\,x^4+21\,e^5\,x^5))+60\,a\,b^5\,e\,(A\,e\,(d^5+7\,d^4\,e\,x+21\,d^3\,e^2\,x^2+35\,d^2\,e^3\,x^3+35\,d\,e^4\,x^4+21\,e^5\,x^5)+6\,B\,(d^6+7\,d^5\,e\,x+21\,d^4\,e^2\,x^2+35\,d^3\,e^3\,x^3+35\,d^2\,e^4\,x^4+21\,d\,e^5\,x^5+7\,e^6\,x^6))+b^6\,(60\,A\,e\,(d^6+7\,d^5\,e\,x+21\,d^4\,e^2\,x^2+35\,d^3\,e^3\,x^3+35\,d^2\,e^4\,x^4+21\,d\,e^5\,x^5+7\,e^6\,x^6)-B\,d\,(1089\,d^6+7203\,d^5\,e\,x+20139\,d^4\,e^2\,x^2+30625\,d^3\,e^3\,x^3+26950\,d^2\,e^4\,x^4+13230\,d\,e^5\,x^5+2940\,e^6\,x^6))-420\,b^6\,B\,(d+e\,x)^7\,\mathrm{Log}[d+e\,x]\Big)$$

Problem 1068: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,x)^6\,(A+B\,x)}{(d+e\,x)^9}\,dx$$

Optimal (type 1, 86 leaves, 2 steps):

$$-\frac{(B d-A e) (a+b x)^7}{8 e (b d-a e) (d+e x)^8}+\frac{(7 b B d+A b e-8 a B e) (a+b x)^7}{56 e (b d-a e)^2 (d+e x)^7}$$

Result (type 1, 597 leaves):

$$-\frac{1}{56 e^8 (d+e x)^8} \Big(a^6 e^6 (7 A e+B (d+8 e x))+ 2 a^5 b e^5 \left(3 A e (d+8 e x)+B \left(d^2+8 d e x+28 e^2 x^2\right)\right)+a^4 b^2 e^4 \left(5 A e \left(d^2+8 d e x+28 e^2 x^2\right)+3 B \left(d^3+8 d^2 e x+28 d e^2 x^2+56 e^3 x^3\right)\right)+ 4 a^3 b^3 e^3 \left(A e \left(d^3+8 d^2 e x+28 d e^2 x^2+56 e^3 x^3\right)+B \left(d^4+8 d^3 e x+28 d^2 e^2 x^2+56 d e^3 x^3+70 e^4 x^4\right)\right)+ a^2 b^4 e^2 \left(3 A e \left(d^4+8 d^3 e x+28 d^2 e^2 x^2+56 d e^3 x^3+70 e^4 x^4\right)+5 B \left(d^5+8 d^4 e x+28 d^3 e^2 x^2+56 d^2 e^3 x^3+70 d e^4 x^4+56 e^5 x^5\right)\right)+2 a b^5 e \left(A e \left(d^5+8 d^4 e x+28 d^3 e^2 x^2+56 d^2 e^3 x^3+70 d e^4 x^4+56 e^5 x^5\right)+3 B \left(d^6+8 d^5 e x+28 d^4 e^2 x^2+56 d^3 e^3 x^3+70 d^2 e^4 x^4+56 d e^5 x^5+28 e^6 x^6\right)\right)+ b^6 \left(A e \left(d^6+8 d^5 e x+28 d^4 e^2 x^2+56 d^3 e^3 x^3+70 d^2 e^4 x^4+56 d e^5 x^5+28 e^6 x^6\right)+ 7 B \left(d^7+8 d^6 e x+28 d^5 e^2 x^2+56 d^4 e^3 x^3+70 d^3 e^4 x^4+56 d^2 e^5 x^5+28 d e^6 x^6+8 e^7 x^7\right)\right)\Big)$$

Problem 1069: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^6 (A+B x)}{(d+e x)^{10}} \, dx$$

Optimal (type 1, 135 leaves, 3 steps):

$$-\frac{(B d-A e) (a+b x)^7}{9 e (b d-a e) (d+e x)^9}+\frac{(7 b B d+2 A b e-9 a B e) (a+b x)^7}{72 e (b d-a e)^2 (d+e x)^8}+\frac{b (7 b B d+2 A b e-9 a B e) (a+b x)^7}{504 e (b d-a e)^3 (d+e x)^7}$$

Result (type 1, 603 leaves):

$$-\frac{1}{504 e^8 (d+e x)^9} \Big(7 a^6 e^6 (8 A e+B (d+9 e x))+ 6 a^5 b e^5 \left(7 A e (d+9 e x)+2 B \left(d^2+9 d e x+36 e^2 x^2\right)\right)+15 a^4 b^2 e^4 \left(2 A e \left(d^2+9 d e x+36 e^2 x^2\right)+B \left(d^3+9 d^2 e x+36 d e^2 x^2+84 e^3 x^3\right)\right)+ 4 a^3 b^3 e^3 \left(5 A e \left(d^3+9 d^2 e x+36 d e^2 x^2+84 e^3 x^3\right)+4 B \left(d^4+9 d^3 e x+36 d^2 e^2 x^2+84 d e^3 x^3+126 e^4 x^4\right)\right)+ 3 a^2 b^4 e^2 \left(4 A e \left(d^4+9 d^3 e x+36 d^2 e^2 x^2+84 d e^3 x^3+126 e^4 x^4\right)+5 B \left(d^5+9 d^4 e x+36 d^3 e^2 x^2+84 d^2 e^3 x^3+126 d e^4 x^4+126 e^5 x^5\right)\right)+ 6 a b^5 e \left(A e \left(d^5+9 d^4 e x+36 d^3 e^2 x^2+84 d^2 e^3 x^3+126 d e^4 x^4+126 e^5 x^5\right)+ 2 B \left(d^6+9 d^5 e x+36 d^4 e^2 x^2+84 d^3 e^3 x^3+126 d^2 e^4 x^4+126 d e^5 x^5+84 e^6 x^6\right)\right)+ b^6 \left(2 A e \left(d^6+9 d^5 e x+36 d^4 e^2 x^2+84 d^3 e^3 x^3+126 d^2 e^4 x^4+126 d e^5 x^5+84 e^6 x^6\right)+ 7 B \left(d^7+9 d^6 e x+36 d^5 e^2 x^2+84 d^4 e^3 x^3+126 d^3 e^4 x^4+126 d^2 e^5 x^5+84 d e^6 x^6+36 e^7 x^7\right)\right)\Big)$$

Problem 1070: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^6 (A+B x)}{(d+e x)^{11}} \, dx$$

Optimal (type 1, 185 leaves, 4 steps):

$$-\frac{(B d-A e) (a+b x)^7}{10 e (b d-a e) (d+e x)^{10}}+\frac{(7 b B d+3 A b e-10 a B e) (a+b x)^7}{90 e (b d-a e)^2 (d+e x)^9}+\frac{b (7 b B d+3 A b e-10 a B e) (a+b x)^7}{360 e (b d-a e)^3 (d+e x)^8}+\frac{b^2 (7 b B d+3 A b e-10 a B e) (a+b x)^7}{2520 e (b d-a e)^4 (d+e x)^7}$$

Result (type 1, 602 leaves):

$$-\frac{1}{2520 e^8 (d+e x)^{10}}\Big(28 a^6 e^6 (9 A e+B (d+10 e x))+42 a^5 b e^5 \left(4 A e (d+10 e x)+B \left(d^2+10 d e x+45 e^2 x^2\right)\right)+$$
$$15 a^4 b^2 e^4 \left(7 A e \left(d^2+10 d e x+45 e^2 x^2\right)+3 B \left(d^3+10 d^2 e x+45 d e^2 x^2+120 e^3 x^3\right)\right)+$$
$$20 a^3 b^3 e^3 \left(3 A e \left(d^3+10 d^2 e x+45 d e^2 x^2+120 e^3 x^3\right)+2 B \left(d^4+10 d^3 e x+45 d^2 e^2 x^2+120 d e^3 x^3+210 e^4 x^4\right)\right)+$$
$$30 a^2 b^4 e^2 \left(A e \left(d^4+10 d^3 e x+45 d^2 e^2 x^2+120 d e^3 x^3+210 e^4 x^4\right)+B \left(d^5+10 d^4 e x+45 d^3 e^2 x^2+120 d^2 e^3 x^3+210 d e^4 x^4+252 e^5 x^5\right)\right)+$$
$$6 a b^5 e \Big(2 A e \left(d^5+10 d^4 e x+45 d^3 e^2 x^2+120 d^2 e^3 x^3+210 d e^4 x^4+252 e^5 x^5\right)+$$
$$3 B \left(d^6+10 d^5 e x+45 d^4 e^2 x^2+120 d^3 e^3 x^3+210 d^2 e^4 x^4+252 d e^5 x^5+210 e^6 x^6\right)\Big)+$$
$$b^6 \Big(3 A e \left(d^6+10 d^5 e x+45 d^4 e^2 x^2+120 d^3 e^3 x^3+210 d^2 e^4 x^4+252 d e^5 x^5+210 e^6 x^6\right)+$$
$$7 B \left(d^7+10 d^6 e x+45 d^5 e^2 x^2+120 d^4 e^3 x^3+210 d^3 e^4 x^4+252 d^2 e^5 x^5+210 d e^6 x^6+120 e^7 x^7\right)\Big)\Big)$$

Problem 1071: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^6 (A+B x)}{(d+e x)^{12}} \, dx$$

Optimal (type 1, 235 leaves, 5 steps):

$$-\frac{(B d-A e) (a+b x)^7}{11 e (b d-a e) (d+e x)^{11}}+\frac{(7 b B d+4 A b e-11 a B e) (a+b x)^7}{110 e (b d-a e)^2 (d+e x)^{10}}+$$
$$\frac{b (7 b B d+4 A b e-11 a B e) (a+b x)^7}{330 e (b d-a e)^3 (d+e x)^9}+\frac{b^2 (7 b B d+4 A b e-11 a B e) (a+b x)^7}{1320 e (b d-a e)^4 (d+e x)^8}+\frac{b^3 (7 b B d+4 A b e-11 a B e) (a+b x)^7}{9240 e (b d-a e)^5 (d+e x)^7}$$

Result (type 1, 605 leaves):

$$-\frac{1}{9240 e^8 (d+e x)^{11}}\Big(84 a^6 e^6 (10 A e+B (d+11 e x))+56 a^5 b e^5 \left(9 A e (d+11 e x)+2 B \left(d^2+11 d e x+55 e^2 x^2\right)\right)+$$
$$35 a^4 b^2 e^4 \left(8 A e \left(d^2+11 d e x+55 e^2 x^2\right)+3 B \left(d^3+11 d^2 e x+55 d e^2 x^2+165 e^3 x^3\right)\right)+$$
$$20 a^3 b^3 e^3 \left(7 A e \left(d^3+11 d^2 e x+55 d e^2 x^2+165 e^3 x^3\right)+4 B \left(d^4+11 d^3 e x+55 d^2 e^2 x^2+165 d e^3 x^3+330 e^4 x^4\right)\right)+$$
$$10 a^2 b^4 e^2 \left(6 A e \left(d^4+11 d^3 e x+55 d^2 e^2 x^2+165 d e^3 x^3+330 e^4 x^4\right)+5 B \left(d^5+11 d^4 e x+55 d^3 e^2 x^2+165 d^2 e^3 x^3+330 d e^4 x^4+462 e^5 x^5\right)\right)+$$
$$4 a b^5 e \Big(5 A e \left(d^5+11 d^4 e x+55 d^3 e^2 x^2+165 d^2 e^3 x^3+330 d e^4 x^4+462 e^5 x^5\right)+$$
$$6 B \left(d^6+11 d^5 e x+55 d^4 e^2 x^2+165 d^3 e^3 x^3+330 d^2 e^4 x^4+462 d e^5 x^5+462 e^6 x^6\right)\Big)+$$
$$b^6 \Big(4 A e \left(d^6+11 d^5 e x+55 d^4 e^2 x^2+165 d^3 e^3 x^3+330 d^2 e^4 x^4+462 d e^5 x^5+462 e^6 x^6\right)+$$
$$7 B \left(d^7+11 d^6 e x+55 d^5 e^2 x^2+165 d^4 e^3 x^3+330 d^3 e^4 x^4+462 d^2 e^5 x^5+462 d e^6 x^6+330 e^7 x^7\right)\Big)\Big)$$

Problem 1072: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^6 (A+B x)}{(d+e x)^{13}} \, dx$$

Optimal (type 1, 292 leaves, 2 steps):

$$\frac{(b d-a e)^6 (B d-A e)}{12 e^8 (d+e x)^{12}}-\frac{(b d-a e)^5 (7 b B d-6 A b e-a B e)}{11 e^8 (d+e x)^{11}}+\frac{3 b (b d-a e)^4 (7 b B d-5 A b e-2 a B e)}{10 e^8 (d+e x)^{10}}-\frac{5 b^2 (b d-a e)^3 (7 b B d-4 A b e-3 a B e)}{9 e^8 (d+e x)^9}+\frac{5 b^3 (b d-a e)^2 (7 b B d-3 A b e-4 a B e)}{8 e^8 (d+e x)^8}-\frac{3 b^4 (b d-a e) (7 b B d-2 A b e-5 a B e)}{7 e^8 (d+e x)^7}+\frac{b^5 (7 b B d-A b e-6 a B e)}{6 e^8 (d+e x)^6}-\frac{b^6 B}{5 e^8 (d+e x)^5}$$

Result (type 1, 600 leaves):

$$-\frac{1}{27720 e^8 (d+e x)^{12}}\Big(210 a^6 e^6 (11 A e+B (d+12 e x))+252 a^5 b e^5 \left(5 A e (d+12 e x)+B \left(d^2+12 d e x+66 e^2 x^2\right)\right)+$$
$$210 a^4 b^2 e^4 \left(3 A e \left(d^2+12 d e x+66 e^2 x^2\right)+B \left(d^3+12 d^2 e x+66 d e^2 x^2+220 e^3 x^3\right)\right)+$$
$$140 a^3 b^3 e^3 \left(2 A e \left(d^3+12 d^2 e x+66 d e^2 x^2+220 e^3 x^3\right)+B \left(d^4+12 d^3 e x+66 d^2 e^2 x^2+220 d e^3 x^3+495 e^4 x^4\right)\right)+$$
$$15 a^2 b^4 e^2 \left(7 A e \left(d^4+12 d^3 e x+66 d^2 e^2 x^2+220 d e^3 x^3+495 e^4 x^4\right)+5 B \left(d^5+12 d^4 e x+66 d^3 e^2 x^2+220 d^2 e^3 x^3+495 d e^4 x^4+792 e^5 x^5\right)\right)+$$
$$30 a b^5 e \Big(A e \left(d^5+12 d^4 e x+66 d^3 e^2 x^2+220 d^2 e^3 x^3+495 d e^4 x^4+792 e^5 x^5\right)+$$
$$B \left(d^6+12 d^5 e x+66 d^4 e^2 x^2+220 d^3 e^3 x^3+495 d^2 e^4 x^4+792 d e^5 x^5+924 e^6 x^6\right)\Big)+$$
$$b^6 \Big(5 A e \left(d^6+12 d^5 e x+66 d^4 e^2 x^2+220 d^3 e^3 x^3+495 d^2 e^4 x^4+792 d e^5 x^5+924 e^6 x^6\right)+$$
$$7 B \left(d^7+12 d^6 e x+66 d^5 e^2 x^2+220 d^4 e^3 x^3+495 d^3 e^4 x^4+792 d^2 e^5 x^5+924 d e^6 x^6+792 e^7 x^7\right)\Big)\Big)$$

Problem 1073: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^6 (A+B x)}{(d+e x)^{14}} \, dx$$

Optimal (type 1, 292 leaves, 2 steps):

$$\frac{(b d-a e)^6 (B d-A e)}{13 e^8 (d+e x)^{13}}-\frac{(b d-a e)^5 (7 b B d-6 A b e-a B e)}{12 e^8 (d+e x)^{12}}+\frac{3 b (b d-a e)^4 (7 b B d-5 A b e-2 a B e)}{11 e^8 (d+e x)^{11}}-\frac{b^2 (b d-a e)^3 (7 b B d-4 A b e-3 a B e)}{2 e^8 (d+e x)^{10}}+\frac{5 b^3 (b d-a e)^2 (7 b B d-3 A b e-4 a B e)}{9 e^8 (d+e x)^9}-\frac{3 b^4 (b d-a e) (7 b B d-2 A b e-5 a B e)}{8 e^8 (d+e x)^8}+\frac{b^5 (7 b B d-A b e-6 a B e)}{7 e^8 (d+e x)^7}-\frac{b^6 B}{6 e^8 (d+e x)^6}$$

Result (type 1, 605 leaves):

$$-\frac{1}{72072\,e^8\,(d+e\,x)^{13}}\Big(462\,a^6\,e^6\,(12\,A\,e+B\,(d+13\,e\,x))+252\,a^5\,b\,e^5\,(11\,A\,e\,(d+13\,e\,x)+2\,B\,(d^2+13\,d\,e\,x+78\,e^2\,x^2))+126\,a^4\,b^2\,e^4\,(10\,A\,e\,(d^2+13\,d\,e\,x+78\,e^2\,x^2)+3\,B\,(d^3+13\,d^2\,e\,x+78\,d\,e^2\,x^2+286\,e^3\,x^3))+56\,a^3\,b^3\,e^3\,(9\,A\,e\,(d^3+13\,d^2\,e\,x+78\,d\,e^2\,x^2+286\,e^3\,x^3)+4\,B\,(d^4+13\,d^3\,e\,x+78\,d^2\,e^2\,x^2+286\,d\,e^3\,x^3+715\,e^4\,x^4))+21\,a^2\,b^4\,e^2\,(8\,A\,e\,(d^4+13\,d^3\,e\,x+78\,d^2\,e^2\,x^2+286\,d\,e^3\,x^3+715\,e^4\,x^4)+5\,B\,(d^5+13\,d^4\,e\,x+78\,d^3\,e^2\,x^2+286\,d^2\,e^3\,x^3+715\,d\,e^4\,x^4+1287\,e^5\,x^5))+6\,a\,b^5\,e\,(7\,A\,e\,(d^5+13\,d^4\,e\,x+78\,d^3\,e^2\,x^2+286\,d^2\,e^3\,x^3+715\,d\,e^4\,x^4+1287\,e^5\,x^5)+6\,B\,(d^6+13\,d^5\,e\,x+78\,d^4\,e^2\,x^2+286\,d^3\,e^3\,x^3+715\,d^2\,e^4\,x^4+1287\,d\,e^5\,x^5+1716\,e^6\,x^6))+b^6\,(6\,A\,e\,(d^6+13\,d^5\,e\,x+78\,d^4\,e^2\,x^2+286\,d^3\,e^3\,x^3+715\,d^2\,e^4\,x^4+1287\,d\,e^5\,x^5+1716\,e^6\,x^6)+7\,B\,(d^7+13\,d^6\,e\,x+78\,d^5\,e^2\,x^2+286\,d^4\,e^3\,x^3+715\,d^3\,e^4\,x^4+1287\,d^2\,e^5\,x^5+1716\,d\,e^6\,x^6+1716\,e^7\,x^7))\Big)$$

Problem 1074: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,x)^6\,(A+B\,x)}{(d+e\,x)^{15}}\,dx$$

Optimal (type 1, 292 leaves, 2 steps):

$$\frac{(b\,d-a\,e)^6\,(B\,d-A\,e)}{14\,e^8\,(d+e\,x)^{14}}-\frac{(b\,d-a\,e)^5\,(7\,b\,B\,d-6\,A\,b\,e-a\,B\,e)}{13\,e^8\,(d+e\,x)^{13}}+\frac{b\,(b\,d-a\,e)^4\,(7\,b\,B\,d-5\,A\,b\,e-2\,a\,B\,e)}{4\,e^8\,(d+e\,x)^{12}}-\frac{5\,b^2\,(b\,d-a\,e)^3\,(7\,b\,B\,d-4\,A\,b\,e-3\,a\,B\,e)}{11\,e^8\,(d+e\,x)^{11}}+\frac{b^3\,(b\,d-a\,e)^2\,(7\,b\,B\,d-3\,A\,b\,e-4\,a\,B\,e)}{2\,e^8\,(d+e\,x)^{10}}-\frac{b^4\,(b\,d-a\,e)\,(7\,b\,B\,d-2\,A\,b\,e-5\,a\,B\,e)}{3\,e^8\,(d+e\,x)^9}+\frac{b^5\,(7\,b\,B\,d-A\,b\,e-6\,a\,B\,e)}{8\,e^8\,(d+e\,x)^8}-\frac{b^6\,B}{7\,e^8\,(d+e\,x)^7}$$

Result (type 1, 602 leaves):

$$-\frac{1}{24024\,e^8\,(d+e\,x)^{14}}\Big(132\,a^6\,e^6\,(13\,A\,e+B\,(d+14\,e\,x))+132\,a^5\,b\,e^5\,(6\,A\,e\,(d+14\,e\,x)+B\,(d^2+14\,d\,e\,x+91\,e^2\,x^2))+30\,a^4\,b^2\,e^4\,(11\,A\,e\,(d^2+14\,d\,e\,x+91\,e^2\,x^2)+3\,B\,(d^3+14\,d^2\,e\,x+91\,d\,e^2\,x^2+364\,e^3\,x^3))+24\,a^3\,b^3\,e^3\,(5\,A\,e\,(d^3+14\,d^2\,e\,x+91\,d\,e^2\,x^2+364\,e^3\,x^3)+2\,B\,(d^4+14\,d^3\,e\,x+91\,d^2\,e^2\,x^2+364\,d\,e^3\,x^3+1001\,e^4\,x^4))+4\,a^2\,b^4\,e^2\,(9\,A\,e\,(d^4+14\,d^3\,e\,x+91\,d^2\,e^2\,x^2+364\,d\,e^3\,x^3+1001\,e^4\,x^4)+5\,B\,(d^5+14\,d^4\,e\,x+91\,d^3\,e^2\,x^2+364\,d^2\,e^3\,x^3+1001\,d\,e^4\,x^4+2002\,e^5\,x^5))+2\,a\,b^5\,e\,(4\,A\,e\,(d^5+14\,d^4\,e\,x+91\,d^3\,e^2\,x^2+364\,d^2\,e^3\,x^3+1001\,d\,e^4\,x^4+2002\,e^5\,x^5)+3\,B\,(d^6+14\,d^5\,e\,x+91\,d^4\,e^2\,x^2+364\,d^3\,e^3\,x^3+1001\,d^2\,e^4\,x^4+2002\,d\,e^5\,x^5+3003\,e^6\,x^6))+b^6\,(A\,e\,(d^6+14\,d^5\,e\,x+91\,d^4\,e^2\,x^2+364\,d^3\,e^3\,x^3+1001\,d^2\,e^4\,x^4+2002\,d\,e^5\,x^5+3003\,e^6\,x^6)+B\,(d^7+14\,d^6\,e\,x+91\,d^5\,e^2\,x^2+364\,d^4\,e^3\,x^3+1001\,d^3\,e^4\,x^4+2002\,d^2\,e^5\,x^5+3003\,d\,e^6\,x^6+3432\,e^7\,x^7))\Big)$$

Problem 1075: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^{10}\,(A+B\,x)\,(d+e\,x)^{13}\,dx$$

Optimal (type 1, 464 leaves, 2 steps):

$$-\frac{(b d-a e)^{10} (B d-A e) (d+e x)^{14}}{14 e^{12}}+\frac{(b d-a e)^9 (11 b B d-10 A b e-a B e) (d+e x)^{15}}{15 e^{12}}-\frac{5 b (b d-a e)^8 (11 b B d-9 A b e-2 a B e) (d+e x)^{16}}{16 e^{12}}+$$
$$\frac{15 b^2 (b d-a e)^7 (11 b B d-8 A b e-3 a B e) (d+e x)^{17}}{17 e^{12}}-\frac{5 b^3 (b d-a e)^6 (11 b B d-7 A b e-4 a B e) (d+e x)^{18}}{3 e^{12}}+$$
$$\frac{42 b^4 (b d-a e)^5 (11 b B d-6 A b e-5 a B e) (d+e x)^{19}}{19 e^{12}}-\frac{21 b^5 (b d-a e)^4 (11 b B d-5 A b e-6 a B e) (d+e x)^{20}}{10 e^{12}}+$$
$$\frac{10 b^6 (b d-a e)^3 (11 b B d-4 A b e-7 a B e) (d+e x)^{21}}{7 e^{12}}-\frac{15 b^7 (b d-a e)^2 (11 b B d-3 A b e-8 a B e) (d+e x)^{22}}{22 e^{12}}+$$
$$\frac{5 b^8 (b d-a e) (11 b B d-2 A b e-9 a B e) (d+e x)^{23}}{23 e^{12}}-\frac{b^9 (11 b B d-A b e-10 a B e) (d+e x)^{24}}{24 e^{12}}+\frac{b^{10} B (d+e x)^{25}}{25 e^{12}}$$

Result (type 1, 3532 leaves) :

$$a^{10} A d^{13} x+\frac{1}{2} a^9 d^{12} (10 A b d+a B d+13 a A e) x^2+\frac{1}{3} a^8 d^{11} \left(a B d (10 b d+13 a e)+A \left(45 b^2 d^2+130 a b d e+78 a^2 e^2\right)\right) x^3+$$
$$\frac{1}{4} a^7 d^{10} \left(a B d \left(45 b^2 d^2+130 a b d e+78 a^2 e^2\right)+A \left(120 b^3 d^3+585 a b^2 d^2 e+780 a^2 b d e^2+286 a^3 e^3\right)\right) x^4+$$
$$\frac{1}{5} a^6 d^9 \left(a B d \left(120 b^3 d^3+585 a b^2 d^2 e+780 a^2 b d e^2+286 a^3 e^3\right)+5 A \left(42 b^4 d^4+312 a b^3 d^3 e+702 a^2 b^2 d^2 e^2+572 a^3 b d e^3+143 a^4 e^4\right)\right) x^5+$$
$$\frac{1}{6} a^5 d^8 \left(5 a B d \left(42 b^4 d^4+312 a b^3 d^3 e+702 a^2 b^2 d^2 e^2+572 a^3 b d e^3+143 a^4 e^4\right)+\right.$$
$$\left.A \left(252 b^5 d^5+2730 a b^4 d^4 e+9360 a^2 b^3 d^3 e^2+12870 a^3 b^2 d^2 e^3+7150 a^4 b d e^4+1287 a^5 e^5\right)\right) x^6+$$
$$\frac{1}{7} a^4 d^7 \left(a B d \left(252 b^5 d^5+2730 a b^4 d^4 e+9360 a^2 b^3 d^3 e^2+12870 a^3 b^2 d^2 e^3+7150 a^4 b d e^4+1287 a^5 e^5\right)+\right.$$
$$\left.3 A \left(70 b^6 d^6+1092 a b^5 d^5 e+5460 a^2 b^4 d^4 e^2+11440 a^3 b^3 d^3 e^3+10725 a^4 b^2 d^2 e^4+4290 a^5 b d e^5+572 a^6 e^6\right)\right) x^7+$$
$$\frac{3}{8} a^3 d^6 \left(a B d \left(70 b^6 d^6+1092 a b^5 d^5 e+5460 a^2 b^4 d^4 e^2+11440 a^3 b^3 d^3 e^3+10725 a^4 b^2 d^2 e^4+4290 a^5 b d e^5+572 a^6 e^6\right)+\right.$$
$$\left.A \left(40 b^7 d^7+910 a b^6 d^6 e+6552 a^2 b^5 d^5 e^2+20020 a^3 b^4 d^4 e^3+28600 a^4 b^3 d^3 e^4+19305 a^5 b^2 d^2 e^5+5720 a^6 b d e^6+572 a^7 e^7\right)\right) x^8+$$
$$\frac{1}{3} a^2 d^5 \left(a B d \left(40 b^7 d^7+910 a b^6 d^6 e+6552 a^2 b^5 d^5 e^2+20020 a^3 b^4 d^4 e^3+28600 a^4 b^3 d^3 e^4+19305 a^5 b^2 d^2 e^5+5720 a^6 b d e^6+572 a^7 e^7\right)+\right.$$
$$\left.A \left(15 b^8 d^8+520 a b^7 d^7 e+5460 a^2 b^6 d^6 e^2+24024 a^3 b^5 d^5 e^3+50050 a^4 b^4 d^4 e^4+51480 a^5 b^3 d^3 e^5+25740 a^6 b^2 d^2 e^6+5720 a^7 b d e^7+429 a^8 e^8\right)\right)$$
$$x^9+\frac{1}{10} a d^4 \left(3 a B d \left(15 b^8 d^8+520 a b^7 d^7 e+5460 a^2 b^6 d^6 e^2+24024 a^3 b^5 d^5 e^3+50050 a^4 b^4 d^4 e^4+51480 a^5 b^3 d^3 e^5+\right.\right.$$
$$\left.25740 a^6 b^2 d^2 e^6+5720 a^7 b d e^7+429 a^8 e^8\right)+5 A \left(2 b^9 d^9+117 a b^8 d^8 e+1872 a^2 b^7 d^7 e^2+12012 a^3 b^6 d^6 e^3+\right.$$
$$\left.\left.36036 a^4 b^5 d^5 e^4+54054 a^5 b^4 d^4 e^5+41184 a^6 b^3 d^3 e^6+15444 a^7 b^2 d^2 e^7+2574 a^8 b d e^8+143 a^9 e^9\right)\right) x^{10}+$$
$$\frac{1}{11} d^3 \left(5 a B d \left(2 b^9 d^9+117 a b^8 d^8 e+1872 a^2 b^7 d^7 e^2+12012 a^3 b^6 d^6 e^3+36036 a^4 b^5 d^5 e^4+54054 a^5 b^4 d^4 e^5+41184 a^6 b^3 d^3 e^6+\right.\right.$$
$$\left.15444 a^7 b^2 d^2 e^7+2574 a^8 b d e^8+143 a^9 e^9\right)+A \left(b^{10} d^{10}+130 a b^9 d^9 e+3510 a^2 b^8 d^8 e^2+34320 a^3 b^7 d^7 e^3+150150 a^4 b^6 d^6 e^4+\right.$$
$$\left.\left.324324 a^5 b^5 d^5 e^5+360360 a^6 b^4 d^4 e^6+205920 a^7 b^3 d^3 e^7+57915 a^8 b^2 d^2 e^8+7150 a^9 b d e^9+286 a^{10} e^{10}\right)\right) x^{11}+$$

$\frac{1}{12} d^2 \left(360360 a^6 b^4 d^4 e^6 (B d + A e) + 1430 a^9 b d e^9 (5 B d + 2 A e) + 51480 a^7 b^3 d^3 e^7 (4 B d + 3 A e) + 26 a^{10} e^{10} (11 B d + 3 A e) + 108108 a^5 b^5 d^5 e^5 (3 B d + 4 A e) + 17160 a^3 b^7 d^7 e^3 (2 B d + 5 A e) + 6435 a^8 b^2 d^2 e^8 (9 B d + 5 A e) + 130 a b^9 d^9 e (B d + 6 A e) + 30030 a^4 b^6 d^6 e^4 (5 B d + 9 A e) + 1170 a^2 b^8 d^8 e^2 (3 B d + 11 A e) + b^{10} d^{10} (B d + 13 A e)\right) x^{12} +$

$d e \left(33264 a^5 b^5 d^5 e^5 (B d + A e) + a^{10} e^{10} (6 B d + A e) + 495 a^8 b^2 d^2 e^8 (5 B d + 2 A e) + 6930 a^6 b^4 d^4 e^6 (4 B d + 3 A e) + 20 a^9 b d e^9 (11 B d + 3 A e) + 6930 a^4 b^6 d^6 e^4 (3 B d + 4 A e) + 495 a^2 b^8 d^8 e^2 (2 B d + 5 A e) + 1320 a^7 b^3 d^3 e^7 (9 B d + 5 A e) + b^{10} d^{10} (B d + 6 A e) + 1320 a^3 b^7 d^7 e^3 (5 B d + 9 A e) + 20 a b^9 d^9 e (3 B d + 11 A e)\right) x^{13} +$

$\frac{1}{14} e^2 \left(360360 a^4 b^6 d^6 e^4 (B d + A e) + 130 a^9 b d e^9 (6 B d + A e) + a^{10} e^{10} (13 B d + A e) + 17160 a^7 b^3 d^3 e^7 (5 B d + 2 A e) + 108108 a^5 b^5 d^5 e^5 (4 B d + 3 A e) + 1170 a^8 b^2 d^2 e^8 (11 B d + 3 A e) + 51480 a^3 b^7 d^7 e^3 (3 B d + 4 A e) + 1430 a b^9 d^9 e (2 B d + 5 A e) + 30030 a^6 b^4 d^4 e^6 (9 B d + 5 A e) + 6435 a^2 b^8 d^8 e^2 (5 B d + 9 A e) + 26 b^{10} d^{10} (3 B d + 11 A e)\right) x^{14} +$

$\frac{1}{15} e^3 \left(a^{10} B e^{10} + 205920 a^3 b^7 d^6 e^3 (B d + A e) + 585 a^8 b^2 d e^8 (6 B d + A e) + 10 a^9 b e^9 (13 B d + A e) + 30030 a^6 b^4 d^3 e^6 (5 B d + 2 A e) + 90090 a^4 b^6 d^5 e^4 (4 B d + 3 A e) + 3120 a^7 b^3 d^2 e^7 (11 B d + 3 A e) + 19305 a^2 b^8 d^7 e^2 (3 B d + 4 A e) + 143 b^{10} d^9 (2 B d + 5 A e) + 36036 a^5 b^5 d^4 e^5 (9 B d + 5 A e) + 1430 a b^9 d^8 e (5 B d + 9 A e)\right) x^{15} +$

$\frac{1}{16} b e^4 \left(10 a^9 B e^9 + 77220 a^2 b^7 d^6 e^2 (B d + A e) + 1560 a^7 b^2 d e^7 (6 B d + A e) + 45 a^8 b e^8 (13 B d + A e) + 36036 a^5 b^4 d^3 e^5 (5 B d + 2 A e) + 51480 a^3 b^6 d^5 e^3 (4 B d + 3 A e) + 5460 a^6 b^3 d^2 e^6 (11 B d + 3 A e) + 4290 a b^8 d^7 e (3 B d + 4 A e) + 30030 a^4 b^5 d^4 e^4 (9 B d + 5 A e) + 143 b^9 d^8 (5 B d + 9 A e)\right) x^{16} +$

$\frac{3}{17} b^2 e^5 \left(15 a^8 B e^8 + 5720 a b^7 d^6 e (B d + A e) + 910 a^6 b^2 d e^6 (6 B d + A e) + 40 a^7 b e^7 (13 B d + A e) + 10010 a^4 b^4 d^3 e^4 (5 B d + 2 A e) + 6435 a^2 b^6 d^5 e^2 (4 B d + 3 A e) + 2184 a^5 b^3 d^2 e^5 (11 B d + 3 A e) + 143 b^8 d^7 (3 B d + 4 A e) + 5720 a^3 b^5 d^4 e^3 (9 B d + 5 A e)\right) x^{17} +$

$\frac{1}{6} b^3 e^6 \left(40 a^7 B e^7 + 572 b^7 d^6 (B d + A e) + 1092 a^5 b^2 d e^5 (6 B d + A e) + 70 a^6 b e^6 (13 B d + A e) + 5720 a^3 b^4 d^3 e^3 (5 B d + 2 A e) + 1430 a b^6 d^5 e (4 B d + 3 A e) + 1820 a^4 b^3 d^2 e^4 (11 B d + 3 A e) + 2145 a^2 b^5 d^4 e^2 (9 B d + 5 A e)\right) x^{18} +$

$\frac{1}{19} b^4 e^7 \left(210 a^6 B e^6 + 2730 a^4 b^2 d e^4 (6 B d + A e) + 252 a^5 b e^5 (13 B d + A e) + 6435 a^2 b^4 d^3 e^2 (5 B d + 2 A e) + 429 b^6 d^5 (4 B d + 3 A e) + 3120 a^3 b^3 d^2 e^3 (11 B d + 3 A e) + 1430 a b^5 d^4 e (9 B d + 5 A e)\right) x^{19} +$

$\frac{1}{20} b^5 e^8 \left(252 a^5 B e^5 + 1560 a^3 b^2 d e^3 (6 B d + A e) + 210 a^4 b e^4 (13 B d + A e) + 1430 a b^4 d^3 e (5 B d + 2 A e) + 1170 a^2 b^3 d^2 e^2 (11 B d + 3 A e) + 143 b^5 d^4 (9 B d + 5 A e)\right) x^{20} +$

$\frac{1}{21} b^6 e^9 \left(210 a^4 B e^4 + 585 a^2 b^2 d e^2 (6 B d + A e) + 120 a^3 b e^3 (13 B d + A e) + 143 b^4 d^3 (5 B d + 2 A e) + 260 a b^3 d^2 e (11 B d + 3 A e)\right) x^{21} +$

$\frac{1}{22} b^7 e^{10} \left(120 a^3 B e^3 + 130 a b^2 d e (6 B d + A e) + 45 a^2 b e^2 (13 B d + A e) + 26 b^3 d^2 (11 B d + 3 A e)\right) x^{22} +$

$\frac{1}{23} b^8 e^{11} \left(45 a^2 B e^2 + 13 b^2 d (6 B d + A e) + 10 a b e (13 B d + A e)\right) x^{23} +$

$\frac{1}{24} b^9 e^{12} (13 b B d + A b e + 10 a B e) x^{24} + \frac{1}{25} b^{10} B e^{13} x^{25}$

Problem 1076: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^{10} (A+B x) (d+e x)^{12} \, dx$$

Optimal (type 1, 464 leaves, 2 steps):

$$-\frac{(b d-a e)^{10} (B d-A e) (d+e x)^{13}}{13 e^{12}}+\frac{(b d-a e)^9 (11 b B d-10 A b e-a B e) (d+e x)^{14}}{14 e^{12}}-\frac{b (b d-a e)^8 (11 b B d-9 A b e-2 a B e) (d+e x)^{15}}{3 e^{12}}+\frac{15 b^2 (b d-a e)^7 (11 b B d-8 A b e-3 a B e) (d+e x)^{16}}{16 e^{12}}-\frac{30 b^3 (b d-a e)^6 (11 b B d-7 A b e-4 a B e) (d+e x)^{17}}{17 e^{12}}+\frac{7 b^4 (b d-a e)^5 (11 b B d-6 A b e-5 a B e) (d+e x)^{18}}{3 e^{12}}-\frac{42 b^5 (b d-a e)^4 (11 b B d-5 A b e-6 a B e) (d+e x)^{19}}{19 e^{12}}+\frac{3 b^6 (b d-a e)^3 (11 b B d-4 A b e-7 a B e) (d+e x)^{20}}{2 e^{12}}-\frac{5 b^7 (b d-a e)^2 (11 b B d-3 A b e-8 a B e) (d+e x)^{21}}{7 e^{12}}+\frac{5 b^8 (b d-a e) (11 b B d-2 A b e-9 a B e) (d+e x)^{22}}{22 e^{12}}-\frac{b^9 (11 b B d-A b e-10 a B e) (d+e x)^{23}}{23 e^{12}}+\frac{b^{10} B (d+e x)^{24}}{24 e^{12}}$$

Result (type 1, 3320 leaves):

$$a^{10} A d^{12} x+\frac{1}{2} a^9 d^{11} (a B d+2 A (5 b d+6 a e)) x^2+\frac{1}{3} a^8 d^{10} (2 a B d (5 b d+6 a e)+3 A (15 b^2 d^2+40 a b d e+22 a^2 e^2)) x^3+$$
$$\frac{1}{4} a^7 d^9 (3 a B d (15 b^2 d^2+40 a b d e+22 a^2 e^2)+20 A (6 b^3 d^3+27 a b^2 d^2 e+33 a^2 b d e^2+11 a^3 e^3)) x^4+$$
$$a^6 d^8 (4 a B d (6 b^3 d^3+27 a b^2 d^2 e+33 a^2 b d e^2+11 a^3 e^3)+A (42 b^4 d^4+288 a b^3 d^3 e+594 a^2 b^2 d^2 e^2+440 a^3 b d e^3+99 a^4 e^4)) x^5+$$
$$\frac{1}{6} a^5 d^7 (5 a B d (42 b^4 d^4+288 a b^3 d^3 e+594 a^2 b^2 d^2 e^2+440 a^3 b d e^3+99 a^4 e^4)+$$
$$18 A (14 b^5 d^5+140 a b^4 d^4 e+440 a^2 b^3 d^3 e^2+550 a^3 b^2 d^2 e^3+275 a^4 b d e^4+44 a^5 e^5)) x^6+$$
$$\frac{3}{7} a^4 d^6 (6 a B d (14 b^5 d^5+140 a b^4 d^4 e+440 a^2 b^3 d^3 e^2+550 a^3 b^2 d^2 e^3+275 a^4 b d e^4+44 a^5 e^5)+$$
$$A (70 b^6 d^6+1008 a b^5 d^5 e+4620 a^2 b^4 d^4 e^2+8800 a^3 b^3 d^3 e^3+7425 a^4 b^2 d^2 e^4+2640 a^5 b d e^5+308 a^6 e^6)) x^7+$$
$$\frac{3}{8} a^3 d^5 (a B d (70 b^6 d^6+1008 a b^5 d^5 e+4620 a^2 b^4 d^4 e^2+8800 a^3 b^3 d^3 e^3+7425 a^4 b^2 d^2 e^4+2640 a^5 b d e^5+308 a^6 e^6)+$$
$$8 A (5 b^7 d^7+105 a b^6 d^6 e+693 a^2 b^5 d^5 e^2+1925 a^3 b^4 d^4 e^3+2475 a^4 b^3 d^3 e^4+1485 a^5 b^2 d^2 e^5+385 a^6 b d e^6+33 a^7 e^7)) x^8+$$
$$\frac{1}{3} a^2 d^4 (8 a B d (5 b^7 d^7+105 a b^6 d^6 e+693 a^2 b^5 d^5 e^2+1925 a^3 b^4 d^4 e^3+2475 a^4 b^3 d^3 e^4+1485 a^5 b^2 d^2 e^5+385 a^6 b d e^6+33 a^7 e^7)+$$
$$15 A (b^8 d^8+32 a b^7 d^7 e+308 a^2 b^6 d^6 e^2+1232 a^3 b^5 d^5 e^3+2310 a^4 b^4 d^4 e^4+2112 a^5 b^3 d^3 e^5+924 a^6 b^2 d^2 e^6+176 a^7 b d e^7+11 a^8 e^8)) x^9+\frac{1}{2} a d^3$$
$$(9 a B d (b^8 d^8+32 a b^7 d^7 e+308 a^2 b^6 d^6 e^2+1232 a^3 b^5 d^5 e^3+2310 a^4 b^4 d^4 e^4+2112 a^5 b^3 d^3 e^5+924 a^6 b^2 d^2 e^6+176 a^7 b d e^7+11 a^8 e^8)+2 A (b^9 d^9+$$
$$54 a b^8 d^8 e+792 a^2 b^7 d^7 e^2+4620 a^3 b^6 d^6 e^3+12474 a^4 b^5 d^5 e^4+16632 a^5 b^4 d^4 e^5+11088 a^6 b^3 d^3 e^6+3564 a^7 b^2 d^2 e^7+495 a^8 b d e^8+22 a^9 e^9))$$

$$x^{10} + \frac{1}{11} d^2 \left(10 a B d \left(b^9 d^9 + 54 a b^8 d^8 e + 792 a^2 b^7 d^7 e^2 + 4620 a^3 b^6 d^6 e^3 + 12474 a^4 b^5 d^5 e^4 + 16632 a^5 b^4 d^4 e^5 + 11088 a^6 b^3 d^3 e^6 + 3564 a^7 b^2 d^2 e^7 + 495 a^8 b d e^8 + 22 a^9 e^9\right) + A \left(b^{10} d^{10} + 120 a b^9 d^9 e + 2970 a^2 b^8 d^8 e^2 + 26400 a^3 b^7 d^7 e^3 + 103950 a^4 b^6 d^6 e^4 + 199584 a^5 b^5 d^5 e^5 + 194040 a^6 b^4 d^4 e^6 + 95040 a^7 b^3 d^3 e^7 + 22275 a^8 b^2 d^2 e^8 + 2200 a^9 b d e^9 + 66 a^{10} e^{10}\right)\right) x^{11} +$$

$$\frac{1}{12} d \left(6 a^{10} e^{10} (11 B d + 2 A e) + 220 a^9 b d e^9 (10 B d + 3 A e) + 2475 a^8 b^2 d^2 e^8 (9 B d + 4 A e) + 11880 a^7 b^3 d^3 e^7 (8 B d + 5 A e) + 27720 a^6 b^4 d^4 e^6 (7 B d + 6 A e) + 33264 a^5 b^5 d^5 e^5 (6 B d + 7 A e) + 20790 a^4 b^6 d^6 e^4 (5 B d + 8 A e) + 6600 a^3 b^7 d^7 e^3 (4 B d + 9 A e) + 990 a^2 b^8 d^8 e^2 (3 B d + 10 A e) + 60 a b^9 d^9 e (2 B d + 11 A e) + b^{10} d^{10} (B d + 12 A e)\right) x^{12} +$$

$$\frac{1}{13} e \left(a^{10} e^{10} (12 B d + A e) + 60 a^9 b d e^9 (11 B d + 2 A e) + 990 a^8 b^2 d^2 e^8 (10 B d + 3 A e) + 6600 a^7 b^3 d^3 e^7 (9 B d + 4 A e) + 20790 a^6 b^4 d^4 e^6 (8 B d + 5 A e) + 33264 a^5 b^5 d^5 e^5 (7 B d + 6 A e) + 27720 a^4 b^6 d^6 e^4 (6 B d + 7 A e) + 11880 a^3 b^7 d^7 e^3 (5 B d + 8 A e) + 2475 a^2 b^8 d^8 e^2 (4 B d + 9 A e) + 220 a b^9 d^9 e (3 B d + 10 A e) + 6 b^{10} d^{10} (2 B d + 11 A e)\right) x^{13} +$$

$$\frac{1}{14} e^2 \left(a^{10} B e^{10} + 10 a^9 b e^9 (12 B d + A e) + 270 a^8 b^2 d e^8 (11 B d + 2 A e) + 2640 a^7 b^3 d^2 e^7 (10 B d + 3 A e) + 11550 a^6 b^4 d^3 e^6 (9 B d + 4 A e) + 24948 a^5 b^5 d^4 e^5 (8 B d + 5 A e) + 27720 a^4 b^6 d^5 e^4 (7 B d + 6 A e) + 15840 a^3 b^7 d^6 e^3 (6 B d + 7 A e) + 4455 a^2 b^8 d^7 e^2 (5 B d + 8 A e) + 550 a b^9 d^8 e (4 B d + 9 A e) + 22 b^{10} d^9 (3 B d + 10 A e)\right) x^{14} +$$

$$\frac{1}{3} b e^3 \left(2 a^9 B e^9 + 9 a^8 b e^8 (12 B d + A e) + 144 a^7 b^2 d e^7 (11 B d + 2 A e) + 924 a^6 b^3 d^2 e^6 (10 B d + 3 A e) + 2772 a^5 b^4 d^3 e^5 (9 B d + 4 A e) + 4158 a^4 b^5 d^4 e^4 (8 B d + 5 A e) + 3168 a^3 b^6 d^5 e^3 (7 B d + 6 A e) + 1188 a^2 b^7 d^6 e^2 (6 B d + 7 A e) + 198 a b^8 d^7 e (5 B d + 8 A e) + 11 b^9 d^8 (4 B d + 9 A e)\right) x^{15} +$$

$$\frac{3}{16} b^2 e^4 \left(15 a^8 B e^8 + 40 a^7 b e^7 (12 B d + A e) + 420 a^6 b^2 d e^6 (11 B d + 2 A e) + 1848 a^5 b^3 d^2 e^5 (10 B d + 3 A e) + 3850 a^4 b^4 d^3 e^4 (9 B d + 4 A e) + 3960 a^3 b^5 d^4 e^3 (8 B d + 5 A e) + 1980 a^2 b^6 d^5 e^2 (7 B d + 6 A e) + 440 a b^7 d^6 e (6 B d + 7 A e) + 33 b^8 d^7 (5 B d + 8 A e)\right) x^{16} +$$

$$\frac{3}{17} b^3 e^5 \left(40 a^7 B e^7 + 70 a^6 b e^6 (12 B d + A e) + 504 a^5 b^2 d e^5 (11 B d + 2 A e) + 1540 a^4 b^3 d^2 e^4 (10 B d + 3 A e) + 2200 a^3 b^4 d^3 e^3 (9 B d + 4 A e) + 1485 a^2 b^5 d^4 e^2 (8 B d + 5 A e) + 440 a b^6 d^5 e (7 B d + 6 A e) + 44 b^7 d^6 (6 B d + 7 A e)\right) x^{17} +$$

$$\frac{1}{6} b^4 e^6 \left(70 a^6 B e^6 + 84 a^5 b e^5 (12 B d + A e) + 420 a^4 b^2 d e^4 (11 B d + 2 A e) + 880 a^3 b^3 d^2 e^3 (10 B d + 3 A e) + 825 a^2 b^4 d^3 e^2 (9 B d + 4 A e) + 330 a b^5 d^4 e (8 B d + 5 A e) + 44 b^6 d^5 (7 B d + 6 A e)\right) x^{18} +$$

$$\frac{1}{19} b^5 e^7 \left(252 a^5 B e^5 + 210 a^4 b e^4 (12 B d + A e) + 720 a^3 b^2 d e^3 (11 B d + 2 A e) + 990 a^2 b^3 d^2 e^2 (10 B d + 3 A e) + 550 a b^4 d^3 e (9 B d + 4 A e) + 99 b^5 d^4 (8 B d + 5 A e)\right) x^{19} +$$

$$\frac{1}{4} b^6 e^8 \left(42 a^4 B e^4 + 24 a^3 b e^3 (12 B d + A e) + 54 a^2 b^2 d e^2 (11 B d + 2 A e) + 44 a b^3 d^2 e (10 B d + 3 A e) + 11 b^4 d^3 (9 B d + 4 A e)\right) x^{20} +$$

$$\frac{1}{21} b^7 e^9 \left(120 a^3 B e^3 + 45 a^2 b e^2 (12 B d + A e) + 60 a b^2 d e (11 B d + 2 A e) + 22 b^3 d^2 (10 B d + 3 A e)\right) x^{21} +$$

$$\frac{1}{22} b^8 e^{10} \left(45 a^2 B e^2 + 10 a b e (12 B d + A e) + 6 b^2 d (11 B d + 2 A e)\right) x^{22} +$$

$$\frac{1}{23} b^9 e^{11} (12 b B d + A b e + 10 a B e) x^{23} + \frac{1}{24} b^{10} B e^{12} x^{24}$$

Problem 1077: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^{10} (A+B x) (d+e x)^{11} \, dx$$

Optimal (type 1, 461 leaves, 2 steps):

$$-\frac{(b d-a e)^{10} (B d-A e) (d+e x)^{12}}{12 e^{12}}+\frac{(b d-a e)^9 (11 b B d-10 A b e-a B e) (d+e x)^{13}}{13 e^{12}}-\frac{5 b (b d-a e)^8 (11 b B d-9 A b e-2 a B e) (d+e x)^{14}}{14 e^{12}}+$$
$$\frac{b^2 (b d-a e)^7 (11 b B d-8 A b e-3 a B e) (d+e x)^{15}}{e^{12}}-\frac{15 b^3 (b d-a e)^6 (11 b B d-7 A b e-4 a B e) (d+e x)^{16}}{8 e^{12}}+$$
$$\frac{42 b^4 (b d-a e)^5 (11 b B d-6 A b e-5 a B e) (d+e x)^{17}}{17 e^{12}}-\frac{7 b^5 (b d-a e)^4 (11 b B d-5 A b e-6 a B e) (d+e x)^{18}}{3 e^{12}}+$$
$$\frac{30 b^6 (b d-a e)^3 (11 b B d-4 A b e-7 a B e) (d+e x)^{19}}{19 e^{12}}-\frac{3 b^7 (b d-a e)^2 (11 b B d-3 A b e-8 a B e) (d+e x)^{20}}{4 e^{12}}+$$
$$\frac{5 b^8 (b d-a e) (11 b B d-2 A b e-9 a B e) (d+e x)^{21}}{21 e^{12}}-\frac{b^9 (11 b B d-A b e-10 a B e) (d+e x)^{22}}{22 e^{12}}+\frac{b^{10} B (d+e x)^{23}}{23 e^{12}}$$

Result (type 1, 3018 leaves):

$$a^{10} A d^{11} x+\frac{1}{2} a^9 d^{10} (10 A b d+a B d+11 a A e) x^2+\frac{1}{3} a^8 d^9 \left(a B d (10 b d+11 a e)+5 A \left(9 b^2 d^2+22 a b d e+11 a^2 e^2\right)\right) x^3+$$
$$\frac{5}{4} a^7 d^8 \left(a B d \left(9 b^2 d^2+22 a b d e+11 a^2 e^2\right)+A \left(24 b^3 d^3+99 a b^2 d^2 e+110 a^2 b d e^2+33 a^3 e^3\right)\right) x^4+$$
$$a^6 d^7 \left(a B d \left(24 b^3 d^3+99 a b^2 d^2 e+110 a^2 b d e^2+33 a^3 e^3\right)+3 A \left(14 b^4 d^4+88 a b^3 d^3 e+165 a^2 b^2 d^2 e^2+110 a^3 b d e^3+22 a^4 e^4\right)\right) x^5+$$
$$\frac{1}{2} a^5 d^6 \left(5 a B d \left(14 b^4 d^4+88 a b^3 d^3 e+165 a^2 b^2 d^2 e^2+110 a^3 b d e^3+22 a^4 e^4\right)+\right.$$
$$\left.A \left(84 b^5 d^5+770 a b^4 d^4 e+2200 a^2 b^3 d^3 e^2+2475 a^3 b^2 d^2 e^3+1100 a^4 b d e^4+154 a^5 e^5\right)\right) x^6+$$
$$\frac{3}{7} a^4 d^5 \left(a B d \left(84 b^5 d^5+770 a b^4 d^4 e+2200 a^2 b^3 d^3 e^2+2475 a^3 b^2 d^2 e^3+1100 a^4 b d e^4+154 a^5 e^5\right)+\right.$$
$$\left.2 A \left(35 b^6 d^6+462 a b^5 d^5 e+1925 a^2 b^4 d^4 e^2+3300 a^3 b^3 d^3 e^3+2475 a^4 b^2 d^2 e^4+770 a^5 b d e^5+77 a^6 e^6\right)\right) x^7+$$
$$\frac{3}{4} a^3 d^4 \left(a B d \left(35 b^6 d^6+462 a b^5 d^5 e+1925 a^2 b^4 d^4 e^2+3300 a^3 b^3 d^3 e^3+2475 a^4 b^2 d^2 e^4+770 a^5 b d e^5+77 a^6 e^6\right)+\right.$$
$$\left.5 A \left(4 b^7 d^7+77 a b^6 d^6 e+462 a^2 b^5 d^5 e^2+1155 a^3 b^4 d^4 e^3+1320 a^4 b^3 d^3 e^4+693 a^5 b^2 d^2 e^5+154 a^6 b d e^6+11 a^7 e^7\right)\right) x^8+$$
$$\frac{5}{3} a^2 d^3 \left(2 a B d \left(4 b^7 d^7+77 a b^6 d^6 e+462 a^2 b^5 d^5 e^2+1155 a^3 b^4 d^4 e^3+1320 a^4 b^3 d^3 e^4+693 a^5 b^2 d^2 e^5+154 a^6 b d e^6+11 a^7 e^7\right)+\right.$$
$$\left.A \left(3 b^8 d^8+88 a b^7 d^7 e+770 a^2 b^6 d^6 e^2+2772 a^3 b^5 d^5 e^3+4620 a^4 b^4 d^4 e^4+3696 a^5 b^3 d^3 e^5+1386 a^6 b^2 d^2 e^6+220 a^7 b d e^7+11 a^8 e^8\right)\right) x^9+$$
$$\frac{1}{2} a d^2 \left(3 a B d \left(3 b^8 d^8+88 a b^7 d^7 e+770 a^2 b^6 d^6 e^2+2772 a^3 b^5 d^5 e^3+4620 a^4 b^4 d^4 e^4+3696 a^5 b^3 d^3 e^5+1386 a^6 b^2 d^2 e^6+220 a^7 b d e^7+11 a^8 e^8\right)+\right.$$
$$A \left(2 b^9 d^9+99 a b^8 d^8 e+1320 a^2 b^7 d^7 e^2+6930 a^3 b^6 d^6 e^3+16632 a^4 b^5 d^5 e^4+\right.$$
$$\left.\left.19404 a^5 b^4 d^4 e^5+11088 a^6 b^3 d^3 e^6+2970 a^7 b^2 d^2 e^7+330 a^8 b d e^8+11 a^9 e^9\right)\right) x^{10}+$$

$$\frac{1}{11} d \left(5 a B d \left(2 b^9 d^9 + 99 a b^8 d^8 e + 1320 a^2 b^7 d^7 e^2 + 6930 a^3 b^6 d^6 e^3 + 16632 a^4 b^5 d^5 e^4 + 19404 a^5 b^4 d^4 e^5 + 11088 a^6 b^3 d^3 e^6 + 2970 a^7 b^2 d^2 e^7 + 330 a^8 b d e^8 + 11 a^9 e^9\right) + A \left(b^{10} d^{10} + 110 a b^9 d^9 e + 2475 a^2 b^8 d^8 e^2 + 19800 a^3 b^7 d^7 e^3 + 69300 a^4 b^6 d^6 e^4 + 116424 a^5 b^5 d^5 e^5 + 97020 a^6 b^4 d^4 e^6 + 39600 a^7 b^3 d^3 e^7 + 7425 a^8 b^2 d^2 e^8 + 550 a^9 b d e^9 + 11 a^{10} e^{10}\right)\right) x^{11} +$$

$$\frac{1}{12} \left(116424 a^5 b^5 d^5 e^5 (B d + A e) + 19800 a^7 b^3 d^3 e^7 (2 B d + A e) + 2475 a^8 b^2 d^2 e^8 (3 B d + A e) + 110 a^9 b d e^9 (5 B d + A e) + a^{10} e^{10} (11 B d + A e) + 19800 a^3 b^7 d^7 e^3 (B d + 2 A e) + 2475 a^2 b^8 d^8 e^2 (B d + 3 A e) + 110 a b^9 d^9 e (B d + 5 A e) + 13860 a^6 b^4 d^4 e^6 (7 B d + 5 A e) + 13860 a^4 b^6 d^6 e^4 (5 B d + 7 A e) + b^{10} d^{10} (B d + 11 A e)\right) x^{12} +$$

$$\frac{1}{13} e \left(a^{10} B e^{10} + 97020 a^4 b^6 d^5 e^4 (B d + A e) + 34650 a^6 b^4 d^3 e^6 (2 B d + A e) + 6600 a^7 b^3 d^2 e^7 (3 B d + A e) + 495 a^8 b^2 d e^8 (5 B d + A e) + 10 a^9 b e^9 (11 B d + A e) + 7425 a^2 b^8 d^7 e^2 (B d + 2 A e) + 550 a b^9 d^8 e (B d + 3 A e) + 11 b^{10} d^9 (B d + 5 A e) + 16632 a^5 b^5 d^4 e^5 (7 B d + 5 A e) + 7920 a^3 b^7 d^6 e^3 (5 B d + 7 A e)\right) x^{13} +$$

$$\frac{5}{14} b e^2 \left(2 a^9 B e^9 + 11088 a^3 b^6 d^5 e^3 (B d + A e) + 8316 a^5 b^4 d^3 e^5 (2 B d + A e) + 2310 a^6 b^3 d^2 e^6 (3 B d + A e) + 264 a^7 b^2 d e^7 (5 B d + A e) + 9 a^8 b e^8 (11 B d + A e) + 330 a b^8 d^7 e (B d + 2 A e) + 11 b^9 d^8 (B d + 3 A e) + 2772 a^4 b^5 d^4 e^4 (7 B d + 5 A e) + 594 a^2 b^7 d^6 e^2 (5 B d + 7 A e)\right) x^{14} +$$

$$b^2 e^3 \left(3 a^8 B e^8 + 1386 a^2 b^6 d^5 e^2 (B d + A e) + 2310 a^4 b^4 d^3 e^4 (2 B d + A e) + 924 a^5 b^3 d^2 e^5 (3 B d + A e) + 154 a^6 b^2 d e^6 (5 B d + A e) + 8 a^7 b e^7 (11 B d + A e) + 11 b^8 d^7 (B d + 2 A e) + 528 a^3 b^5 d^4 e^3 (7 B d + 5 A e) + 44 a b^7 d^6 e (5 B d + 7 A e)\right) x^{15} +$$

$$\frac{3}{8} b^3 e^4 \left(20 a^7 B e^7 + 770 a b^6 d^5 e (B d + A e) + 3300 a^3 b^4 d^3 e^3 (2 B d + A e) + 1925 a^4 b^3 d^2 e^4 (3 B d + A e) + 462 a^5 b^2 d e^5 (5 B d + A e) + 35 a^6 b e^6 (11 B d + A e) + 495 a^2 b^5 d^4 e^2 (7 B d + 5 A e) + 11 b^7 d^6 (5 B d + 7 A e)\right) x^{16} +$$

$$\frac{3}{17} b^4 e^5 \left(70 a^6 B e^6 + 154 b^6 d^5 (B d + A e) + 2475 a^2 b^4 d^3 e^2 (2 B d + A e) + 2200 a^3 b^3 d^2 e^3 (3 B d + A e) + 770 a^4 b^2 d e^4 (5 B d + A e) + 84 a^5 b e^5 (11 B d + A e) + 220 a b^5 d^4 e (7 B d + 5 A e)\right) x^{17} + \frac{1}{6} b^5 e^6 \left(84 a^5 B e^5 + 550 a b^4 d^3 e (2 B d + A e) + 825 a^2 b^3 d^2 e^2 (3 B d + A e) + 440 a^3 b^2 d e^3 (5 B d + A e) + 70 a^4 b e^4 (11 B d + A e) + 22 b^5 d^4 (7 B d + 5 A e)\right) x^{18} +$$

$$\frac{5}{19} b^6 e^7 \left(42 a^4 B e^4 + 33 b^4 d^3 (2 B d + A e) + 110 a b^3 d^2 e (3 B d + A e) + 99 a^2 b^2 d e^2 (5 B d + A e) + 24 a^3 b e^3 (11 B d + A e)\right) x^{19} +$$

$$\frac{1}{4} b^7 e^8 \left(24 a^3 B e^3 + 11 b^3 d^2 (3 B d + A e) + 22 a b^2 d e (5 B d + A e) + 9 a^2 b e^2 (11 B d + A e)\right) x^{20} +$$

$$\frac{1}{21} b^8 e^9 \left(45 a^2 B e^2 + 11 b^2 d (5 B d + A e) + 10 a b e (11 B d + A e)\right) x^{21} +$$

$$\frac{1}{22} b^9 e^{10} (11 b B d + A b e + 10 a B e) x^{22} + \frac{1}{23} b^{10} B e^{11} x^{23}$$

Problem 1078: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^{10} (A + B x) (d + e x)^{10} \, dx$$

Optimal (type 1, 460 leaves, 2 steps):

$$\frac{(A b-a B)(b d-a e)^{10}(a+b x)^{11}}{11 b^{12}}+\frac{(b d-a e)^9(b B d+10 A b e-11 a B e)(a+b x)^{12}}{12 b^{12}}+\frac{5 e(b d-a e)^8(2 b B d+9 A b e-11 a B e)(a+b x)^{13}}{13 b^{12}}+$$

$$\frac{15 e^2(b d-a e)^7(3 b B d+8 A b e-11 a B e)(a+b x)^{14}}{14 b^{12}}+\frac{2 e^3(b d-a e)^6(4 b B d+7 A b e-11 a B e)(a+b x)^{15}}{b^{12}}+$$

$$\frac{21 e^4(b d-a e)^5(5 b B d+6 A b e-11 a B e)(a+b x)^{16}}{8 b^{12}}+\frac{42 e^5(b d-a e)^4(6 b B d+5 A b e-11 a B e)(a+b x)^{17}}{17 b^{12}}+$$

$$\frac{5 e^6(b d-a e)^3(7 b B d+4 A b e-11 a B e)(a+b x)^{18}}{3 b^{12}}+\frac{15 e^7(b d-a e)^2(8 b B d+3 A b e-11 a B e)(a+b x)^{19}}{19 b^{12}}+$$

$$\frac{e^8(b d-a e)(9 b B d+2 A b e-11 a B e)(a+b x)^{20}}{4 b^{12}}+\frac{e^9(10 b B d+A b e-11 a B e)(a+b x)^{21}}{21 b^{12}}+\frac{B e^{10}(a+b x)^{22}}{22 b^{12}}$$

Result (type 1, 2815 leaves):

$$a^{10} A d^{10} x+\frac{1}{2} a^9 d^9 (a B d+10 A (b d+a e)) x^2+\frac{5}{3} a^8 d^8 \left(2 a B d (b d+a e)+A \left(9 b^2 d^2+20 a b d e+9 a^2 e^2\right)\right) x^3+$$

$$\frac{5}{4} a^7 d^7 \left(a B d \left(9 b^2 d^2+20 a b d e+9 a^2 e^2\right)+6 A \left(4 b^3 d^3+15 a b^2 d^2 e+15 a^2 b d e^2+4 a^3 e^3\right)\right) x^4+$$

$$3 a^6 d^6 \left(2 a B d \left(4 b^3 d^3+15 a b^2 d^2 e+15 a^2 b d e^2+4 a^3 e^3\right)+A \left(14 b^4 d^4+80 a b^3 d^3 e+135 a^2 b^2 d^2 e^2+80 a^3 b d e^3+14 a^4 e^4\right)\right) x^5+$$

$$\frac{1}{2} a^5 d^5 \left(5 a B d \left(14 b^4 d^4+80 a b^3 d^3 e+135 a^2 b^2 d^2 e^2+80 a^3 b d e^3+14 a^4 e^4\right)+\right.$$
$$\left.4 A \left(21 b^5 d^5+175 a b^4 d^4 e+450 a^2 b^3 d^3 e^2+450 a^3 b^2 d^2 e^3+175 a^4 b d e^4+21 a^5 e^5\right)\right) x^6+$$

$$\frac{6}{7} a^4 d^4 \left(2 a B d \left(21 b^5 d^5+175 a b^4 d^4 e+450 a^2 b^3 d^3 e^2+450 a^3 b^2 d^2 e^3+175 a^4 b d e^4+21 a^5 e^5\right)+\right.$$
$$\left.5 A \left(7 b^6 d^6+84 a b^5 d^5 e+315 a^2 b^4 d^4 e^2+480 a^3 b^3 d^3 e^3+315 a^4 b^2 d^2 e^4+84 a^5 b d e^5+7 a^6 e^6\right)\right) x^7+$$

$$\frac{15}{4} a^3 d^3 \left(a B d \left(7 b^6 d^6+84 a b^5 d^5 e+315 a^2 b^4 d^4 e^2+480 a^3 b^3 d^3 e^3+315 a^4 b^2 d^2 e^4+84 a^5 b d e^5+7 a^6 e^6\right)+\right.$$
$$\left.A \left(4 b^7 d^7+70 a b^6 d^6 e+378 a^2 b^5 d^5 e^2+840 a^3 b^4 d^4 e^3+840 a^4 b^3 d^3 e^4+378 a^5 b^2 d^2 e^5+70 a^6 b d e^6+4 a^7 e^7\right)\right) x^8+$$

$$\frac{5}{3} a^2 d^2 \left(4 a B d \left(2 b^7 d^7+35 a b^6 d^6 e+189 a^2 b^5 d^5 e^2+420 a^3 b^4 d^4 e^3+420 a^4 b^3 d^3 e^4+189 a^5 b^2 d^2 e^5+35 a^6 b d e^6+2 a^7 e^7\right)+\right.$$
$$\left.A \left(3 b^8 d^8+80 a b^7 d^7 e+630 a^2 b^6 d^6 e^2+2016 a^3 b^5 d^5 e^3+2940 a^4 b^4 d^4 e^4+2016 a^5 b^3 d^3 e^5+630 a^6 b^2 d^2 e^6+80 a^7 b d e^7+3 a^8 e^8\right)\right) x^9+$$

$$\frac{1}{2} a d \left(3 a B d \left(3 b^8 d^8+80 a b^7 d^7 e+630 a^2 b^6 d^6 e^2+2016 a^3 b^5 d^5 e^3+2940 a^4 b^4 d^4 e^4+2016 a^5 b^3 d^3 e^5+630 a^6 b^2 d^2 e^6+80 a^7 b d e^7+3 a^8 e^8\right)+\right.$$
$$\left.2 A \left(b^9 d^9+45 a b^8 d^8 e+540 a^2 b^7 d^7 e^2+2520 a^3 b^6 d^6 e^3+5292 a^4 b^5 d^5 e^4+5292 a^5 b^4 d^4 e^5+2520 a^6 b^3 d^3 e^6+540 a^7 b^2 d^2 e^7+45 a^8 b d e^8+a^9 e^9\right)\right)$$

$$x^{10}+\frac{1}{11} \left(10 a B d \left(b^9 d^9+45 a b^8 d^8 e+540 a^2 b^7 d^7 e^2+2520 a^3 b^6 d^6 e^3+5292 a^4 b^5 d^5 e^4+5292 a^5 b^4 d^4 e^5+2520 a^6 b^3 d^3 e^6+\right.\right.$$
$$\left.540 a^7 b^2 d^2 e^7+45 a^8 b d e^8+a^9 e^9\right)+A \left(b^{10} d^{10}+100 a b^9 d^9 e+2025 a^2 b^8 d^8 e^2+14400 a^3 b^7 d^7 e^3+44100 a^4 b^6 d^6 e^4+\right.$$
$$\left.\left.63504 a^5 b^5 d^5 e^5+44100 a^6 b^4 d^4 e^6+14400 a^7 b^3 d^3 e^7+2025 a^8 b^2 d^2 e^8+100 a^9 b d e^9+a^{10} e^{10}\right)\right) x^{11}+$$

$$\frac{1}{12} \left(a^{10} B e^{10}+10 a^9 b e^9 (10 B d+A e)+225 a^8 b^2 d e^8 (9 B d+2 A e)+1800 a^7 b^3 d^2 e^7 (8 B d+3 A e)+6300 a^6 b^4 d^3 e^6 (7 B d+4 A e)+\right.$$
$$10584 a^5 b^5 d^4 e^5 (6 B d+5 A e)+8820 a^4 b^6 d^5 e^4 (5 B d+6 A e)+3600 a^3 b^7 d^6 e^3 (4 B d+7 A e)+$$

$675\,a^2\,b^8\,d^7\,e^2\,(3\,B\,d+8\,A\,e)+50\,a\,b^9\,d^8\,e\,(2\,B\,d+9\,A\,e)+b^{10}\,d^9\,(B\,d+10\,A\,e))\,x^{12}+$
$\frac{5}{13}\,b\,e\,(2\,a^9\,B\,e^9+9\,a^8\,b\,e^8\,(10\,B\,d+A\,e)+120\,a^7\,b^2\,d\,e^7\,(9\,B\,d+2\,A\,e)+630\,a^6\,b^3\,d^2\,e^6\,(8\,B\,d+3\,A\,e)+1512\,a^5\,b^4\,d^3\,e^5\,(7\,B\,d+4\,A\,e)+$
$1764\,a^4\,b^5\,d^4\,e^4\,(6\,B\,d+5\,A\,e)+1008\,a^3\,b^6\,d^5\,e^3\,(5\,B\,d+6\,A\,e)+270\,a^2\,b^7\,d^6\,e^2\,(4\,B\,d+7\,A\,e)+30\,a\,b^8\,d^7\,e\,(3\,B\,d+8\,A\,e)+b^9\,d^8\,(2\,B\,d+9\,A\,e))\,x^{13}+$
$\frac{15}{14}\,b^2\,e^2\,(3\,a^8\,B\,e^8+8\,a^7\,b\,e^7\,(10\,B\,d+A\,e)+70\,a^6\,b^2\,d\,e^6\,(9\,B\,d+2\,A\,e)+252\,a^5\,b^3\,d^2\,e^5\,(8\,B\,d+3\,A\,e)+420\,a^4\,b^4\,d^3\,e^4\,(7\,B\,d+4\,A\,e)+$
$336\,a^3\,b^5\,d^4\,e^3\,(6\,B\,d+5\,A\,e)+126\,a^2\,b^6\,d^5\,e^2\,(5\,B\,d+6\,A\,e)+20\,a\,b^7\,d^6\,e\,(4\,B\,d+7\,A\,e)+b^8\,d^7\,(3\,B\,d+8\,A\,e))\,x^{14}+$
$2\,b^3\,e^3\,(4\,a^7\,B\,e^7+7\,a^6\,b\,e^6\,(10\,B\,d+A\,e)+42\,a^5\,b^2\,d\,e^5\,(9\,B\,d+2\,A\,e)+105\,a^4\,b^3\,d^2\,e^4\,(8\,B\,d+3\,A\,e)+$
$120\,a^3\,b^4\,d^3\,e^3\,(7\,B\,d+4\,A\,e)+63\,a^2\,b^5\,d^4\,e^2\,(6\,B\,d+5\,A\,e)+14\,a\,b^6\,d^5\,e\,(5\,B\,d+6\,A\,e)+b^7\,d^6\,(4\,B\,d+7\,A\,e))\,x^{15}+$
$\frac{3}{8}\,b^4\,e^4\,(35\,a^6\,B\,e^6+42\,a^5\,b\,e^5\,(10\,B\,d+A\,e)+175\,a^4\,b^2\,d\,e^4\,(9\,B\,d+2\,A\,e)+300\,a^3\,b^3\,d^2\,e^3\,(8\,B\,d+3\,A\,e)+$
$225\,a^2\,b^4\,d^3\,e^2\,(7\,B\,d+4\,A\,e)+70\,a\,b^5\,d^4\,e\,(6\,B\,d+5\,A\,e)+7\,b^6\,d^5\,(5\,B\,d+6\,A\,e))\,x^{16}+\frac{3}{17}\,b^5\,e^5$
$(84\,a^5\,B\,e^5+70\,a^4\,b\,e^4\,(10\,B\,d+A\,e)+200\,a^3\,b^2\,d\,e^3\,(9\,B\,d+2\,A\,e)+225\,a^2\,b^3\,d^2\,e^2\,(8\,B\,d+3\,A\,e)+100\,a\,b^4\,d^3\,e\,(7\,B\,d+4\,A\,e)+14\,b^5\,d^4\,(6\,B\,d+5\,A\,e))$
$x^{17}+\frac{5}{6}\,b^6\,e^6\,(14\,a^4\,B\,e^4+8\,a^3\,b\,e^3\,(10\,B\,d+A\,e)+15\,a^2\,b^2\,d\,e^2\,(9\,B\,d+2\,A\,e)+10\,a\,b^3\,d^2\,e\,(8\,B\,d+3\,A\,e)+2\,b^4\,d^3\,(7\,B\,d+4\,A\,e))\,x^{18}+$
$\frac{5}{19}\,b^7\,e^7\,(24\,a^3\,B\,e^3+9\,a^2\,b\,e^2\,(10\,B\,d+A\,e)+10\,a\,b^2\,d\,e\,(9\,B\,d+2\,A\,e)+3\,b^3\,d^2\,(8\,B\,d+3\,A\,e))\,x^{19}+$
$\frac{1}{4}\,b^8\,e^8\,(9\,a^2\,B\,e^2+2\,a\,b\,e\,(10\,B\,d+A\,e)+b^2\,d\,(9\,B\,d+2\,A\,e))\,x^{20}+$
$\frac{1}{21}\,b^9\,e^9\,(10\,b\,B\,d+A\,b\,e+10\,a\,B\,e)\,x^{21}+\frac{1}{22}\,b^{10}\,B\,e^{10}\,x^{22}$

Problem 1079: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^{10}\,(A+B\,x)\,(d+e\,x)^9\,dx$$

Optimal (type 1, 415 leaves, 2 steps):

$$\frac{(A\,b-a\,B)\,(b\,d-a\,e)^9\,(a+b\,x)^{11}}{11\,b^{11}}+\frac{(b\,d-a\,e)^8\,(b\,B\,d+9\,A\,b\,e-10\,a\,B\,e)\,(a+b\,x)^{12}}{12\,b^{11}}+$$
$$\frac{9\,e\,(b\,d-a\,e)^7\,(b\,B\,d+4\,A\,b\,e-5\,a\,B\,e)\,(a+b\,x)^{13}}{13\,b^{11}}+\frac{6\,e^2\,(b\,d-a\,e)^6\,(3\,b\,B\,d+7\,A\,b\,e-10\,a\,B\,e)\,(a+b\,x)^{14}}{7\,b^{11}}+$$
$$\frac{14\,e^3\,(b\,d-a\,e)^5\,(2\,b\,B\,d+3\,A\,b\,e-5\,a\,B\,e)\,(a+b\,x)^{15}}{5\,b^{11}}+\frac{63\,e^4\,(b\,d-a\,e)^4\,(b\,B\,d+A\,b\,e-2\,a\,B\,e)\,(a+b\,x)^{16}}{8\,b^{11}}+$$
$$\frac{42\,e^5\,(b\,d-a\,e)^3\,(3\,b\,B\,d+2\,A\,b\,e-5\,a\,B\,e)\,(a+b\,x)^{17}}{17\,b^{11}}+\frac{2\,e^6\,(b\,d-a\,e)^2\,(7\,b\,B\,d+3\,A\,b\,e-10\,a\,B\,e)\,(a+b\,x)^{18}}{3\,b^{11}}+$$
$$\frac{9\,e^7\,(b\,d-a\,e)\,(4\,b\,B\,d+A\,b\,e-5\,a\,B\,e)\,(a+b\,x)^{19}}{19\,b^{11}}+\frac{e^8\,(9\,b\,B\,d+A\,b\,e-10\,a\,B\,e)\,(a+b\,x)^{20}}{20\,b^{11}}+\frac{B\,e^9\,(a+b\,x)^{21}}{21\,b^{11}}$$

Result (type 1, 2553 leaves) :

$$a^{10} A d^9 x + \frac{1}{2} a^9 d^8 \left(10 A b d + a B d + 9 a A e\right) x^2 + \frac{1}{3} a^8 d^7 \left(a B d \left(10 b d + 9 a e\right) + 9 A \left(5 b^2 d^2 + 10 a b d e + 4 a^2 e^2\right)\right) x^3 +$$
$$\frac{3}{4} a^7 d^6 \left(3 a B d \left(5 b^2 d^2 + 10 a b d e + 4 a^2 e^2\right) + A \left(40 b^3 d^3 + 135 a b^2 d^2 e + 120 a^2 b d e^2 + 28 a^3 e^3\right)\right) x^4 +$$
$$\frac{3}{5} a^6 d^5 \left(a B d \left(40 b^3 d^3 + 135 a b^2 d^2 e + 120 a^2 b d e^2 + 28 a^3 e^3\right) + A \left(70 b^4 d^4 + 360 a b^3 d^3 e + 540 a^2 b^2 d^2 e^2 + 280 a^3 b d e^3 + 42 a^4 e^4\right)\right) x^5 +$$
$$a^5 d^4 \left(a B d \left(35 b^4 d^4 + 180 a b^3 d^3 e + 270 a^2 b^2 d^2 e^2 + 140 a^3 b d e^3 + 21 a^4 e^4\right) + 3 A \left(14 b^5 d^5 + 105 a b^4 d^4 e + 240 a^2 b^3 d^3 e^2 + 210 a^3 b^2 d^2 e^3 + 70 a^4 b d e^4 + 7 a^5 e^5\right)\right) x^6 +$$
$$\frac{6}{7} a^4 d^3 \left(3 a B d \left(14 b^5 d^5 + 105 a b^4 d^4 e + 240 a^2 b^3 d^3 e^2 + 210 a^3 b^2 d^2 e^3 + 70 a^4 b d e^4 + 7 a^5 e^5\right) + 7 A \left(5 b^6 d^6 + 54 a b^5 d^5 e + 180 a^2 b^4 d^4 e^2 + 240 a^3 b^3 d^3 e^3 + 135 a^4 b^2 d^2 e^4 + 30 a^5 b d e^5 + 2 a^6 e^6\right)\right) x^7 +$$
$$\frac{3}{4} a^3 d^2 \left(7 a B d \left(5 b^6 d^6 + 54 a b^5 d^5 e + 180 a^2 b^4 d^4 e^2 + 240 a^3 b^3 d^3 e^3 + 135 a^4 b^2 d^2 e^4 + 30 a^5 b d e^5 + 2 a^6 e^6\right) + A \left(20 b^7 d^7 + 315 a b^6 d^6 e + 1512 a^2 b^5 d^5 e^2 + 2940 a^3 b^4 d^4 e^3 + 2520 a^4 b^3 d^3 e^4 + 945 a^5 b^2 d^2 e^5 + 140 a^6 b d e^6 + 6 a^7 e^7\right)\right) x^8 +$$
$$\frac{1}{3} a^2 d \left(2 a B d \left(20 b^7 d^7 + 315 a b^6 d^6 e + 1512 a^2 b^5 d^5 e^2 + 2940 a^3 b^4 d^4 e^3 + 2520 a^4 b^3 d^3 e^4 + 945 a^5 b^2 d^2 e^5 + 140 a^6 b d e^6 + 6 a^7 e^7\right) + 3 A \left(5 b^8 d^8 + 120 a b^7 d^7 e + 840 a^2 b^6 d^6 e^2 + 2352 a^3 b^5 d^5 e^3 + 2940 a^4 b^4 d^4 e^4 + 1680 a^5 b^3 d^3 e^5 + 420 a^6 b^2 d^2 e^6 + 40 a^7 b d e^7 + a^8 e^8\right)\right) x^9 + \frac{1}{10} a$$
$$\left(9 a B d \left(5 b^8 d^8 + 120 a b^7 d^7 e + 840 a^2 b^6 d^6 e^2 + 2352 a^3 b^5 d^5 e^3 + 2940 a^4 b^4 d^4 e^4 + 1680 a^5 b^3 d^3 e^5 + 420 a^6 b^2 d^2 e^6 + 40 a^7 b d e^7 + a^8 e^8\right) + A \left(10 b^9 d^9 + 405 a b^8 d^8 e + 4320 a^2 b^7 d^7 e^2 + 17640 a^3 b^6 d^6 e^3 + 31752 a^4 b^5 d^5 e^4 + 26460 a^5 b^4 d^4 e^5 + 10080 a^6 b^3 d^3 e^6 + 1620 a^7 b^2 d^2 e^7 + 90 a^8 b d e^8 + a^9 e^9\right)\right)$$
$$x^{10} + \frac{1}{11} \left(a B \left(10 b^9 d^9 + 405 a b^8 d^8 e + 4320 a^2 b^7 d^7 e^2 + 17640 a^3 b^6 d^6 e^3 + 31752 a^4 b^5 d^5 e^4 + 26460 a^5 b^4 d^4 e^5 + 10080 a^6 b^3 d^3 e^6 + 1620 a^7 b^2 d^2 e^7 + 90 a^8 b d e^8 + a^9 e^9\right) + A b \left(b^9 d^9 + 90 a b^8 d^8 e + 1620 a^2 b^7 d^7 e^2 + 10080 a^3 b^6 d^6 e^3 + 26460 a^4 b^5 d^5 e^4 + 31752 a^5 b^4 d^4 e^5 + 17640 a^6 b^3 d^3 e^6 + 4320 a^7 b^2 d^2 e^7 + 405 a^8 b d e^8 + 10 a^9 e^9\right)\right) x^{11} +$$
$$\frac{1}{12} b \left(10 a^9 B e^9 + 26460 a^4 b^5 d^4 e^4 \left(B d + A e\right) + 1080 a^7 b^2 d e^7 \left(4 B d + A e\right) + 45 a^8 b e^8 \left(9 B d + A e\right) + 10584 a^5 b^4 d^3 e^5 \left(3 B d + 2 A e\right) + 5040 a^3 b^6 d^5 e^3 \left(2 B d + 3 A e\right) + 2520 a^6 b^3 d^2 e^6 \left(7 B d + 3 A e\right) + 90 a b^8 d^7 e \left(B d + 4 A e\right) + 540 a^2 b^7 d^6 e^2 \left(3 B d + 7 A e\right) + b^9 d^8 \left(B d + 9 A e\right)\right) x^{12} +$$
$$\frac{3}{13} b^2 e \left(15 a^8 B e^8 + 5040 a^3 b^5 d^4 e^3 \left(B d + A e\right) + 630 a^6 b^2 d e^6 \left(4 B d + A e\right) + 40 a^7 b e^7 \left(9 B d + A e\right) + 2940 a^4 b^4 d^3 e^4 \left(3 B d + 2 A e\right) + 630 a^2 b^6 d^5 e^2 \left(2 B d + 3 A e\right) + 1008 a^5 b^3 d^2 e^5 \left(7 B d + 3 A e\right) + 3 b^8 d^7 \left(B d + 4 A e\right) + 40 a b^7 d^6 e \left(3 B d + 7 A e\right)\right) x^{13} +$$
$$\frac{3}{7} b^3 e^2 \left(20 a^7 B e^7 + 945 a^2 b^5 d^4 e^2 \left(B d + A e\right) + 378 a^5 b^2 d e^5 \left(4 B d + A e\right) + 35 a^6 b e^6 \left(9 B d + A e\right) + 840 a^3 b^4 d^3 e^3 \left(3 B d + 2 A e\right) + 70 a b^6 d^5 e \left(2 B d + 3 A e\right) + 420 a^4 b^3 d^2 e^4 \left(7 B d + 3 A e\right) + 2 b^7 d^6 \left(3 B d + 7 A e\right)\right) x^{14} +$$
$$\frac{2}{5} b^4 e^3 \left(35 a^6 B e^6 + 210 a b^5 d^4 e \left(B d + A e\right) + 315 a^4 b^2 d e^4 \left(4 B d + A e\right) + 42 a^5 b e^5 \left(9 B d + A e\right) + 315 a^2 b^4 d^3 e^2 \left(3 B d + 2 A e\right) + 7 b^6 d^5 \left(2 B d + 3 A e\right) + 240 a^3 b^3 d^2 e^3 \left(7 B d + 3 A e\right)\right) x^{15} + \frac{3}{8} b^5 e^4$$
$$\left(42 a^5 B e^5 + 21 b^5 d^4 \left(B d + A e\right) + 180 a^3 b^2 d e^3 \left(4 B d + A e\right) + 35 a^4 b e^4 \left(9 B d + A e\right) + 70 a b^4 d^3 e \left(3 B d + 2 A e\right) + 90 a^2 b^3 d^2 e^2 \left(7 B d + 3 A e\right)\right) x^{16} +$$

$$\frac{3}{17} b^6 e^5 \left(70 a^4 B e^4 + 135 a^2 b^2 d e^2 (4 B d + A e) + 40 a^3 b e^3 (9 B d + A e) + 14 b^4 d^3 (3 B d + 2 A e) + 40 a b^3 d^2 e (7 B d + 3 A e)\right) x^{17} +$$
$$\frac{1}{6} b^7 e^6 \left(40 a^3 B e^3 + 30 a b^2 d e (4 B d + A e) + 15 a^2 b e^2 (9 B d + A e) + 4 b^3 d^2 (7 B d + 3 A e)\right) x^{18} +$$
$$\frac{1}{19} b^8 e^7 \left(45 a^2 B e^2 + 9 b^2 d (4 B d + A e) + 10 a b e (9 B d + A e)\right) x^{19} +$$
$$\frac{1}{20} b^9 e^8 (9 b B d + A b e + 10 a B e) x^{20} + \frac{1}{21} b^{10} B e^9 x^{21}$$

Problem 1080: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^{10} (A + B x) (d + e x)^8 \, dx$$

Optimal (type 1, 372 leaves, 2 steps):

$$\frac{(A b - a B) (b d - a e)^8 (a + b x)^{11}}{11 b^{10}} + \frac{(b d - a e)^7 (b B d + 8 A b e - 9 a B e) (a + b x)^{12}}{12 b^{10}} + \frac{4 e (b d - a e)^6 (2 b B d + 7 A b e - 9 a B e) (a + b x)^{13}}{13 b^{10}} +$$
$$\frac{2 e^2 (b d - a e)^5 (b B d + 2 A b e - 3 a B e) (a + b x)^{14}}{b^{10}} + \frac{14 e^3 (b d - a e)^4 (4 b B d + 5 A b e - 9 a B e) (a + b x)^{15}}{15 b^{10}} +$$
$$\frac{7 e^4 (b d - a e)^3 (5 b B d + 4 A b e - 9 a B e) (a + b x)^{16}}{8 b^{10}} + \frac{28 e^5 (b d - a e)^2 (2 b B d + A b e - 3 a B e) (a + b x)^{17}}{17 b^{10}} +$$
$$\frac{2 e^6 (b d - a e) (7 b B d + 2 A b e - 9 a B e) (a + b x)^{18}}{9 b^{10}} + \frac{e^7 (8 b B d + A b e - 9 a B e) (a + b x)^{19}}{19 b^{10}} + \frac{B e^8 (a + b x)^{20}}{20 b^{10}}$$

Result (type 1, 2307 leaves):

$$a^{10} A d^8 x + \frac{1}{2} a^9 d^7 (10 A b d + a B d + 8 a A e) x^2 + \frac{1}{3} a^8 d^6 \left(2 a B d (5 b d + 4 a e) + A (45 b^2 d^2 + 80 a b d e + 28 a^2 e^2)\right) x^3 +$$
$$\frac{1}{4} a^7 d^5 \left(a B d (45 b^2 d^2 + 80 a b d e + 28 a^2 e^2) + 8 A (15 b^3 d^3 + 45 a b^2 d^2 e + 35 a^2 b d e^2 + 7 a^3 e^3)\right) x^4 +$$
$$\frac{2}{5} a^6 d^4 \left(4 a B d (15 b^3 d^3 + 45 a b^2 d^2 e + 35 a^2 b d e^2 + 7 a^3 e^3) + 5 A (21 b^4 d^4 + 96 a b^3 d^3 e + 126 a^2 b^2 d^2 e^2 + 56 a^3 b d e^3 + 7 a^4 e^4)\right) x^5 +$$
$$\frac{1}{3} a^5 d^3 \Big(5 a B d (21 b^4 d^4 + 96 a b^3 d^3 e + 126 a^2 b^2 d^2 e^2 + 56 a^3 b d e^3 + 7 a^4 e^4) +$$
$$14 A (9 b^5 d^5 + 60 a b^4 d^4 e + 120 a^2 b^3 d^3 e^2 + 90 a^3 b^2 d^2 e^3 + 25 a^4 b d e^4 + 2 a^5 e^5)\Big) x^6 +$$
$$2 a^4 d^2 \Big(2 a B d (9 b^5 d^5 + 60 a b^4 d^4 e + 120 a^2 b^3 d^3 e^2 + 90 a^3 b^2 d^2 e^3 + 25 a^4 b d e^4 + 2 a^5 e^5) +$$
$$A (15 b^6 d^6 + 144 a b^5 d^5 e + 420 a^2 b^4 d^4 e^2 + 480 a^3 b^3 d^3 e^3 + 225 a^4 b^2 d^2 e^4 + 40 a^5 b d e^5 + 2 a^6 e^6)\Big) x^7 +$$
$$\frac{1}{4} a^3 d \Big(7 a B d (15 b^6 d^6 + 144 a b^5 d^5 e + 420 a^2 b^4 d^4 e^2 + 480 a^3 b^3 d^3 e^3 + 225 a^4 b^2 d^2 e^4 + 40 a^5 b d e^5 + 2 a^6 e^6) +$$
$$4 A (15 b^7 d^7 + 210 a b^6 d^6 e + 882 a^2 b^5 d^5 e^2 + 1470 a^3 b^4 d^4 e^3 + 1050 a^4 b^3 d^3 e^4 + 315 a^5 b^2 d^2 e^5 + 35 a^6 b d e^6 + a^7 e^7)\Big) x^8 +$$

$$\frac{1}{9} a^2 \left(8 a B d \left(15 b^7 d^7 + 210 a b^6 d^6 e + 882 a^2 b^5 d^5 e^2 + 1470 a^3 b^4 d^4 e^3 + 1050 a^4 b^3 d^3 e^4 + 315 a^5 b^2 d^2 e^5 + 35 a^6 b d e^6 + a^7 e^7\right) + \right.$$
$$\left. A \left(45 b^8 d^8 + 960 a b^7 d^7 e + 5880 a^2 b^6 d^6 e^2 + 14112 a^3 b^5 d^5 e^3 + 14700 a^4 b^4 d^4 e^4 + 6720 a^5 b^3 d^3 e^5 + 1260 a^6 b^2 d^2 e^6 + 80 a^7 b d e^7 + a^8 e^8\right)\right) x^9 +$$
$$\frac{1}{10} a \left(10 A b \left(b^8 d^8 + 36 a b^7 d^7 e + 336 a^2 b^6 d^6 e^2 + 1176 a^3 b^5 d^5 e^3 + 1764 a^4 b^4 d^4 e^4 + 1176 a^5 b^3 d^3 e^5 + 336 a^6 b^2 d^2 e^6 + 36 a^7 b d e^7 + a^8 e^8\right) + \right.$$
$$\left. a B \left(45 b^8 d^8 + 960 a b^7 d^7 e + 5880 a^2 b^6 d^6 e^2 + 14112 a^3 b^5 d^5 e^3 + 14700 a^4 b^4 d^4 e^4 + 6720 a^5 b^3 d^3 e^5 + 1260 a^6 b^2 d^2 e^6 + 80 a^7 b d e^7 + a^8 e^8\right)\right) x^{10} +$$
$$\frac{1}{11} b \left(10 a B \left(b^8 d^8 + 36 a b^7 d^7 e + 336 a^2 b^6 d^6 e^2 + 1176 a^3 b^5 d^5 e^3 + 1764 a^4 b^4 d^4 e^4 + 1176 a^5 b^3 d^3 e^5 + 336 a^6 b^2 d^2 e^6 + 36 a^7 b d e^7 + a^8 e^8\right) + \right.$$
$$\left. A b \left(b^8 d^8 + 80 a b^7 d^7 e + 1260 a^2 b^6 d^6 e^2 + 6720 a^3 b^5 d^5 e^3 + 14700 a^4 b^4 d^4 e^4 + 14112 a^5 b^3 d^3 e^5 + 5880 a^6 b^2 d^2 e^6 + 960 a^7 b d e^7 + 45 a^8 e^8\right)\right) x^{11} +$$
$$\frac{1}{12} b^2 \left(45 a^8 B e^8 + 7056 a^5 b^3 d^2 e^5 (2 B d + A e) + 120 a^7 b e^7 (8 B d + A e) + 1260 a^2 b^6 d^5 e^2 (B d + 2 A e) + 840 a^6 b^2 d e^6 (7 B d + 2 A e) + \right.$$
$$\left. 2940 a^4 b^4 d^3 e^4 (5 B d + 4 A e) + 1680 a^3 b^5 d^4 e^3 (4 B d + 5 A e) + 40 a b^7 d^6 e (2 B d + 7 A e) + b^8 d^7 (B d + 8 A e)\right) x^{12} +$$
$$\frac{2}{13} b^3 e \left(60 a^7 B e^7 + 2940 a^4 b^3 d^2 e^4 (2 B d + A e) + 105 a^6 b e^6 (8 B d + A e) + 140 a b^6 d^5 e (B d + 2 A e) + 504 a^5 b^2 d e^5 (7 B d + 2 A e) + \right.$$
$$\left. 840 a^3 b^4 d^3 e^3 (5 B d + 4 A e) + 315 a^2 b^5 d^4 e^2 (4 B d + 5 A e) + 2 b^7 d^6 (2 B d + 7 A e)\right) x^{13} +$$
$$b^4 e^2 \left(15 a^6 B e^6 + 240 a^3 b^3 d^2 e^3 (2 B d + A e) + 18 a^5 b e^5 (8 B d + A e) + 2 b^6 d^5 (B d + 2 A e) + 60 a^4 b^2 d e^4 (7 B d + 2 A e) + \right.$$
$$\left. 45 a^2 b^4 d^3 e^2 (5 B d + 4 A e) + 10 a b^5 d^4 e (4 B d + 5 A e)\right) x^{14} + \frac{2}{15} b^5 e^3$$
$$\left(126 a^5 B e^5 + 630 a^2 b^3 d^2 e^2 (2 B d + A e) + 105 a^4 b e^4 (8 B d + A e) + 240 a^3 b^2 d e^3 (7 B d + 2 A e) + 70 a b^4 d^3 e (5 B d + 4 A e) + 7 b^5 d^4 (4 B d + 5 A e)\right) x^{15} +$$
$$\frac{1}{8} b^6 e^4 \left(105 a^4 B e^4 + 140 a b^3 d^2 e (2 B d + A e) + 60 a^3 b e^3 (8 B d + A e) + 90 a^2 b^2 d e^2 (7 B d + 2 A e) + 7 b^4 d^3 (5 B d + 4 A e)\right) x^{16} +$$
$$\frac{1}{17} b^7 e^5 \left(120 a^3 B e^3 + 28 b^3 d^2 (2 B d + A e) + 45 a^2 b e^2 (8 B d + A e) + 40 a b^2 d e (7 B d + 2 A e)\right) x^{17} +$$
$$\frac{1}{18} b^8 e^6 \left(45 a^2 B e^2 + 10 a b e (8 B d + A e) + 4 b^2 d (7 B d + 2 A e)\right) x^{18} +$$
$$\frac{1}{19} b^9 e^7 (8 b B d + A b e + 10 a B e) x^{19} + \frac{1}{20} b^{10} B e^8 x^{20}$$

Problem 1081: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^{10} (A + B x) (d + e x)^7 \, dx$$

Optimal (type 1, 329 leaves, 2 steps):

$$\frac{(A b-a B) (b d-a e)^7 (a+b x)^{11}}{11 b^9}+\frac{(b d-a e)^6 (b B d+7 A b e-8 a B e) (a+b x)^{12}}{12 b^9}+$$
$$\frac{7 e (b d-a e)^5 (b B d+3 A b e-4 a B e) (a+b x)^{13}}{13 b^9}+\frac{e^2 (b d-a e)^4 (3 b B d+5 A b e-8 a B e) (a+b x)^{14}}{2 b^9}+$$
$$\frac{7 e^3 (b d-a e)^3 (b B d+A b e-2 a B e) (a+b x)^{15}}{3 b^9}+\frac{7 e^4 (b d-a e)^2 (5 b B d+3 A b e-8 a B e) (a+b x)^{16}}{16 b^9}+$$
$$\frac{7 e^5 (b d-a e) (3 b B d+A b e-4 a B e) (a+b x)^{17}}{17 b^9}+\frac{e^6 (7 b B d+A b e-8 a B e) (a+b x)^{18}}{18 b^9}+\frac{B e^7 (a+b x)^{19}}{19 b^9}$$

Result (type 1, 2034 leaves) :

$$a^{10} A d^7 x + \frac{1}{2} a^9 d^6 (10 A b d + a B d + 7 a A e) x^2 + \frac{1}{3} a^8 d^5 (a B d (10 b d + 7 a e) + A (45 b^2 d^2 + 70 a b d e + 21 a^2 e^2)) x^3 +$$

$$\frac{1}{4} a^7 d^4 (a B d (45 b^2 d^2 + 70 a b d e + 21 a^2 e^2) + 5 A (24 b^3 d^3 + 63 a b^2 d^2 e + 42 a^2 b d e^2 + 7 a^3 e^3)) x^4 +$$

$$a^6 d^3 (a B d (24 b^3 d^3 + 63 a b^2 d^2 e + 42 a^2 b d e^2 + 7 a^3 e^3) + 7 A (6 b^4 d^4 + 24 a b^3 d^3 e + 27 a^2 b^2 d^2 e^2 + 10 a^3 b d e^3 + a^4 e^4)) x^5 + \frac{7}{6} a^5 d^2$$

$$(5 a B d (6 b^4 d^4 + 24 a b^3 d^3 e + 27 a^2 b^2 d^2 e^2 + 10 a^3 b d e^3 + a^4 e^4) + A (36 b^5 d^5 + 210 a b^4 d^4 e + 360 a^2 b^3 d^3 e^2 + 225 a^3 b^2 d^2 e^3 + 50 a^4 b d e^4 + 3 a^5 e^5))$$

$$x^6 + a^4 d (a B d (36 b^5 d^5 + 210 a b^4 d^4 e + 360 a^2 b^3 d^3 e^2 + 225 a^3 b^2 d^2 e^3 + 50 a^4 b d e^4 + 3 a^5 e^5) +$$

$$A (30 b^6 d^6 + 252 a b^5 d^5 e + 630 a^2 b^4 d^4 e^2 + 600 a^3 b^3 d^3 e^3 + 225 a^4 b^2 d^2 e^4 + 30 a^5 b d e^5 + a^6 e^6)) x^7 +$$

$$\frac{1}{8} a^3 (7 a B d (30 b^6 d^6 + 252 a b^5 d^5 e + 630 a^2 b^4 d^4 e^2 + 600 a^3 b^3 d^3 e^3 + 225 a^4 b^2 d^2 e^4 + 30 a^5 b d e^5 + a^6 e^6) +$$

$$A (120 b^7 d^7 + 1470 a b^6 d^6 e + 5292 a^2 b^5 d^5 e^2 + 7350 a^3 b^4 d^4 e^3 + 4200 a^4 b^3 d^3 e^4 + 945 a^5 b^2 d^2 e^5 + 70 a^6 b d e^6 + a^7 e^7)) x^8 +$$

$$\frac{1}{9} a^2 (a B (120 b^7 d^7 + 1470 a b^6 d^6 e + 5292 a^2 b^5 d^5 e^2 + 7350 a^3 b^4 d^4 e^3 + 4200 a^4 b^3 d^3 e^4 + 945 a^5 b^2 d^2 e^5 + 70 a^6 b d e^6 + a^7 e^7) +$$

$$5 A b (9 b^7 d^7 + 168 a b^6 d^6 e + 882 a^2 b^5 d^5 e^2 + 1764 a^3 b^4 d^4 e^3 + 1470 a^4 b^3 d^3 e^4 + 504 a^5 b^2 d^2 e^5 + 63 a^6 b d e^6 + 2 a^7 e^7)) x^9 +$$

$$\frac{1}{2} a b (a B (9 b^7 d^7 + 168 a b^6 d^6 e + 882 a^2 b^5 d^5 e^2 + 1764 a^3 b^4 d^4 e^3 + 1470 a^4 b^3 d^3 e^4 + 504 a^5 b^2 d^2 e^5 + 63 a^6 b d e^6 + 2 a^7 e^7) +$$

$$A b (2 b^7 d^7 + 63 a b^6 d^6 e + 504 a^2 b^5 d^5 e^2 + 1470 a^3 b^4 d^4 e^3 + 1764 a^4 b^3 d^3 e^4 + 882 a^5 b^2 d^2 e^5 + 168 a^6 b d e^6 + 9 a^7 e^7)) x^{10} +$$

$$\frac{1}{11} b^2 (5 a B (2 b^7 d^7 + 63 a b^6 d^6 e + 504 a^2 b^5 d^5 e^2 + 1470 a^3 b^4 d^4 e^3 + 1764 a^4 b^3 d^3 e^4 + 882 a^5 b^2 d^2 e^5 + 168 a^6 b d e^6 + 9 a^7 e^7) +$$

$$A b (b^7 d^7 + 70 a b^6 d^6 e + 945 a^2 b^5 d^5 e^2 + 4200 a^3 b^4 d^4 e^3 + 7350 a^4 b^3 d^3 e^4 + 5292 a^5 b^2 d^2 e^5 + 1470 a^6 b d e^6 + 120 a^7 e^7)) x^{11} +$$

$$\frac{1}{12} b^3 (120 a^7 B e^7 + 4200 a^3 b^4 d^3 e^3 (B d + A e) + 1764 a^5 b^2 d e^5 (3 B d + A e) + 210 a^6 b e^6 (7 B d + A e) + 70 a b^6 d^5 e (B d + 3 A e) +$$

$$1470 a^4 b^3 d^2 e^4 (5 B d + 3 A e) + 315 a^2 b^5 d^4 e^2 (3 B d + 5 A e) + b^7 d^6 (B d + 7 A e)) x^{12} +$$

$$\frac{7}{13} b^4 e (30 a^6 B e^6 + 225 a^2 b^4 d^3 e^2 (B d + A e) + 210 a^4 b^2 d e^4 (3 B d + A e) + 36 a^5 b e^5 (7 B d + A e) +$$

$$b^6 d^5 (B d + 3 A e) + 120 a^3 b^3 d^2 e^3 (5 B d + 3 A e) + 10 a b^5 d^4 e (3 B d + 5 A e)) x^{13} +$$

$$\frac{1}{2} b^5 e^2 (36 a^5 B e^5 + 50 a b^4 d^3 e (B d + A e) + 120 a^3 b^2 d e^3 (3 B d + A e) + 30 a^4 b e^4 (7 B d + A e) + 45 a^2 b^3 d^2 e^2 (5 B d + 3 A e) + b^5 d^4 (3 B d + 5 A e)) x^{14} +$$

$$\frac{1}{3} b^6 e^3 (42 a^4 B e^4 + 7 b^4 d^3 (B d + A e) + 63 a^2 b^2 d e^2 (3 B d + A e) + 24 a^3 b e^3 (7 B d + A e) + 14 a b^3 d^2 e (5 B d + 3 A e)) x^{15} +$$

$$\frac{1}{16} b^7 e^4 (120 a^3 B e^3 + 70 a b^2 d e (3 B d + A e) + 45 a^2 b e^2 (7 B d + A e) + 7 b^3 d^2 (5 B d + 3 A e)) x^{16} +$$

$$\frac{1}{17} b^8 e^5 (45 a^2 B e^2 + 7 b^2 d (3 B d + A e) + 10 a b e (7 B d + A e)) x^{17} +$$

$$\frac{1}{18} b^9 e^6 (7 b B d + A b e + 10 a B e) x^{18} + \frac{1}{19} b^{10} B e^7 x^{19}$$

Problem 1082: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^{10} (A+B x) (d+e x)^6 \, dx$$

Optimal (type 1, 290 leaves, 2 steps):

$$\frac{(A b-a B) (b d-a e)^6 (a+b x)^{11}}{11 b^8}+\frac{(b d-a e)^5 (b B d+6 A b e-7 a B e) (a+b x)^{12}}{12 b^8}+\frac{3 e (b d-a e)^4 (2 b B d+5 A b e-7 a B e) (a+b x)^{13}}{13 b^8}+\frac{5 e^2 (b d-a e)^3 (3 b B d+4 A b e-7 a B e) (a+b x)^{14}}{14 b^8}+\frac{e^3 (b d-a e)^2 (4 b B d+3 A b e-7 a B e) (a+b x)^{15}}{3 b^8}+\frac{3 e^4 (b d-a e) (5 b B d+2 A b e-7 a B e) (a+b x)^{16}}{16 b^8}+\frac{e^5 (6 b B d+A b e-7 a B e) (a+b x)^{17}}{17 b^8}+\frac{B e^6 (a+b x)^{18}}{18 b^8}$$

Result (type 1, 1788 leaves):

$$a^{10} A d^6 x + \frac{1}{2} a^9 d^5 \left(10 A b d + a B d + 6 a A e\right) x^2 + \frac{1}{3} a^8 d^4 \left(2 a B d \left(5 b d + 3 a e\right) + 15 A \left(3 b^2 d^2 + 4 a b d e + a^2 e^2\right)\right) x^3 +$$

$$\frac{5}{4} a^7 d^3 \left(3 a B d \left(3 b^2 d^2 + 4 a b d e + a^2 e^2\right) + A \left(24 b^3 d^3 + 54 a b^2 d^2 e + 30 a^2 b d e^2 + 4 a^3 e^3\right)\right) x^4 +$$

$$a^6 d^2 \left(2 a B d \left(12 b^3 d^3 + 27 a b^2 d^2 e + 15 a^2 b d e^2 + 2 a^3 e^3\right) + A \left(42 b^4 d^4 + 144 a b^3 d^3 e + 135 a^2 b^2 d^2 e^2 + 40 a^3 b d e^3 + 3 a^4 e^4\right)\right) x^5 +$$

$$\frac{1}{6} a^5 d \left(5 a B d \left(42 b^4 d^4 + 144 a b^3 d^3 e + 135 a^2 b^2 d^2 e^2 + 40 a^3 b d e^3 + 3 a^4 e^4\right) +\right.$$

$$\left. 6 A \left(42 b^5 d^5 + 210 a b^4 d^4 e + 300 a^2 b^3 d^3 e^2 + 150 a^3 b^2 d^2 e^3 + 25 a^4 b d e^4 + a^5 e^5\right)\right) x^6 +$$

$$\frac{1}{7} a^4 \left(6 a B d \left(42 b^5 d^5 + 210 a b^4 d^4 e + 300 a^2 b^3 d^3 e^2 + 150 a^3 b^2 d^2 e^3 + 25 a^4 b d e^4 + a^5 e^5\right) +\right.$$

$$\left. A \left(210 b^6 d^6 + 1512 a b^5 d^5 e + 3150 a^2 b^4 d^4 e^2 + 2400 a^3 b^3 d^3 e^3 + 675 a^4 b^2 d^2 e^4 + 60 a^5 b d e^5 + a^6 e^6\right)\right) x^7 +$$

$$\frac{1}{8} a^3 \left(10 A b \left(12 b^6 d^6 + 126 a b^5 d^5 e + 378 a^2 b^4 d^4 e^2 + 420 a^3 b^3 d^3 e^3 + 180 a^4 b^2 d^2 e^4 + 27 a^5 b d e^5 + a^6 e^6\right) +\right.$$

$$\left. a B \left(210 b^6 d^6 + 1512 a b^5 d^5 e + 3150 a^2 b^4 d^4 e^2 + 2400 a^3 b^3 d^3 e^3 + 675 a^4 b^2 d^2 e^4 + 60 a^5 b d e^5 + a^6 e^6\right)\right) x^8 +$$

$$\frac{5}{9} a^2 b \left(9 A b \left(b^6 d^6 + 16 a b^5 d^5 e + 70 a^2 b^4 d^4 e^2 + 112 a^3 b^3 d^3 e^3 + 70 a^4 b^2 d^2 e^4 + 16 a^5 b d e^5 + a^6 e^6\right) +\right.$$

$$\left. 2 a B \left(12 b^6 d^6 + 126 a b^5 d^5 e + 378 a^2 b^4 d^4 e^2 + 420 a^3 b^3 d^3 e^3 + 180 a^4 b^2 d^2 e^4 + 27 a^5 b d e^5 + a^6 e^6\right)\right) x^9 +$$

$$\frac{1}{2} a b^2 \left(9 a B \left(b^6 d^6 + 16 a b^5 d^5 e + 70 a^2 b^4 d^4 e^2 + 112 a^3 b^3 d^3 e^3 + 70 a^4 b^2 d^2 e^4 + 16 a^5 b d e^5 + a^6 e^6\right) +\right.$$

$$\left. 2 A b \left(b^6 d^6 + 27 a b^5 d^5 e + 180 a^2 b^4 d^4 e^2 + 420 a^3 b^3 d^3 e^3 + 378 a^4 b^2 d^2 e^4 + 126 a^5 b d e^5 + 12 a^6 e^6\right)\right) x^{10} +$$

$$\frac{1}{11} b^3 \left(10 a B \left(b^6 d^6 + 27 a b^5 d^5 e + 180 a^2 b^4 d^4 e^2 + 420 a^3 b^3 d^3 e^3 + 378 a^4 b^2 d^2 e^4 + 126 a^5 b d e^5 + 12 a^6 e^6\right) +\right.$$

$$\left. A b \left(b^6 d^6 + 60 a b^5 d^5 e + 675 a^2 b^4 d^4 e^2 + 2400 a^3 b^3 d^3 e^3 + 3150 a^4 b^2 d^2 e^4 + 1512 a^5 b d e^5 + 210 a^6 e^6\right)\right) x^{11} +$$

$$\frac{1}{12} b^4 \left(210 a^6 B e^6 + 252 a^5 b e^5 \left(6 B d + A e\right) + 630 a^4 b^2 d e^4 \left(5 B d + 2 A e\right) + 600 a^3 b^3 d^2 e^3 \left(4 B d + 3 A e\right) +\right.$$

$$\left. 225 a^2 b^4 d^3 e^2 \left(3 B d + 4 A e\right) + 30 a b^5 d^4 e \left(2 B d + 5 A e\right) + b^6 d^5 \left(B d + 6 A e\right)\right) x^{12} + \frac{1}{13} b^5 e$$

$$\left(252 a^5 B e^5 + 210 a^4 b e^4 \left(6 B d + A e\right) + 360 a^3 b^2 d e^3 \left(5 B d + 2 A e\right) + 225 a^2 b^3 d^2 e^2 \left(4 B d + 3 A e\right) + 50 a b^4 d^3 e \left(3 B d + 4 A e\right) + 3 b^5 d^4 \left(2 B d + 5 A e\right)\right)$$

$$x^{13} + \frac{5}{14} b^6 e^2 \left(42 a^4 B e^4 + 24 a^3 b e^3 \left(6 B d + A e\right) + 27 a^2 b^2 d e^2 \left(5 B d + 2 A e\right) + 10 a b^3 d^2 e \left(4 B d + 3 A e\right) + b^4 d^3 \left(3 B d + 4 A e\right)\right) x^{14} +$$

$$\frac{1}{3} b^7 e^3 \left(24 a^3 B e^3 + 9 a^2 b e^2 \left(6 B d + A e\right) + 6 a b^2 d e \left(5 B d + 2 A e\right) + b^3 d^2 \left(4 B d + 3 A e\right)\right) x^{15} +$$

$$\frac{1}{16} b^8 e^4 \left(45 a^2 B e^2 + 10 a b e \left(6 B d + A e\right) + 3 b^2 d \left(5 B d + 2 A e\right)\right) x^{16} +$$

$$\frac{1}{17} b^9 e^5 \left(6 b B d + A b e + 10 a B e\right) x^{17} + \frac{1}{18} b^{10} B e^6 x^{18}$$

Problem 1083: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^{10} (A+B x) (d+e x)^5 \, dx$$

Optimal (type 1, 243 leaves, 2 steps):

$$\frac{(A b-a B) (b d-a e)^5 (a+b x)^{11}}{11 b^7}+\frac{(b d-a e)^4 (b B d+5 A b e-6 a B e) (a+b x)^{12}}{12 b^7}+$$
$$\frac{5 e (b d-a e)^3 (b B d+2 A b e-3 a B e) (a+b x)^{13}}{13 b^7}+\frac{5 e^2 (b d-a e)^2 (b B d+A b e-2 a B e) (a+b x)^{14}}{7 b^7}+$$
$$\frac{e^3 (b d-a e) (2 b B d+A b e-3 a B e) (a+b x)^{15}}{3 b^7}+\frac{e^4 (5 b B d+A b e-6 a B e) (a+b x)^{16}}{16 b^7}+\frac{B e^5 (a+b x)^{17}}{17 b^7}$$

Result (type 1, 1509 leaves):

$$a^{10} A d^5 x + \frac{1}{2} a^9 d^4 \left(a B d + 5 A \left(2 b d + a e\right)\right) x^2 + \frac{5}{3} a^8 d^3 \left(a B d \left(2 b d + a e\right) + A \left(9 b^2 d^2 + 10 a b d e + 2 a^2 e^2\right)\right) x^3 +$$
$$\frac{5}{4} a^7 d^2 \left(a B d \left(9 b^2 d^2 + 10 a b d e + 2 a^2 e^2\right) + A \left(24 b^3 d^3 + 45 a b^2 d^2 e + 20 a^2 b d e^2 + 2 a^3 e^3\right)\right) x^4 +$$
$$a^6 d \left(a B d \left(24 b^3 d^3 + 45 a b^2 d^2 e + 20 a^2 b d e^2 + 2 a^3 e^3\right) + A \left(42 b^4 d^4 + 120 a b^3 d^3 e + 90 a^2 b^2 d^2 e^2 + 20 a^3 b d e^3 + a^4 e^4\right)\right) x^5 +$$
$$\frac{1}{6} a^5 \left(5 a B d \left(42 b^4 d^4 + 120 a b^3 d^3 e + 90 a^2 b^2 d^2 e^2 + 20 a^3 b d e^3 + a^4 e^4\right) + A \left(252 b^5 d^5 + 1050 a b^4 d^4 e + 1200 a^2 b^3 d^3 e^2 + 450 a^3 b^2 d^2 e^3 + 50 a^4 b d e^4 + a^5 e^5\right)\right) x^6 +$$
$$\frac{1}{7} a^4 \left(a B \left(252 b^5 d^5 + 1050 a b^4 d^4 e + 1200 a^2 b^3 d^3 e^2 + 450 a^3 b^2 d^2 e^3 + 50 a^4 b d e^4 + a^5 e^5\right) + 5 A b \left(42 b^5 d^5 + 252 a b^4 d^4 e + 420 a^2 b^3 d^3 e^2 + 240 a^3 b^2 d^2 e^3 + 45 a^4 b d e^4 + 2 a^5 e^5\right)\right) x^7 +$$
$$\frac{5}{8} a^3 b \left(a B \left(42 b^5 d^5 + 252 a b^4 d^4 e + 420 a^2 b^3 d^3 e^2 + 240 a^3 b^2 d^2 e^3 + 45 a^4 b d e^4 + 2 a^5 e^5\right) + 3 A b \left(8 b^5 d^5 + 70 a b^4 d^4 e + 168 a^2 b^3 d^3 e^2 + 140 a^3 b^2 d^2 e^3 + 40 a^4 b d e^4 + 3 a^5 e^5\right)\right) x^8 +$$
$$\frac{5}{3} a^2 b^2 \left(a B \left(8 b^5 d^5 + 70 a b^4 d^4 e + 168 a^2 b^3 d^3 e^2 + 140 a^3 b^2 d^2 e^3 + 40 a^4 b d e^4 + 3 a^5 e^5\right) + A b \left(3 b^5 d^5 + 40 a b^4 d^4 e + 140 a^2 b^3 d^3 e^2 + 168 a^3 b^2 d^2 e^3 + 70 a^4 b d e^4 + 8 a^5 e^5\right)\right) x^9 +$$
$$\frac{1}{2} a b^3 \left(3 a B \left(3 b^5 d^5 + 40 a b^4 d^4 e + 140 a^2 b^3 d^3 e^2 + 168 a^3 b^2 d^2 e^3 + 70 a^4 b d e^4 + 8 a^5 e^5\right) + A b \left(2 b^5 d^5 + 45 a b^4 d^4 e + 240 a^2 b^3 d^3 e^2 + 420 a^3 b^2 d^2 e^3 + 252 a^4 b d e^4 + 42 a^5 e^5\right)\right) x^{10} +$$
$$\frac{1}{11} b^4 \left(5 a B \left(2 b^5 d^5 + 45 a b^4 d^4 e + 240 a^2 b^3 d^3 e^2 + 420 a^3 b^2 d^2 e^3 + 252 a^4 b d e^4 + 42 a^5 e^5\right) + A b \left(b^5 d^5 + 50 a b^4 d^4 e + 450 a^2 b^3 d^3 e^2 + 1200 a^3 b^2 d^2 e^3 + 1050 a^4 b d e^4 + 252 a^5 e^5\right)\right) x^{11} +$$
$$\frac{1}{12} b^5 \left(252 a^5 B e^5 + 450 a^2 b^3 d^2 e^2 \left(B d + A e\right) + 600 a^3 b^2 d e^3 \left(2 B d + A e\right) + 210 a^4 b e^4 \left(5 B d + A e\right) + 50 a b^4 d^3 e \left(B d + 2 A e\right) + b^5 d^4 \left(B d + 5 A e\right)\right) x^{12} +$$
$$\frac{5}{13} b^6 e \left(42 a^4 B e^4 + 20 a b^3 d^2 e \left(B d + A e\right) + 45 a^2 b^2 d e^2 \left(2 B d + A e\right) + 24 a^3 b e^3 \left(5 B d + A e\right) + b^4 d^3 \left(B d + 2 A e\right)\right) x^{13} +$$
$$\frac{5}{14} b^7 e^2 \left(24 a^3 B e^3 + 2 b^3 d^2 \left(B d + A e\right) + 10 a b^2 d e \left(2 B d + A e\right) + 9 a^2 b e^2 \left(5 B d + A e\right)\right) x^{14} +$$
$$\frac{1}{3} b^8 e^3 \left(9 a^2 B e^2 + b^2 d \left(2 B d + A e\right) + 2 a b e \left(5 B d + A e\right)\right) x^{15} +$$
$$\frac{1}{16} b^9 e^4 \left(5 b B d + A b e + 10 a B e\right) x^{16} + \frac{1}{17} b^{10} B e^5 x^{17}$$

Problem 1084: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^{10} (A + B x) (d + e x)^4 \, dx$$

Optimal (type 1, 204 leaves, 2 steps):

$$\frac{(A b-a B)(b d-a e)^4 (a+b x)^{11}}{11 b^6}+\frac{(b d-a e)^3 (b B d+4 A b e-5 a B e)(a+b x)^{12}}{12 b^6}+\frac{2 e (b d-a e)^2 (2 b B d+3 A b e-5 a B e)(a+b x)^{13}}{13 b^6}+\frac{e^2 (b d-a e)(3 b B d+2 A b e-5 a B e)(a+b x)^{14}}{7 b^6}+\frac{e^3 (4 b B d+A b e-5 a B e)(a+b x)^{15}}{15 b^6}+\frac{B e^4 (a+b x)^{16}}{16 b^6}$$

Result (type 1, 1098 leaves):

$$\frac{1}{240240} x \left(8008 a^{10} \left(6 A \left(5 d^4+10 d^3 e x+10 d^2 e^2 x^2+5 d e^3 x^3+e^4 x^4\right)+B x \left(15 d^4+40 d^3 e x+45 d^2 e^2 x^2+24 d e^3 x^3+5 e^4 x^4\right)\right)+\right.$$
$$11440 a^9 b x \left(7 A \left(15 d^4+40 d^3 e x+45 d^2 e^2 x^2+24 d e^3 x^3+5 e^4 x^4\right)+2 B x \left(35 d^4+105 d^3 e x+126 d^2 e^2 x^2+70 d e^3 x^3+15 e^4 x^4\right)\right)+$$
$$12870 a^8 b^2 x^2 \left(8 A \left(35 d^4+105 d^3 e x+126 d^2 e^2 x^2+70 d e^3 x^3+15 e^4 x^4\right)+3 B x \left(70 d^4+224 d^3 e x+280 d^2 e^2 x^2+160 d e^3 x^3+35 e^4 x^4\right)\right)+$$
$$11440 a^7 b^3 x^3 \left(9 A \left(70 d^4+224 d^3 e x+280 d^2 e^2 x^2+160 d e^3 x^3+35 e^4 x^4\right)+4 B x \left(126 d^4+420 d^3 e x+540 d^2 e^2 x^2+315 d e^3 x^3+70 e^4 x^4\right)\right)+$$
$$40040 a^6 b^4 x^4 \left(2 A \left(126 d^4+420 d^3 e x+540 d^2 e^2 x^2+315 d e^3 x^3+70 e^4 x^4\right)+B x \left(210 d^4+720 d^3 e x+945 d^2 e^2 x^2+560 d e^3 x^3+126 e^4 x^4\right)\right)+$$
$$4368 a^5 b^5 x^5 \left(11 A \left(210 d^4+720 d^3 e x+945 d^2 e^2 x^2+560 d e^3 x^3+126 e^4 x^4\right)+6 B x \left(330 d^4+1155 d^3 e x+1540 d^2 e^2 x^2+924 d e^3 x^3+210 e^4 x^4\right)\right)+$$
$$1820 a^4 b^6 x^6 \left(12 A \left(330 d^4+1155 d^3 e x+1540 d^2 e^2 x^2+924 d e^3 x^3+210 e^4 x^4\right)+7 B x \left(495 d^4+1760 d^3 e x+2376 d^2 e^2 x^2+1440 d e^3 x^3+330 e^4 x^4\right)\right)+$$
$$560 a^3 b^7 x^7 \left(13 A \left(495 d^4+1760 d^3 e x+2376 d^2 e^2 x^2+1440 d e^3 x^3+330 e^4 x^4\right)+8 B x \left(715 d^4+2574 d^3 e x+3510 d^2 e^2 x^2+2145 d e^3 x^3+495 e^4 x^4\right)\right)+$$
$$120 a^2 b^8 x^8 \left(14 A \left(715 d^4+2574 d^3 e x+3510 d^2 e^2 x^2+2145 d e^3 x^3+495 e^4 x^4\right)+9 B x \left(1001 d^4+3640 d^3 e x+5005 d^2 e^2 x^2+3080 d e^3 x^3+715 e^4 x^4\right)\right)+80 a b^9$$
$$x^9 \left(3 A \left(1001 d^4+3640 d^3 e x+5005 d^2 e^2 x^2+3080 d e^3 x^3+715 e^4 x^4\right)+2 B x \left(1365 d^4+5005 d^3 e x+6930 d^2 e^2 x^2+4290 d e^3 x^3+1001 e^4 x^4\right)\right)+b^{10}$$
$$\left.x^{10} \left(16 A \left(1365 d^4+5005 d^3 e x+6930 d^2 e^2 x^2+4290 d e^3 x^3+1001 e^4 x^4\right)+11 B x \left(1820 d^4+6720 d^3 e x+9360 d^2 e^2 x^2+5824 d e^3 x^3+1365 e^4 x^4\right)\right)\right)$$

Problem 1085: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^{10} (A+B x)(d+e x)^3 \, dx$$

Optimal (type 1, 159 leaves, 2 steps):

$$\frac{(A b-a B)(b d-a e)^3 (a+b x)^{11}}{11 b^5}+\frac{(b d-a e)^2 (b B d+3 A b e-4 a B e)(a+b x)^{12}}{12 b^5}+\frac{3 e (b d-a e)(b B d+A b e-2 a B e)(a+b x)^{13}}{13 b^5}+\frac{e^2 (3 b B d+A b e-4 a B e)(a+b x)^{14}}{14 b^5}+\frac{B e^3 (a+b x)^{15}}{15 b^5}$$

Result (type 1, 855 leaves):

$$\frac{1}{60060} x \left(3003 a^{10} \left(5 A \left(4 d^3 + 6 d^2 e x + 4 d e^2 x^2 + e^3 x^3\right) + B x \left(10 d^3 + 20 d^2 e x + 15 d e^2 x^2 + 4 e^3 x^3\right)\right) + 10010 a^9 b x \left(3 A \left(10 d^3 + 20 d^2 e x + 15 d e^2 x^2 + 4 e^3 x^3\right) + B x \left(20 d^3 + 45 d^2 e x + 36 d e^2 x^2 + 10 e^3 x^3\right)\right) + 6435 a^8 b^2 x^2 \left(7 A \left(20 d^3 + 45 d^2 e x + 36 d e^2 x^2 + 10 e^3 x^3\right) + 3 B x \left(35 d^3 + 84 d^2 e x + 70 d e^2 x^2 + 20 e^3 x^3\right)\right) + 25740 a^7 b^3 x^3 \left(2 A \left(35 d^3 + 84 d^2 e x + 70 d e^2 x^2 + 20 e^3 x^3\right) + B x \left(56 d^3 + 140 d^2 e x + 120 d e^2 x^2 + 35 e^3 x^3\right)\right) + 5005 a^6 b^4 x^4 \left(9 A \left(56 d^3 + 140 d^2 e x + 120 d e^2 x^2 + 35 e^3 x^3\right) + 5 B x \left(84 d^3 + 216 d^2 e x + 189 d e^2 x^2 + 56 e^3 x^3\right)\right) + 6006 a^5 b^5 x^5 \left(5 A \left(84 d^3 + 216 d^2 e x + 189 d e^2 x^2 + 56 e^3 x^3\right) + 3 B x \left(120 d^3 + 315 d^2 e x + 280 d e^2 x^2 + 84 e^3 x^3\right)\right) + 1365 a^4 b^6 x^6 \left(11 A \left(120 d^3 + 315 d^2 e x + 280 d e^2 x^2 + 84 e^3 x^3\right) + 7 B x \left(165 d^3 + 440 d^2 e x + 396 d e^2 x^2 + 120 e^3 x^3\right)\right) + 1820 a^3 b^7 x^7 \left(3 A \left(165 d^3 + 440 d^2 e x + 396 d e^2 x^2 + 120 e^3 x^3\right) + 2 B x \left(220 d^3 + 594 d^2 e x + 540 d e^2 x^2 + 165 e^3 x^3\right)\right) + 105 a^2 b^8 x^8 \left(13 A \left(220 d^3 + 594 d^2 e x + 540 d e^2 x^2 + 165 e^3 x^3\right) + 9 B x \left(286 d^3 + 780 d^2 e x + 715 d e^2 x^2 + 220 e^3 x^3\right)\right) + 30 a b^9 x^9 \left(7 A \left(286 d^3 + 780 d^2 e x + 715 d e^2 x^2 + 220 e^3 x^3\right) + 5 B x \left(364 d^3 + 1001 d^2 e x + 924 d e^2 x^2 + 286 e^3 x^3\right)\right) + b^{10} x^{10} \left(15 A \left(364 d^3 + 1001 d^2 e x + 924 d e^2 x^2 + 286 e^3 x^3\right) + 11 B x \left(455 d^3 + 1260 d^2 e x + 1170 d e^2 x^2 + 364 e^3 x^3\right)\right)\right)$$

Problem 1086: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^{10} (A + B x) (d + e x)^2 \, dx$$

Optimal (type 1, 118 leaves, 2 steps):

$$\frac{(A b - a B) (b d - a e)^2 (a + b x)^{11}}{11 b^4} + \frac{(b d - a e) (b B d + 2 A b e - 3 a B e) (a + b x)^{12}}{12 b^4} + \frac{e (2 b B d + A b e - 3 a B e) (a + b x)^{13}}{13 b^4} + \frac{B e^2 (a + b x)^{14}}{14 b^4}$$

Result (type 1, 614 leaves):

$$\frac{1}{12012} x \left(1001 a^{10} \left(4 A \left(3 d^2 + 3 d e x + e^2 x^2\right) + B x \left(6 d^2 + 8 d e x + 3 e^2 x^2\right)\right) + 2002 a^9 b x \left(5 A \left(6 d^2 + 8 d e x + 3 e^2 x^2\right) + 2 B x \left(10 d^2 + 15 d e x + 6 e^2 x^2\right)\right) + 9009 a^8 b^2 x^2 \left(2 A \left(10 d^2 + 15 d e x + 6 e^2 x^2\right) + B x \left(15 d^2 + 24 d e x + 10 e^2 x^2\right)\right) + 3432 a^7 b^3 x^3 \left(7 A \left(15 d^2 + 24 d e x + 10 e^2 x^2\right) + 4 B x \left(21 d^2 + 35 d e x + 15 e^2 x^2\right)\right) + 3003 a^6 b^4 x^4 \left(8 A \left(21 d^2 + 35 d e x + 15 e^2 x^2\right) + 5 B x \left(28 d^2 + 48 d e x + 21 e^2 x^2\right)\right) + 6006 a^5 b^5 x^5 \left(3 A \left(28 d^2 + 48 d e x + 21 e^2 x^2\right) + 2 B x \left(36 d^2 + 63 d e x + 28 e^2 x^2\right)\right) + 1001 a^4 b^6 x^6 \left(10 A \left(36 d^2 + 63 d e x + 28 e^2 x^2\right) + 7 B x \left(45 d^2 + 80 d e x + 36 e^2 x^2\right)\right) + 364 a^3 b^7 x^7 \left(11 A \left(45 d^2 + 80 d e x + 36 e^2 x^2\right) + 8 B x \left(55 d^2 + 99 d e x + 45 e^2 x^2\right)\right) + 273 a^2 b^8 x^8 \left(4 A \left(55 d^2 + 99 d e x + 45 e^2 x^2\right) + 3 B x \left(66 d^2 + 120 d e x + 55 e^2 x^2\right)\right) + 14 a b^9 x^9 \left(13 A \left(66 d^2 + 120 d e x + 55 e^2 x^2\right) + 10 B x \left(78 d^2 + 143 d e x + 66 e^2 x^2\right)\right) + b^{10} x^{10} \left(14 A \left(78 d^2 + 143 d e x + 66 e^2 x^2\right) + 11 B x \left(91 d^2 + 168 d e x + 78 e^2 x^2\right)\right)\right)$$

Problem 1087: Result more than twice size of optimal antiderivative.

$$\int (a + b x)^{10} (A + B x) (d + e x) \, dx$$

Optimal (type 1, 75 leaves, 2 steps):

$$\frac{(A b-a B)(b d-a e)(a+b x)^{11}}{11 b^3}+\frac{(b B d+A b e-2 a B e)(a+b x)^{12}}{12 b^3}+\frac{B e (a+b x)^{13}}{13 b^3}$$

Result (type 1, 383 leaves):

$$\frac{1}{66} a b^9 x^{10} \left(66 A d+60 B d x+60 A e x+55 B e x^2\right)+\frac{1}{22} a^2 b^8 x^9 \left(110 A d+99 B d x+99 A e x+90 B e x^2\right)+\frac{1}{6} a^{10} x (3 A (2 d+e x)+B x (3 d+2 e x))+\frac{3}{4} a^8 b^2 x^3 (5 A (4 d+3 e x)+3 B x (5 d+4 e x))+\frac{5}{6} a^9 b x^2 (B x (4 d+3 e x)+A (6 d+4 e x))+2 a^7 b^3 x^4 (3 A (5 d+4 e x)+2 B x (6 d+5 e x))+a^6 b^4 x^5 (7 A (6 d+5 e x)+5 B x (7 d+6 e x))+\frac{3}{2} a^5 b^5 x^6 (4 A (7 d+6 e x)+3 B x (8 d+7 e x))+\frac{5}{12} a^4 b^6 x^7 (9 A (8 d+7 e x)+7 B x (9 d+8 e x))+\frac{1}{3} a^3 b^7 x^8 (5 A (9 d+8 e x)+4 B x (10 d+9 e x))+\frac{b^{10} x^{11} (13 A (12 d+11 e x)+11 B x (13 d+12 e x))}{1716}$$

Problem 1088: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^{10} (A+B x) \, dx$$

Optimal (type 1, 38 leaves, 2 steps):

$$\frac{(A b-a B)(a+b x)^{11}}{11 b^2}+\frac{B (a+b x)^{12}}{12 b^2}$$

Result (type 1, 198 leaves):

$$\frac{1}{132} x \left(66 a^{10} (2 A+B x)+220 a^9 b x (3 A+2 B x)+495 a^8 b^2 x^2 (4 A+3 B x)+792 a^7 b^3 x^3 (5 A+4 B x)+924 a^6 b^4 x^4 (6 A+5 B x)+792 a^5 b^5 x^5 (7 A+6 B x)+495 a^4 b^6 x^6 (8 A+7 B x)+220 a^3 b^7 x^7 (9 A+8 B x)+66 a^2 b^8 x^8 (10 A+9 B x)+12 a b^9 x^9 (11 A+10 B x)+b^{10} x^{10} (12 A+11 B x)\right)$$

Problem 1089: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{10} (A+B x)}{d+e x} \, dx$$

Optimal (type 3, 348 leaves, 2 steps):

$$\frac{b\,(b d-a e)^9\,(B d-A e)\,x}{e^{11}}-\frac{(b d-a e)^8\,(B d-A e)\,(a+b x)^2}{2 e^{10}}+\frac{(b d-a e)^7\,(B d-A e)\,(a+b x)^3}{3 e^9}-\frac{(b d-a e)^6\,(B d-A e)\,(a+b x)^4}{4 e^8}+\frac{(b d-a e)^5\,(B d-A e)\,(a+b x)^5}{5 e^7}-\frac{(b d-a e)^4\,(B d-A e)\,(a+b x)^6}{6 e^6}+\frac{(b d-a e)^3\,(B d-A e)\,(a+b x)^7}{7 e^5}-\frac{(b d-a e)^2\,(B d-A e)\,(a+b x)^8}{8 e^4}+\frac{(b d-a e)\,(B d-A e)\,(a+b x)^9}{9 e^3}-\frac{(B d-A e)\,(a+b x)^{10}}{10 e^2}+\frac{B\,(a+b x)^{11}}{11 b e}-\frac{(b d-a e)^{10}\,(B d-A e)\,\mathrm{Log}[d+e x]}{e^{12}}$$

Result (type 3, 1252 leaves) :

$$\frac{1}{27720 e^{11}} x \Big(27720 a^{10} B e^{10}+138600 a^9 b e^9 (-2 B d+2 A e+B e x)+207900 a^8 b^2 e^8 \big(3 A e (-2 d+e x)+B (6 d^2-3 d e x+2 e^2 x^2)\big)+$$
$$277200 a^7 b^3 e^7 \big(2 A e (6 d^2-3 d e x+2 e^2 x^2)+B (-12 d^3+6 d^2 e x-4 d e^2 x^2+3 e^3 x^3)\big)+$$
$$97020 a^6 b^4 e^6 \big(5 A e (-12 d^3+6 d^2 e x-4 d e^2 x^2+3 e^3 x^3)+B (60 d^4-30 d^3 e x+20 d^2 e^2 x^2-15 d e^3 x^3+12 e^4 x^4)\big)+$$
$$116424 a^5 b^5 e^5 \big(A e (60 d^4-30 d^3 e x+20 d^2 e^2 x^2-15 d e^3 x^3+12 e^4 x^4)+B (-60 d^5+30 d^4 e x-20 d^3 e^2 x^2+15 d^2 e^3 x^3-12 d e^4 x^4+10 e^5 x^5)\big)+$$
$$13860 a^4 b^6 e^4 \big(7 A e (-60 d^5+30 d^4 e x-20 d^3 e^2 x^2+15 d^2 e^3 x^3-12 d e^4 x^4+10 e^5 x^5)+$$
$$B (420 d^6-210 d^5 e x+140 d^4 e^2 x^2-105 d^3 e^3 x^3+84 d^2 e^4 x^4-70 d e^5 x^5+60 e^6 x^6)\big)+$$
$$3960 a^3 b^7 e^3 \big(2 A e (420 d^6-210 d^5 e x+140 d^4 e^2 x^2-105 d^3 e^3 x^3+84 d^2 e^4 x^4-70 d e^5 x^5+60 e^6 x^6)+$$
$$B (-840 d^7+420 d^6 e x-280 d^5 e^2 x^2+210 d^4 e^3 x^3-168 d^3 e^4 x^4+140 d^2 e^5 x^5-120 d e^6 x^6+105 e^7 x^7)\big)+$$
$$495 a^2 b^8 e^2 \big(3 A e (-840 d^7+420 d^6 e x-280 d^5 e^2 x^2+210 d^4 e^3 x^3-168 d^3 e^4 x^4+140 d^2 e^5 x^5-120 d e^6 x^6+105 e^7 x^7)+$$
$$B (2520 d^8-1260 d^7 e x+840 d^6 e^2 x^2-630 d^5 e^3 x^3+504 d^4 e^4 x^4-420 d^3 e^5 x^5+360 d^2 e^6 x^6-315 d e^7 x^7+280 e^8 x^8)\big)+$$
$$110 a b^9 e \big(A e (2520 d^8-1260 d^7 e x+840 d^6 e^2 x^2-630 d^5 e^3 x^3+504 d^4 e^4 x^4-420 d^3 e^5 x^5+360 d^2 e^6 x^6-315 d e^7 x^7+280 e^8 x^8)+$$
$$B (-2520 d^9+1260 d^8 e x-840 d^7 e^2 x^2+630 d^6 e^3 x^3-504 d^5 e^4 x^4+420 d^4 e^5 x^5-360 d^3 e^6 x^6+315 d^2 e^7 x^7-280 d e^8 x^8+252 e^9 x^9)\big)+$$
$$b^{10} \big(11 A e (-2520 d^9+1260 d^8 e x-840 d^7 e^2 x^2+630 d^6 e^3 x^3-504 d^5 e^4 x^4+420 d^4 e^5 x^5-360 d^3 e^6 x^6+315 d^2 e^7 x^7-280 d e^8 x^8+252 e^9 x^9)+$$
$$B (27720 d^{10}-13860 d^9 e x+9240 d^8 e^2 x^2-6930 d^7 e^3 x^3+5544 d^6 e^4 x^4-4620 d^5 e^5 x^5+3960 d^4 e^6 x^6-$$
$$3465 d^3 e^7 x^7+3080 d^2 e^8 x^8-2772 d e^9 x^9+2520 e^{10} x^{10})\big)\Big)+\frac{(b d-a e)^{10}\,(-B d+A e)\,\mathrm{Log}[d+e x]}{e^{12}}$$

Problem 1090: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{10}\,(A+B x)}{(d+e x)^2}\,dx$$

Optimal (type 3, 445 leaves, 2 steps) :

$$-\frac{5 b (b d-a e)^8 (11 b B d-9 A b e-2 a B e) x}{e^{11}}+\frac{(b d-a e)^{10} (B d-A e)}{e^{12} (d+e x)}+\frac{15 b^2 (b d-a e)^7 (11 b B d-8 A b e-3 a B e) (d+e x)^2}{2 e^{12}}-\frac{10 b^3 (b d-a e)^6 (11 b B d-7 A b e-4 a B e) (d+e x)^3}{e^{12}}+\frac{21 b^4 (b d-a e)^5 (11 b B d-6 A b e-5 a B e) (d+e x)^4}{2 e^{12}}-\frac{42 b^5 (b d-a e)^4 (11 b B d-5 A b e-6 a B e) (d+e x)^5}{5 e^{12}}+\frac{5 b^6 (b d-a e)^3 (11 b B d-4 A b e-7 a B e) (d+e x)^6}{e^{12}}-\frac{15 b^7 (b d-a e)^2 (11 b B d-3 A b e-8 a B e) (d+e x)^7}{7 e^{12}}+\frac{5 b^8 (b d-a e) (11 b B d-2 A b e-9 a B e) (d+e x)^8}{8 e^{12}}-\frac{b^9 (11 b B d-A b e-10 a B e) (d+e x)^9}{9 e^{12}}+\frac{b^{10} B (d+e x)^{10}}{10 e^{12}}+\frac{(b d-a e)^9 (11 b B d-10 A b e-a B e) \mathrm{Log}[d+e x]}{e^{12}}$$

Result (type 3, 1486 leaves) :

$$\frac{1}{2520 e^{12} (d+e x)} \Big(-2520 a^{10} e^{10} (-B d+A e)+ 25200 a^9 b e^9 \left(A d e+B \left(-d^2+d e x+e^2 x^2\right)\right)+56700 a^8 b^2 e^8 \left(2 A e \left(-d^2+d e x+e^2 x^2\right)+B \left(2 d^3-4 d^2 e x-3 d e^2 x^2+e^3 x^3\right)\right)+ 50400 a^7 b^3 e^7 \left(3 A e \left(2 d^3-4 d^2 e x-3 d e^2 x^2+e^3 x^3\right)+2 B \left(-3 d^4+9 d^3 e x+6 d^2 e^2 x^2-2 d e^3 x^3+e^4 x^4\right)\right)+ 44100 a^6 b^4 e^6 \left(4 A e \left(-3 d^4+9 d^3 e x+6 d^2 e^2 x^2-2 d e^3 x^3+e^4 x^4\right)+B \left(12 d^5-48 d^4 e x-30 d^3 e^2 x^2+10 d^2 e^3 x^3-5 d e^4 x^4+3 e^5 x^5\right)\right)+10584 a^5 b^5 e^5 \left(5 A e \left(12 d^5-48 d^4 e x-30 d^3 e^2 x^2+10 d^2 e^3 x^3-5 d e^4 x^4+3 e^5 x^5\right)-6 B \left(10 d^6-50 d^5 e x-30 d^4 e^2 x^2+10 d^3 e^3 x^3-5 d^2 e^4 x^4+3 d e^5 x^5-2 e^6 x^6\right)\right)+ 8820 a^4 b^6 e^4 \left(6 A e \left(-10 d^6+50 d^5 e x+30 d^4 e^2 x^2-10 d^3 e^3 x^3+5 d^2 e^4 x^4-3 d e^5 x^5+2 e^6 x^6\right)+ B \left(60 d^7-360 d^6 e x-210 d^5 e^2 x^2+70 d^4 e^3 x^3-35 d^3 e^4 x^4+21 d^2 e^5 x^5-14 d e^6 x^6+10 e^7 x^7\right)\right)+ 720 a^3 b^7 e^3 \left(7 A e \left(60 d^7-360 d^6 e x-210 d^5 e^2 x^2+70 d^4 e^3 x^3-35 d^3 e^4 x^4+21 d^2 e^5 x^5-14 d e^6 x^6+10 e^7 x^7\right)- 4 B \left(105 d^8-735 d^7 e x-420 d^6 e^2 x^2+140 d^5 e^3 x^3-70 d^4 e^4 x^4+42 d^3 e^5 x^5-28 d^2 e^6 x^6+20 d e^7 x^7-15 e^8 x^8\right)\right)+ 135 a^2 b^8 e^2 \left(8 A e \left(-105 d^8+735 d^7 e x+420 d^6 e^2 x^2-140 d^5 e^3 x^3+70 d^4 e^4 x^4-42 d^3 e^5 x^5+28 d^2 e^6 x^6-20 d e^7 x^7+15 e^8 x^8\right)+ 3 B \left(280 d^9-2240 d^8 e x-1260 d^7 e^2 x^2+420 d^6 e^3 x^3-210 d^5 e^4 x^4+126 d^4 e^5 x^5-84 d^3 e^6 x^6+60 d^2 e^7 x^7-45 d e^8 x^8+35 e^9 x^9\right)\right)+ 10 a b^9 e \left(9 A e \left(280 d^9-2240 d^8 e x-1260 d^7 e^2 x^2+420 d^6 e^3 x^3-210 d^5 e^4 x^4+126 d^4 e^5 x^5-84 d^3 e^6 x^6+60 d^2 e^7 x^7-45 d e^8 x^8+35 e^9 x^9\right)-10 B \left(252 d^{10}-2268 d^9 e x-1260 d^8 e^2 x^2+420 d^7 e^3 x^3-210 d^6 e^4 x^4+126 d^5 e^5 x^5-84 d^4 e^6 x^6+60 d^3 e^7 x^7-45 d^2 e^8 x^8+35 d e^9 x^9-28 e^{10} x^{10}\right)\right)+b^{10} \left(10 A e \left(-252 d^{10}+2268 d^9 e x+1260 d^8 e^2 x^2-420 d^7 e^3 x^3+210 d^6 e^4 x^4-126 d^5 e^5 x^5+84 d^4 e^6 x^6-60 d^3 e^7 x^7+45 d^2 e^8 x^8-35 d e^9 x^9+28 e^{10} x^{10}\right)+ B \left(2520 d^{11}-25200 d^{10} e x-13860 d^9 e^2 x^2+4620 d^8 e^3 x^3-2310 d^7 e^4 x^4+1386 d^6 e^5 x^5-924 d^5 e^6 x^6+660 d^4 e^7 x^7- 495 d^3 e^8 x^8+385 d^2 e^9 x^9-308 d e^{10} x^{10}+252 e^{11} x^{11}\right)\right)+2520 (b d-a e)^9 (11 b B d-10 A b e-a B e) (d+e x) \mathrm{Log}[d+e x]\Big)$$

Problem 1091: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{10} (A+B x)}{(d+e x)^3} \, dx$$

Optimal (type 3, 445 leaves, 2 steps) :

$$\frac{15 b^2 (b d-a e)^7 (11 b B d-8 A b e-3 a B e) x}{e^{11}}+\frac{(b d-a e)^{10} (B d-A e)}{2 e^{12} (d+e x)^2}-\frac{(b d-a e)^9 (11 b B d-10 A b e-a B e)}{e^{12} (d+e x)}-$$

$$\frac{15 b^3 (b d-a e)^6 (11 b B d-7 A b e-4 a B e) (d+e x)^2}{e^{12}}+\frac{14 b^4 (b d-a e)^5 (11 b B d-6 A b e-5 a B e) (d+e x)^3}{e^{12}}-$$

$$\frac{21 b^5 (b d-a e)^4 (11 b B d-5 A b e-6 a B e) (d+e x)^4}{2 e^{12}}+\frac{6 b^6 (b d-a e)^3 (11 b B d-4 A b e-7 a B e) (d+e x)^5}{e^{12}}-$$

$$\frac{5 b^7 (b d-a e)^2 (11 b B d-3 A b e-8 a B e) (d+e x)^6}{2 e^{12}}+\frac{5 b^8 (b d-a e) (11 b B d-2 A b e-9 a B e) (d+e x)^7}{7 e^{12}}-$$

$$\frac{b^9 (11 b B d-A b e-10 a B e) (d+e x)^8}{8 e^{12}}+\frac{b^{10} B (d+e x)^9}{9 e^{12}}-\frac{5 b (b d-a e)^8 (11 b B d-9 A b e-2 a B e) \text{Log}[d+e x]}{e^{12}}$$

Result (type 3, 1480 leaves):

$$\frac{1}{504 e^{12} (d+e x)^2}\Big(-252 a^{10} e^{10} (A e+B (d+2 e x))-$$
$$2520 a^9 b e^9 (A e (d+2 e x)-B d (3 d+4 e x))+11340 a^8 b^2 e^8 (A d e (3 d+4 e x)+B (-5 d^3-4 d^2 e x+4 d e^2 x^2+2 e^3 x^3))+$$
$$30240 a^7 b^3 e^7 (A e (-5 d^3-4 d^2 e x+4 d e^2 x^2+2 e^3 x^3)+B (7 d^4+2 d^3 e x-11 d^2 e^2 x^2-4 d e^3 x^3+e^4 x^4))+$$
$$17640 a^6 b^4 e^6 (3 A e (7 d^4+2 d^3 e x-11 d^2 e^2 x^2-4 d e^3 x^3+e^4 x^4)+B (-27 d^5+6 d^4 e x+63 d^3 e^2 x^2+20 d^2 e^3 x^3-5 d e^4 x^4+2 e^5 x^5))+10584 a^5 b^5 e^5$$
$$(2 A e (-27 d^5+6 d^4 e x+63 d^3 e^2 x^2+20 d^2 e^3 x^3-5 d e^4 x^4+2 e^5 x^5)+3 B (22 d^6-16 d^5 e x-68 d^4 e^2 x^2-20 d^3 e^3 x^3+5 d^2 e^4 x^4-2 d e^5 x^5+e^6 x^6))+$$
$$5292 a^4 b^6 e^4 (5 A e (22 d^6-16 d^5 e x-68 d^4 e^2 x^2-20 d^3 e^3 x^3+5 d^2 e^4 x^4-2 d e^5 x^5+e^6 x^6)+$$
$$B (-130 d^7+160 d^6 e x+500 d^5 e^2 x^2+140 d^4 e^3 x^3-35 d^3 e^4 x^4+14 d^2 e^5 x^5-7 d e^6 x^6+4 e^7 x^7))+$$
$$1008 a^3 b^7 e^3 (3 A e (-130 d^7+160 d^6 e x+500 d^5 e^2 x^2+140 d^4 e^3 x^3-35 d^3 e^4 x^4+14 d^2 e^5 x^5-7 d e^6 x^6+4 e^7 x^7)+$$
$$2 B (225 d^8-390 d^7 e x-1035 d^6 e^2 x^2-280 d^5 e^3 x^3+70 d^4 e^4 x^4-28 d^3 e^5 x^5+14 d^2 e^6 x^6-8 d e^7 x^7+5 e^8 x^8))+$$
$$108 a^2 b^8 e^2 (7 A e (225 d^8-390 d^7 e x-1035 d^6 e^2 x^2-280 d^5 e^3 x^3+70 d^4 e^4 x^4-28 d^3 e^5 x^5+14 d^2 e^6 x^6-8 d e^7 x^7+5 e^8 x^8)-$$
$$3 B (595 d^9-1330 d^8 e x-3185 d^7 e^2 x^2-840 d^6 e^3 x^3+210 d^5 e^4 x^4-84 d^4 e^5 x^5+42 d^3 e^6 x^6-24 d^2 e^7 x^7+15 d e^8 x^8-10 e^9 x^9))+$$
$$18 a b^9 e (4 A e (-595 d^9+1330 d^8 e x+3185 d^7 e^2 x^2+840 d^6 e^3 x^3-210 d^5 e^4 x^4+84 d^4 e^5 x^5-42 d^3 e^6 x^6+24 d^2 e^7 x^7-15 d e^8 x^8+10 e^9 x^9)+$$
$$5 B (532 d^{10}-1456 d^9 e x-3248 d^8 e^2 x^2-840 d^7 e^3 x^3+210 d^6 e^4 x^4-84 d^5 e^5 x^5+42 d^4 e^6 x^6-24 d^3 e^7 x^7+15 d^2 e^8 x^8-10 d e^9 x^9+7 e^{10} x^{10}))+$$
$$b^{10} (9 A e (532 d^{10}-1456 d^9 e x-3248 d^8 e^2 x^2-840 d^7 e^3 x^3+210 d^6 e^4 x^4-84 d^5 e^5 x^5+42 d^4 e^6 x^6-24 d^3 e^7 x^7+15 d^2 e^8 x^8-10 d e^9 x^9+7 e^{10} x^{10})+$$
$$B (-5292 d^{11}+17136 d^{10} e x+36288 d^9 e^2 x^2+9240 d^8 e^3 x^3-2310 d^7 e^4 x^4+924 d^6 e^5 x^5-462 d^5 e^6 x^6+264 d^4 e^7 x^7-$$
$$165 d^3 e^8 x^8+110 d^2 e^9 x^9-77 d e^{10} x^{10}+56 e^{11} x^{11}))-2520 b (b d-a e)^8 (11 b B d-9 A b e-2 a B e) (d+e x)^2 \text{Log}[d+e x]\Big)$$

Problem 1098: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{10} (A+B x)}{(d+e x)^{10}} \, dx$$

Optimal (type 3, 441 leaves, 2 steps):

$$-\frac{b^9 (10 b B d - A b e - 10 a B e) x}{e^{11}} + \frac{b^{10} B x^2}{2 e^{10}} + \frac{(b d - a e)^{10} (B d - A e)}{9 e^{12} (d + e x)^9} - \frac{(b d - a e)^9 (11 b B d - 10 A b e - a B e)}{8 e^{12} (d + e x)^8} + \frac{5 b (b d - a e)^8 (11 b B d - 9 A b e - 2 a B e)}{7 e^{12} (d + e x)^7} - \frac{5 b^2 (b d - a e)^7 (11 b B d - 8 A b e - 3 a B e)}{2 e^{12} (d + e x)^6} + \frac{6 b^3 (b d - a e)^6 (11 b B d - 7 A b e - 4 a B e)}{e^{12} (d + e x)^5} - \frac{21 b^4 (b d - a e)^5 (11 b B d - 6 A b e - 5 a B e)}{2 e^{12} (d + e x)^4} + \frac{14 b^5 (b d - a e)^4 (11 b B d - 5 A b e - 6 a B e)}{e^{12} (d + e x)^3} - \frac{15 b^6 (b d - a e)^3 (11 b B d - 4 A b e - 7 a B e)}{e^{12} (d + e x)^2} + \frac{15 b^7 (b d - a e)^2 (11 b B d - 3 A b e - 8 a B e)}{e^{12} (d + e x)} + \frac{5 b^8 (b d - a e) (11 b B d - 2 A b e - 9 a B e) \text{Log}[d + e x]}{e^{12}}$$

Result (type 3, 1460 leaves) :

$$-\frac{1}{504 e^{12} (d + e x)^9} \Big(7 a^{10} e^{10} (8 A e + B (d + 9 e x)) + 10 a^9 b e^9 (7 A e (d + 9 e x) + 2 B (d^2 + 9 d e x + 36 e^2 x^2)) + 45 a^8 b^2 e^8 (2 A e (d^2 + 9 d e x + 36 e^2 x^2) + B (d^3 + 9 d^2 e x + 36 d e^2 x^2 + 84 e^3 x^3)) + 24 a^7 b^3 e^7 (5 A e (d^3 + 9 d^2 e x + 36 d e^2 x^2 + 84 e^3 x^3) + 4 B (d^4 + 9 d^3 e x + 36 d^2 e^2 x^2 + 84 d e^3 x^3 + 126 e^4 x^4)) + 42 a^6 b^4 e^6 (4 A e (d^4 + 9 d^3 e x + 36 d^2 e^2 x^2 + 84 d e^3 x^3 + 126 e^4 x^4) + 5 B (d^5 + 9 d^4 e x + 36 d^3 e^2 x^2 + 84 d^2 e^3 x^3 + 126 d e^4 x^4 + 126 e^5 x^5)) + 252 a^5 b^5 e^5 (A e (d^5 + 9 d^4 e x + 36 d^3 e^2 x^2 + 84 d^2 e^3 x^3 + 126 d e^4 x^4 + 126 e^5 x^5) + 2 B (d^6 + 9 d^5 e x + 36 d^4 e^2 x^2 + 84 d^3 e^3 x^3 + 126 d^2 e^4 x^4 + 126 d e^5 x^5 + 84 e^6 x^6)) + 210 a^4 b^6 e^4 (2 A e (d^6 + 9 d^5 e x + 36 d^4 e^2 x^2 + 84 d^3 e^3 x^3 + 126 d^2 e^4 x^4 + 126 d e^5 x^5 + 84 e^6 x^6) + 7 B (d^7 + 9 d^6 e x + 36 d^5 e^2 x^2 + 84 d^4 e^3 x^3 + 126 d^3 e^4 x^4 + 126 d^2 e^5 x^5 + 84 d e^6 x^6 + 36 e^7 x^7)) + 840 a^3 b^7 e^3 (A e (d^7 + 9 d^6 e x + 36 d^5 e^2 x^2 + 84 d^4 e^3 x^3 + 126 d^3 e^4 x^4 + 126 d^2 e^5 x^5 + 84 d e^6 x^6 + 36 e^7 x^7) + 8 B (d^8 + 9 d^7 e x + 36 d^6 e^2 x^2 + 84 d^5 e^3 x^3 + 126 d^4 e^4 x^4 + 126 d^3 e^5 x^5 + 84 d^2 e^6 x^6 + 36 d e^7 x^7 + 9 e^8 x^8)) - 9 a^2 b^8 e^2 (-280 A e (d^8 + 9 d^7 e x + 36 d^6 e^2 x^2 + 84 d^5 e^3 x^3 + 126 d^4 e^4 x^4 + 126 d^3 e^5 x^5 + 84 d^2 e^6 x^6 + 36 d e^7 x^7 + 9 e^8 x^8) + B d (7129 d^8 + 61641 d^7 e x + 235224 d^6 e^2 x^2 + 518616 d^5 e^3 x^3 + 725004 d^4 e^4 x^4 + 661500 d^3 e^5 x^5 + 388080 d^2 e^6 x^6 + 136080 d e^7 x^7 + 22680 e^8 x^8)) - 2 a b^9 e (A d e (7129 d^8 + 61641 d^7 e x + 235224 d^6 e^2 x^2 + 518616 d^5 e^3 x^3 + 725004 d^4 e^4 x^4 + 661500 d^3 e^5 x^5 + 388080 d^2 e^6 x^6 + 136080 d e^7 x^7 + 22680 e^8 x^8) - 10 B (4861 d^{10} + 41229 d^9 e x + 153576 d^8 e^2 x^2 + 328104 d^7 e^3 x^3 + 439236 d^6 e^4 x^4 + 375732 d^5 e^5 x^5 + 197568 d^4 e^6 x^6 + 54432 d^3 e^7 x^7 + 2268 d^2 e^8 x^8 - 2268 d e^9 x^9 - 252 e^{10} x^{10})) - b^{10} (-2 A e (4861 d^{10} + 41229 d^9 e x + 153576 d^8 e^2 x^2 + 328104 d^7 e^3 x^3 + 439236 d^6 e^4 x^4 + 375732 d^5 e^5 x^5 + 197568 d^4 e^6 x^6 + 54432 d^3 e^7 x^7 + 2268 d^2 e^8 x^8 - 2268 d e^9 x^9 - 252 e^{10} x^{10}) + B (42131 d^{11} + 351459 d^{10} e x + 1281096 d^9 e^2 x^2 + 2656584 d^8 e^3 x^3 + 3402756 d^7 e^4 x^4 + 2704212 d^6 e^5 x^5 + 1220688 d^5 e^6 x^6 + 190512 d^4 e^7 x^7 - 77112 d^3 e^8 x^8 - 36288 d^2 e^9 x^9 - 2772 d e^{10} x^{10} + 252 e^{11} x^{11})) - 2520 b^8 (b d - a e) (11 b B d - 2 A b e - 9 a B e) (d + e x)^9 \text{Log}[d + e x]\Big)$$

Problem 1099: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + b x)^{10} (A + B x)}{(d + e x)^{11}} \, dx$$

Optimal (type 3, 446 leaves, 2 steps):

$$\frac{b^{10} B x}{e^{11}}+\frac{(b d-a e)^{10} (B d-A e)}{10 e^{12} (d+e x)^{10}}-\frac{(b d-a e)^9 (11 b B d-10 A b e-a B e)}{9 e^{12} (d+e x)^9}+\frac{5 b (b d-a e)^8 (11 b B d-9 A b e-2 a B e)}{8 e^{12} (d+e x)^8}-\frac{15 b^2 (b d-a e)^7 (11 b B d-8 A b e-3 a B e)}{7 e^{12} (d+e x)^7}+\frac{5 b^3 (b d-a e)^6 (11 b B d-7 A b e-4 a B e)}{e^{12} (d+e x)^6}-\frac{42 b^4 (b d-a e)^5 (11 b B d-6 A b e-5 a B e)}{5 e^{12} (d+e x)^5}+\frac{21 b^5 (b d-a e)^4 (11 b B d-5 A b e-6 a B e)}{2 e^{12} (d+e x)^4}-\frac{10 b^6 (b d-a e)^3 (11 b B d-4 A b e-7 a B e)}{e^{12} (d+e x)^3}+\frac{15 b^7 (b d-a e)^2 (11 b B d-3 A b e-8 a B e)}{2 e^{12} (d+e x)^2}-\frac{5 b^8 (b d-a e) (11 b B d-2 A b e-9 a B e)}{e^{12} (d+e x)}-\frac{b^9 (11 b B d-A b e-10 a B e) \text{Log}[d+e x]}{e^{12}}$$

Result (type 3, 1447 leaves):

$$-\frac{1}{2520 e^{12} (d+e x)^{10}}\Big(28 a^{10} e^{10} (9 A e+B (d+10 e x))+70 a^9 b e^9 (4 A e (d+10 e x)+B (d^2+10 d e x+45 e^2 x^2))+$$
$$45 a^8 b^2 e^8 (7 A e (d^2+10 d e x+45 e^2 x^2)+3 B (d^3+10 d^2 e x+45 d e^2 x^2+120 e^3 x^3))+$$
$$120 a^7 b^3 e^7 (3 A e (d^3+10 d^2 e x+45 d e^2 x^2+120 e^3 x^3)+2 B (d^4+10 d^3 e x+45 d^2 e^2 x^2+120 d e^3 x^3+210 e^4 x^4))+$$
$$420 a^6 b^4 e^6 (A e (d^4+10 d^3 e x+45 d^2 e^2 x^2+120 d e^3 x^3+210 e^4 x^4)+B (d^5+10 d^4 e x+45 d^3 e^2 x^2+120 d^2 e^3 x^3+210 d e^4 x^4+252 e^5 x^5))+$$
$$252 a^5 b^5 e^5 (2 A e (d^5+10 d^4 e x+45 d^3 e^2 x^2+120 d^2 e^3 x^3+210 d e^4 x^4+252 e^5 x^5)+$$
$$3 B (d^6+10 d^5 e x+45 d^4 e^2 x^2+120 d^3 e^3 x^3+210 d^2 e^4 x^4+252 d e^5 x^5+210 e^6 x^6))+$$
$$210 a^4 b^6 e^4 (3 A e (d^6+10 d^5 e x+45 d^4 e^2 x^2+120 d^3 e^3 x^3+210 d^2 e^4 x^4+252 d e^5 x^5+210 e^6 x^6)+$$
$$7 B (d^7+10 d^6 e x+45 d^5 e^2 x^2+120 d^4 e^3 x^3+210 d^3 e^4 x^4+252 d^2 e^5 x^5+210 d e^6 x^6+120 e^7 x^7))+$$
$$840 a^3 b^7 e^3 (A e (d^7+10 d^6 e x+45 d^5 e^2 x^2+120 d^4 e^3 x^3+210 d^3 e^4 x^4+252 d^2 e^5 x^5+210 d e^6 x^6+120 e^7 x^7)+$$
$$4 B (d^8+10 d^7 e x+45 d^6 e^2 x^2+120 d^5 e^3 x^3+210 d^4 e^4 x^4+252 d^3 e^5 x^5+210 d^2 e^6 x^6+120 d e^7 x^7+45 e^8 x^8))+$$
$$1260 a^2 b^8 e^2 (A e (d^8+10 d^7 e x+45 d^6 e^2 x^2+120 d^5 e^3 x^3+210 d^4 e^4 x^4+252 d^3 e^5 x^5+210 d^2 e^6 x^6+120 d e^7 x^7+45 e^8 x^8)+$$
$$9 B (d^9+10 d^8 e x+45 d^7 e^2 x^2+120 d^6 e^3 x^3+210 d^5 e^4 x^4+252 d^4 e^5 x^5+210 d^3 e^6 x^6+120 d^2 e^7 x^7+45 d e^8 x^8+10 e^9 x^9))-$$
$$10 a b^9 e (-252 A e (d^9+10 d^8 e x+45 d^7 e^2 x^2+120 d^6 e^3 x^3+210 d^5 e^4 x^4+252 d^4 e^5 x^5+210 d^3 e^6 x^6+120 d^2 e^7 x^7+45 d e^8 x^8+10 e^9 x^9)+$$
$$B d (7381 d^9+71290 d^8 e x+308205 d^7 e^2 x^2+784080 d^6 e^3 x^3+1296540 d^5 e^4 x^4+1450008 d^4 e^5 x^5+1102500 d^3 e^6 x^6+$$
$$554400 d^2 e^7 x^7+170100 d e^8 x^8+25200 e^9 x^9))-b^{10} (A d e (7381 d^9+71290 d^8 e x+308205 d^7 e^2 x^2+784080 d^6 e^3 x^3+$$
$$1296540 d^5 e^4 x^4+1450008 d^4 e^5 x^5+1102500 d^3 e^6 x^6+554400 d^2 e^7 x^7+170100 d e^8 x^8+25200 e^9 x^9)-$$
$$B (55991 d^{11}+532190 d^{10} e x+2256255 d^9 e^2 x^2+5600880 d^8 e^3 x^3+8969940 d^7 e^4 x^4+9599688 d^6 e^5 x^5+6835500 d^5 e^6 x^6+3074400 d^4 e^7 x^7+$$
$$737100 d^3 e^8 x^8+25200 d^2 e^9 x^9-25200 d e^{10} x^{10}-2520 e^{11} x^{11}))+2520 b^9 (11 b B d-A b e-10 a B e) (d+e x)^{10} \text{Log}[d+e x]\Big)$$

Problem 1100: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{10} (A+B x)}{(d+e x)^{12}} \, dx$$

Optimal (type 3, 321 leaves, 3 steps):

$$-\frac{(B d-A e)\,(a+b x)^{11}}{11 e\,(b d-a e)\,(d+e x)^{11}}-\frac{B\,(b d-a e)^{10}}{10 e^{12}\,(d+e x)^{10}}+\frac{10 b B\,(b d-a e)^9}{9 e^{12}\,(d+e x)^9}-\frac{45 b^2 B\,(b d-a e)^8}{8 e^{12}\,(d+e x)^8}+\frac{120 b^3 B\,(b d-a e)^7}{7 e^{12}\,(d+e x)^7}-\frac{35 b^4 B\,(b d-a e)^6}{e^{12}\,(d+e x)^6}+\frac{252 b^5 B\,(b d-a e)^5}{5 e^{12}\,(d+e x)^5}-\frac{105 b^6 B\,(b d-a e)^4}{2 e^{12}\,(d+e x)^4}+\frac{40 b^7 B\,(b d-a e)^3}{e^{12}\,(d+e x)^3}-\frac{45 b^8 B\,(b d-a e)^2}{2 e^{12}\,(d+e x)^2}+\frac{10 b^9 B\,(b d-a e)}{e^{12}\,(d+e x)}+\frac{b^{10} B \,\mathrm{Log}[d+e x]}{e^{12}}$$

Result (type 3, 1443 leaves):

$$-\frac{1}{27720 e^{12}\,(d+e x)^{11}}\Big(252 a^{10} e^{10}\,(10 A e+B\,(d+11 e x))+280 a^9 b e^9\,(9 A e\,(d+11 e x)+2 B\,(d^2+11 d e x+55 e^2 x^2))+$$
$$315 a^8 b^2 e^8\,(8 A e\,(d^2+11 d e x+55 e^2 x^2)+3 B\,(d^3+11 d^2 e x+55 d e^2 x^2+165 e^3 x^3))+$$
$$360 a^7 b^3 e^7\,(7 A e\,(d^3+11 d^2 e x+55 d e^2 x^2+165 e^3 x^3)+4 B\,(d^4+11 d^3 e x+55 d^2 e^2 x^2+165 d e^3 x^3+330 e^4 x^4))+$$
$$420 a^6 b^4 e^6\,(6 A e\,(d^4+11 d^3 e x+55 d^2 e^2 x^2+165 d e^3 x^3+330 e^4 x^4)+5 B\,(d^5+11 d^4 e x+55 d^3 e^2 x^2+165 d^2 e^3 x^3+330 d e^4 x^4+462 e^5 x^5))+$$
$$504 a^5 b^5 e^5\,(5 A e\,(d^5+11 d^4 e x+55 d^3 e^2 x^2+165 d^2 e^3 x^3+330 d e^4 x^4+462 e^5 x^5)+$$
$$6 B\,(d^6+11 d^5 e x+55 d^4 e^2 x^2+165 d^3 e^3 x^3+330 d^2 e^4 x^4+462 d e^5 x^5+462 e^6 x^6))+$$
$$630 a^4 b^6 e^4\,(4 A e\,(d^6+11 d^5 e x+55 d^4 e^2 x^2+165 d^3 e^3 x^3+330 d^2 e^4 x^4+462 d e^5 x^5+462 e^6 x^6)+$$
$$7 B\,(d^7+11 d^6 e x+55 d^5 e^2 x^2+165 d^4 e^3 x^3+330 d^3 e^4 x^4+462 d^2 e^5 x^5+462 d e^6 x^6+330 e^7 x^7))+$$
$$840 a^3 b^7 e^3\,(3 A e\,(d^7+11 d^6 e x+55 d^5 e^2 x^2+165 d^4 e^3 x^3+330 d^3 e^4 x^4+462 d^2 e^5 x^5+462 d e^6 x^6+330 e^7 x^7)+$$
$$8 B\,(d^8+11 d^7 e x+55 d^6 e^2 x^2+165 d^5 e^3 x^3+330 d^4 e^4 x^4+462 d^3 e^5 x^5+462 d^2 e^6 x^6+330 d e^7 x^7+165 e^8 x^8))+$$
$$1260 a^2 b^8 e^2\,(2 A e\,(d^8+11 d^7 e x+55 d^6 e^2 x^2+165 d^5 e^3 x^3+330 d^4 e^4 x^4+462 d^3 e^5 x^5+462 d^2 e^6 x^6+330 d e^7 x^7+165 e^8 x^8)+$$
$$9 B\,(d^9+11 d^8 e x+55 d^7 e^2 x^2+165 d^6 e^3 x^3+330 d^5 e^4 x^4+462 d^4 e^5 x^5+462 d^3 e^6 x^6+330 d^2 e^7 x^7+165 d e^8 x^8+55 e^9 x^9))+$$
$$2520 a b^9 e\,(A e\,(d^9+11 d^8 e x+55 d^7 e^2 x^2+165 d^6 e^3 x^3+330 d^5 e^4 x^4+462 d^4 e^5 x^5+462 d^3 e^6 x^6+330 d^2 e^7 x^7+165 d e^8 x^8+55 e^9 x^9)+$$
$$10 B\,(d^{10}+11 d^9 e x+55 d^8 e^2 x^2+165 d^7 e^3 x^3+330 d^6 e^4 x^4+462 d^5 e^5 x^5+462 d^4 e^6 x^6+330 d^3 e^7 x^7+165 d^2 e^8 x^8+55 d e^9 x^9+11 e^{10} x^{10}))+$$
$$b^{10}\,(2520 A e\,(d^{10}+11 d^9 e x+55 d^8 e^2 x^2+165 d^7 e^3 x^3+330 d^6 e^4 x^4+462 d^5 e^5 x^5+462 d^4 e^6 x^6+330 d^3 e^7 x^7+165 d^2 e^8 x^8+55 d e^9 x^9+11 e^{10} x^{10})-$$
$$B d\,(83711 d^{10}+893101 d^9 e x+4313045 d^8 e^2 x^2+12430935 d^7 e^3 x^3+23718420 d^6 e^4 x^4+31376268 d^5 e^5 x^5+29241828 d^4 e^6 x^6+$$
$$19057500 d^3 e^7 x^7+8385300 d^2 e^8 x^8+2286900 d e^9 x^9+304920 e^{10} x^{10}))-27720 b^{10} B\,(d+e x)^{11}\,\mathrm{Log}[d+e x]\Big)$$

Problem 1101: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{10}\,(A+B x)}{(d+e x)^{13}}\,dx$$

Optimal (type 1, 86 leaves, 2 steps):

$$-\frac{(B d-A e)\,(a+b x)^{11}}{12 e\,(b d-a e)\,(d+e x)^{12}}+\frac{(11 b B d+A b e-12 a B e)\,(a+b x)^{11}}{132 e\,(b d-a e)^2\,(d+e x)^{11}}$$

Result (type 1, 1421 leaves):

$$-\frac{1}{132\,e^{12}\,(d+e\,x)^{12}}\Big(a^{10}\,e^{10}\,(11\,A\,e+B\,(d+12\,e\,x))+$$
$$2\,a^9\,b\,e^9\,(5\,A\,e\,(d+12\,e\,x)+B\,(d^2+12\,d\,e\,x+66\,e^2\,x^2))+3\,a^8\,b^2\,e^8\,(3\,A\,e\,(d^2+12\,d\,e\,x+66\,e^2\,x^2)+B\,(d^3+12\,d^2\,e\,x+66\,d\,e^2\,x^2+220\,e^3\,x^3))+$$
$$4\,a^7\,b^3\,e^7\,(2\,A\,e\,(d^3+12\,d^2\,e\,x+66\,d\,e^2\,x^2+220\,e^3\,x^3)+B\,(d^4+12\,d^3\,e\,x+66\,d^2\,e^2\,x^2+220\,d\,e^3\,x^3+495\,e^4\,x^4))+$$
$$a^6\,b^4\,e^6\,(7\,A\,e\,(d^4+12\,d^3\,e\,x+66\,d^2\,e^2\,x^2+220\,d\,e^3\,x^3+495\,e^4\,x^4)+5\,B\,(d^5+12\,d^4\,e\,x+66\,d^3\,e^2\,x^2+220\,d^2\,e^3\,x^3+495\,d\,e^4\,x^4+792\,e^5\,x^5))+$$
$$6\,a^5\,b^5\,e^5\,(A\,e\,(d^5+12\,d^4\,e\,x+66\,d^3\,e^2\,x^2+220\,d^2\,e^3\,x^3+495\,d\,e^4\,x^4+792\,e^5\,x^5)+$$
$$B\,(d^6+12\,d^5\,e\,x+66\,d^4\,e^2\,x^2+220\,d^3\,e^3\,x^3+495\,d^2\,e^4\,x^4+792\,d\,e^5\,x^5+924\,e^6\,x^6))+$$
$$a^4\,b^6\,e^4\,(5\,A\,e\,(d^6+12\,d^5\,e\,x+66\,d^4\,e^2\,x^2+220\,d^3\,e^3\,x^3+495\,d^2\,e^4\,x^4+792\,d\,e^5\,x^5+924\,e^6\,x^6)+$$
$$7\,B\,(d^7+12\,d^6\,e\,x+66\,d^5\,e^2\,x^2+220\,d^4\,e^3\,x^3+495\,d^3\,e^4\,x^4+792\,d^2\,e^5\,x^5+924\,d\,e^6\,x^6+792\,e^7\,x^7))+$$
$$4\,a^3\,b^7\,e^3\,(A\,e\,(d^7+12\,d^6\,e\,x+66\,d^5\,e^2\,x^2+220\,d^4\,e^3\,x^3+495\,d^3\,e^4\,x^4+792\,d^2\,e^5\,x^5+924\,d\,e^6\,x^6+792\,e^7\,x^7)+$$
$$2\,B\,(d^8+12\,d^7\,e\,x+66\,d^6\,e^2\,x^2+220\,d^5\,e^3\,x^3+495\,d^4\,e^4\,x^4+792\,d^3\,e^5\,x^5+924\,d^2\,e^6\,x^6+792\,d\,e^7\,x^7+495\,e^8\,x^8))+$$
$$3\,a^2\,b^8\,e^2\,(A\,e\,(d^8+12\,d^7\,e\,x+66\,d^6\,e^2\,x^2+220\,d^5\,e^3\,x^3+495\,d^4\,e^4\,x^4+792\,d^3\,e^5\,x^5+924\,d^2\,e^6\,x^6+792\,d\,e^7\,x^7+495\,e^8\,x^8)+$$
$$3\,B\,(d^9+12\,d^8\,e\,x+66\,d^7\,e^2\,x^2+220\,d^6\,e^3\,x^3+495\,d^5\,e^4\,x^4+792\,d^4\,e^5\,x^5+924\,d^3\,e^6\,x^6+792\,d^2\,e^7\,x^7+495\,d\,e^8\,x^8+220\,e^9\,x^9))+$$
$$2\,a\,b^9\,e\,(A\,e\,(d^9+12\,d^8\,e\,x+66\,d^7\,e^2\,x^2+220\,d^6\,e^3\,x^3+495\,d^5\,e^4\,x^4+792\,d^4\,e^5\,x^5+924\,d^3\,e^6\,x^6+792\,d^2\,e^7\,x^7+495\,d\,e^8\,x^8+220\,e^9\,x^9)+$$
$$5\,B\,(d^{10}+12\,d^9\,e\,x+66\,d^8\,e^2\,x^2+220\,d^7\,e^3\,x^3+495\,d^6\,e^4\,x^4+792\,d^5\,e^5\,x^5+924\,d^4\,e^6\,x^6+792\,d^3\,e^7\,x^7+495\,d^2\,e^8\,x^8+220\,d\,e^9\,x^9+66\,e^{10}\,x^{10}))+$$
$$b^{10}\,(A\,e\,(d^{10}+12\,d^9\,e\,x+66\,d^8\,e^2\,x^2+220\,d^7\,e^3\,x^3+495\,d^6\,e^4\,x^4+792\,d^5\,e^5\,x^5+924\,d^4\,e^6\,x^6+792\,d^3\,e^7\,x^7+495\,d^2\,e^8\,x^8+220\,d\,e^9\,x^9+66\,e^{10}\,x^{10})+$$
$$11\,B\,(d^{11}+12\,d^{10}\,e\,x+66\,d^9\,e^2\,x^2+220\,d^8\,e^3\,x^3+495\,d^7\,e^4\,x^4+792\,d^6\,e^5\,x^5+$$
$$924\,d^5\,e^6\,x^6+792\,d^4\,e^7\,x^7+495\,d^3\,e^8\,x^8+220\,d^2\,e^9\,x^9+66\,d\,e^{10}\,x^{10}+12\,e^{11}\,x^{11}))\Big)$$

Problem 1102: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,x)^{10}\,(A+B\,x)}{(d+e\,x)^{14}}\,dx$$

Optimal (type 1, 135 leaves, 3 steps):

$$-\frac{(B\,d-A\,e)\,(a+b\,x)^{11}}{13\,e\,(b\,d-a\,e)\,(d+e\,x)^{13}}+\frac{(11\,b\,B\,d+2\,A\,b\,e-13\,a\,B\,e)\,(a+b\,x)^{11}}{156\,e\,(b\,d-a\,e)^2\,(d+e\,x)^{12}}+\frac{b\,(11\,b\,B\,d+2\,A\,b\,e-13\,a\,B\,e)\,(a+b\,x)^{11}}{1716\,e\,(b\,d-a\,e)^3\,(d+e\,x)^{11}}$$

Result (type 1, 1433 leaves):

$$-\frac{1}{1716 e^{12} (d+e x)^{13}}\Big(11 a^{10} e^{10} (12 A e+B (d+13 e x))+10 a^9 b e^9 (11 A e (d+13 e x)+2 B (d^2+13 d e x+78 e^2 x^2))+$$
$$9 a^8 b^2 e^8 (10 A e (d^2+13 d e x+78 e^2 x^2)+3 B (d^3+13 d^2 e x+78 d e^2 x^2+286 e^3 x^3))+$$
$$8 a^7 b^3 e^7 (9 A e (d^3+13 d^2 e x+78 d e^2 x^2+286 e^3 x^3)+4 B (d^4+13 d^3 e x+78 d^2 e^2 x^2+286 d e^3 x^3+715 e^4 x^4))+$$
$$7 a^6 b^4 e^6 (8 A e (d^4+13 d^3 e x+78 d^2 e^2 x^2+286 d e^3 x^3+715 e^4 x^4)+5 B (d^5+13 d^4 e x+78 d^3 e^2 x^2+286 d^2 e^3 x^3+715 d e^4 x^4+1287 e^5 x^5))+$$
$$6 a^5 b^5 e^5 (7 A e (d^5+13 d^4 e x+78 d^3 e^2 x^2+286 d^2 e^3 x^3+715 d e^4 x^4+1287 e^5 x^5)+$$
$$6 B (d^6+13 d^5 e x+78 d^4 e^2 x^2+286 d^3 e^3 x^3+715 d^2 e^4 x^4+1287 d e^5 x^5+1716 e^6 x^6))+$$
$$5 a^4 b^6 e^4 (6 A e (d^6+13 d^5 e x+78 d^4 e^2 x^2+286 d^3 e^3 x^3+715 d^2 e^4 x^4+1287 d e^5 x^5+1716 e^6 x^6)+$$
$$7 B (d^7+13 d^6 e x+78 d^5 e^2 x^2+286 d^4 e^3 x^3+715 d^3 e^4 x^4+1287 d^2 e^5 x^5+1716 d e^6 x^6+1716 e^7 x^7))+$$
$$4 a^3 b^7 e^3 (5 A e (d^7+13 d^6 e x+78 d^5 e^2 x^2+286 d^4 e^3 x^3+715 d^3 e^4 x^4+1287 d^2 e^5 x^5+1716 d e^6 x^6+1716 e^7 x^7)+$$
$$8 B (d^8+13 d^7 e x+78 d^6 e^2 x^2+286 d^5 e^3 x^3+715 d^4 e^4 x^4+1287 d^3 e^5 x^5+1716 d^2 e^6 x^6+1716 d e^7 x^7+1287 e^8 x^8))+$$
$$3 a^2 b^8 e^2 (4 A e (d^8+13 d^7 e x+78 d^6 e^2 x^2+286 d^5 e^3 x^3+715 d^4 e^4 x^4+1287 d^3 e^5 x^5+1716 d^2 e^6 x^6+1716 d e^7 x^7+1287 e^8 x^8)+$$
$$9 B (d^9+13 d^8 e x+78 d^7 e^2 x^2+286 d^6 e^3 x^3+715 d^5 e^4 x^4+1287 d^4 e^5 x^5+1716 d^3 e^6 x^6+1716 d^2 e^7 x^7+1287 d e^8 x^8+715 e^9 x^9))+$$
$$2 a b^9 e (3 A e (d^9+13 d^8 e x+78 d^7 e^2 x^2+286 d^6 e^3 x^3+715 d^5 e^4 x^4+1287 d^4 e^5 x^5+1716 d^3 e^6 x^6+1716 d^2 e^7 x^7+1287 d e^8 x^8+715 e^9 x^9)+10$$
$$B (d^{10}+13 d^9 e x+78 d^8 e^2 x^2+286 d^7 e^3 x^3+715 d^6 e^4 x^4+1287 d^5 e^5 x^5+1716 d^4 e^6 x^6+1716 d^3 e^7 x^7+1287 d^2 e^8 x^8+715 d e^9 x^9+286 e^{10} x^{10}))+$$
$$b^{10} (2 A e (d^{10}+13 d^9 e x+78 d^8 e^2 x^2+286 d^7 e^3 x^3+715 d^6 e^4 x^4+1287 d^5 e^5 x^5+1716 d^4 e^6 x^6+1716 d^3 e^7 x^7+1287 d^2 e^8 x^8+$$
$$715 d e^9 x^9+286 e^{10} x^{10})+11 B (d^{11}+13 d^{10} e x+78 d^9 e^2 x^2+286 d^8 e^3 x^3+715 d^7 e^4 x^4+$$
$$1287 d^6 e^5 x^5+1716 d^5 e^6 x^6+1716 d^4 e^7 x^7+1287 d^3 e^8 x^8+715 d^2 e^9 x^9+286 d e^{10} x^{10}+78 e^{11} x^{11}))\Big)$$

Problem 1103: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{10} (A+B x)}{(d+e x)^{15}} \, dx$$

Optimal (type 1, 185 leaves, 4 steps):

$$-\frac{(B d-A e) (a+b x)^{11}}{14 e (b d-a e) (d+e x)^{14}}+\frac{(11 b B d+3 A b e-14 a B e) (a+b x)^{11}}{182 e (b d-a e)^2 (d+e x)^{13}}+$$
$$\frac{b (11 b B d+3 A b e-14 a B e) (a+b x)^{11}}{1092 e (b d-a e)^3 (d+e x)^{12}}+\frac{b^2 (11 b B d+3 A b e-14 a B e) (a+b x)^{11}}{12012 e (b d-a e)^4 (d+e x)^{11}}$$

Result (type 1, 1430 leaves):

$$-\frac{1}{12012\,e^{12}\,(d+e\,x)^{14}}\Big(66\,a^{10}\,e^{10}\,(13\,A\,e+B\,(d+14\,e\,x))+110\,a^9\,b\,e^9\,(6\,A\,e\,(d+14\,e\,x)+B\,(d^2+14\,d\,e\,x+91\,e^2\,x^2))+$$
$$45\,a^8\,b^2\,e^8\,(11\,A\,e\,(d^2+14\,d\,e\,x+91\,e^2\,x^2)+3\,B\,(d^3+14\,d^2\,e\,x+91\,d\,e^2\,x^2+364\,e^3\,x^3))+$$
$$72\,a^7\,b^3\,e^7\,(5\,A\,e\,(d^3+14\,d^2\,e\,x+91\,d\,e^2\,x^2+364\,e^3\,x^3)+2\,B\,(d^4+14\,d^3\,e\,x+91\,d^2\,e^2\,x^2+364\,d\,e^3\,x^3+1001\,e^4\,x^4))+$$
$$28\,a^6\,b^4\,e^6\,(9\,A\,e\,(d^4+14\,d^3\,e\,x+91\,d^2\,e^2\,x^2+364\,d\,e^3\,x^3+1001\,e^4\,x^4)+5\,B\,(d^5+14\,d^4\,e\,x+91\,d^3\,e^2\,x^2+364\,d^2\,e^3\,x^3+1001\,d\,e^4\,x^4+2002\,e^5\,x^5))+$$
$$42\,a^5\,b^5\,e^5\,(4\,A\,e\,(d^5+14\,d^4\,e\,x+91\,d^3\,e^2\,x^2+364\,d^2\,e^3\,x^3+1001\,d\,e^4\,x^4+2002\,e^5\,x^5)+$$
$$3\,B\,(d^6+14\,d^5\,e\,x+91\,d^4\,e^2\,x^2+364\,d^3\,e^3\,x^3+1001\,d^2\,e^4\,x^4+2002\,d\,e^5\,x^5+3003\,e^6\,x^6))+$$
$$105\,a^4\,b^6\,e^4\,(A\,e\,(d^6+14\,d^5\,e\,x+91\,d^4\,e^2\,x^2+364\,d^3\,e^3\,x^3+1001\,d^2\,e^4\,x^4+2002\,d\,e^5\,x^5+3003\,e^6\,x^6)+$$
$$B\,(d^7+14\,d^6\,e\,x+91\,d^5\,e^2\,x^2+364\,d^4\,e^3\,x^3+1001\,d^3\,e^4\,x^4+2002\,d^2\,e^5\,x^5+3003\,d\,e^6\,x^6+3432\,e^7\,x^7))+$$
$$20\,a^3\,b^7\,e^3\,(3\,A\,e\,(d^7+14\,d^6\,e\,x+91\,d^5\,e^2\,x^2+364\,d^4\,e^3\,x^3+1001\,d^3\,e^4\,x^4+2002\,d^2\,e^5\,x^5+3003\,d\,e^6\,x^6+3432\,e^7\,x^7)+$$
$$4\,B\,(d^8+14\,d^7\,e\,x+91\,d^6\,e^2\,x^2+364\,d^5\,e^3\,x^3+1001\,d^4\,e^4\,x^4+2002\,d^3\,e^5\,x^5+3003\,d^2\,e^6\,x^6+3432\,d\,e^7\,x^7+3003\,e^8\,x^8))+$$
$$6\,a^2\,b^8\,e^2\,(5\,A\,e\,(d^8+14\,d^7\,e\,x+91\,d^6\,e^2\,x^2+364\,d^5\,e^3\,x^3+1001\,d^4\,e^4\,x^4+2002\,d^3\,e^5\,x^5+3003\,d^2\,e^6\,x^6+3432\,d\,e^7\,x^7+3003\,e^8\,x^8)+$$
$$9\,B\,(d^9+14\,d^8\,e\,x+91\,d^7\,e^2\,x^2+364\,d^6\,e^3\,x^3+1001\,d^5\,e^4\,x^4+2002\,d^4\,e^5\,x^5+3003\,d^3\,e^6\,x^6+3432\,d^2\,e^7\,x^7+3003\,d\,e^8\,x^8+2002\,e^9\,x^9))+6\,a\,b^9\,e$$
$$(2\,A\,e\,(d^9+14\,d^8\,e\,x+91\,d^7\,e^2\,x^2+364\,d^6\,e^3\,x^3+1001\,d^5\,e^4\,x^4+2002\,d^4\,e^5\,x^5+3003\,d^3\,e^6\,x^6+3432\,d^2\,e^7\,x^7+3003\,d\,e^8\,x^8+2002\,e^9\,x^9)+5\,B\,(d^{10}+$$
$$14\,d^9\,e\,x+91\,d^8\,e^2\,x^2+364\,d^7\,e^3\,x^3+1001\,d^6\,e^4\,x^4+2002\,d^5\,e^5\,x^5+3003\,d^4\,e^6\,x^6+3432\,d^3\,e^7\,x^7+3003\,d^2\,e^8\,x^8+2002\,d\,e^9\,x^9+1001\,e^{10}\,x^{10}))+$$
$$b^{10}\,(3\,A\,e\,(d^{10}+14\,d^9\,e\,x+91\,d^8\,e^2\,x^2+364\,d^7\,e^3\,x^3+1001\,d^6\,e^4\,x^4+2002\,d^5\,e^5\,x^5+3003\,d^4\,e^6\,x^6+3432\,d^3\,e^7\,x^7+3003\,d^2\,e^8\,x^8+$$
$$2002\,d\,e^9\,x^9+1001\,e^{10}\,x^{10})+11\,B\,(d^{11}+14\,d^{10}\,e\,x+91\,d^9\,e^2\,x^2+364\,d^8\,e^3\,x^3+1001\,d^7\,e^4\,x^4+$$
$$2002\,d^6\,e^5\,x^5+3003\,d^5\,e^6\,x^6+3432\,d^4\,e^7\,x^7+3003\,d^3\,e^8\,x^8+2002\,d^2\,e^9\,x^9+1001\,d\,e^{10}\,x^{10}+364\,e^{11}\,x^{11}))\Big)$$

Problem 1104: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,x)^{10}\,(A+B\,x)}{(d+e\,x)^{16}}\,dx$$

Optimal (type 1, 235 leaves, 5 steps):

$$-\frac{(B\,d-A\,e)\,(a+b\,x)^{11}}{15\,e\,(b\,d-a\,e)\,(d+e\,x)^{15}}+\frac{(11\,b\,B\,d+4\,A\,b\,e-15\,a\,B\,e)\,(a+b\,x)^{11}}{210\,e\,(b\,d-a\,e)^2\,(d+e\,x)^{14}}+$$
$$\frac{b\,(11\,b\,B\,d+4\,A\,b\,e-15\,a\,B\,e)\,(a+b\,x)^{11}}{910\,e\,(b\,d-a\,e)^3\,(d+e\,x)^{13}}+\frac{b^2\,(11\,b\,B\,d+4\,A\,b\,e-15\,a\,B\,e)\,(a+b\,x)^{11}}{5460\,e\,(b\,d-a\,e)^4\,(d+e\,x)^{12}}+\frac{b^3\,(11\,b\,B\,d+4\,A\,b\,e-15\,a\,B\,e)\,(a+b\,x)^{11}}{60060\,e\,(b\,d-a\,e)^5\,(d+e\,x)^{11}}$$

Result (type 1, 1430 leaves):

$$-\frac{1}{60060\,e^{12}\,(d+e\,x)^{15}}\Big(286\,a^{10}\,e^{10}\,(14\,A\,e+B\,(d+15\,e\,x))+220\,a^9\,b\,e^9\,(13\,A\,e\,(d+15\,e\,x)+2\,B\,(d^2+15\,d\,e\,x+105\,e^2\,x^2))+$$
$$495\,a^8\,b^2\,e^8\,(4\,A\,e\,(d^2+15\,d\,e\,x+105\,e^2\,x^2)+B\,(d^3+15\,d^2\,e\,x+105\,d\,e^2\,x^2+455\,e^3\,x^3))+$$
$$120\,a^7\,b^3\,e^7\,(11\,A\,e\,(d^3+15\,d^2\,e\,x+105\,d\,e^2\,x^2+455\,e^3\,x^3)+4\,B\,(d^4+15\,d^3\,e\,x+105\,d^2\,e^2\,x^2+455\,d\,e^3\,x^3+1365\,e^4\,x^4))+$$
$$420\,a^6\,b^4\,e^6\,(2\,A\,e\,(d^4+15\,d^3\,e\,x+105\,d^2\,e^2\,x^2+455\,d\,e^3\,x^3+1365\,e^4\,x^4)+B\,(d^5+15\,d^4\,e\,x+105\,d^3\,e^2\,x^2+455\,d^2\,e^3\,x^3+1365\,d\,e^4\,x^4+3003\,e^5\,x^5))+$$
$$168\,a^5\,b^5\,e^5\,(3\,A\,e\,(d^5+15\,d^4\,e\,x+105\,d^3\,e^2\,x^2+455\,d^2\,e^3\,x^3+1365\,d\,e^4\,x^4+3003\,e^5\,x^5)+$$
$$2\,B\,(d^6+15\,d^5\,e\,x+105\,d^4\,e^2\,x^2+455\,d^3\,e^3\,x^3+1365\,d^2\,e^4\,x^4+3003\,d\,e^5\,x^5+5005\,e^6\,x^6))+$$
$$35\,a^4\,b^6\,e^4\,(8\,A\,e\,(d^6+15\,d^5\,e\,x+105\,d^4\,e^2\,x^2+455\,d^3\,e^3\,x^3+1365\,d^2\,e^4\,x^4+3003\,d\,e^5\,x^5+5005\,e^6\,x^6)+$$
$$7\,B\,(d^7+15\,d^6\,e\,x+105\,d^5\,e^2\,x^2+455\,d^4\,e^3\,x^3+1365\,d^3\,e^4\,x^4+3003\,d^2\,e^5\,x^5+5005\,d\,e^6\,x^6+6435\,e^7\,x^7))+$$
$$20\,a^3\,b^7\,e^3\,(7\,A\,e\,(d^7+15\,d^6\,e\,x+105\,d^5\,e^2\,x^2+455\,d^4\,e^3\,x^3+1365\,d^3\,e^4\,x^4+3003\,d^2\,e^5\,x^5+5005\,d\,e^6\,x^6+6435\,e^7\,x^7)+$$
$$8\,B\,(d^8+15\,d^7\,e\,x+105\,d^6\,e^2\,x^2+455\,d^5\,e^3\,x^3+1365\,d^4\,e^4\,x^4+3003\,d^3\,e^5\,x^5+5005\,d^2\,e^6\,x^6+6435\,d\,e^7\,x^7+6435\,e^8\,x^8))+$$
$$30\,a^2\,b^8\,e^2\,(2\,A\,e\,(d^8+15\,d^7\,e\,x+105\,d^6\,e^2\,x^2+455\,d^5\,e^3\,x^3+1365\,d^4\,e^4\,x^4+3003\,d^3\,e^5\,x^5+5005\,d^2\,e^6\,x^6+6435\,d\,e^7\,x^7+6435\,e^8\,x^8)+$$
$$3\,B\,(d^9+15\,d^8\,e\,x+105\,d^7\,e^2\,x^2+455\,d^6\,e^3\,x^3+1365\,d^5\,e^4\,x^4+3003\,d^4\,e^5\,x^5+5005\,d^3\,e^6\,x^6+6435\,d^2\,e^7\,x^7+6435\,d\,e^8\,x^8+5005\,e^9\,x^9))+20\,a\,b^9\,e$$
$$(A\,e\,(d^9+15\,d^8\,e\,x+105\,d^7\,e^2\,x^2+455\,d^6\,e^3\,x^3+1365\,d^5\,e^4\,x^4+3003\,d^4\,e^5\,x^5+5005\,d^3\,e^6\,x^6+6435\,d^2\,e^7\,x^7+6435\,d\,e^8\,x^8+5005\,e^9\,x^9)+2\,B\,(d^{10}+$$
$$15\,d^9\,e\,x+105\,d^8\,e^2\,x^2+455\,d^7\,e^3\,x^3+1365\,d^6\,e^4\,x^4+3003\,d^5\,e^5\,x^5+5005\,d^4\,e^6\,x^6+6435\,d^3\,e^7\,x^7+6435\,d^2\,e^8\,x^8+5005\,d\,e^9\,x^9+3003\,e^{10}\,x^{10}))+$$
$$b^{10}\,(4\,A\,e\,(d^{10}+15\,d^9\,e\,x+105\,d^8\,e^2\,x^2+455\,d^7\,e^3\,x^3+1365\,d^6\,e^4\,x^4+3003\,d^5\,e^5\,x^5+5005\,d^4\,e^6\,x^6+6435\,d^3\,e^7\,x^7+6435\,d^2\,e^8\,x^8+$$
$$5005\,d\,e^9\,x^9+3003\,e^{10}\,x^{10})+11\,B\,(d^{11}+15\,d^{10}\,e\,x+105\,d^9\,e^2\,x^2+455\,d^8\,e^3\,x^3+1365\,d^7\,e^4\,x^4+$$
$$3003\,d^6\,e^5\,x^5+5005\,d^5\,e^6\,x^6+6435\,d^4\,e^7\,x^7+6435\,d^3\,e^8\,x^8+5005\,d^2\,e^9\,x^9+3003\,d\,e^{10}\,x^{10}+1365\,e^{11}\,x^{11}))\Big)$$

Problem 1105: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,x)^{10}\,(A+B\,x)}{(d+e\,x)^{17}}\,dx$$

Optimal (type 1, 285 leaves, 6 steps):

$$-\frac{(B\,d-A\,e)\,(a+b\,x)^{11}}{16\,e\,(b\,d-a\,e)\,(d+e\,x)^{16}}+\frac{(11\,b\,B\,d+5\,A\,b\,e-16\,a\,B\,e)\,(a+b\,x)^{11}}{240\,e\,(b\,d-a\,e)^2\,(d+e\,x)^{15}}+\frac{b\,(11\,b\,B\,d+5\,A\,b\,e-16\,a\,B\,e)\,(a+b\,x)^{11}}{840\,e\,(b\,d-a\,e)^3\,(d+e\,x)^{14}}+$$
$$\frac{b^2\,(11\,b\,B\,d+5\,A\,b\,e-16\,a\,B\,e)\,(a+b\,x)^{11}}{3640\,e\,(b\,d-a\,e)^4\,(d+e\,x)^{13}}+\frac{b^3\,(11\,b\,B\,d+5\,A\,b\,e-16\,a\,B\,e)\,(a+b\,x)^{11}}{21840\,e\,(b\,d-a\,e)^5\,(d+e\,x)^{12}}+\frac{b^4\,(11\,b\,B\,d+5\,A\,b\,e-16\,a\,B\,e)\,(a+b\,x)^{11}}{240240\,e\,(b\,d-a\,e)^6\,(d+e\,x)^{11}}$$

Result (type 1, 1429 leaves):

$$-\frac{1}{240240\, e^{12}\, (d+e x)^{16}} \Big(1001\, a^{10} e^{10} \big(15 A e+B (d+16 e x)\big)+1430\, a^9 b e^9 \big(7 A e (d+16 e x)+B (d^2+16 d e x+120 e^2 x^2)\big)+$$
$$495\, a^8 b^2 e^8 \big(13 A e (d^2+16 d e x+120 e^2 x^2)+3 B (d^3+16 d^2 e x+120 d e^2 x^2+560 e^3 x^3)\big)+$$
$$1320\, a^7 b^3 e^7 \big(3 A e (d^3+16 d^2 e x+120 d e^2 x^2+560 e^3 x^3)+B (d^4+16 d^3 e x+120 d^2 e^2 x^2+560 d e^3 x^3+1820 e^4 x^4)\big)+$$
$$210\, a^6 b^4 e^6 \big(11 A e (d^4+16 d^3 e x+120 d^2 e^2 x^2+560 d e^3 x^3+1820 e^4 x^4)+5 B (d^5+16 d^4 e x+120 d^3 e^2 x^2+560 d^2 e^3 x^3+1820 d e^4 x^4+4368 e^5 x^5)\big)+$$
$$252\, a^5 b^5 e^5 \big(5 A e (d^5+16 d^4 e x+120 d^3 e^2 x^2+560 d^2 e^3 x^3+1820 d e^4 x^4+4368 e^5 x^5)+$$
$$3 B (d^6+16 d^5 e x+120 d^4 e^2 x^2+560 d^3 e^3 x^3+1820 d^2 e^4 x^4+4368 d e^5 x^5+8008 e^6 x^6)\big)+$$
$$70\, a^4 b^6 e^4 \big(9 A e (d^6+16 d^5 e x+120 d^4 e^2 x^2+560 d^3 e^3 x^3+1820 d^2 e^4 x^4+4368 d e^5 x^5+8008 e^6 x^6)+$$
$$7 B (d^7+16 d^6 e x+120 d^5 e^2 x^2+560 d^4 e^3 x^3+1820 d^3 e^4 x^4+4368 d^2 e^5 x^5+8008 d e^6 x^6+11440 e^7 x^7)\big)+$$
$$280\, a^3 b^7 e^3 \big(A e (d^7+16 d^6 e x+120 d^5 e^2 x^2+560 d^4 e^3 x^3+1820 d^3 e^4 x^4+4368 d^2 e^5 x^5+8008 d e^6 x^6+11440 e^7 x^7)+$$
$$B (d^8+16 d^7 e x+120 d^6 e^2 x^2+560 d^5 e^3 x^3+1820 d^4 e^4 x^4+4368 d^3 e^5 x^5+8008 d^2 e^6 x^6+11440 d e^7 x^7+12870 e^8 x^8)\big)+$$
$$15\, a^2 b^8 e^2 \big(7 A e (d^8+16 d^7 e x+120 d^6 e^2 x^2+560 d^5 e^3 x^3+1820 d^4 e^4 x^4+4368 d^3 e^5 x^5+8008 d^2 e^6 x^6+11440 d e^7 x^7+12870 e^8 x^8)+$$
$$9 B (d^9+16 d^8 e x+120 d^7 e^2 x^2+560 d^6 e^3 x^3+1820 d^5 e^4 x^4+4368 d^4 e^5 x^5+8008 d^3 e^6 x^6+11440 d^2 e^7 x^7+12870 d e^8 x^8+11440 e^9 x^9)\big)+$$
$$10\, a b^9 e \big(3 A e (d^9+16 d^8 e x+120 d^7 e^2 x^2+560 d^6 e^3 x^3+1820 d^5 e^4 x^4+4368 d^4 e^5 x^5+8008 d^3 e^6 x^6+11440 d^2 e^7 x^7+12870 d e^8 x^8+11440 e^9 x^9)+$$
$$5 B (d^{10}+16 d^9 e x+120 d^8 e^2 x^2+560 d^7 e^3 x^3+1820 d^6 e^4 x^4+4368 d^5 e^5 x^5+$$
$$8008 d^4 e^6 x^6+11440 d^3 e^7 x^7+12870 d^2 e^8 x^8+11440 d e^9 x^9+8008 e^{10} x^{10})\big)+$$
$$b^{10} \big(5 A e (d^{10}+16 d^9 e x+120 d^8 e^2 x^2+560 d^7 e^3 x^3+1820 d^6 e^4 x^4+4368 d^5 e^5 x^5+8008 d^4 e^6 x^6+11440 d^3 e^7 x^7+12870 d^2 e^8 x^8+$$
$$11440 d e^9 x^9+8008 e^{10} x^{10})+11 B (d^{11}+16 d^{10} e x+120 d^9 e^2 x^2+560 d^8 e^3 x^3+1820 d^7 e^4 x^4+4368 d^6 e^5 x^5+$$
$$8008 d^5 e^6 x^6+11440 d^4 e^7 x^7+12870 d^3 e^8 x^8+11440 d^2 e^9 x^9+8008 d e^{10} x^{10}+4368 e^{11} x^{11})\big)\Big)$$

Problem 1106: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{10} (A+B x)}{(d+e x)^{18}} \, dx$$

Optimal (type 1, 335 leaves, 7 steps):

$$-\frac{(B d-A e) (a+b x)^{11}}{17 e (b d-a e) (d+e x)^{17}}+\frac{(11 b B d+6 A b e-17 a B e) (a+b x)^{11}}{272 e (b d-a e)^2 (d+e x)^{16}}+$$
$$\frac{b (11 b B d+6 A b e-17 a B e) (a+b x)^{11}}{816 e (b d-a e)^3 (d+e x)^{15}}+\frac{b^2 (11 b B d+6 A b e-17 a B e) (a+b x)^{11}}{2856 e (b d-a e)^4 (d+e x)^{14}}+$$
$$\frac{b^3 (11 b B d+6 A b e-17 a B e) (a+b x)^{11}}{12376 e (b d-a e)^5 (d+e x)^{13}}+\frac{b^4 (11 b B d+6 A b e-17 a B e) (a+b x)^{11}}{74256 e (b d-a e)^6 (d+e x)^{12}}+\frac{b^5 (11 b B d+6 A b e-17 a B e) (a+b x)^{11}}{816816 e (b d-a e)^7 (d+e x)^{11}}$$

Result (type 1, 1433 leaves):

$$-\frac{1}{816816\, e^{12}\, (d+e\,x)^{17}} \Big(3003\, a^{10} e^{10} \big(16\, A\, e + B\, (d+17\, e\, x)\big) + 2002\, a^9\, b\, e^9 \big(15\, A\, e\, (d+17\, e\, x) + 2\, B\, (d^2+17\, d\, e\, x+136\, e^2 x^2)\big) +$$
$$1287\, a^8 b^2 e^8 \big(14\, A\, e\, (d^2+17\, d\, e\, x+136\, e^2 x^2) + 3\, B\, (d^3+17\, d^2 e\, x+136\, d\, e^2 x^2+680\, e^3 x^3)\big) +$$
$$792\, a^7 b^3 e^7 \big(13\, A\, e\, (d^3+17\, d^2 e\, x+136\, d\, e^2 x^2+680\, e^3 x^3) + 4\, B\, (d^4+17\, d^3 e\, x+136\, d^2 e^2 x^2+680\, d\, e^3 x^3+2380\, e^4 x^4)\big) +$$
$$462\, a^6 b^4 e^6 \big(12\, A\, e\, (d^4+17\, d^3 e\, x+136\, d^2 e^2 x^2+680\, d\, e^3 x^3+2380\, e^4 x^4) + 5\, B\, (d^5+17\, d^4 e\, x+136\, d^3 e^2 x^2+680\, d^2 e^3 x^3+2380\, d\, e^4 x^4+6188\, e^5 x^5)\big) +$$
$$252\, a^5 b^5 e^5 \big(11\, A\, e\, (d^5+17\, d^4 e\, x+136\, d^3 e^2 x^2+680\, d^2 e^3 x^3+2380\, d\, e^4 x^4+6188\, e^5 x^5) +$$
$$6\, B\, (d^6+17\, d^5 e\, x+136\, d^4 e^2 x^2+680\, d^3 e^3 x^3+2380\, d^2 e^4 x^4+6188\, d\, e^5 x^5+12376\, e^6 x^6)\big) +$$
$$126\, a^4 b^6 e^4 \big(10\, A\, e\, (d^6+17\, d^5 e\, x+136\, d^4 e^2 x^2+680\, d^3 e^3 x^3+2380\, d^2 e^4 x^4+6188\, d\, e^5 x^5+12376\, e^6 x^6) +$$
$$7\, B\, (d^7+17\, d^6 e\, x+136\, d^5 e^2 x^2+680\, d^4 e^3 x^3+2380\, d^3 e^4 x^4+6188\, d^2 e^5 x^5+12376\, d\, e^6 x^6+19448\, e^7 x^7)\big) +$$
$$56\, a^3 b^7 e^3 \big(9\, A\, e\, (d^7+17\, d^6 e\, x+136\, d^5 e^2 x^2+680\, d^4 e^3 x^3+2380\, d^3 e^4 x^4+6188\, d^2 e^5 x^5+12376\, d\, e^6 x^6+19448\, e^7 x^7) +$$
$$8\, B\, (d^8+17\, d^7 e\, x+136\, d^6 e^2 x^2+680\, d^5 e^3 x^3+2380\, d^4 e^4 x^4+6188\, d^3 e^5 x^5+12376\, d^2 e^6 x^6+19448\, d\, e^7 x^7+24310\, e^8 x^8)\big) +$$
$$21\, a^2 b^8 e^2 \big(8\, A\, e\, (d^8+17\, d^7 e\, x+136\, d^6 e^2 x^2+680\, d^5 e^3 x^3+2380\, d^4 e^4 x^4+6188\, d^3 e^5 x^5+12376\, d^2 e^6 x^6+19448\, d\, e^7 x^7+24310\, e^8 x^8) +$$
$$9\, B\, (d^9+17\, d^8 e\, x+136\, d^7 e^2 x^2+680\, d^6 e^3 x^3+2380\, d^5 e^4 x^4+6188\, d^4 e^5 x^5+12376\, d^3 e^6 x^6+19448\, d^2 e^7 x^7+24310\, d\, e^8 x^8+24310\, e^9 x^9)\big) +$$
$$6\, a\, b^9 e \big(7\, A\, e\, (d^9+17\, d^8 e\, x+136\, d^7 e^2 x^2+680\, d^6 e^3 x^3+2380\, d^5 e^4 x^4+6188\, d^4 e^5 x^5+12376\, d^3 e^6 x^6+19448\, d^2 e^7 x^7+24310\, d\, e^8 x^8+24310\, e^9 x^9) +$$
$$10\, B\, (d^{10}+17\, d^9 e\, x+136\, d^8 e^2 x^2+680\, d^7 e^3 x^3+2380\, d^6 e^4 x^4+6188\, d^5 e^5 x^5+$$
$$12376\, d^4 e^6 x^6+19448\, d^3 e^7 x^7+24310\, d^2 e^8 x^8+24310\, d\, e^9 x^9+19448\, e^{10} x^{10})\big) +$$
$$b^{10} \big(6\, A\, e\, (d^{10}+17\, d^9 e\, x+136\, d^8 e^2 x^2+680\, d^7 e^3 x^3+2380\, d^6 e^4 x^4+6188\, d^5 e^5 x^5+12376\, d^4 e^6 x^6+19448\, d^3 e^7 x^7+24310\, d^2 e^8 x^8+$$
$$24310\, d\, e^9 x^9+19448\, e^{10} x^{10}) + 11\, B\, (d^{11}+17\, d^{10} e\, x+136\, d^9 e^2 x^2+680\, d^8 e^3 x^3+2380\, d^7 e^4 x^4+6188\, d^6 e^5 x^5+$$
$$12376\, d^5 e^6 x^6+19448\, d^4 e^7 x^7+24310\, d^3 e^8 x^8+24310\, d^2 e^9 x^9+19448\, d\, e^{10} x^{10}+12376\, e^{11} x^{11})\big)\Big)$$

Problem 1107: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,x)^{10}\,(A+B\,x)}{(d+e\,x)^{19}}\,dx$$

Optimal (type 1, 385 leaves, 8 steps):

$$-\frac{(B\,d-A\,e)\,(a+b\,x)^{11}}{18\,e\,(b\,d-a\,e)\,(d+e\,x)^{18}}+\frac{(11\,b\,B\,d+7\,A\,b\,e-18\,a\,B\,e)\,(a+b\,x)^{11}}{306\,e\,(b\,d-a\,e)^2\,(d+e\,x)^{17}}+\frac{b\,(11\,b\,B\,d+7\,A\,b\,e-18\,a\,B\,e)\,(a+b\,x)^{11}}{816\,e\,(b\,d-a\,e)^3\,(d+e\,x)^{16}}+$$
$$\frac{b^2\,(11\,b\,B\,d+7\,A\,b\,e-18\,a\,B\,e)\,(a+b\,x)^{11}}{2448\,e\,(b\,d-a\,e)^4\,(d+e\,x)^{15}}+\frac{b^3\,(11\,b\,B\,d+7\,A\,b\,e-18\,a\,B\,e)\,(a+b\,x)^{11}}{8568\,e\,(b\,d-a\,e)^5\,(d+e\,x)^{14}}+$$
$$\frac{b^4\,(11\,b\,B\,d+7\,A\,b\,e-18\,a\,B\,e)\,(a+b\,x)^{11}}{37128\,e\,(b\,d-a\,e)^6\,(d+e\,x)^{13}}+\frac{b^5\,(11\,b\,B\,d+7\,A\,b\,e-18\,a\,B\,e)\,(a+b\,x)^{11}}{222768\,e\,(b\,d-a\,e)^7\,(d+e\,x)^{12}}+\frac{b^6\,(11\,b\,B\,d+7\,A\,b\,e-18\,a\,B\,e)\,(a+b\,x)^{11}}{2450448\,e\,(b\,d-a\,e)^8\,(d+e\,x)^{11}}$$

Result (type 1, 1428 leaves):

$$-\frac{1}{2450448\,e^{12}\,(d+e\,x)^{18}}\left(8008\,a^{10}\,e^{10}\,(17\,A\,e+B\,(d+18\,e\,x))+10010\,a^9\,b\,e^9\,\left(8\,A\,e\,(d+18\,e\,x)+B\,\left(d^2+18\,d\,e\,x+153\,e^2\,x^2\right)\right)+\right.$$
$$9009\,a^8\,b^2\,e^8\,\left(5\,A\,e\,\left(d^2+18\,d\,e\,x+153\,e^2\,x^2\right)+B\,\left(d^3+18\,d^2\,e\,x+153\,d\,e^2\,x^2+816\,e^3\,x^3\right)\right)+$$
$$3432\,a^7\,b^3\,e^7\,\left(7\,A\,e\,\left(d^3+18\,d^2\,e\,x+153\,d\,e^2\,x^2+816\,e^3\,x^3\right)+2\,B\,\left(d^4+18\,d^3\,e\,x+153\,d^2\,e^2\,x^2+816\,d\,e^3\,x^3+3060\,e^4\,x^4\right)\right)+$$
$$924\,a^6\,b^4\,e^6\,\left(13\,A\,e\,\left(d^4+18\,d^3\,e\,x+153\,d^2\,e^2\,x^2+816\,d\,e^3\,x^3+3060\,e^4\,x^4\right)+5\,B\,\left(d^5+18\,d^4\,e\,x+153\,d^3\,e^2\,x^2+816\,d^2\,e^3\,x^3+3060\,d\,e^4\,x^4+8568\,e^5\,x^5\right)\right)+$$
$$2772\,a^5\,b^5\,e^5\,\left(2\,A\,e\,\left(d^5+18\,d^4\,e\,x+153\,d^3\,e^2\,x^2+816\,d^2\,e^3\,x^3+3060\,d\,e^4\,x^4+8568\,e^5\,x^5\right)+\right.$$
$$\left.B\,\left(d^6+18\,d^5\,e\,x+153\,d^4\,e^2\,x^2+816\,d^3\,e^3\,x^3+3060\,d^2\,e^4\,x^4+8568\,d\,e^5\,x^5+18564\,e^6\,x^6\right)\right)+$$
$$210\,a^4\,b^6\,e^4\,\left(11\,A\,e\,\left(d^6+18\,d^5\,e\,x+153\,d^4\,e^2\,x^2+816\,d^3\,e^3\,x^3+3060\,d^2\,e^4\,x^4+8568\,d\,e^5\,x^5+18564\,e^6\,x^6\right)+\right.$$
$$\left.7\,B\,\left(d^7+18\,d^6\,e\,x+153\,d^5\,e^2\,x^2+816\,d^4\,e^3\,x^3+3060\,d^3\,e^4\,x^4+8568\,d^2\,e^5\,x^5+18564\,d\,e^6\,x^6+31824\,e^7\,x^7\right)\right)+$$
$$168\,a^3\,b^7\,e^3\,\left(5\,A\,e\,\left(d^7+18\,d^6\,e\,x+153\,d^5\,e^2\,x^2+816\,d^4\,e^3\,x^3+3060\,d^3\,e^4\,x^4+8568\,d^2\,e^5\,x^5+18564\,d\,e^6\,x^6+31824\,e^7\,x^7\right)+\right.$$
$$\left.4\,B\,\left(d^8+18\,d^7\,e\,x+153\,d^6\,e^2\,x^2+816\,d^5\,e^3\,x^3+3060\,d^4\,e^4\,x^4+8568\,d^3\,e^5\,x^5+18564\,d^2\,e^6\,x^6+31824\,d\,e^7\,x^7+43758\,e^8\,x^8\right)\right)+$$
$$252\,a^2\,b^8\,e^2\,\left(A\,e\,\left(d^8+18\,d^7\,e\,x+153\,d^6\,e^2\,x^2+816\,d^5\,e^3\,x^3+3060\,d^4\,e^4\,x^4+8568\,d^3\,e^5\,x^5+18564\,d^2\,e^6\,x^6+31824\,d\,e^7\,x^7+43758\,e^8\,x^8\right)+\right.$$
$$\left.B\,\left(d^9+18\,d^8\,e\,x+153\,d^7\,e^2\,x^2+816\,d^6\,e^3\,x^3+3060\,d^5\,e^4\,x^4+8568\,d^4\,e^5\,x^5+18564\,d^3\,e^6\,x^6+31824\,d^2\,e^7\,x^7+43758\,d\,e^8\,x^8+48620\,e^9\,x^9\right)\right)+14\,a\,b^9$$
$$e\,\left(4\,A\,e\,\left(d^9+18\,d^8\,e\,x+153\,d^7\,e^2\,x^2+816\,d^6\,e^3\,x^3+3060\,d^5\,e^4\,x^4+8568\,d^4\,e^5\,x^5+18564\,d^3\,e^6\,x^6+31824\,d^2\,e^7\,x^7+43758\,d\,e^8\,x^8+48620\,e^9\,x^9\right)+\right.$$
$$5\,B\,\left(d^{10}+18\,d^9\,e\,x+153\,d^8\,e^2\,x^2+816\,d^7\,e^3\,x^3+3060\,d^6\,e^4\,x^4+8568\,d^5\,e^5\,x^5+\right.$$
$$\left.\left.18564\,d^4\,e^6\,x^6+31824\,d^3\,e^7\,x^7+43758\,d^2\,e^8\,x^8+48620\,d\,e^9\,x^9+43758\,e^{10}\,x^{10}\right)\right)+$$
$$b^{10}\,\left(7\,A\,e\,\left(d^{10}+18\,d^9\,e\,x+153\,d^8\,e^2\,x^2+816\,d^7\,e^3\,x^3+3060\,d^6\,e^4\,x^4+8568\,d^5\,e^5\,x^5+18564\,d^4\,e^6\,x^6+31824\,d^3\,e^7\,x^7+43758\,d^2\,e^8\,x^8+\right.\right.$$
$$\left.48620\,d\,e^9\,x^9+43758\,e^{10}\,x^{10}\right)+11\,B\,\left(d^{11}+18\,d^{10}\,e\,x+153\,d^9\,e^2\,x^2+816\,d^8\,e^3\,x^3+3060\,d^7\,e^4\,x^4+8568\,d^6\,e^5\,x^5+\right.$$
$$\left.\left.\left.18564\,d^5\,e^6\,x^6+31824\,d^4\,e^7\,x^7+43758\,d^3\,e^8\,x^8+48620\,d^2\,e^9\,x^9+43758\,d\,e^{10}\,x^{10}+31824\,e^{11}\,x^{11}\right)\right)\right)$$

Problem 1108: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,x)^{10}\,(A+B\,x)}{(d+e\,x)^{20}}\,dx$$

Optimal (type 1, 460 leaves, 2 steps):

$$\frac{(b\,d-a\,e)^{10}\,(B\,d-A\,e)}{19\,e^{12}\,(d+e\,x)^{19}}-\frac{(b\,d-a\,e)^9\,(11\,b\,B\,d-10\,A\,b\,e-a\,B\,e)}{18\,e^{12}\,(d+e\,x)^{18}}+\frac{5\,b\,(b\,d-a\,e)^8\,(11\,b\,B\,d-9\,A\,b\,e-2\,a\,B\,e)}{17\,e^{12}\,(d+e\,x)^{17}}-$$
$$\frac{15\,b^2\,(b\,d-a\,e)^7\,(11\,b\,B\,d-8\,A\,b\,e-3\,a\,B\,e)}{16\,e^{12}\,(d+e\,x)^{16}}+\frac{2\,b^3\,(b\,d-a\,e)^6\,(11\,b\,B\,d-7\,A\,b\,e-4\,a\,B\,e)}{e^{12}\,(d+e\,x)^{15}}-$$
$$\frac{3\,b^4\,(b\,d-a\,e)^5\,(11\,b\,B\,d-6\,A\,b\,e-5\,a\,B\,e)}{e^{12}\,(d+e\,x)^{14}}+\frac{42\,b^5\,(b\,d-a\,e)^4\,(11\,b\,B\,d-5\,A\,b\,e-6\,a\,B\,e)}{13\,e^{12}\,(d+e\,x)^{13}}-\frac{5\,b^6\,(b\,d-a\,e)^3\,(11\,b\,B\,d-4\,A\,b\,e-7\,a\,B\,e)}{2\,e^{12}\,(d+e\,x)^{12}}+$$
$$\frac{15\,b^7\,(b\,d-a\,e)^2\,(11\,b\,B\,d-3\,A\,b\,e-8\,a\,B\,e)}{11\,e^{12}\,(d+e\,x)^{11}}-\frac{b^8\,(b\,d-a\,e)\,(11\,b\,B\,d-2\,A\,b\,e-9\,a\,B\,e)}{2\,e^{12}\,(d+e\,x)^{10}}+\frac{b^9\,(11\,b\,B\,d-A\,b\,e-10\,a\,B\,e)}{9\,e^{12}\,(d+e\,x)^9}-\frac{b^{10}\,B}{8\,e^{12}\,(d+e\,x)^8}$$

Result (type 1, 1433 leaves):

$$-\frac{1}{6651216\,e^{12}\,(d+e\,x)^{19}}\Big(19448\,a^{10}\,e^{10}\,(18\,A\,e+B\,(d+19\,e\,x))+11440\,a^9\,b\,e^9\,(17\,A\,e\,(d+19\,e\,x)+2\,B\,(d^2+19\,d\,e\,x+171\,e^2\,x^2))+$$
$$6435\,a^8\,b^2\,e^8\,(16\,A\,e\,(d^2+19\,d\,e\,x+171\,e^2\,x^2)+3\,B\,(d^3+19\,d^2\,e\,x+171\,d\,e^2\,x^2+969\,e^3\,x^3))+$$
$$3432\,a^7\,b^3\,e^7\,(15\,A\,e\,(d^3+19\,d^2\,e\,x+171\,d\,e^2\,x^2+969\,e^3\,x^3)+4\,B\,(d^4+19\,d^3\,e\,x+171\,d^2\,e^2\,x^2+969\,d\,e^3\,x^3+3876\,e^4\,x^4))+1716\,a^6\,b^4\,e^6$$
$$(14\,A\,e\,(d^4+19\,d^3\,e\,x+171\,d^2\,e^2\,x^2+969\,d\,e^3\,x^3+3876\,e^4\,x^4)+5\,B\,(d^5+19\,d^4\,e\,x+171\,d^3\,e^2\,x^2+969\,d^2\,e^3\,x^3+3876\,d\,e^4\,x^4+11628\,e^5\,x^5))+$$
$$792\,a^5\,b^5\,e^5\,(13\,A\,e\,(d^5+19\,d^4\,e\,x+171\,d^3\,e^2\,x^2+969\,d^2\,e^3\,x^3+3876\,d\,e^4\,x^4+11628\,e^5\,x^5)+$$
$$6\,B\,(d^6+19\,d^5\,e\,x+171\,d^4\,e^2\,x^2+969\,d^3\,e^3\,x^3+3876\,d^2\,e^4\,x^4+11628\,d\,e^5\,x^5+27132\,e^6\,x^6))+$$
$$330\,a^4\,b^6\,e^4\,(12\,A\,e\,(d^6+19\,d^5\,e\,x+171\,d^4\,e^2\,x^2+969\,d^3\,e^3\,x^3+3876\,d^2\,e^4\,x^4+11628\,d\,e^5\,x^5+27132\,e^6\,x^6)+$$
$$7\,B\,(d^7+19\,d^6\,e\,x+171\,d^5\,e^2\,x^2+969\,d^4\,e^3\,x^3+3876\,d^3\,e^4\,x^4+11628\,d^2\,e^5\,x^5+27132\,d\,e^6\,x^6+50388\,e^7\,x^7))+$$
$$120\,a^3\,b^7\,e^3\,(11\,A\,e\,(d^7+19\,d^6\,e\,x+171\,d^5\,e^2\,x^2+969\,d^4\,e^3\,x^3+3876\,d^3\,e^4\,x^4+11628\,d^2\,e^5\,x^5+27132\,d\,e^6\,x^6+50388\,e^7\,x^7)+$$
$$8\,B\,(d^8+19\,d^7\,e\,x+171\,d^6\,e^2\,x^2+969\,d^5\,e^3\,x^3+3876\,d^4\,e^4\,x^4+11628\,d^3\,e^5\,x^5+27132\,d^2\,e^6\,x^6+50388\,d\,e^7\,x^7+75582\,e^8\,x^8))+$$
$$36\,a^2\,b^8\,e^2\,(10\,A\,e\,(d^8+19\,d^7\,e\,x+171\,d^6\,e^2\,x^2+969\,d^5\,e^3\,x^3+3876\,d^4\,e^4\,x^4+11628\,d^3\,e^5\,x^5+27132\,d^2\,e^6\,x^6+50388\,d\,e^7\,x^7+75582\,e^8\,x^8)+$$
$$9\,B\,(d^9+19\,d^8\,e\,x+171\,d^7\,e^2\,x^2+969\,d^6\,e^3\,x^3+3876\,d^5\,e^4\,x^4+11628\,d^4\,e^5\,x^5+27132\,d^3\,e^6\,x^6+50388\,d^2\,e^7\,x^7+75582\,d\,e^8\,x^8+92378\,e^9\,x^9))+8\,a$$
$$b^9\,e\,(9\,A\,e\,(d^9+19\,d^8\,e\,x+171\,d^7\,e^2\,x^2+969\,d^6\,e^3\,x^3+3876\,d^5\,e^4\,x^4+11628\,d^4\,e^5\,x^5+27132\,d^3\,e^6\,x^6+50388\,d^2\,e^7\,x^7+75582\,d\,e^8\,x^8+92378\,e^9\,x^9)+$$
$$10\,B\,(d^{10}+19\,d^9\,e\,x+171\,d^8\,e^2\,x^2+969\,d^7\,e^3\,x^3+3876\,d^6\,e^4\,x^4+11628\,d^5\,e^5\,x^5+$$
$$27132\,d^4\,e^6\,x^6+50388\,d^3\,e^7\,x^7+75582\,d^2\,e^8\,x^8+92378\,d\,e^9\,x^9+92378\,e^{10}\,x^{10}))+$$
$$b^{10}\,(8\,A\,e\,(d^{10}+19\,d^9\,e\,x+171\,d^8\,e^2\,x^2+969\,d^7\,e^3\,x^3+3876\,d^6\,e^4\,x^4+11628\,d^5\,e^5\,x^5+27132\,d^4\,e^6\,x^6+50388\,d^3\,e^7\,x^7+$$
$$75582\,d^2\,e^8\,x^8+92378\,d\,e^9\,x^9+92378\,e^{10}\,x^{10})+11\,B\,(d^{11}+19\,d^{10}\,e\,x+171\,d^9\,e^2\,x^2+969\,d^8\,e^3\,x^3+3876\,d^7\,e^4\,x^4+$$
$$11628\,d^6\,e^5\,x^5+27132\,d^5\,e^6\,x^6+50388\,d^4\,e^7\,x^7+75582\,d^3\,e^8\,x^8+92378\,d^2\,e^9\,x^9+92378\,d\,e^{10}\,x^{10}+75582\,e^{11}\,x^{11}))\Big)$$

Problem 1109: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,x)^{10}\,(A+B\,x)}{(d+e\,x)^{21}}\,dx$$

Optimal (type 1, 462 leaves, 2 steps):

$$\frac{(b\,d-a\,e)^{10}\,(B\,d-A\,e)}{20\,e^{12}\,(d+e\,x)^{20}}-\frac{(b\,d-a\,e)^9\,(11\,b\,B\,d-10\,A\,b\,e-a\,B\,e)}{19\,e^{12}\,(d+e\,x)^{19}}+\frac{5\,b\,(b\,d-a\,e)^8\,(11\,b\,B\,d-9\,A\,b\,e-2\,a\,B\,e)}{18\,e^{12}\,(d+e\,x)^{18}}-$$
$$\frac{15\,b^2\,(b\,d-a\,e)^7\,(11\,b\,B\,d-8\,A\,b\,e-3\,a\,B\,e)}{17\,e^{12}\,(d+e\,x)^{17}}+\frac{15\,b^3\,(b\,d-a\,e)^6\,(11\,b\,B\,d-7\,A\,b\,e-4\,a\,B\,e)}{8\,e^{12}\,(d+e\,x)^{16}}-$$
$$\frac{14\,b^4\,(b\,d-a\,e)^5\,(11\,b\,B\,d-6\,A\,b\,e-5\,a\,B\,e)}{5\,e^{12}\,(d+e\,x)^{15}}+\frac{3\,b^5\,(b\,d-a\,e)^4\,(11\,b\,B\,d-5\,A\,b\,e-6\,a\,B\,e)}{e^{12}\,(d+e\,x)^{14}}-\frac{30\,b^6\,(b\,d-a\,e)^3\,(11\,b\,B\,d-4\,A\,b\,e-7\,a\,B\,e)}{13\,e^{12}\,(d+e\,x)^{13}}+$$
$$\frac{5\,b^7\,(b\,d-a\,e)^2\,(11\,b\,B\,d-3\,A\,b\,e-8\,a\,B\,e)}{4\,e^{12}\,(d+e\,x)^{12}}-\frac{5\,b^8\,(b\,d-a\,e)\,(11\,b\,B\,d-2\,A\,b\,e-9\,a\,B\,e)}{11\,e^{12}\,(d+e\,x)^{11}}+\frac{b^9\,(11\,b\,B\,d-A\,b\,e-10\,a\,B\,e)}{10\,e^{12}\,(d+e\,x)^{10}}-\frac{b^{10}\,B}{9\,e^{12}\,(d+e\,x)^9}$$

Result (type 1, 1428 leaves):

$$-\frac{1}{16\,628\,040\,e^{12}\,(d+e\,x)^{20}}\Big(43\,758\,a^{10}\,e^{10}\,(19\,A\,e+B\,(d+20\,e\,x))+48\,620\,a^9\,b\,e^9\,\left(9\,A\,e\,(d+20\,e\,x)+B\,\left(d^2+20\,d\,e\,x+190\,e^2\,x^2\right)\right)+$$
$$12\,870\,a^8\,b^2\,e^8\,\left(17\,A\,e\,\left(d^2+20\,d\,e\,x+190\,e^2\,x^2\right)+3\,B\,\left(d^3+20\,d^2\,e\,x+190\,d\,e^2\,x^2+1140\,e^3\,x^3\right)\right)+$$
$$25\,740\,a^7\,b^3\,e^7\,\left(4\,A\,e\,\left(d^3+20\,d^2\,e\,x+190\,d\,e^2\,x^2+1140\,e^3\,x^3\right)+B\,\left(d^4+20\,d^3\,e\,x+190\,d^2\,e^2\,x^2+1140\,d\,e^3\,x^3+4845\,e^4\,x^4\right)\right)+15\,015\,a^6\,b^4\,e^6$$
$$\left(3\,A\,e\,\left(d^4+20\,d^3\,e\,x+190\,d^2\,e^2\,x^2+1140\,d\,e^3\,x^3+4845\,e^4\,x^4\right)+B\,\left(d^5+20\,d^4\,e\,x+190\,d^3\,e^2\,x^2+1140\,d^2\,e^3\,x^3+4845\,d\,e^4\,x^4+15\,504\,e^5\,x^5\right)\right)+$$
$$2574\,a^5\,b^5\,e^5\,\Big(7\,A\,e\,\left(d^5+20\,d^4\,e\,x+190\,d^3\,e^2\,x^2+1140\,d^2\,e^3\,x^3+4845\,d\,e^4\,x^4+15\,504\,e^5\,x^5\right)+$$
$$3\,B\,\left(d^6+20\,d^5\,e\,x+190\,d^4\,e^2\,x^2+1140\,d^3\,e^3\,x^3+4845\,d^2\,e^4\,x^4+15\,504\,d\,e^5\,x^5+38\,760\,e^6\,x^6\right)\Big)+$$
$$495\,a^4\,b^6\,e^4\,\Big(13\,A\,e\,\left(d^6+20\,d^5\,e\,x+190\,d^4\,e^2\,x^2+1140\,d^3\,e^3\,x^3+4845\,d^2\,e^4\,x^4+15\,504\,d\,e^5\,x^5+38\,760\,e^6\,x^6\right)+$$
$$7\,B\,\left(d^7+20\,d^6\,e\,x+190\,d^5\,e^2\,x^2+1140\,d^4\,e^3\,x^3+4845\,d^3\,e^4\,x^4+15\,504\,d^2\,e^5\,x^5+38\,760\,d\,e^6\,x^6+77\,520\,e^7\,x^7\right)\Big)+$$
$$660\,a^3\,b^7\,e^3\,\Big(3\,A\,e\,\left(d^7+20\,d^6\,e\,x+190\,d^5\,e^2\,x^2+1140\,d^4\,e^3\,x^3+4845\,d^3\,e^4\,x^4+15\,504\,d^2\,e^5\,x^5+38\,760\,d\,e^6\,x^6+77\,520\,e^7\,x^7\right)+$$
$$2\,B\,\left(d^8+20\,d^7\,e\,x+190\,d^6\,e^2\,x^2+1140\,d^5\,e^3\,x^3+4845\,d^4\,e^4\,x^4+15\,504\,d^3\,e^5\,x^5+38\,760\,d^2\,e^6\,x^6+77\,520\,d\,e^7\,x^7+125\,970\,e^8\,x^8\right)\Big)+$$
$$45\,a^2\,b^8\,e^2\,\Big(11\,A\,e\,\left(d^8+20\,d^7\,e\,x+190\,d^6\,e^2\,x^2+1140\,d^5\,e^3\,x^3+4845\,d^4\,e^4\,x^4+15\,504\,d^3\,e^5\,x^5+38\,760\,d^2\,e^6\,x^6+77\,520\,d\,e^7\,x^7+125\,970\,e^8\,x^8\right)+$$
$$9\,B\,\left(d^9+20\,d^8\,e\,x+190\,d^7\,e^2\,x^2+1140\,d^6\,e^3\,x^3+4845\,d^5\,e^4\,x^4+15\,504\,d^4\,e^5\,x^5+38\,760\,d^3\,e^6\,x^6+77\,520\,d^2\,e^7\,x^7+125\,970\,d\,e^8\,x^8+167\,960\,e^9\,x^9\right)\Big)+$$
$$90\,a\,b^9\,e\,\Big(A\,e\,\big(d^9+20\,d^8\,e\,x+190\,d^7\,e^2\,x^2+1140\,d^6\,e^3\,x^3+4845\,d^5\,e^4\,x^4+15\,504\,d^4\,e^5\,x^5+38\,760\,d^3\,e^6\,x^6+77\,520\,d^2\,e^7\,x^7+$$
$$125\,970\,d\,e^8\,x^8+167\,960\,e^9\,x^9\big)+B\,\big(d^{10}+20\,d^9\,e\,x+190\,d^8\,e^2\,x^2+1140\,d^7\,e^3\,x^3+4845\,d^6\,e^4\,x^4+$$
$$15\,504\,d^5\,e^5\,x^5+38\,760\,d^4\,e^6\,x^6+77\,520\,d^3\,e^7\,x^7+125\,970\,d^2\,e^8\,x^8+167\,960\,d\,e^9\,x^9+184\,756\,e^{10}\,x^{10}\big)\Big)+$$
$$b^{10}\,\Big(9\,A\,e\,\big(d^{10}+20\,d^9\,e\,x+190\,d^8\,e^2\,x^2+1140\,d^7\,e^3\,x^3+4845\,d^6\,e^4\,x^4+15\,504\,d^5\,e^5\,x^5+38\,760\,d^4\,e^6\,x^6+77\,520\,d^3\,e^7\,x^7+$$
$$125\,970\,d^2\,e^8\,x^8+167\,960\,d\,e^9\,x^9+184\,756\,e^{10}\,x^{10}\big)+11\,B\,\big(d^{11}+20\,d^{10}\,e\,x+190\,d^9\,e^2\,x^2+1140\,d^8\,e^3\,x^3+4845\,d^7\,e^4\,x^4+$$
$$15\,504\,d^6\,e^5\,x^5+38\,760\,d^5\,e^6\,x^6+77\,520\,d^4\,e^7\,x^7+125\,970\,d^3\,e^8\,x^8+167\,960\,d^2\,e^9\,x^9+184\,756\,d\,e^{10}\,x^{10}+167\,960\,e^{11}\,x^{11}\big)\Big)\Big)$$

Problem 1110: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,x)^{10}\,(A+B\,x)}{(d+e\,x)^{22}}\,dx$$

Optimal (type 1, 464 leaves, 2 steps):

$$\frac{(b\,d-a\,e)^{10}\,(B\,d-A\,e)}{21\,e^{12}\,(d+e\,x)^{21}}-\frac{(b\,d-a\,e)^9\,(11\,b\,B\,d-10\,A\,b\,e-a\,B\,e)}{20\,e^{12}\,(d+e\,x)^{20}}+\frac{5\,b\,(b\,d-a\,e)^8\,(11\,b\,B\,d-9\,A\,b\,e-2\,a\,B\,e)}{19\,e^{12}\,(d+e\,x)^{19}}-$$
$$\frac{5\,b^2\,(b\,d-a\,e)^7\,(11\,b\,B\,d-8\,A\,b\,e-3\,a\,B\,e)}{6\,e^{12}\,(d+e\,x)^{18}}+\frac{30\,b^3\,(b\,d-a\,e)^6\,(11\,b\,B\,d-7\,A\,b\,e-4\,a\,B\,e)}{17\,e^{12}\,(d+e\,x)^{17}}-\frac{21\,b^4\,(b\,d-a\,e)^5\,(11\,b\,B\,d-6\,A\,b\,e-5\,a\,B\,e)}{8\,e^{12}\,(d+e\,x)^{16}}+$$
$$\frac{14\,b^5\,(b\,d-a\,e)^4\,(11\,b\,B\,d-5\,A\,b\,e-6\,a\,B\,e)}{5\,e^{12}\,(d+e\,x)^{15}}-\frac{15\,b^6\,(b\,d-a\,e)^3\,(11\,b\,B\,d-4\,A\,b\,e-7\,a\,B\,e)}{7\,e^{12}\,(d+e\,x)^{14}}+\frac{15\,b^7\,(b\,d-a\,e)^2\,(11\,b\,B\,d-3\,A\,b\,e-8\,a\,B\,e)}{13\,e^{12}\,(d+e\,x)^{13}}-$$
$$\frac{5\,b^8\,(b\,d-a\,e)\,(11\,b\,B\,d-2\,A\,b\,e-9\,a\,B\,e)}{12\,e^{12}\,(d+e\,x)^{12}}+\frac{b^9\,(11\,b\,B\,d-A\,b\,e-10\,a\,B\,e)}{11\,e^{12}\,(d+e\,x)^{11}}-\frac{b^{10}\,B}{10\,e^{12}\,(d+e\,x)^{10}}$$

Result (type 1, 1431 leaves):

$$-\frac{1}{38\,798\,760\,e^{12}\,(d+e\,x)^{21}}\Big(92\,378\,a^{10}\,e^{10}\,(20\,A\,e+B\,(d+21\,e\,x))+48\,620\,a^9\,b\,e^9\,(19\,A\,e\,(d+21\,e\,x)+2\,B\,(d^2+21\,d\,e\,x+210\,e^2\,x^2))+$$
$$72\,930\,a^8\,b^2\,e^8\,(6\,A\,e\,(d^2+21\,d\,e\,x+210\,e^2\,x^2)+B\,(d^3+21\,d^2\,e\,x+210\,d\,e^2\,x^2+1330\,e^3\,x^3))+$$
$$11\,440\,a^7\,b^3\,e^7\,(17\,A\,e\,(d^3+21\,d^2\,e\,x+210\,d\,e^2\,x^2+1330\,e^3\,x^3)+4\,B\,(d^4+21\,d^3\,e\,x+210\,d^2\,e^2\,x^2+1330\,d\,e^3\,x^3+5985\,e^4\,x^4))+5005\,a^6\,b^4\,e^6$$
$$(16\,A\,e\,(d^4+21\,d^3\,e\,x+210\,d^2\,e^2\,x^2+1330\,d\,e^3\,x^3+5985\,e^4\,x^4)+5\,B\,(d^5+21\,d^4\,e\,x+210\,d^3\,e^2\,x^2+1330\,d^2\,e^3\,x^3+5985\,d\,e^4\,x^4+20\,349\,e^5\,x^5))+$$
$$6006\,a^5\,b^5\,e^5\,(5\,A\,e\,(d^5+21\,d^4\,e\,x+210\,d^3\,e^2\,x^2+1330\,d^2\,e^3\,x^3+5985\,d\,e^4\,x^4+20\,349\,e^5\,x^5)+$$
$$2\,B\,(d^6+21\,d^5\,e\,x+210\,d^4\,e^2\,x^2+1330\,d^3\,e^3\,x^3+5985\,d^2\,e^4\,x^4+20\,349\,d\,e^5\,x^5+54\,264\,e^6\,x^6))+$$
$$5005\,a^4\,b^6\,e^4\,(2\,A\,e\,(d^6+21\,d^5\,e\,x+210\,d^4\,e^2\,x^2+1330\,d^3\,e^3\,x^3+5985\,d^2\,e^4\,x^4+20\,349\,d\,e^5\,x^5+54\,264\,e^6\,x^6)+$$
$$B\,(d^7+21\,d^6\,e\,x+210\,d^5\,e^2\,x^2+1330\,d^4\,e^3\,x^3+5985\,d^3\,e^4\,x^4+20\,349\,d^2\,e^5\,x^5+54\,264\,d\,e^6\,x^6+116\,280\,e^7\,x^7))+$$
$$220\,a^3\,b^7\,e^3\,(13\,A\,e\,(d^7+21\,d^6\,e\,x+210\,d^5\,e^2\,x^2+1330\,d^4\,e^3\,x^3+5985\,d^3\,e^4\,x^4+20\,349\,d^2\,e^5\,x^5+54\,264\,d\,e^6\,x^6+116\,280\,e^7\,x^7)+$$
$$8\,B\,(d^8+21\,d^7\,e\,x+210\,d^6\,e^2\,x^2+1330\,d^5\,e^3\,x^3+5985\,d^4\,e^4\,x^4+20\,349\,d^3\,e^5\,x^5+54\,264\,d^2\,e^6\,x^6+116\,280\,d\,e^7\,x^7+203\,490\,e^8\,x^8))+$$
$$165\,a^2\,b^8\,e^2\,(4\,A\,e\,(d^8+21\,d^7\,e\,x+210\,d^6\,e^2\,x^2+1330\,d^5\,e^3\,x^3+5985\,d^4\,e^4\,x^4+20\,349\,d^3\,e^5\,x^5+54\,264\,d^2\,e^6\,x^6+116\,280\,d\,e^7\,x^7+203\,490\,e^8\,x^8)+$$
$$3\,B\,(d^9+21\,d^8\,e\,x+210\,d^7\,e^2\,x^2+1330\,d^6\,e^3\,x^3+5985\,d^5\,e^4\,x^4+20\,349\,d^4\,e^5\,x^5+54\,264\,d^3\,e^6\,x^6+116\,280\,d^2\,e^7\,x^7+203\,490\,d\,e^8\,x^8+293\,930\,e^9\,x^9))+$$
$$10\,a\,b^9\,e\,(11\,A\,e\,(d^9+21\,d^8\,e\,x+210\,d^7\,e^2\,x^2+1330\,d^6\,e^3\,x^3+5985\,d^5\,e^4\,x^4+20\,349\,d^4\,e^5\,x^5+54\,264\,d^3\,e^6\,x^6+116\,280\,d^2\,e^7\,x^7+$$
$$203\,490\,d\,e^8\,x^8+293\,930\,e^9\,x^9)+10\,B\,(d^{10}+21\,d^9\,e\,x+210\,d^8\,e^2\,x^2+1330\,d^7\,e^3\,x^3+5985\,d^6\,e^4\,x^4+$$
$$20\,349\,d^5\,e^5\,x^5+54\,264\,d^4\,e^6\,x^6+116\,280\,d^3\,e^7\,x^7+203\,490\,d^2\,e^8\,x^8+293\,930\,d\,e^9\,x^9+352\,716\,e^{10}\,x^{10}))+$$
$$b^{10}\,(10\,A\,e\,(d^{10}+21\,d^9\,e\,x+210\,d^8\,e^2\,x^2+1330\,d^7\,e^3\,x^3+5985\,d^6\,e^4\,x^4+20\,349\,d^5\,e^5\,x^5+54\,264\,d^4\,e^6\,x^6+116\,280\,d^3\,e^7\,x^7+$$
$$203\,490\,d^2\,e^8\,x^8+293\,930\,d\,e^9\,x^9+352\,716\,e^{10}\,x^{10})+11\,B\,(d^{11}+21\,d^{10}\,e\,x+210\,d^9\,e^2\,x^2+1330\,d^8\,e^3\,x^3+5985\,d^7\,e^4\,x^4+$$
$$20\,349\,d^6\,e^5\,x^5+54\,264\,d^5\,e^6\,x^6+116\,280\,d^4\,e^7\,x^7+203\,490\,d^3\,e^8\,x^8+293\,930\,d^2\,e^9\,x^9+352\,716\,d\,e^{10}\,x^{10}+352\,716\,e^{11}\,x^{11}))\Big)$$

Problem 1122: Result more than twice size of optimal antiderivative.

$$\int\frac{(A+B\,x)\,(d+e\,x)^5}{(a+b\,x)^2}\,dx$$

Optimal (type 3, 227 leaves, 2 steps):

$$\frac{5\,e\,(b\,d-a\,e)^3\,(b\,B\,d+2\,A\,b\,e-3\,a\,B\,e)\,x}{b^6}-\frac{(A\,b-a\,B)\,(b\,d-a\,e)^5}{b^7\,(a+b\,x)}+$$
$$\frac{5\,e^2\,(b\,d-a\,e)^2\,(b\,B\,d+A\,b\,e-2\,a\,B\,e)\,(a+b\,x)^2}{b^7}+\frac{5\,e^3\,(b\,d-a\,e)\,(2\,b\,B\,d+A\,b\,e-3\,a\,B\,e)\,(a+b\,x)^3}{3\,b^7}+$$
$$\frac{e^4\,(5\,b\,B\,d+A\,b\,e-6\,a\,B\,e)\,(a+b\,x)^4}{4\,b^7}+\frac{B\,e^5\,(a+b\,x)^5}{5\,b^7}+\frac{(b\,d-a\,e)^4\,(b\,B\,d+5\,A\,b\,e-6\,a\,B\,e)\,\mathrm{Log}[a+b\,x]}{b^7}$$

Result (type 3, 500 leaves):

$$\frac{1}{60 b^7 (a+b x)}\Big(B\big(-60 a^6 e^5+300 a^5 b e^4 (d+e x)+60 a^4 b^2 e^3 (-10 d^2-20 d e x+3 e^2 x^2)+30 a^3 b^3 e^2 (20 d^3+60 d^2 e x-25 d e^2 x^2-2 e^3 x^3)+10 a^2 b^4 e (-30 d^4-120 d^3 e x+120 d^2 e^2 x^2+25 d e^3 x^3+3 e^4 x^4)+b^6 e x^2 (300 d^4+300 d^3 e x+200 d^2 e^2 x^2+75 d e^3 x^3+12 e^4 x^4)+a b^5 (60 d^5+300 d^4 e x-900 d^3 e^2 x^2-400 d^2 e^3 x^3-125 d e^4 x^4-18 e^5 x^5)\big)-5 A b\big(-12 a^5 e^5+12 a^4 b e^4 (5 d+4 e x)+30 a^3 b^2 e^3 (-4 d^2-6 d e x+e^2 x^2)-10 a^2 b^3 e^2 (-12 d^3-24 d^2 e x+12 d e^2 x^2+e^3 x^3)+5 a b^4 e (-12 d^4-24 d^3 e x+36 d^2 e^2 x^2+8 d e^3 x^3+e^4 x^4)+b^5 (12 d^5-120 d^3 e^2 x^2-60 d^2 e^3 x^3-20 d e^4 x^4-3 e^5 x^5)\big)+60 (b d-a e)^4 (b B d+5 A b e-6 a B e)(a+b x)\,\mathrm{Log}[a+b x]\Big)$$

Problem 1192: Result more than twice size of optimal antiderivative.

$$\int (5-2 x)^6 (2+3 x)^3 (-16+33 x)\, dx$$

Optimal (type 1, 18 leaves, 1 step):

$$-\frac{1}{2} (5-2 x)^7 (2+3 x)^4$$

Result (type 1, 56 leaves):

$$-2\,000\,000 x-37\,500 x^2+3\,987\,500 x^3-\frac{98\,125 x^4}{2}-3\,816\,225 x^5+1\,497\,230 x^6+1\,235\,404 x^7-1\,256\,376 x^8+452\,304 x^9-76\,896 x^{10}+5184 x^{11}$$

Problem 2517: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{\sqrt{a+b x}\,(e+f x)\,\sqrt{2 b e-a f+b f x}}\, dx$$

Optimal (type 3, 59 leaves, 2 steps):

$$\frac{\mathrm{ArcTan}\left[\frac{\sqrt{f}\,\sqrt{a+b x}\,\sqrt{2 b e-a f+b f x}}{b e-a f}\right]}{\sqrt{f}\,(b e-a f)}$$

Result (type 3, 81 leaves):

$$\frac{i\,\mathrm{Log}\left[-\frac{2 i \sqrt{f}\,(-b e+a f)}{e+f x}+\frac{2 f \sqrt{a+b x}\,\sqrt{2 b e-a f+b f x}}{e+f x}\right]}{\sqrt{f}\,(b e-a f)}$$

Problem 2637: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{a+b\,x}\,\sqrt{c+\frac{b\,(-1+c)\,x}{a}}\,\sqrt{e+\frac{b\,(-1+e)\,x}{a}}}\,dx$$

Optimal (type 4, 58 leaves, 1 step):

$$\frac{2\,\sqrt{a}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-c}\,\sqrt{a+b\,x}}{\sqrt{a}}\right],\frac{1-e}{1-c}\right]}{b\,\sqrt{1-c}}$$

Result (type 4, 129 leaves):

$$-\frac{2\,(a+b\,x)\,\sqrt{\frac{-1+c+\frac{a}{a+b\,x}}{-1+c}}\,\sqrt{\frac{-1+e+\frac{a}{a+b\,x}}{-1+e}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{-\frac{a}{-1+c}}}{\sqrt{a+b\,x}}\right],\frac{-1+c}{-1+e}\right]}{b\,\sqrt{-\frac{a}{-1+c}}\,\sqrt{c+\frac{b\,(-1+c)\,x}{a}}\,\sqrt{e+\frac{b\,(-1+e)\,x}{a}}}$$

Problem 2640: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{e+\frac{b\,(-1+e)\,x}{a}}}{\sqrt{a+b\,x}\,\sqrt{c+\frac{b\,(-1+c)\,x}{a}}}\,dx$$

Optimal (type 4, 58 leaves, 1 step):

$$\frac{2\,\sqrt{a}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-c}\,\sqrt{a+b\,x}}{\sqrt{a}}\right],\frac{1-e}{1-c}\right]}{b\,\sqrt{1-c}}$$

Result (type 4, 191 leaves):

$$-\frac{2\,(a+b\,x)^{3/2}\left(-\frac{\sqrt{-\frac{a}{-1+e}}\,\left(-1+c+\frac{a}{a+b\,x}\right)\,\left(-1+e+\frac{a}{a+b\,x}\right)}{-1+c}+\frac{a\,\sqrt{\frac{-1+c+\frac{a}{a+b\,x}}{-1+c}}\,\sqrt{\frac{-1+e+\frac{a}{a+b\,x}}{-1+e}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{-\frac{a}{-1+e}}}{\sqrt{a+b\,x}}\right],\frac{-1+e}{-1+c}\right]}{\sqrt{a+b\,x}}\right)}{a\,b\,\sqrt{-\frac{a}{-1+e}}\,\sqrt{c+\frac{b\,(-1+c)\,x}{a}}\,\sqrt{e+\frac{b\,(-1+e)\,x}{a}}}$$

Problem 2641: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{c+d\,x}}{\sqrt{a+b\,x}\,\sqrt{e+\frac{b\,(-1+e)\,x}{a}}}\,dx$$

Optimal (type 4, 96 leaves, 2 steps):

$$\frac{2\,\sqrt{a}\,\sqrt{c+d\,x}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-e}\,\sqrt{a+b\,x}}{\sqrt{a}}\right],-\frac{a\,d}{(b\,c-a\,d)\,(1-e)}\right]}{b\,\sqrt{1-e}\,\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}}$$

Result (type 4, 200 leaves):

$$\left(2\,\sqrt{\frac{-1+e+\frac{a}{a+b\,x}}{-1+e}}\left(b\,\sqrt{a-\frac{b\,c}{d}}\,\sqrt{a+b\,x}\,(c+d\,x)\,\sqrt{\frac{a\,e+b\,(-1+e)\,x}{(-1+e)\,(a+b\,x)}}-(b\,c-a\,d)\,(a+b\,x)\,\sqrt{\frac{b\,(c+d\,x)}{d\,(a+b\,x)}}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{a-\frac{b\,c}{d}}}{\sqrt{a+b\,x}}\right],\frac{a\,d}{(b\,c-a\,d)\,(-1+e)}\right]\right)\right)\Bigg/\left(b^2\,\sqrt{a-\frac{b\,c}{d}}\,\sqrt{c+d\,x}\,\sqrt{e+\frac{b\,(-1+e)\,x}{a}}\right)$$

Problem 2642: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\sqrt{a+b\,x}}{\sqrt{c+\frac{b\,(-1+c)\,x}{a}}\,\sqrt{e+\frac{b\,(-1+e)\,x}{a}}}\,dx$$

Optimal (type 4, 162 leaves, 2 steps):

$$-\frac{2\,a\,\sqrt{c-e}\,\sqrt{a+b\,x}\,\sqrt{-\frac{(1-c)\,(a\,e-b\,(1-e)\,x)}{a\,(c-e)}}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-e}\,\sqrt{c-\frac{b\,(1-c)\,x}{a}}}{\sqrt{c-e}}\right],\frac{c-e}{1-e}\right]}{b\,(1-c)\,\sqrt{1-e}\,\sqrt{\frac{(1-c)\,(a+b\,x)}{a}}\,\sqrt{e-\frac{b\,(1-e)\,x}{a}}}$$

Result (type 4, 103 leaves):

$$-\frac{1}{b\,(-1+e)\,\sqrt{\frac{(-1+c)\,(a+b\,x)}{a}}}2\,\mathrm{i}\,a\,\sqrt{a+b\,x}\,\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{\frac{(-1+c)\,(a+b\,x)}{a}}\right],\frac{-1+e}{-1+c}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{\frac{(-1+c)\,(a+b\,x)}{a}}\right],\frac{-1+e}{-1+c}\right]\right)$$

Problem 2674: Result more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{1-2\,x}}{\sqrt{-3-5\,x}\,\sqrt{2+3\,x}}\,dx$$

Optimal (type 4, 31 leaves, 1 step):

$$\frac{2}{3}\,\sqrt{\frac{7}{5}}\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{5}\,\sqrt{2+3\,x}\right],\frac{2}{35}\right]$$

Result (type 4, 109 leaves):

$$-\frac{2\left(\frac{3\,(-3+x+10\,x^2)}{\sqrt{2+3\,x}}+\sqrt{35}\,\sqrt{\frac{-1+2\,x}{2+3\,x}}\,(2+3\,x)\,\sqrt{\frac{3+5\,x}{2+3\,x}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{7}{2}}}{\sqrt{2+3\,x}}\right],\frac{2}{35}\right]\right)}{15\,\sqrt{-3-5\,x}\,\sqrt{1-2\,x}}$$

Problem 2678: Result more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{1-2\,x}}{\sqrt{2+3\,x}\,\sqrt{3+5\,x}}\,dx$$

Optimal (type 4, 49 leaves, 2 steps):

$$\frac{2\,\sqrt{\frac{7}{5}}\,\sqrt{-3-5\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{5}\,\sqrt{2+3\,x}\right],\frac{2}{35}\right]}{3\,\sqrt{3+5\,x}}$$

Result (type 4, 121 leaves):

$$\left(2\sqrt{1-2x}\left(5\sqrt{3+5x}\left(-2+x+6x^2\right)+\sqrt{33}\sqrt{\frac{-1+2x}{3+5x}}\sqrt{\frac{2+3x}{3+5x}}(3+5x)^2\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{11}{2}}}{\sqrt{3+5x}}\right],-\frac{2}{33}\right]\right)\right)\Big/$$
$$\left(15\sqrt{2+3x}\left(-3+x+10x^2\right)\right)$$

Problem 2819: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\sqrt{3+5x}}{\sqrt{1-2x}\,(2+3x)^{3/2}}\,dx$$

Optimal (type 4, 81 leaves, 4 steps):

$$-\frac{2\sqrt{1-2x}\sqrt{3+5x}}{7\sqrt{2+3x}}+\frac{2\sqrt{\frac{5}{7}}\sqrt{-3-5x}\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{5}\sqrt{2+3x}\right],\frac{2}{35}\right]}{3\sqrt{3+5x}}$$

Result (type 4, 70 leaves):

$$\frac{-6\sqrt{1-2x}\sqrt{2+3x}\sqrt{3+5x}-2\,i\sqrt{33}\,(2+3x)\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{9+15x}\right],-\frac{2}{33}\right]}{42+63x}$$

Problem 2841: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{1+x}\sqrt{2+x}\sqrt{3+x}}\,dx$$

Optimal (type 4, 12 leaves, 1 step):

$$-2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{3+x}}\right],2\right]$$

Result (type 4, 55 leaves):

$$\frac{2\,i\sqrt{1+\frac{1}{1+x}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{1}{\sqrt{1+x}}\right],2\right]}{\sqrt{\frac{2+x}{3+x}}\sqrt{\frac{3+x}{1+x}}}$$

Problem 2842: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{3-x}\,\sqrt{1+x}\,\sqrt{2+x}}\,dx$$

Optimal (type 4, 16 leaves, 1 step):

$$2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1+x}}{2}\right],-4\right]$$

Result (type 4, 74 leaves):

$$\frac{i\,\sqrt{1+\frac{4}{-3+x}}\,\sqrt{1+\frac{5}{-3+x}}\,(-3+x)^{3/2}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{2}{\sqrt{-3+x}}\right],\frac{5}{4}\right]}{\sqrt{-(-3+x)\,(1+x)}\,\sqrt{2+x}}$$

Problem 2843: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{2-x}\,\sqrt{1+x}\,\sqrt{3+x}}\,dx$$

Optimal (type 4, 24 leaves, 1 step):

$$\sqrt{2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1+x}}{\sqrt{3}}\right],-\frac{3}{2}\right]$$

Result (type 4, 67 leaves):

$$-\frac{2\,(3+x)\,\sqrt{1-\frac{5}{3+x}}\,\sqrt{1-\frac{2}{3+x}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{5}}{\sqrt{3+x}}\right],\frac{2}{5}\right]}{\sqrt{-50+35\,(3+x)-5\,(3+x)^2}}$$

Problem 2844: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{2-x}\,\sqrt{3-x}\,\sqrt{1+x}}\,dx$$

Optimal (type 4, 18 leaves, 1 step):

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1+x}}{\sqrt{3}}\right],\frac{3}{4}\right]$$

Result (type 4, 65 leaves):

$$-\frac{2\,\mathrm{i}\,\sqrt{1-\frac{3}{2-x}}\,\sqrt{1+\frac{1}{2-x}}\,(2-x)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{1}{\sqrt{2-x}}\right],-3\right]}{\sqrt{-(-3+x)\,(1+x)}}$$

Problem 2845: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{1-x}\,\sqrt{2+x}\,\sqrt{3+x}}\,dx$$

Optimal (type 4, 18 leaves, 1 step):

$$2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{2+x}}{\sqrt{3}}\right],-3\right]$$

Result (type 4, 78 leaves):

$$-\frac{2\,\mathrm{i}\,\sqrt{-(-1+x)\,(2+x)}\,\sqrt{3+x}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{3}}{\sqrt{-1+x}}\right],\frac{4}{3}\right]}{\sqrt{3+\frac{9}{-1+x}}\,(-1+x)^{3/2}\,\sqrt{\frac{3+x}{-1+x}}}$$

Problem 2846: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{1-x}\,\sqrt{3-x}\,\sqrt{2+x}}\,dx$$

Optimal (type 4, 25 leaves, 1 step):

$$\frac{2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{2+x}}{\sqrt{3}}\right],\frac{3}{5}\right]}{\sqrt{5}}$$

Result (type 4, 68 leaves):

$$-\frac{2\,\sqrt{\frac{-3+x}{-1+x}}\,(-1+x)\,\sqrt{\frac{2+x}{-1+x}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{3}}{\sqrt{1-x}}\right],-\frac{2}{3}\right]}{\sqrt{3}\,\sqrt{6+x-x^2}}$$

Problem 2847: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{1-x}\,\sqrt{2-x}\,\sqrt{3+x}}\,dx$$

Optimal (type 4, 23 leaves, 1 step):

$$\frac{2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{3+x}}{2}\right],\frac{4}{5}\right]}{\sqrt{5}}$$

Result (type 4, 65 leaves):

$$-\frac{2\,i\,\sqrt{1-\frac{4}{1-x}}\,\sqrt{1+\frac{1}{1-x}}\,(1-x)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{1}{\sqrt{1-x}}\right],-4\right]}{\sqrt{-(-2+x)\,(3+x)}}$$

Problem 2848: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{1-x}\,\sqrt{2-x}\,\sqrt{3-x}}\,dx$$

Optimal (type 4, 14 leaves, 1 step):

$$2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{3-x}}\right],2\right]$$

Result (type 4, 67 leaves):

$$\frac{2\,i\,\sqrt{\frac{-3+x}{-1+x}}\,\sqrt{\frac{-2+x}{-1+x}}\,(-1+x)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{1}{\sqrt{1-x}}\right],2\right]}{\sqrt{2-x}\,\sqrt{3-x}}$$

Problem 2849: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{-3+x}\,\sqrt{-2+x}\,\sqrt{-1+x}}\,dx$$

Optimal (type 4, 12 leaves, 1 step):

$$-2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{-1+x}}\right],2\right]$$

Result (type 4, 59 leaves):

$$\frac{2\,i\,\sqrt{1+\frac{1}{-3+x}}\,\sqrt{1+\frac{2}{-3+x}}\,(-3+x)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{1}{\sqrt{-3+x}}\right],\,2\right]}{\sqrt{-2+x}\,\sqrt{-1+x}}$$

Problem 2851: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{\sqrt{-2-x}\,\sqrt{-3+x}\,\sqrt{-1+x}}\,dx$$

Optimal (type 4, 41 leaves, 2 steps):

$$-\frac{2\,\sqrt{2+x}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{\frac{2}{3}+\frac{x}{3}}}\right],\,\frac{5}{3}\right]}{\sqrt{3}\,\sqrt{-2-x}}$$

Result (type 4, 72 leaves):

$$\frac{2\,i\,\sqrt{\frac{-3+x}{-1+x}}\,\sqrt{\frac{-1+x}{2+x}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{3}}{\sqrt{-2-x}}\right],\,\frac{5}{3}\right]}{\sqrt{3}\,\sqrt{\frac{-3+x}{2+x}}}$$

Problem 2853: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{\sqrt{-1-x}\,\sqrt{-3+x}\,\sqrt{-2+x}}\,dx$$

Optimal (type 4, 41 leaves, 2 steps):

$$-\frac{2\,\sqrt{1+x}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{\frac{1}{3}+\frac{x}{3}}}\right],\,\frac{4}{3}\right]}{\sqrt{3}\,\sqrt{-1-x}}$$

Result (type 4, 72 leaves):

$$\frac{2\,i\,\sqrt{\frac{-3+x}{-2+x}}\,\sqrt{\frac{-2+x}{1+x}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{3}}{\sqrt{-1-x}}\right],\,\frac{4}{3}\right]}{\sqrt{3}\,\sqrt{\frac{-3+x}{1+x}}}$$

Problem 2854: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{\sqrt{-3-x}\,\sqrt{-1-x}\,\sqrt{-2+x}}\,dx$$

Optimal (type 4, 57 leaves, 3 steps):

$$-\frac{2\sqrt{1+x}\,\sqrt{3+x}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{\frac{3}{5}+\frac{x}{5}}}\right],\frac{2}{5}\right]}{\sqrt{5}\,\sqrt{-3-x}\,\sqrt{-1-x}}$$

Result (type 4, 75 leaves):

$$\frac{2\,i\,\sqrt{1+\frac{3}{-2+x}}\,\sqrt{1+\frac{5}{-2+x}}\,(-2+x)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{3}}{\sqrt{-2+x}}\right],\frac{5}{3}\right]}{\sqrt{-15-3\,(-2+x)}\,\sqrt{-1-x}}$$

Problem 2855: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{\sqrt{-2-x}\,\sqrt{-1-x}\,\sqrt{-3+x}}\,dx$$

Optimal (type 4, 57 leaves, 3 steps):

$$-\frac{2\sqrt{1+x}\,\sqrt{2+x}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{\frac{2}{5}+\frac{x}{5}}}\right],\frac{1}{5}\right]}{\sqrt{5}\,\sqrt{-2-x}\,\sqrt{-1-x}}$$

Result (type 4, 69 leaves):

$$\frac{i\,\sqrt{1+\frac{4}{-3+x}}\,\sqrt{1+\frac{5}{-3+x}}\,(-3+x)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{2}{\sqrt{-3+x}}\right],\frac{5}{4}\right]}{\sqrt{-2-x}\,\sqrt{-1-x}}$$

Problem 2856: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{-3-x}\,\sqrt{-2-x}\,\sqrt{-1-x}}\,dx$$

Optimal (type 4, 14 leaves, 1 step):

$$2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{-1-x}}\right],2\right]$$

Result (type 4, 67 leaves):

$$\frac{2\,i\,\sqrt{\frac{1+x}{3+x}}\,\sqrt{\frac{2+x}{3+x}}\,(3+x)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{1}{\sqrt{-3-x}}\right],2\right]}{\sqrt{-2-x}\,\sqrt{-1-x}}$$

Problem 2857: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(a+b\,x)^{3/2}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 204 leaves, 4 steps):

$$-\frac{2\,b\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}{(b\,c-a\,d)\,(b\,e-a\,f)\,\sqrt{a+b\,x}}+\frac{2\,\sqrt{f}\,\sqrt{-d\,e+c\,f}\,\sqrt{a+b\,x}\,\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],-\frac{b\,(d\,e-c\,f)}{(b\,c-a\,d)\,f}\right]}{(b\,c-a\,d)\,(b\,e-a\,f)\,\sqrt{-\frac{d\,(a+b\,x)}{b\,c-a\,d}}\,\sqrt{e+f\,x}}$$

Result (type 4, 201 leaves):

$$\left(2\,b\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\left(-1-\frac{1}{\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}}\right.\right.$$

$$\left.\left.i\,\sqrt{\frac{d\,(a+b\,x)}{b\,(c+d\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{\frac{d\,(a+b\,x)}{b\,c-a\,d}}\right],\frac{b\,c\,f-a\,d\,f}{b\,d\,e-a\,d\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{\frac{d\,(a+b\,x)}{b\,c-a\,d}}\right],\frac{b\,c\,f-a\,d\,f}{b\,d\,e-a\,d\,f}\right]\right)\right)\right)\Big/\left((b\,c-\right.$$

$$\left.a\,d)\,(b\,e-a\,f)\,\sqrt{a+b\,x}\right)$$

Problem 2858: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(a+b\,x)^{5/2}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 437 leaves, 8 steps):

$$-\frac{2 b \sqrt{c+d x} \sqrt{e+f x}}{3 (b c-a d) (b e-a f) (a+b x)^{3/2}}+\frac{4 b (b d e+b c f-2 a d f) \sqrt{c+d x} \sqrt{e+f x}}{3 (b c-a d)^2 (b e-a f)^2 \sqrt{a+b x}}-$$

$$\frac{4 \sqrt{d} (b d e+b c f-2 a d f) \sqrt{\frac{b (c+d x)}{b c-a d}} \sqrt{e+f x}\, \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d} \sqrt{a+b x}}{\sqrt{-b c+a d}}\right], \frac{(b c-a d) f}{d (b e-a f)}\right]}{3 (-b c+a d)^{3/2} (b e-a f)^2 \sqrt{c+d x} \sqrt{\frac{b (e+f x)}{b e-a f}}}+$$

$$\frac{2 \sqrt{d} (2 b d e+b c f-3 a d f) \sqrt{\frac{b (c+d x)}{b c-a d}} \sqrt{\frac{b (e+f x)}{b e-a f}}\, \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d} \sqrt{a+b x}}{\sqrt{-b c+a d}}\right], \frac{(b c-a d) f}{d (b e-a f)}\right]}{3 b (-b c+a d)^{3/2} (b e-a f) \sqrt{c+d x} \sqrt{e+f x}}$$

Result (type 4, 449 leaves):

$$-\frac{1}{3 b \sqrt{-a+\frac{b c}{d}} (b c-a d)^2 (b e-a f)^2 (a+b x)^{3/2} \sqrt{c+d x} \sqrt{e+f x}}$$

$$\left(2 \left(b^2 \sqrt{-a+\frac{b c}{d}} (c+d x) (e+f x) \left((b c-a d) (b e-a f)-2 (b d e+b c f-2 a d f) (a+b x)\right)+\right.\right.$$

$$(a+b x) \left(2 b^2 \sqrt{-a+\frac{b c}{d}} (b d e+b c f-2 a d f) (c+d x) (e+f x)+\right.$$

$$2\, i (b c-a d) f (b d e+b c f-2 a d f) (a+b x)^{3/2} \sqrt{\frac{b (c+d x)}{d (a+b x)}} \sqrt{\frac{b (e+f x)}{f (a+b x)}}\, \text{EllipticE}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-a+\frac{b c}{d}}}{\sqrt{a+b x}}\right], \frac{b d e-a d f}{b c f-a d f}\right]-$$

$$\left.\left.\left. i (b c-a d) f (b d e+2 b c f-3 a d f) (a+b x)^{3/2} \sqrt{\frac{b (c+d x)}{d (a+b x)}} \sqrt{\frac{b (e+f x)}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-a+\frac{b c}{d}}}{\sqrt{a+b x}}\right], \frac{b d e-a d f}{b c f-a d f}\right]\right)\right)\right)$$

Problem 2862: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{2+3x}}{\sqrt{1-2x}\,\sqrt{3+5x}}\,dx$$

Optimal (type 4, 31 leaves, 1 step):

$$-\sqrt{\frac{7}{5}}\;\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{5}{11}}\,\sqrt{1-2x}\right],\frac{33}{35}\right]$$

Result (type 4, 129 leaves):

$$\frac{\sqrt{2+3x}\,\sqrt{\frac{-1+2x}{3+5x}}\left(5\sqrt{\frac{-1+2x}{3+5x}}\,\sqrt{\frac{2+3x}{3+5x}}\,\sqrt{3+5x}+i\sqrt{2}\;\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{1}{\sqrt{9+15x}}\right],-\frac{33}{2}\right]\right)}{5\sqrt{1-2x}\,\sqrt{\frac{2+3x}{3+5x}}}$$

Problem 2863: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{1-2x}\,\sqrt{2+3x}\,\sqrt{3+5x}}\,dx$$

Optimal (type 4, 29 leaves, 1 step):

$$-\frac{2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{3}{7}}\,\sqrt{1-2x}\right],\frac{35}{33}\right]}{\sqrt{33}}$$

Result (type 4, 74 leaves):

$$\frac{i\sqrt{2+3x}\,\sqrt{\frac{-2+4x}{3+5x}}\;\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{1}{\sqrt{9+15x}}\right],-\frac{33}{2}\right]}{\sqrt{1-2x}\,\sqrt{\frac{2+3x}{3+5x}}}$$

Problem 2870: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\sqrt{2+3x}}{\sqrt{1-2x}\,(3+5x)^{3/2}}\,dx$$

Optimal (type 4, 81 leaves, 4 steps):

$$-\frac{2\sqrt{1-2x}\,\sqrt{2+3x}}{11\sqrt{3+5x}}+\frac{2\sqrt{\frac{7}{5}}\,\sqrt{-3-5x}\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{5}\,\sqrt{2+3x}\right],\frac{2}{35}\right]}{11\sqrt{3+5x}}$$

Result (type 4, 61 leaves):

$$\frac{2}{55}\left(-\frac{5\sqrt{1-2x}\,\sqrt{2+3x}}{\sqrt{3+5x}}-i\sqrt{33}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{9+15x}\right],-\frac{2}{33}\right]\right)$$

Problem 2884: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\sqrt{x}}{\sqrt{a+2x}\,\sqrt{c+2x}}\,dx$$

Optimal (type 4, 86 leaves, 3 steps):

$$\frac{\sqrt{a-c}\,\sqrt{x}\,\sqrt{-\frac{c+2x}{a-c}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{a+2x}}{\sqrt{a-c}}\right],1-\frac{c}{a}\right]}{\sqrt{2}\,\sqrt{-\frac{x}{a}}\,\sqrt{c+2x}}$$

Result (type 4, 120 leaves):

$$-\left(\left(i\,c\sqrt{1+\frac{2x}{a}}\,\sqrt{1+\frac{2x}{c}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{1}{a}}\,\sqrt{x}\right],\frac{a}{c}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{1}{a}}\,\sqrt{x}\right],\frac{a}{c}\right]\right)\right)\Big/\left(\sqrt{2}\,\sqrt{\frac{1}{a}}\,\sqrt{a+2x}\,\sqrt{c+2x}\right)\right)$$

Problem 2885: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{4-x}\,\sqrt{5-x}\,\sqrt{-3+x}}\,dx$$

Optimal (type 4, 18 leaves, 1 step):

$$\sqrt{2}\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-3+x}\right],\frac{1}{2}\right]$$

Result (type 4, 46 leaves):

$$\frac{2\sqrt{-15+8x-x^2}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{4-x}}\right],-1\right]}{\sqrt{1-\frac{1}{(-4+x)^2}}\ (-4+x)}$$

Problem 2886: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{4-x}\ \sqrt{(5-x)\ (-3+x)}}\,dx$$

Optimal (type 4, 14 leaves, 3 steps):

$$-2\ \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{4-x}\right],-1\right]$$

Result (type 4, 46 leaves):

$$\frac{2\sqrt{-15+8x-x^2}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{4-x}}\right],-1\right]}{\sqrt{1-\frac{1}{(-4+x)^2}}\ (-4+x)}$$

Problem 2887: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{4-x}\ \sqrt{-15+8x-x^2}}\,dx$$

Optimal (type 4, 14 leaves, 2 steps):

$$-2\ \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{4-x}\right],-1\right]$$

Result (type 4, 44 leaves):

$$-\frac{2\sqrt{1-\frac{1}{(-4+x)^2}}\ (-4+x)\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{4-x}}\right],-1\right]}{\sqrt{-15+8x-x^2}}$$

Problem 2888: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{6-x}\ \sqrt{-2+x}\ \sqrt{-1+x}}\,dx$$

Optimal (type 4, 16 leaves, 1 step):

$$2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{-2+x}}{2}\right],-4\right]$$

Result (type 4, 74 leaves):

$$\frac{i\,\sqrt{1+\frac{4}{-6+x}}\,\sqrt{1+\frac{5}{-6+x}}\,(-6+x)^{3/2}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{2}{\sqrt{-6+x}}\right],\frac{5}{4}\right]}{\sqrt{-(-6+x)\,(-2+x)}\,\sqrt{-1+x}}$$

Problem 2889: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{(6-x)\,(-2+x)}\,\sqrt{-1+x}}\,dx$$

Optimal (type 4, 25 leaves, 3 steps):

$$-\frac{2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{6-x}}{2}\right],\frac{4}{5}\right]}{\sqrt{5}}$$

Result (type 4, 74 leaves):

$$\frac{i\,\sqrt{1+\frac{4}{-6+x}}\,\sqrt{1+\frac{5}{-6+x}}\,(-6+x)^{3/2}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{2}{\sqrt{-6+x}}\right],\frac{5}{4}\right]}{\sqrt{-(-6+x)\,(-2+x)}\,\sqrt{-1+x}}$$

Problem 2890: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{-1+x}\,\sqrt{-12+8x-x^2}}\,dx$$

Optimal (type 4, 25 leaves, 2 steps):

$$-\frac{2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{6-x}}{2}\right],\frac{4}{5}\right]}{\sqrt{5}}$$

Result (type 4, 68 leaves):

$$-\frac{2\sqrt{\frac{-6+x}{-1+x}}\sqrt{\frac{-2+x}{-1+x}}\,(-1+x)\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{5}}{\sqrt{-1+x}}\right],\frac{1}{5}\right]}{\sqrt{5}\sqrt{-12+8x-x^2}}$$

Problem 2922: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(1-2x)^{3/2}\sqrt{2+3x}\sqrt{3+5x}}\,dx$$

Optimal (type 4, 81 leaves, 4 steps):

$$\frac{4\sqrt{2+3x}\sqrt{3+5x}}{77\sqrt{1-2x}}+\frac{2\sqrt{\frac{5}{7}}\sqrt{-3-5x}\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{5}\sqrt{2+3x}\right],\frac{2}{35}\right]}{11\sqrt{3+5x}}$$

Result (type 4, 61 leaves):

$$\frac{2}{77}\left(\frac{2\sqrt{2+3x}\sqrt{3+5x}}{\sqrt{1-2x}}-i\sqrt{33}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{9+15x}\right],-\frac{2}{33}\right]\right)$$

Problem 3001: Result unnecessarily involves higher level functions.

$$\int (a+bx)^{1/3}(c+dx)^{2/3}(e+fx)^2\,dx$$

Optimal (type 3, 571 leaves, 5 steps):

$$\frac{(b c-a d)\left(10 a^2 d^2 f^2-10 a b d f(3 d e-c f)+b^2\left(27 d^2 e^2-24 c d e f+7 c^2 f^2\right)\right)(a+b x)^{1/3}(c+d x)^{2/3}}{81 b^3 d^3}+$$
$$\frac{\left(10 a^2 d^2 f^2-10 a b d f(3 d e-c f)+b^2\left(27 d^2 e^2-24 c d e f+7 c^2 f^2\right)\right)(a+b x)^{4/3}(c+d x)^{2/3}}{54 b^3 d^2}+$$
$$\frac{f(15 b d e-7 b c f-8 a d f)(a+b x)^{4/3}(c+d x)^{5/3}}{36 b^2 d^2}+\frac{f(a+b x)^{4/3}(c+d x)^{5/3}(e+f x)}{4 b d}+\frac{1}{81 \sqrt{3}\, b^{11/3} d^{10/3}}$$
$$(b c-a d)^2\left(10 a^2 d^2 f^2-10 a b d f(3 d e-c f)+b^2\left(27 d^2 e^2-24 c d e f+7 c^2 f^2\right)\right) \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3}(c+d x)^{1/3}}{\sqrt{3}\, d^{1/3}(a+b x)^{1/3}}\right]+$$
$$\frac{(b c-a d)^2\left(10 a^2 d^2 f^2-10 a b d f(3 d e-c f)+b^2\left(27 d^2 e^2-24 c d e f+7 c^2 f^2\right)\right) \text{Log}[a+b x]}{486 b^{11/3} d^{10/3}}+\frac{1}{162 b^{11/3} d^{10/3}}$$
$$(b c-a d)^2\left(10 a^2 d^2 f^2-10 a b d f(3 d e-c f)+b^2\left(27 d^2 e^2-24 c d e f+7 c^2 f^2\right)\right) \text{Log}\left[-1+\frac{b^{1/3}(c+d x)^{1/3}}{d^{1/3}(a+b x)^{1/3}}\right]$$

Result (type 5, 311 leaves) :

$$\frac{1}{324 b^3 d^4 (a+b x)^{2/3}}$$
$$(c+d x)^{2/3}\Big(d(a+b x)\left(20 a^3 d^3 f^2-12 a^2 b d^2 f(5 d e+c f+d f x)+3 a b^2 d\left(-3 c^2 f^2+2 c d f(8 e+f x)+3 d^2\left(6 e^2+4 e f x+f^2 x^2\right)\right)+\right.$$
$$\left.b^3\left(28 c^3 f^2-3 c^2 d f(32 e+7 f x)+18 c d^2\left(6 e^2+4 e f x+f^2 x^2\right)+27 d^3 x\left(6 e^2+8 e f x+3 f^2 x^2\right)\right)\right)-2(b c-a d)^2$$
$$\left(10 a^2 d^2 f^2+10 a b d f(-3 d e+c f)+b^2\left(27 d^2 e^2-24 c d e f+7 c^2 f^2\right)\right)\left(\frac{d(a+b x)}{-b c+a d}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{2}{3}, \frac{2}{3}, \frac{5}{3}, \frac{b(c+d x)}{b c-a d}\right]\Big)$$

Problem 3002: Result unnecessarily involves higher level functions.

$$\int (a+b x)^{1/3}(c+d x)^{2/3}(e+f x)\, dx$$

Optimal (type 3, 331 leaves, 4 steps) :

$$\frac{(b c-a d)\,(9 b d e-4 b c f-5 a d f)\,(a+b x)^{1/3}\,(c+d x)^{2/3}}{27 b^2 d^2}+\frac{(9 b d e-4 b c f-5 a d f)\,(a+b x)^{4/3}\,(c+d x)^{2/3}}{18 b^2 d}+$$
$$\frac{f\,(a+b x)^{4/3}\,(c+d x)^{5/3}}{3 b d}+\frac{(b c-a d)^2\,(9 b d e-4 b c f-5 a d f)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3}\,(c+d x)^{1/3}}{\sqrt{3}\,d^{1/3}\,(a+b x)^{1/3}}\right]}{27\sqrt{3}\,b^{8/3}\,d^{7/3}}+$$
$$\frac{(b c-a d)^2\,(9 b d e-4 b c f-5 a d f)\,\text{Log}[a+b x]}{162\,b^{8/3}\,d^{7/3}}+\frac{(b c-a d)^2\,(9 b d e-4 b c f-5 a d f)\,\text{Log}\left[-1+\frac{b^{1/3}\,(c+d x)^{1/3}}{d^{1/3}\,(a+b x)^{1/3}}\right]}{54\,b^{8/3}\,d^{7/3}}$$

Result (type 5, 175 leaves):

$$\frac{1}{54 b^2 d^3\,(a+b x)^{2/3}}(c+d x)^{2/3}\left(d\,(a+b x)\,\left(-5 a^2 d^2 f+a b d\,(9 d e+4 c f+3 d f x)+b^2\,\left(-8 c^2 f+6 c d\,(3 e+f x)+9 d^2 x\,(3 e+2 f x)\right)\right)+\right.$$
$$\left.(b c-a d)^2\,(-9 b d e+4 b c f+5 a d f)\,\left(\frac{d\,(a+b x)}{-b c+a d}\right)^{2/3}\,\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d x)}{b c-a d}\right]\right)$$

Problem 3003: Result unnecessarily involves higher level functions.

$$\int (a+b x)^{1/3}\,(c+d x)^{2/3}\,dx$$

Optimal (type 3, 219 leaves, 3 steps):

$$\frac{(b c-a d)\,(a+b x)^{1/3}\,(c+d x)^{2/3}}{3 b d}+\frac{(a+b x)^{4/3}\,(c+d x)^{2/3}}{2 b}+$$
$$\frac{(b c-a d)^2\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3}\,(c+d x)^{1/3}}{\sqrt{3}\,d^{1/3}\,(a+b x)^{1/3}}\right]}{3\sqrt{3}\,b^{5/3}\,d^{4/3}}+\frac{(b c-a d)^2\,\text{Log}[a+b x]}{18\,b^{5/3}\,d^{4/3}}+\frac{(b c-a d)^2\,\text{Log}\left[-1+\frac{b^{1/3}\,(c+d x)^{1/3}}{d^{1/3}\,(a+b x)^{1/3}}\right]}{6\,b^{5/3}\,d^{4/3}}$$

Result (type 5, 109 leaves):

$$\frac{1}{6 b d^2\,(a+b x)^{2/3}}(c+d x)^{2/3}\left(d\,(a+b x)\,(2 b c+a d+3 b d x)-(b c-a d)^2\,\left(\frac{d\,(a+b x)}{-b c+a d}\right)^{2/3}\,\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d x)}{b c-a d}\right]\right)$$

Problem 3004: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3}\,(c+d x)^{2/3}}{e+f x}\,dx$$

Optimal (type 3, 409 leaves, 4 steps):

$$\frac{(a+b x)^{1/3} (c+d x)^{2/3}}{f}+\frac{(3 b d e-2 b c f-a d f) \operatorname{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3} (c+d x)^{1/3}}{\sqrt{3} d^{1/3} (a+b x)^{1/3}}\right]}{\sqrt{3} b^{2/3} d^{1/3} f^2}-$$

$$\frac{\sqrt{3} (b e-a f)^{1/3} (d e-c f)^{2/3} \operatorname{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 (b e-a f)^{1/3} (c+d x)^{1/3}}{\sqrt{3} (d e-c f)^{1/3} (a+b x)^{1/3}}\right]}{f^2}+\frac{(3 b d e-2 b c f-a d f) \operatorname{Log}[a+b x]}{6 b^{2/3} d^{1/3} f^2}+\frac{(b e-a f)^{1/3} (d e-c f)^{2/3} \operatorname{Log}[e+f x]}{2 f^2}-$$

$$\frac{3 (b e-a f)^{1/3} (d e-c f)^{2/3} \operatorname{Log}\left[-(a+b x)^{1/3}+\frac{(b e-a f)^{1/3} (c+d x)^{1/3}}{(d e-c f)^{1/3}}\right]}{2 f^2}+\frac{(3 b d e-2 b c f-a d f) \operatorname{Log}\left[-1+\frac{b^{1/3} (c+d x)^{1/3}}{d^{1/3} (a+b x)^{1/3}}\right]}{2 b^{2/3} d^{1/3} f^2}$$

Result (type 6, 541 leaves) :

$$\frac{1}{5 f (a+b x)^{2/3}}$$

$$(c+d x)^{2/3} \left(5 (a+b x)-\frac{1}{d^2 (e+f x)} 4 (b c-a d) \left(-\left(\left(5 b f (-d e+c f) (c+d x) \operatorname{AppellF1}\left[1, \frac{2}{3}, 1, 2, \frac{b c-a d}{b c+b d x}, \frac{-d e+c f}{f (c+d x)}\right]\right) \middle/ \left(6 b\right.\right.\right.\right.$$

$$f (c+d x) \operatorname{AppellF1}\left[1, \frac{2}{3}, 1, 2, \frac{b c-a d}{b c+b d x}, \frac{-d e+c f}{f (c+d x)}\right]+$$

$$\left.\left.b (-3 d e+3 c f) \operatorname{AppellF1}\left[2, \frac{2}{3}, 2, 3, \frac{b c-a d}{b c+b d x}, \frac{-d e+c f}{f (c+d x)}\right]+2 (b c-a d) f \operatorname{AppellF1}\left[2, \frac{5}{3}, 1, 3, \frac{b c-a d}{b c+b d x}, \frac{-d e+c f}{f (c+d x)}\right]\right)\right)-$$

$$\left(2 (d e-c f) (3 b d e-2 b c f-a d f) \operatorname{AppellF1}\left[\frac{5}{3}, \frac{2}{3}, 1, \frac{8}{3}, \frac{b (c+d x)}{b c-a d}, \frac{f (c+d x)}{-d e+c f}\right]\right) \Big/$$

$$\left(\frac{8 (b c-a d) (-d e+c f) \operatorname{AppellF1}\left[\frac{5}{3}, \frac{2}{3}, 1, \frac{8}{3}, \frac{b (c+d x)}{b c-a d}, \frac{f (c+d x)}{-d e+c f}\right]}{c+d x}+3 (b c-a d) f \operatorname{AppellF1}\left[\frac{8}{3}, \frac{2}{3}, 2, \frac{11}{3}, \frac{b (c+d x)}{b c-a d}, \frac{f (c+d x)}{-d e+c f}\right]+\right.$$

$$\left.\left.\left.2 b (-d e+c f) \operatorname{AppellF1}\left[\frac{8}{3}, \frac{5}{3}, 1, \frac{11}{3}, \frac{b (c+d x)}{b c-a d}, \frac{f (c+d x)}{-d e+c f}\right]\right)\right)\right)$$

Problem 3005: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3} (c+d x)^{2/3}}{(e+f x)^2} \, dx$$

Optimal (type 3, 417 leaves, 4 steps) :

$$-\frac{(a+b\,x)^{1/3}\,(c+d\,x)^{2/3}}{f\,(e+f\,x)}-\frac{\sqrt{3}\,b^{1/3}\,d^{2/3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,b^{1/3}\,(c+d\,x)^{1/3}}{\sqrt{3}\,d^{1/3}\,(a+b\,x)^{1/3}}\right]}{f^2}+$$

$$\frac{(3\,b\,d\,e-b\,c\,f-2\,a\,d\,f)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,(b\,e-a\,f)^{1/3}\,(c+d\,x)^{1/3}}{\sqrt{3}\,(d\,e-c\,f)^{1/3}\,(a+b\,x)^{1/3}}\right]}{\sqrt{3}\,f^2\,(b\,e-a\,f)^{2/3}\,(d\,e-c\,f)^{1/3}}-\frac{b^{1/3}\,d^{2/3}\,\text{Log}[a+b\,x]}{2\,f^2}-\frac{(3\,b\,d\,e-b\,c\,f-2\,a\,d\,f)\,\text{Log}[e+f\,x]}{6\,f^2\,(b\,e-a\,f)^{2/3}\,(d\,e-c\,f)^{1/3}}+$$

$$\frac{(3\,b\,d\,e-b\,c\,f-2\,a\,d\,f)\,\text{Log}\left[-(a+b\,x)^{1/3}+\frac{(b\,e-a\,f)^{1/3}\,(c+d\,x)^{1/3}}{(d\,e-c\,f)^{1/3}}\right]}{2\,f^2\,(b\,e-a\,f)^{2/3}\,(d\,e-c\,f)^{1/3}}-\frac{3\,b^{1/3}\,d^{2/3}\,\text{Log}\left[-1+\frac{b^{1/3}\,(c+d\,x)^{1/3}}{d^{1/3}\,(a+b\,x)^{1/3}}\right]}{2\,f^2}$$

Result (type 6, 743 leaves) :

$$\frac{1}{5\,f\,(a+b\,x)^{2/3}\,(e+f\,x)}(c+d\,x)^{2/3}\Bigg(-5\,(a+b\,x)-$$

$$\frac{1}{d}4\,b\Bigg(-\Bigg(\left(5\,b\,c\,f\,(c+d\,x)\,\text{AppellF1}\left[1,\frac{2}{3},1,2,\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]\right)\Big/\left(6\,b\,f\,(c+d\,x)\,\text{AppellF1}\left[1,\frac{2}{3},1,2,\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]+\right.$$

$$\left.b\,(-3\,d\,e+3\,c\,f)\,\text{AppellF1}\left[2,\frac{2}{3},2,3,\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]+2\,(b\,c-a\,d)\,f\,\text{AppellF1}\left[2,\frac{5}{3},1,3,\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]\right)\Bigg)-$$

$$\left(5\,a\,d\,f\,(c+d\,x)\,\text{AppellF1}\left[1,\frac{2}{3},1,2,\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]\right)\Big/\left(-6\,b\,f\,(c+d\,x)\,\text{AppellF1}\left[1,\frac{2}{3},1,2,\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]+\right.$$

$$\left.3\,b\,(d\,e-c\,f)\,\text{AppellF1}\left[2,\frac{2}{3},2,3,\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]+2\,(-b\,c+a\,d)\,f\,\text{AppellF1}\left[2,\frac{5}{3},1,3,\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]\right)-$$

$$\left(6\,(b\,c-a\,d)\,(-d\,e+c\,f)\,\text{AppellF1}\left[\frac{5}{3},\frac{2}{3},1,\frac{8}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d},\frac{f\,(c+d\,x)}{-d\,e+c\,f}\right]\right)\Big/$$

$$\left(\frac{8\,(b\,c-a\,d)\,(-d\,e+c\,f)\,\text{AppellF1}\left[\frac{5}{3},\frac{2}{3},1,\frac{8}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d},\frac{f\,(c+d\,x)}{-d\,e+c\,f}\right]}{c+d\,x}+3\,(b\,c-a\,d)\,f\,\text{AppellF1}\left[\frac{8}{3},\frac{2}{3},2,\frac{11}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d},\frac{f\,(c+d\,x)}{-d\,e+c\,f}\right]+\right.$$

$$\left.2\,b\,(-d\,e+c\,f)\,\text{AppellF1}\left[\frac{8}{3},\frac{5}{3},1,\frac{11}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d},\frac{f\,(c+d\,x)}{-d\,e+c\,f}\right]\right)\Bigg)\Bigg)$$

Problem 3006: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{1/3}\,(c+d\,x)^{2/3}}{(e+f\,x)^3}\,dx$$

Optimal (type 3, 325 leaves, 3 steps) :

$$\frac{(a+b x)^{1/3} (c+d x)^{5/3}}{2 (d e-c f) (e+f x)^2}-\frac{(b c-a d) (a+b x)^{1/3} (c+d x)^{2/3}}{6 (b e-a f) (d e-c f) (e+f x)}+\frac{(b c-a d)^2 \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 (b e-a f)^{1/3} (c+d x)^{1/3}}{\sqrt{3} (d e-c f)^{1/3} (a+b x)^{1/3}}\right]}{3 \sqrt{3} (b e-a f)^{5/3} (d e-c f)^{4/3}}-$$

$$\frac{(b c-a d)^2 \text{Log}[e+f x]}{18 (b e-a f)^{5/3} (d e-c f)^{4/3}}+\frac{(b c-a d)^2 \text{Log}\left[-(a+b x)^{1/3}+\frac{(b e-a f)^{1/3} (c+d x)^{1/3}}{(d e-c f)^{1/3}}\right]}{6 (b e-a f)^{5/3} (d e-c f)^{4/3}}$$

Result (type 5, 196 leaves) :

$$\left((a+b x)^{1/3} \left(f (b e-a f) (c+d x) (-3 a c f+a d (e-2 f x)+b (2 c e+3 d e x-c f x))-2 (b c-a d)^2 f \left(\frac{(b e-a f) (c+d x)}{(b c-a d) (e+f x)}\right)^{1/3} (e+f x)^2 \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{(-d e+c f) (a+b x)}{(b c-a d) (e+f x)}\right]\right)\right)\Big/ \left(6 f (b e-a f)^2 (d e-c f) (c+d x)^{1/3} (e+f x)^2\right)$$

Problem 3007: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3} (c+d x)^{2/3}}{(e+f x)^4} \, dx$$

Optimal (type 3, 465 leaves, 4 steps) :

$$-\frac{f (a+b x)^{4/3} (c+d x)^{5/3}}{3 (b e-a f) (d e-c f) (e+f x)^3}+\frac{(9 b d e-5 b c f-4 a d f) (a+b x)^{1/3} (c+d x)^{5/3}}{18 (b e-a f) (d e-c f)^2 (e+f x)^2}-$$

$$\frac{(b c-a d) (9 b d e-5 b c f-4 a d f) (a+b x)^{1/3} (c+d x)^{2/3}}{54 (b e-a f)^2 (d e-c f)^2 (e+f x)}+\frac{(b c-a d)^2 (9 b d e-5 b c f-4 a d f) \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 (b e-a f)^{1/3} (c+d x)^{1/3}}{\sqrt{3} (d e-c f)^{1/3} (a+b x)^{1/3}}\right]}{27 \sqrt{3} (b e-a f)^{8/3} (d e-c f)^{7/3}}-$$

$$\frac{(b c-a d)^2 (9 b d e-5 b c f-4 a d f) \text{Log}[e+f x]}{162 (b e-a f)^{8/3} (d e-c f)^{7/3}}+\frac{(b c-a d)^2 (9 b d e-5 b c f-4 a d f) \text{Log}\left[-(a+b x)^{1/3}+\frac{(b e-a f)^{1/3} (c+d x)^{1/3}}{(d e-c f)^{1/3}}\right]}{54 (b e-a f)^{8/3} (d e-c f)^{7/3}}$$

Result (type 5, 304 leaves) :

$$\frac{1}{54 f (b e-a f)^3 (d e-c f)^2 (c+d x)^{1/3} (e+f x)^3} (a+b x)^{1/3} \left(-(b e-a f) (c+d x) \left(18 (b e-a f)^2 (d e-c f)^2-3 (b e-a f) (d e-c f) (3 b d e-b c f-2 a d f) (e+f x)-\left(8 a^2 d^2 f^2-4 a b d f (3 d e+c f)+b^2 \left(9 d^2 e^2-6 c d e f+5 c^2 f^2\right)\right) (e+f x)^2\right)+2 (b c-a d)^2 f (-9 b d e+5 b c f+4 a d f) \left(\frac{(b e-a f) (c+d x)}{(b c-a d) (e+f x)}\right)^{1/3} (e+f x)^3 \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{(-d e+c f) (a+b x)}{(b c-a d) (e+f x)}\right]\right)$$

Problem 3008: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3} (e+f x)^2}{(c+d x)^{1/3}} \, dx$$

Optimal (type 3, 475 leaves, 4 steps):

$$\frac{\left(5 a^2 d^2 f^2-2 a b d f (9 d e-4 c f)+b^2 \left(27 d^2 e^2-36 c d e f+14 c^2 f^2\right)\right) (a+b x)^{1/3} (c+d x)^{2/3}}{27 b^2 d^3}+\frac{f (12 b d e-7 b c f-5 a d f) (a+b x)^{4/3} (c+d x)^{2/3}}{18 b^2 d^2}+\frac{f (a+b x)^{4/3} (c+d x)^{2/3} (e+f x)}{3 b d}+\frac{1}{27 \sqrt{3} b^{8/3} d^{10/3}} (b c-a d) \left(5 a^2 d^2 f^2-2 a b d f (9 d e-4 c f)+b^2 \left(27 d^2 e^2-36 c d e f+14 c^2 f^2\right)\right) \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3} (c+d x)^{1/3}}{\sqrt{3} d^{1/3} (a+b x)^{1/3}}\right]+\frac{(b c-a d) \left(5 a^2 d^2 f^2-2 a b d f (9 d e-4 c f)+b^2 \left(27 d^2 e^2-36 c d e f+14 c^2 f^2\right)\right) \text{Log}[a+b x]}{162 b^{8/3} d^{10/3}}+\frac{(b c-a d) \left(5 a^2 d^2 f^2-2 a b d f (9 d e-4 c f)+b^2 \left(27 d^2 e^2-36 c d e f+14 c^2 f^2\right)\right) \text{Log}\left[-1+\frac{b^{1/3} (c+d x)^{1/3}}{d^{1/3} (a+b x)^{1/3}}\right]}{54 b^{8/3} d^{10/3}}$$

Result (type 5, 229 leaves):

$$\frac{1}{54 b^2 d^4 (a+b x)^{2/3}} (c+d x)^{2/3} \left(d (a+b x) \left(-5 a^2 d^2 f^2+a b d f (-5 c f+3 d (6 e+f x))+b^2 \left(28 c^2 f^2-3 c d f (24 e+7 f x)+18 d^2 \left(3 e^2+3 e f x+f^2 x^2\right)\right)\right)-(b c-a d) \left(5 a^2 d^2 f^2+2 a b d f (-9 d e+4 c f)+b^2 \left(27 d^2 e^2-36 c d e f+14 c^2 f^2\right)\right) \left(\frac{d (a+b x)}{-b c+a d}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 3009: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3} (e+f x)}{(c+d x)^{1/3}} \, dx$$

Optimal (type 3, 273 leaves, 3 steps):

$$\frac{(3 b d e-2 b c f-a d f) (a+b x)^{1/3} (c+d x)^{2/3}}{3 b d^2}+\frac{f (a+b x)^{4/3} (c+d x)^{2/3}}{2 b d}+\frac{(b c-a d) (3 b d e-2 b c f-a d f) \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3} (c+d x)^{1/3}}{\sqrt{3} d^{1/3} (a+b x)^{1/3}}\right]}{3 \sqrt{3} b^{5/3} d^{7/3}}+$$
$$\frac{(b c-a d) (3 b d e-2 b c f-a d f) \text{Log}[a+b x]}{18 b^{5/3} d^{7/3}}+\frac{(b c-a d) (3 b d e-2 b c f-a d f) \text{Log}\left[-1+\frac{b^{1/3} (c+d x)^{1/3}}{d^{1/3} (a+b x)^{1/3}}\right]}{6 b^{5/3} d^{7/3}}$$

Result (type 5, 129 leaves):

$$\frac{1}{6 b d^3 (a+b x)^{2/3}}(c+d x)^{2/3}$$
$$\left(d (a+b x) (a d f+b (6 d e-4 c f+3 d f x))+(b c-a d) (-3 b d e+2 b c f+a d f) \left(\frac{d (a+b x)}{-b c+a d}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 3010: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3}}{(c+d x)^{1/3}} \, dx$$

Optimal (type 3, 171 leaves, 2 steps):

$$\frac{(a+b x)^{1/3} (c+d x)^{2/3}}{d}+\frac{(b c-a d) \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3} (c+d x)^{1/3}}{\sqrt{3} d^{1/3} (a+b x)^{1/3}}\right]}{\sqrt{3} b^{2/3} d^{4/3}}+\frac{(b c-a d) \text{Log}[a+b x]}{6 b^{2/3} d^{4/3}}+\frac{(b c-a d) \text{Log}\left[-1+\frac{b^{1/3} (c+d x)^{1/3}}{d^{1/3} (a+b x)^{1/3}}\right]}{2 b^{2/3} d^{4/3}}$$

Result (type 5, 76 leaves):

$$\frac{(a+b x)^{1/3} (c+d x)^{2/3} \left(2+\frac{\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b (c+d x)}{b c-a d}\right]}{\left(\frac{d (a+b x)}{-b c+a d}\right)^{1/3}}\right)}{2 d}$$

Problem 3011: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3}}{(c+d x)^{1/3} (e+f x)} \, dx$$

Optimal (type 3, 339 leaves, 4 steps):

$$-\frac{\sqrt{3}\, b^{1/3} \operatorname{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3} (c+d x)^{1/3}}{\sqrt{3}\, d^{1/3} (a+b x)^{1/3}}\right]}{d^{1/3} f}+\frac{\sqrt{3}\, (b e-a f)^{1/3} \operatorname{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 (b e-a f)^{1/3} (c+d x)^{1/3}}{\sqrt{3}\, (d e-c f)^{1/3} (a+b x)^{1/3}}\right]}{f (d e-c f)^{1/3}}-\frac{b^{1/3} \operatorname{Log}[a+b x]}{2 d^{1/3} f}-$$
$$\frac{(b e-a f)^{1/3} \operatorname{Log}[e+f x]}{2 f (d e-c f)^{1/3}}+\frac{3 (b e-a f)^{1/3} \operatorname{Log}\left[-(a+b x)^{1/3}+\frac{(b e-a f)^{1/3} (c+d x)^{1/3}}{(d e-c f)^{1/3}}\right]}{2 f (d e-c f)^{1/3}}-\frac{3 b^{1/3} \operatorname{Log}\left[-1+\frac{b^{1/3} (c+d x)^{1/3}}{d^{1/3} (a+b x)^{1/3}}\right]}{2 d^{1/3} f}$$

Result (type 6, 290 leaves):

$$-\left(\left(21 (b c-a d) (b e-a f)^2 (a+b x)^{4/3} \operatorname{AppellF1}\left[\frac{4}{3},\frac{1}{3},1,\frac{7}{3},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right/$$
$$\left(4 b (-b e+a f) (c+d x)^{1/3} (e+f x) \left(7 (b c-a d) (b e-a f) \operatorname{AppellF1}\left[\frac{4}{3},\frac{1}{3},1,\frac{7}{3},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]+(a+b x) \left((-3 b c f+3 a d f)\right.\right.\right.$$
$$\left.\left.\left.\left.\operatorname{AppellF1}\left[\frac{7}{3},\frac{1}{3},2,\frac{10}{3},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]+d (-b e+a f) \operatorname{AppellF1}\left[\frac{7}{3},\frac{4}{3},1,\frac{10}{3},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)\right)$$

Problem 3012: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3}}{(c+d x)^{1/3} (e+f x)^2} \, dx$$

Optimal (type 3, 256 leaves, 2 steps):

$$\frac{(a+b x)^{2/3} (c+d x)^{2/3}}{(d e-c f) (e+f x)}+\frac{(b c-a d) \operatorname{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 (b e-a f)^{1/3} (c+d x)^{1/3}}{\sqrt{3}\, (d e-c f)^{1/3} (a+b x)^{1/3}}\right]}{\sqrt{3}\, (b e-a f)^{2/3} (d e-c f)^{4/3}}-$$
$$\frac{(b c-a d) \operatorname{Log}[e+f x]}{6 (b e-a f)^{2/3} (d e-c f)^{4/3}}+\frac{(b c-a d) \operatorname{Log}\left[-(a+b x)^{1/3}+\frac{(b e-a f)^{1/3} (c+d x)^{1/3}}{(d e-c f)^{1/3}}\right]}{2 (b e-a f)^{2/3} (d e-c f)^{4/3}}$$

Result (type 5, 124 leaves):

$$\frac{(a+b x)^{1/3} (c+d x)^{2/3} \left(\frac{1}{d e-c f}+\frac{\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{(-d e+c f) (a+b x)}{(b c-a d) (e+f x)}\right]}{(-d e+c f) \left(\frac{(b e-a f) (c+d x)}{(b c-a d) (e+f x)}\right)^{2/3}}\right)}{e+f x}$$

Problem 3013: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3}}{(c+d x)^{1/3} (e+f x)^3} \, dx$$

Optimal (type 3, 386 leaves, 3 steps):

$$-\frac{f (a+b x)^{4/3} (c+d x)^{2/3}}{2 (b e-a f) (d e-c f) (e+f x)^2}+\frac{(3 b d e-b c f-2 a d f) (a+b x)^{1/3} (c+d x)^{2/3}}{3 (b e-a f) (d e-c f)^2 (e+f x)}+$$
$$\frac{(b c-a d) (3 b d e-b c f-2 a d f) \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 (b e-a f)^{1/3} (c+d x)^{1/3}}{\sqrt{3} (d e-c f)^{1/3} (a+b x)^{1/3}}\right]}{3 \sqrt{3} (b e-a f)^{5/3} (d e-c f)^{7/3}}-\frac{(b c-a d) (3 b d e-b c f-2 a d f) \text{Log}[e+f x]}{18 (b e-a f)^{5/3} (d e-c f)^{7/3}}+$$
$$\frac{(b c-a d) (3 b d e-b c f-2 a d f) \text{Log}\left[-(a+b x)^{1/3}+\frac{(b e-a f)^{1/3} (c+d x)^{1/3}}{(d e-c f)^{1/3}}\right]}{6 (b e-a f)^{5/3} (d e-c f)^{7/3}}$$

Result (type 5, 212 leaves):

$$\left((a+b x)^{1/3} \left((b e-a f) (c+d x) (3 (b e-a f) (d e-c f)+(3 b d e+b c f-4 a d f) (e+f x))+2 (b c-a d) (-3 b d e+b c f+2 a d f) \left(\frac{(b e-a f) (c+d x)}{(b c-a d) (e+f x)}\right)^{1/3} (e+f x)^2 \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{(-d e+c f) (a+b x)}{(b c-a d) (e+f x)}\right]\right)\right) \Big/ \left(6 (b e-a f)^2 (d e-c f)^2 (c+d x)^{1/3} (e+f x)^2\right)$$

Problem 3014: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{1/3}}{(c+d x)^{1/3} (e+f x)^4} \, dx$$

Optimal (type 3, 591 leaves, 5 steps):

$$\frac{(a+b x)^{1/3} (c+d x)^{2/3}}{3 (d e-c f) (e+f x)^3}+\frac{(6 b d e+b c f-7 a d f) (a+b x)^{1/3} (c+d x)^{2/3}}{18 (b e-a f) (d e-c f)^2 (e+f x)^2}+$$
$$\frac{\left(28 a^2 d^2 f^2-a b d f (51 d e+5 c f)+b^2 \left(18 d^2 e^2+15 c d e f-5 c^2 f^2\right)\right) (a+b x)^{1/3} (c+d x)^{2/3}}{54 (b e-a f)^2 (d e-c f)^3 (e+f x)}+$$
$$\left((b c-a d) \left(14 a^2 d^2 f^2-4 a b d f (9 d e-2 c f)+b^2 \left(27 d^2 e^2-18 c d e f+5 c^2 f^2\right)\right) \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 (b e-a f)^{1/3} (c+d x)^{1/3}}{\sqrt{3} (d e-c f)^{1/3} (a+b x)^{1/3}}\right]\right) \Big/$$
$$\left(27 \sqrt{3} (b e-a f)^{8/3} (d e-c f)^{10/3}\right)-\frac{(b c-a d) \left(14 a^2 d^2 f^2-4 a b d f (9 d e-2 c f)+b^2 \left(27 d^2 e^2-18 c d e f+5 c^2 f^2\right)\right) \text{Log}[e+f x]}{162 (b e-a f)^{8/3} (d e-c f)^{10/3}}+$$
$$\left((b c-a d) \left(14 a^2 d^2 f^2-4 a b d f (9 d e-2 c f)+b^2 \left(27 d^2 e^2-18 c d e f+5 c^2 f^2\right)\right) \text{Log}\left[-(a+b x)^{1/3}+\frac{(b e-a f)^{1/3} (c+d x)^{1/3}}{(d e-c f)^{1/3}}\right]\right) \Big/$$
$$\left(54 (b e-a f)^{8/3} (d e-c f)^{10/3}\right)$$

Result (type 5, 334 leaves) :

$$\frac{1}{54 (b e-a f)^3 (d e-c f)^3 (c+d x)^{1/3} (e+f x)^3}$$
$$(a+b x)^{1/3} \Big((b e-a f) (c+d x) \Big(18 (b e-a f)^2 (d e-c f)^2+3 (b e-a f) (d e-c f) (6 b d e+b c f-7 a d f) (e+f x)+$$
$$\left(28 a^2 d^2 f^2-a b d f (51 d e+5 c f)+b^2 \left(18 d^2 e^2+15 c d e f-5 c^2 f^2\right)\right) (e+f x)^2\Big)-$$
$$2 (b c-a d) \left(14 a^2 d^2 f^2+4 a b d f (-9 d e+2 c f)+b^2 \left(27 d^2 e^2-18 c d e f+5 c^2 f^2\right)\right) \left(\frac{(b e-a f) (c+d x)}{(b c-a d) (e+f x)}\right)^{1/3}$$
$$(e+f x)^3 \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{(-d e+c f) (a+b x)}{(b c-a d) (e+f x)}\right]\Big)$$

Problem 3015: Result unnecessarily involves higher level functions.

$$\int \frac{(e+f x)^3}{(a+b x)^{1/3} (c+d x)^{2/3}} \, dx$$

Optimal (type 3, 587 leaves, 3 steps) :

$$\frac{f (a+b x)^{2/3} (c+d x)^{1/3} (e+f x)^2}{3 b d}+\frac{1}{54 b^3 d^3} f (a+b x)^{2/3} (c+d x)^{1/3} \left(28 a^2 d^2 f^2-a b d f (108 d e-31 c f)+b^2 \left(144 d^2 e^2-135 c d e f+40 c^2 f^2\right)+3 b d f (15 b d e-8 b c f-7 a d f) x\right)+$$

$$\frac{1}{27 \sqrt{3} b^{10/3} d^{11/3}}\left(14 a^3 d^3 f^3-6 a^2 b d^2 f^2 (9 d e-2 c f)+3 a b^2 d f \left(27 d^2 e^2-18 c d e f+5 c^2 f^2\right)-b^3 \left(81 d^3 e^3-162 c d^2 e^2 f+135 c^2 d e f^2-40 c^3 f^3\right)\right)$$

$$\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/3} (a+b x)^{1/3}}{\sqrt{3} b^{1/3} (c+d x)^{1/3}}\right]+\frac{1}{162 b^{10/3} d^{11/3}}$$

$$\left(14 a^3 d^3 f^3-6 a^2 b d^2 f^2 (9 d e-2 c f)+3 a b^2 d f \left(27 d^2 e^2-18 c d e f+5 c^2 f^2\right)-b^3 \left(81 d^3 e^3-162 c d^2 e^2 f+135 c^2 d e f^2-40 c^3 f^3\right)\right) \text{Log}[c+d x]+$$

$$\frac{1}{54 b^{10/3} d^{11/3}}\left(14 a^3 d^3 f^3-6 a^2 b d^2 f^2 (9 d e-2 c f)+3 a b^2 d f \left(27 d^2 e^2-18 c d e f+5 c^2 f^2\right)-b^3 \left(81 d^3 e^3-162 c d^2 e^2 f+135 c^2 d e f^2-40 c^3 f^3\right)\right)$$

$$\text{Log}\left[-1+\frac{d^{1/3} (a+b x)^{1/3}}{b^{1/3} (c+d x)^{1/3}}\right]$$

Result (type 5, 275 leaves) :

$$\frac{1}{54 b^3 d^4 (a+b x)^{1/3}}$$

$$(c+d x)^{1/3} \left(d f (a+b x) \left(28 a^2 d^2 f^2+a b d f (31 c f-3 d (36 e+7 f x))+b^2 \left(40 c^2 f^2-3 c d f (45 e+8 f x)+9 d^2 \left(18 e^2+9 e f x+2 f^2 x^2\right)\right)\right)+\right.$$

$$2 \left(-14 a^3 d^3 f^3+6 a^2 b d^2 f^2 (9 d e-2 c f)-3 a b^2 d f \left(27 d^2 e^2-18 c d e f+5 c^2 f^2\right)+b^3 \left(81 d^3 e^3-162 c d^2 e^2 f+135 c^2 d e f^2-40 c^3 f^3\right)\right)$$

$$\left.\left(\frac{d (a+b x)}{-b c+a d}\right)^{1/3} \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{b (c+d x)}{b c-a d}\right]\right)$$

Problem 3016: Result unnecessarily involves higher level functions.

$$\int \frac{(e+f x)^2}{(a+b x)^{1/3} (c+d x)^{2/3}} \, dx$$

Optimal (type 3, 369 leaves, 3 steps) :

$$\frac{f\,(9\,b\,d\,e-5\,b\,c\,f-4\,a\,d\,f)\,(a+b\,x)^{2/3}\,(c+d\,x)^{1/3}}{6\,b^2\,d^2}+\frac{f\,(a+b\,x)^{2/3}\,(c+d\,x)^{1/3}\,(e+f\,x)}{2\,b\,d}-$$

$$\frac{\left(2\,a^2\,d^2\,f^2-2\,a\,b\,d\,f\,(3\,d\,e-c\,f)+b^2\,\left(9\,d^2\,e^2-12\,c\,d\,e\,f+5\,c^2\,f^2\right)\right)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,d^{1/3}\,(a+b\,x)^{1/3}}{\sqrt{3}\,b^{1/3}\,(c+d\,x)^{1/3}}\right]}{3\,\sqrt{3}\,b^{7/3}\,d^{8/3}}-$$

$$\frac{\left(2\,a^2\,d^2\,f^2-2\,a\,b\,d\,f\,(3\,d\,e-c\,f)+b^2\,\left(9\,d^2\,e^2-12\,c\,d\,e\,f+5\,c^2\,f^2\right)\right)\,\text{Log}[c+d\,x]}{18\,b^{7/3}\,d^{8/3}}-$$

$$\frac{\left(2\,a^2\,d^2\,f^2-2\,a\,b\,d\,f\,(3\,d\,e-c\,f)+b^2\,\left(9\,d^2\,e^2-12\,c\,d\,e\,f+5\,c^2\,f^2\right)\right)\,\text{Log}\left[-1+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{b^{1/3}\,(c+d\,x)^{1/3}}\right]}{6\,b^{7/3}\,d^{8/3}}$$

Result (type 5, 162 leaves) :

$$\frac{1}{6\,b^2\,d^3\,(a+b\,x)^{1/3}}(c+d\,x)^{1/3}\,\Bigg(d\,f\,(a+b\,x)\,(-5\,b\,c\,f-4\,a\,d\,f+3\,b\,d\,(4\,e+f\,x))+$$

$$2\,\left(2\,a^2\,d^2\,f^2+2\,a\,b\,d\,f\,(-3\,d\,e+c\,f)+b^2\,\left(9\,d^2\,e^2-12\,c\,d\,e\,f+5\,c^2\,f^2\right)\right)\,\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/3}\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\Bigg)$$

Problem 3017: Result unnecessarily involves higher level functions.

$$\int\frac{e+f\,x}{(a+b\,x)^{1/3}\,(c+d\,x)^{2/3}}\,dx$$

Optimal (type 3, 200 leaves, 2 steps) :

$$\frac{f\,(a+b\,x)^{2/3}\,(c+d\,x)^{1/3}}{b\,d}-\frac{(3\,b\,d\,e-2\,b\,c\,f-a\,d\,f)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,d^{1/3}\,(a+b\,x)^{1/3}}{\sqrt{3}\,b^{1/3}\,(c+d\,x)^{1/3}}\right]}{\sqrt{3}\,b^{4/3}\,d^{5/3}}-$$

$$\frac{(3\,b\,d\,e-2\,b\,c\,f-a\,d\,f)\,\text{Log}[c+d\,x]}{6\,b^{4/3}\,d^{5/3}}-\frac{(3\,b\,d\,e-2\,b\,c\,f-a\,d\,f)\,\text{Log}\left[-1+\frac{d^{1/3}\,(a+b\,x)^{1/3}}{b^{1/3}\,(c+d\,x)^{1/3}}\right]}{2\,b^{4/3}\,d^{5/3}}$$

Result (type 5, 99 leaves) :

$$\frac{(c+d\,x)^{1/3}\,\left(d\,f\,(a+b\,x)+(3\,b\,d\,e-2\,b\,c\,f-a\,d\,f)\,\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/3}\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)}{b\,d^2\,(a+b\,x)^{1/3}}$$

Problem 3018: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{1/3} (c+d x)^{2/3}} \, dx$$

Optimal (type 3, 126 leaves, 1 step):

$$-\frac{\sqrt{3} \operatorname{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 d^{1/3} (a+b x)^{1/3}}{\sqrt{3} b^{1/3} (c+d x)^{1/3}}\right]}{b^{1/3} d^{2/3}}-\frac{\operatorname{Log}[c+d x]}{2 b^{1/3} d^{2/3}}-\frac{3 \operatorname{Log}\left[-1+\frac{d^{1/3} (a+b x)^{1/3}}{b^{1/3} (c+d x)^{1/3}}\right]}{2 b^{1/3} d^{2/3}}$$

Result (type 5, 71 leaves):

$$\frac{3 \left(\frac{d (a+b x)}{-b c+a d}\right)^{1/3} (c+d x)^{1/3} \operatorname{Hypergeometric2F1}\left[\frac{1}{3}, \frac{1}{3}, \frac{4}{3}, \frac{b (c+d x)}{b c-a d}\right]}{d (a+b x)^{1/3}}$$

Problem 3019: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{1/3} (c+d x)^{2/3} (e+f x)} \, dx$$

Optimal (type 3, 197 leaves, 1 step):

$$-\frac{\sqrt{3} \operatorname{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 (d e-c f)^{1/3} (a+b x)^{1/3}}{\sqrt{3} (b e-a f)^{1/3} (c+d x)^{1/3}}\right]}{(b e-a f)^{1/3} (d e-c f)^{2/3}}+\frac{\operatorname{Log}[e+f x]}{2 (b e-a f)^{1/3} (d e-c f)^{2/3}}-\frac{3 \operatorname{Log}\left[\frac{(d e-c f)^{1/3} (a+b x)^{1/3}}{(b e-a f)^{1/3}}-(c+d x)^{1/3}\right]}{2 (b e-a f)^{1/3} (d e-c f)^{2/3}}$$

Result (type 5, 108 leaves):

$$\frac{3 (a+b x)^{2/3} \left(\frac{(b e-a f) (c+d x)}{(b c-a d) (e+f x)}\right)^{2/3} \operatorname{Hypergeometric2F1}\left[\frac{2}{3}, \frac{2}{3}, \frac{5}{3}, \frac{(-d e+c f) (a+b x)}{(b c-a d) (e+f x)}\right]}{2 (b e-a f) (c+d x)^{2/3}}$$

Problem 3020: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^{1/3} (c+d x)^{2/3} (e+f x)^2} \, dx$$

Optimal (type 3, 293 leaves, 2 steps):

$$-\frac{f\,(a+b\,x)^{2/3}\,(c+d\,x)^{1/3}}{(b\,e-a\,f)\,(d\,e-c\,f)\,(e+f\,x)}-\frac{(3\,b\,d\,e-b\,c\,f-2\,a\,d\,f)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,(d\,e-c\,f)^{1/3}\,(a+b\,x)^{1/3}}{\sqrt{3}\,(b\,e-a\,f)^{1/3}\,(c+d\,x)^{1/3}}\right]}{\sqrt{3}\,(b\,e-a\,f)^{4/3}\,(d\,e-c\,f)^{5/3}}+$$
$$\frac{(3\,b\,d\,e-b\,c\,f-2\,a\,d\,f)\,\text{Log}[e+f\,x]}{6\,(b\,e-a\,f)^{4/3}\,(d\,e-c\,f)^{5/3}}-\frac{(3\,b\,d\,e-b\,c\,f-2\,a\,d\,f)\,\text{Log}\left[\frac{(d\,e-c\,f)^{1/3}\,(a+b\,x)^{1/3}}{(b\,e-a\,f)^{1/3}}-(c+d\,x)^{1/3}\right]}{2\,(b\,e-a\,f)^{4/3}\,(d\,e-c\,f)^{5/3}}$$

Result (type 5, 171 leaves):

$$\frac{(a+b\,x)^{2/3}\left(\frac{2\,f\,(c+d\,x)}{(-d\,e+c\,f)\,(e+f\,x)}+\frac{(3\,b\,d\,e-b\,c\,f-2\,a\,d\,f)\left(\frac{(b\,e-a\,f)\,(c+d\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{(-d\,e+c\,f)\,(a+b\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right]}{(b\,e-a\,f)\,(d\,e-c\,f)}\right)}{2\,(b\,e-a\,f)\,(c+d\,x)^{2/3}}$$

Problem 3021: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^{1/3}\,(c+d\,x)^{2/3}\,(e+f\,x)^{3}}\,dx$$

Optimal (type 3, 477 leaves, 4 steps):

$$-\frac{f\,(a+b\,x)^{2/3}\,(c+d\,x)^{1/3}}{2\,(b\,e-a\,f)\,(d\,e-c\,f)\,(e+f\,x)^{2}}-\frac{f\,(9\,b\,d\,e-4\,b\,c\,f-5\,a\,d\,f)\,(a+b\,x)^{2/3}\,(c+d\,x)^{1/3}}{6\,(b\,e-a\,f)^{2}\,(d\,e-c\,f)^{2}\,(e+f\,x)}-$$
$$\frac{\left(5\,a^{2}\,d^{2}\,f^{2}-2\,a\,b\,d\,f\,(6\,d\,e-c\,f)+b^{2}\,(9\,d^{2}\,e^{2}-6\,c\,d\,e\,f+2\,c^{2}\,f^{2})\right)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,(d\,e-c\,f)^{1/3}\,(a+b\,x)^{1/3}}{\sqrt{3}\,(b\,e-a\,f)^{1/3}\,(c+d\,x)^{1/3}}\right]}{3\,\sqrt{3}\,(b\,e-a\,f)^{7/3}\,(d\,e-c\,f)^{8/3}}+$$
$$\frac{\left(5\,a^{2}\,d^{2}\,f^{2}-2\,a\,b\,d\,f\,(6\,d\,e-c\,f)+b^{2}\,(9\,d^{2}\,e^{2}-6\,c\,d\,e\,f+2\,c^{2}\,f^{2})\right)\,\text{Log}[e+f\,x]}{18\,(b\,e-a\,f)^{7/3}\,(d\,e-c\,f)^{8/3}}-$$
$$\frac{\left(5\,a^{2}\,d^{2}\,f^{2}-2\,a\,b\,d\,f\,(6\,d\,e-c\,f)+b^{2}\,(9\,d^{2}\,e^{2}-6\,c\,d\,e\,f+2\,c^{2}\,f^{2})\right)\,\text{Log}\left[\frac{(d\,e-c\,f)^{1/3}\,(a+b\,x)^{1/3}}{(b\,e-a\,f)^{1/3}}-(c+d\,x)^{1/3}\right]}{6\,(b\,e-a\,f)^{7/3}\,(d\,e-c\,f)^{8/3}}$$

Result (type 5, 244 leaves):

$$\left((a+b x)^{2/3} \left(-f (b e-a f) (c+d x) (3 (b e-a f) (d e-c f)+(9 b d e-4 b c f-5 a d f) (e+f x))+\left(5 a^2 d^2 f^2+2 a b d f (-6 d e+c f)+b^2 \left(9 d^2 e^2-6 c d e f+2 c^2 f^2\right)\right) \left(\frac{(b e-a f) (c+d x)}{(b c-a d) (e+f x)}\right)^{2/3} (e+f x)^2 \text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{(-d e+c f) (a+b x)}{(b c-a d) (e+f x)}\right]\right)\right)\Big/\left(6 (b e-a f)^3 (d e-c f)^2 (c+d x)^{2/3} (e+f x)^2\right)$$

Problem 3022: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^3}{(c+d x)^{1/3} (b c+a d+2 b d x)^{1/3}} \, dx$$

Optimal (type 4, 1389 leaves, 7 steps):

$$\frac{3 (a+b x)^2 (c+d x)^{2/3} (b c+a d+2 b d x)^{2/3}}{20 d^2}+\frac{9 (b c-a d) (c+d x)^{2/3} (23 b c-39 a d-16 b d x) (b c+a d+2 b d x)^{2/3}}{560 d^4}-$$

$$\left(81 (b c-a d)^3 ((c+d x) (b c+a d+2 b d x))^{1/3} \sqrt{d^2 (3 b c+a d+4 b d x)^2} \sqrt{\left(d (3 b c+a d)+4 b d^2 x\right)^2}\right)\Big/$$

$$\left(112 b^{2/3} d^6 (c+d x)^{1/3} (b c+a d+2 b d x)^{1/3} (3 b c+a d+4 b d x) \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}\right)\right)+$$

$$\left(81\times 3^{1/4} \sqrt{2-\sqrt{3}} (b c-a d)^{11/3} ((c+d x) (b c+a d+2 b d x))^{1/3} \sqrt{\left(d (3 b c+a d)+4 b d^2 x\right)^2} \left((b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}\right) \sqrt{\left(\left((b c-a d)^{4/3}-2 b^{1/3} (b c-a d)^{2/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}+4 b^{2/3} ((c+d x) (a d+b (c+2 d x)))^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}\right)^2\right)} \text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}}\right],-7-4 \sqrt{3}\right]\right)\Big/$$

$$\left(224 b^{2/3} d^4 (c+d x)^{1/3} (b c+a d+2 b d x)^{1/3} (3 b c+a d+4 b d x) \sqrt{d^2 (3 b c+a d+4 b d x)^2}\right.$$

$$\sqrt{\frac{(b c-a d)^{2/3}\left((b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b(c+2 d x)\right)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b(c+2 d x)\right)\right)^{1/3}\right)^2}}\;-$$

$$\left(27\times 3^{3/4}(b c-a d)^{11/3}\left((c+d x)(b c+a d+2 b d x)\right)^{1/3}\sqrt{\left(d(3 b c+a d)+4 b d^2 x\right)^2}\left((b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b(c+2 d x)\right)\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2 b^{1/3}(b c-a d)^{2/3}\left((c+d x)\left(a d+b(c+2 d x)\right)\right)^{1/3}+4 b^{2/3}\left((c+d x)\left(a d+b(c+2 d x)\right)\right)^{2/3}\right)\right/}$$
$$\left.\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b(c+2 d x)\right)\right)^{1/3}\right)^2\right)$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b(c+2 d x)\right)\right)^{1/3}}{\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b(c+2 d x)\right)\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(56\sqrt{2}\,b^{2/3} d^4 (c+d x)^{1/3}(b c+a d+2 b d x)^{1/3}(3 b c+a d+4 b d x)\sqrt{d^2(3 b c+a d+4 b d x)^2}\right.$$

$$\left.\sqrt{\frac{(b c-a d)^{2/3}\left((b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b(c+2 d x)\right)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b(c+2 d x)\right)\right)^{1/3}\right)^2}}\right)$$

Result (type 5, 160 leaves) :

$$-\frac{1}{1120\, b\, d^4 (c+d x)^{1/3}}3\left(a d+b(c+2 d x)\right)^{2/3}\left(-2 b (c+d x)\left(145 a^2 d^2+2 a b d(-93 c+52 d x)+b^2\left(69 c^2-48 c d x+28 d^2 x^2\right)\right)+\right.$$
$$\left.135\times 2^{1/3}(b c-a d)^3\left(\frac{b(c+d x)}{b c-a d}\right)^{1/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{a d+b(c+2 d x)}{-b c+a d}\right]\right)$$

Problem 3023: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b x)^2}{(c+d x)^{1/3}(b c+a d+2 b d x)^{1/3}}\,dx$$

Optimal (type 4, 1373 leaves, 7 steps) :

$$-\frac{45 (b c-a d)(c+d x)^{2/3}(b c+a d+2 b d x)^{2/3}}{112 d^3}+\frac{3 (a+b x)(c+d x)^{2/3}(b c+a d+2 b d x)^{2/3}}{14 d^2}+$$

$$\left(99\,(b\,c-a\,d)^2\,\left((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x)\right)^{1/3}\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\,\sqrt{\left(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x\right)^2}\right)\Big/$$

$$\left(112\,b^{2/3}\,d^5\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\,\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)\right)-$$

$$\left(99\times 3^{1/4}\,\sqrt{2-\sqrt{3}}\,(b\,c-a\,d)^{8/3}\,\left((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x)\right)^{1/3}\sqrt{\left(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x\right)^2}\right.$$

$$\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2\,b^{1/3}\,(b\,c-a\,d)^{2/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}+\right.\right.}$$

$$\left.\left.4\,b^{2/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2\right)$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}\right],\,-7-4\,\sqrt{3}\right]\right)\Big/$$

$$\left(224\,b^{2/3}\,d^3\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\,\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\right.$$

$$\left.\sqrt{\frac{(b\,c-a\,d)^{2/3}\,\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2}}\right)+$$

$$\left(33\times 3^{3/4}\,(b\,c-a\,d)^{8/3}\,\left((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x)\right)^{1/3}\sqrt{\left(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x\right)^2}\,\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2\,b^{1/3}\,(b\,c-a\,d)^{2/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}+4\,b^{2/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{2/3}\right)\Big/\right.}$$

$$\left.\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2\right)$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}\right],\,-7-4\,\sqrt{3}\right]\right)\Big/$$

$$\left(56\,\sqrt{2}\,b^{2/3}\,d^3\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\,\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\right.$$

$$\left.\sqrt{\frac{(b\,c-a\,d)^{2/3}\,\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2}}\right)$$

Result (type 5, 129 leaves):

$$\frac{1}{224\,b\,d^3\,(c+d\,x)^{1/3}}3\,\left(a\,d+b\,(c+2\,d\,x)\right)^{2/3}\left(-2\,b\,(c+d\,x)\,(15\,b\,c-23\,a\,d-8\,b\,d\,x)+33\times 2^{1/3}\,(b\,c-a\,d)^2\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{1/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{a\,d+b\,(c+2\,d\,x)}{-b\,c+a\,d}\right]\right)$$

Problem 3024: Result unnecessarily involves higher level functions.

$$\int\frac{a+b\,x}{(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}}\,dx$$

Optimal (type 4, 1326 leaves, 6 steps):

$$\frac{3\,(c+d\,x)^{2/3}\,(b\,c+a\,d+2\,b\,d\,x)^{2/3}}{8\,d^2}-\left(9\,(b\,c-a\,d)\,\left((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x)\right)^{1/3}\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\,\sqrt{\left(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x\right)^2}\right)\Big/$$
$$\left(8\,b^{2/3}\,d^4\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\,\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)\right)+$$
$$\left(9\times 3^{1/4}\,\sqrt{2-\sqrt{3}}\,(b\,c-a\,d)^{5/3}\,\left((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x)\right)^{1/3}\right.$$
$$\sqrt{\left(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x\right)^2}\,\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)$$
$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2\,b^{1/3}\,(b\,c-a\,d)^{2/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}+4\,b^{2/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2\right)}$$
$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}\right],-7-4\,\sqrt{3}\right]\right)\Big/$$
$$\left(16\,b^{2/3}\,d^2\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\,\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\right.$$
$$\left.\sqrt{\frac{(b\,c-a\,d)^{2/3}\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2}}\right)-$$
$$\left(3\times 3^{3/4}\,(b\,c-a\,d)^{5/3}\,\left((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x)\right)^{1/3}\sqrt{\left(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x\right)^2}\,\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2 b^{1/3} (b c-a d)^{2/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}+4 b^{2/3} ((c+d x) (a d+b (c+2 d x)))^{2/3}\right)\Big/ \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}\right)^2\right)}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}}\right], -7-4 \sqrt{3}\right]\Bigg)\Bigg/$$

$$\left(4 \sqrt{2}\, b^{2/3} d^2 (c+d x)^{1/3} (b c+a d+2 b d x)^{1/3} (3 b c+a d+4 b d x) \sqrt{d^2 (3 b c+a d+4 b d x)^2}\right.$$

$$\left.\sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}\right)^2}}\right)$$

Result (type 5, 95 leaves) :

$$-\frac{3 (c+d x)^{2/3} (a d+b (c+2 d x))^{2/3} \left(-2+\frac{3\times 2^{1/3}\, \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{a d+b (c+2 d x)}{-b c+a d}\right]}{\left(\frac{b (c+d x)}{b c-a d}\right)^{2/3}}\right)}{16 d^2}$$

Problem 3025: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(c+d x)^{1/3} (b c+a d+2 b d x)^{1/3}} \, dx$$

Optimal (type 4, 1283 leaves, 5 steps) :

$$\left(3 ((c+d x) (b c+a d+2 b d x))^{1/3} \sqrt{d^2 (3 b c+a d+4 b d x)^2} \sqrt{\left(d (3 b c+a d)+4 b d^2 x\right)^2}\right)\Big/$$

$$\left(2 b^{2/3} d^3 (c+d x)^{1/3} (b c+a d+2 b d x)^{1/3} (3 b c+a d+4 b d x) \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}\right)\right)-$$

$$\left(3\times 3^{1/4} \sqrt{2-\sqrt{3}}\, (b c-a d)^{2/3} ((c+d x) (b c+a d+2 b d x))^{1/3}\right.$$

$$\sqrt{\left(d (3 b c+a d)+4 b d^2 x\right)^2} \left((b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}\right)$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2 b^{1/3} (b c-a d)^{2/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}+4 b^{2/3} ((c+d x) (a d+b (c+2 d x)))^{2/3}\right)\Big/ \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} ((c+d x) (a d+b (c+2 d x)))^{1/3}\right)^2\right)}$$

$$\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}}{\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}}\right],-7-4\sqrt{3}\right]\Bigg/$$

$$\left(4b^{2/3}d(c+dx)^{1/3}(bc+ad+2bdx)^{1/3}(3bc+ad+4bdx)\sqrt{d^2(3bc+ad+4bdx)^2}\right.$$

$$\left.\sqrt{\frac{(bc-ad)^{2/3}\left((bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}\right)^2}}\right)+$$

$$\left(3^{3/4}(bc-ad)^{2/3}\left((c+dx)(bc+ad+2bdx)\right)^{1/3}\sqrt{(d(3bc+ad)+4bd^2x)^2}\left((bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left((bc-ad)^{4/3}-2b^{1/3}(bc-ad)^{2/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}+4b^{2/3}\left((c+dx)(ad+b(c+2dx))\right)^{2/3}\right)\Big/\right.}$$

$$\left.\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}\right)^2\right)$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}}{\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Bigg/$$

$$\left(\sqrt{2}\,b^{2/3}d(c+dx)^{1/3}(bc+ad+2bdx)^{1/3}(3bc+ad+4bdx)\sqrt{d^2(3bc+ad+4bdx)^2}\right.$$

$$\left.\sqrt{\frac{(bc-ad)^{2/3}\left((bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}\right)^2}}\right)$$

Result (type 5, 94 leaves):

$$\frac{3\left(\frac{b(c+dx)}{bc-ad}\right)^{1/3}(ad+b(c+2dx))^{2/3}\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{ad+b(c+2dx)}{-bc+ad}\right]}{2\times2^{2/3}bd(c+dx)^{1/3}}$$

Problem 3026: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+bx)(c+dx)^{1/3}(bc+ad+2bdx)^{1/3}}\,dx$$

Optimal (type 3, 178 leaves, 1 step):

$$-\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,b^{2/3}\,(c+d\,x)^{2/3}}{\sqrt{3}\,(b\,c-a\,d)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}}\right]}{2\,b^{2/3}\,(b\,c-a\,d)^{2/3}}-\frac{\text{Log}[a+b\,x]}{2\,b^{2/3}\,(b\,c-a\,d)^{2/3}}+\frac{3\,\text{Log}\left[\frac{b^{2/3}\,(c+d\,x)^{2/3}}{(b\,c-a\,d)^{1/3}}-(b\,c+a\,d+2\,b\,d\,x)^{1/3}\right]}{4\,b^{2/3}\,(b\,c-a\,d)^{2/3}}$$

Result (type 6, 276 leaves):

$$-\left(\left(15\,d\,(a+b\,x)\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},\frac{1}{3},\frac{5}{3},\frac{-b\,c+a\,d}{d\,(a+b\,x)},-\frac{b\,c-a\,d}{2\,a\,d+2\,b\,d\,x}\right]\right)\Big/\left(b\,(c+d\,x)^{1/3}\,(a\,d+b\,(c+2\,d\,x))^{1/3}\left(10\,d\,(a+b\,x)\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},\frac{1}{3},\frac{5}{3},\frac{-b\,c+a\,d}{d\,(a+b\,x)},-\frac{b\,c-a\,d}{2\,a\,d+2\,b\,d\,x}\right]-(b\,c-a\,d)\left(\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},\frac{4}{3},\frac{8}{3},\frac{-b\,c+a\,d}{d\,(a+b\,x)},-\frac{b\,c-a\,d}{2\,a\,d+2\,b\,d\,x}\right]+2\,\text{AppellF1}\left[\frac{5}{3},\frac{4}{3},\frac{1}{3},\frac{8}{3},\frac{-b\,c+a\,d}{d\,(a+b\,x)},-\frac{b\,c-a\,d}{2\,a\,d+2\,b\,d\,x}\right]\right)\right)\right)\right)$$

Problem 3027: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)^2\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}}\,dx$$

Optimal (type 4, 1510 leaves, 8 steps):

$$-\frac{(c+d\,x)^{2/3}\,(b\,c+a\,d+2\,b\,d\,x)^{2/3}}{(b\,c-a\,d)^2\,(a+b\,x)}+\left(\left((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x)\right)^{1/3}\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\,\sqrt{\left(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x\right)^2}\right)\Big/\left(b^{2/3}\,d\,(b\,c-a\,d)^2\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)\right)+\frac{\sqrt{3}\,d\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,b^{2/3}\,(c+d\,x)^{2/3}}{\sqrt{3}\,(b\,c-a\,d)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}}\right]}{2\,b^{2/3}\,(b\,c-a\,d)^{5/3}}-$$

$$\left(3^{1/4}\sqrt{2-\sqrt{3}}\,d\,\left((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x)\right)^{1/3}\sqrt{\left(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x\right)^2}\,\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2\,b^{1/3}\,(b\,c-a\,d)^{2/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}+4\,b^{2/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2\right)}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}\right],-7-4\,\sqrt{3}\right]\right)\Big/$$

$$\left(2\,b^{2/3}\,(b\,c-a\,d)^{4/3}\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\,\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\right.$$

$$\sqrt{\frac{(b c-a d)^{2/3}\left((b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b\left(c+2 d x\right)\right)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b\left(c+2 d x\right)\right)\right)^{1/3}\right)^2}}+$$

$$\left(\sqrt{2}\, d\left((c+d x)\left(b c+a d+2 b d x\right)\right)^{1/3}\sqrt{\left(d\left(3 b c+a d\right)+4 b d^2 x\right)^2}\left((b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b\left(c+2 d x\right)\right)\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2 b^{1/3}(b c-a d)^{2/3}\left((c+d x)\left(a d+b\left(c+2 d x\right)\right)\right)^{1/3}+4 b^{2/3}\left((c+d x)\left(a d+b\left(c+2 d x\right)\right)\right)^{2/3}\right)\Big/\right.}$$
$$\left.\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b\left(c+2 d x\right)\right)\right)^{1/3}\right)^2\right)$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b\left(c+2 d x\right)\right)\right)^{1/3}}{\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b\left(c+2 d x\right)\right)\right)^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(3^{1/4} b^{2/3}(b c-a d)^{4/3}(c+d x)^{1/3}\left(b c+a d+2 b d x\right)^{1/3}\left(3 b c+a d+4 b d x\right)\sqrt{d^2\left(3 b c+a d+4 b d x\right)^2}\right.$$

$$\left.\sqrt{\frac{(b c-a d)^{2/3}\left((b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b\left(c+2 d x\right)\right)\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\left(a d+b\left(c+2 d x\right)\right)\right)^{1/3}\right)^2}}\right)+$$

$$\frac{d\,\text{Log}[a+b x]}{2 b^{2/3}(b c-a d)^{5/3}}-\frac{3 d\,\text{Log}\left[\frac{b^{2/3}(c+d x)^{2/3}}{(b c-a d)^{1/3}}-\left(b c+a d+2 b d x\right)^{1/3}\right]}{4 b^{2/3}(b c-a d)^{5/3}}$$

Result (type 6, 593 leaves):

$$\frac{1}{5(b c-a d)^2}(c+d x)^{2/3}\left(a d+b\left(c+2 d x\right)\right)^{2/3}$$
$$\left(-\frac{5}{a+b x}+\frac{1}{b c+a d+2 b d x}d\left(10-\frac{5 c}{c+d x}+\frac{5 a d}{b c+b d x}+\left(100 b(b c-a d)(c+d x)\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]\right)\Big/\right.\right.$$
$$\left(d(a+b x)\left(10 b(c+d x)\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]+(b c-a d)\right.\right.$$
$$\left.\left.\left(6\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},2,\frac{8}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]+\text{AppellF1}\left[\frac{5}{3},\frac{4}{3},1,\frac{8}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]\right)\right)\right)-\left(16(b c-a d)^2\right.$$
$$\left.\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]\right)\Big/\left(d(a+b x)\left(16 b(c+d x)\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]+\right.\right.$$
$$\left.\left.\left.\left.(b c-a d)\left(6\,\text{AppellF1}\left[\frac{8}{3},\frac{1}{3},2,\frac{11}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]+\text{AppellF1}\left[\frac{8}{3},\frac{4}{3},1,\frac{11}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]\right)\right)\right)\right)\right)$$

Problem 3028: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x)^3 (c+d x)^{1/3} (b c+a d+2 b d x)^{1/3}} \, dx$$

Optimal (type 4, 1558 leaves, 9 steps):

$$-\frac{(c+d x)^{2/3} (b c+a d+2 b d x)^{2/3}}{2 (b c-a d)^2 (a+b x)^2}+\frac{2 d (c+d x)^{2/3} (b c+a d+2 b d x)^{2/3}}{(b c-a d)^3 (a+b x)}-$$

$$\left(2 \left((c+d x) (b c+a d+2 b d x)\right)^{1/3} \sqrt{d^2 (3 b c+a d+4 b d x)^2} \sqrt{\left(d (3 b c+a d)+4 b d^2 x\right)^2}\right) \Big/$$

$$\left(b^{2/3} (b c-a d)^3 (c+d x)^{1/3} (b c+a d+2 b d x)^{1/3} (3 b c+a d+4 b d x) \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} \left((c+d x) (a d+b (c+2 d x))\right)^{1/3}\right)\right)-$$

$$\frac{2 d^2 \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{2/3} (c+d x)^{2/3}}{\sqrt{3} (b c-a d)^{1/3} (b c+a d+2 b d x)^{1/3}}\right]}{\sqrt{3} b^{2/3} (b c-a d)^{8/3}}+$$

$$\left(3^{1/4} \sqrt{2-\sqrt{3}} d^2 \left((c+d x) (b c+a d+2 b d x)\right)^{1/3} \sqrt{\left(d (3 b c+a d)+4 b d^2 x\right)^2} \left((b c-a d)^{2/3}+2 b^{1/3} \left((c+d x) (a d+b (c+2 d x))\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2 b^{1/3} (b c-a d)^{2/3} \left((c+d x) (a d+b (c+2 d x))\right)^{1/3}+4 b^{2/3} \left((c+d x) (a d+b (c+2 d x))\right)^{2/3}\right) \Big/ \left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} \left((c+d x) (a d+b (c+2 d x))\right)^{1/3}\right)^2\right)}$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} \left((c+d x) (a d+b (c+2 d x))\right)^{1/3}}{\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} \left((c+d x) (a d+b (c+2 d x))\right)^{1/3}}\right],-7-4 \sqrt{3}\right]\right) \Big/$$

$$\left(b^{2/3} (b c-a d)^{7/3} (c+d x)^{1/3} (b c+a d+2 b d x)^{1/3} (3 b c+a d+4 b d x) \sqrt{d^2 (3 b c+a d+4 b d x)^2}\right.$$

$$\left.\sqrt{\frac{(b c-a d)^{2/3} \left((b c-a d)^{2/3}+2 b^{1/3} \left((c+d x) (a d+b (c+2 d x))\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right) (b c-a d)^{2/3}+2 b^{1/3} \left((c+d x) (a d+b (c+2 d x))\right)^{1/3}\right)^2}}\right)-$$

$$\left(2 \sqrt{2} d^2 \left((c+d x) (b c+a d+2 b d x)\right)^{1/3} \sqrt{\left(d (3 b c+a d)+4 b d^2 x\right)^2} \left((b c-a d)^{2/3}+2 b^{1/3} \left((c+d x) (a d+b (c+2 d x))\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b c-a d)^{4/3}-2 b^{1/3} (b c-a d)^{2/3} \left((c+d x) (a d+b (c+2 d x))\right)^{1/3}+4 b^{2/3} \left((c+d x) (a d+b (c+2 d x))\right)^{2/3}\right) \Big/\right.}$$

$$\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}\right)^2\Big)$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}}{\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}}\right],-7-4\sqrt{3}\right]\Bigg)\Bigg/$$

$$\Bigg(3^{1/4}b^{2/3}(bc-ad)^{7/3}(c+dx)^{1/3}(bc+ad+2bdx)^{1/3}(3bc+ad+4bdx)\sqrt{d^2(3bc+ad+4bdx)^2}$$

$$\sqrt{\frac{(bc-ad)^{2/3}\left((bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(bc-ad)^{2/3}+2b^{1/3}\left((c+dx)(ad+b(c+2dx))\right)^{1/3}\right)^2}}\Bigg)-$$

$$\frac{2d^2\,\text{Log}[a+bx]}{3b^{2/3}(bc-ad)^{8/3}}+\frac{d^2\,\text{Log}\left[\frac{b^{2/3}(c+dx)^{2/3}}{(bc-ad)^{1/3}}-(bc+ad+2bdx)^{1/3}\right]}{b^{2/3}(bc-ad)^{8/3}}$$

Result (type 6, 620 leaves):

$$\frac{1}{10}(c+dx)^{2/3}(ad+b(c+2dx))^{2/3}$$

$$\Bigg(\frac{5(-bc+5ad+4bdx)}{(bc-ad)^3(a+bx)^2}+\Bigg(4d^2\Bigg(10-\frac{5c}{c+dx}+\frac{5ad}{bc+bdx}+\Bigg(75b(bc-ad)(c+dx)\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right]\Bigg)\Bigg/$$

$$\Bigg(d(a+bx)\Bigg(10b(c+dx)\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right]+$$

$$(bc-ad)\Bigg(6\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},2,\frac{8}{3},\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right]+\text{AppellF1}\left[\frac{5}{3},\frac{4}{3},1,\frac{8}{3},\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right]\Bigg)\Bigg)\Bigg)-$$

$$\Bigg(16(bc-ad)^2\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right]\Bigg)\Bigg/\Bigg(d(a+bx)$$

$$\Bigg(16b(c+dx)\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right]+(bc-ad)\Bigg(6\,\text{AppellF1}\left[\frac{8}{3},\frac{1}{3},2,\frac{11}{3},\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right]+$$

$$\text{AppellF1}\left[\frac{8}{3},\frac{4}{3},1,\frac{11}{3},\frac{bc-ad}{2bc+2bdx},\frac{bc-ad}{bc+bdx}\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/\left((-bc+ad)^3(bc+ad+2bdx)\right)\Bigg)$$

Problem 3029: Result unnecessarily involves higher level functions.

$$\int\frac{(a+bx)^3}{(c+dx)^{1/3}(bc+ad+2bdx)^{4/3}}\,dx$$

Optimal (type 4, 1388 leaves, 7 steps):

$$\frac{3\,(a+b\,x)^2\,(c+d\,x)^{2/3}}{14\,d^2\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}}+\frac{9\,(b\,c-a\,d)\,(c+d\,x)^{2/3}\,(b\,c-7\,a\,d-6\,b\,d\,x)}{112\,d^4\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}}+$$

$$\left(81\,(b\,c-a\,d)^2\,\left((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x)\right)^{1/3}\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\,\sqrt{\left(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x\right)^2}\right)\Big/$$

$$\left(112\,b^{2/3}\,d^6\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\,\left(\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)\right)-$$

$$\left(81\times 3^{1/4}\,\sqrt{2-\sqrt{3}}\,(b\,c-a\,d)^{8/3}\,\left((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x)\right)^{1/3}\right.$$

$$\sqrt{\left(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x\right)^2}\,\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)$$

$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2\,b^{1/3}\,(b\,c-a\,d)^{2/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}+4\,b^{2/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{2/3}\right)\Big/\right.}$$

$$\left.\left(\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2\right)$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}{\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}\right],\,-7-4\,\sqrt{3}\right]\right)\Big/$$

$$\left(224\,b^{2/3}\,d^4\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\,\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\right.$$

$$\left.\sqrt{\frac{(b\,c-a\,d)^{2/3}\,\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2}}\right)+$$

$$\left(27\times 3^{3/4}\,(b\,c-a\,d)^{8/3}\,\left((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x)\right)^{1/3}\sqrt{\left(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x\right)^2}\,\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2\,b^{1/3}\,(b\,c-a\,d)^{2/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}+4\,b^{2/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{2/3}\right)\Big/\right.}$$

$$\left.\left(\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2\right)$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)\,(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}{\left(1+\sqrt{3}\right)\,(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}\right],\,-7-4\,\sqrt{3}\right]\right)\Big/$$

$$\left(56\,\sqrt{2}\,b^{2/3}\,d^4\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\,\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\right.$$

$$\sqrt{\frac{(b c-a d)^{2/3}\left((b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\,(a d+b\,(c+2 d x))\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\,(a d+b\,(c+2 d x))\right)^{1/3}\right)^2}}\,\Bigg)$$

Result (type 5, 157 leaves):

$$\frac{1}{224\,(c+d x)^{1/3}}(a d+b\,(c+2 d x))^{2/3}\left(\frac{6\,(c+d x)\left(-11 b c+15 a d+4 b d x+\frac{14\,(b c-a d)^2}{a d+b\,(c+2 d x)}\right)}{d^4}+\frac{81\times 2^{1/3}\,(b c-a d)^2\left(\frac{b\,(c+d x)}{b c-a d}\right)^{1/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{a d+b\,(c+2 d x)}{-b c+a d}\right]}{b\,d^4}\right)$$

Problem 3030: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b x)^2}{(c+d x)^{1/3}\,(b c+a d+2 b d x)^{4/3}}\,dx$$

Optimal (type 4, 1366 leaves, 7 steps):

$$-\frac{3\,(b c-a d)\,(c+d x)^{2/3}}{4 d^3\,(b c+a d+2 b d x)^{1/3}}+\frac{3\,(c+d x)^{2/3}\,(b c+a d+2 b d x)^{2/3}}{16 d^3}-$$

$$\left(9\,(b c-a d)\left((c+d x)\,(b c+a d+2 b d x)\right)^{1/3}\sqrt{d^2\,(3 b c+a d+4 b d x)^2}\,\sqrt{\left(d\,(3 b c+a d)+4 b d^2 x\right)^2}\right)\Big/$$

$$\left(16 b^{2/3} d^5\,(c+d x)^{1/3}\,(b c+a d+2 b d x)^{1/3}\,(3 b c+a d+4 b d x)\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\,(a d+b\,(c+2 d x))\right)^{1/3}\right)\right)+$$

$$\Bigg(9\times 3^{1/4}\sqrt{2-\sqrt{3}}\,(b c-a d)^{5/3}\left((c+d x)\,(b c+a d+2 b d x)\right)^{1/3}\sqrt{\left(d\,(3 b c+a d)+4 b d^2 x\right)^2}$$

$$\left((b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\,(a d+b\,(c+2 d x))\right)^{1/3}\right)\sqrt{\left(\left((b c-a d)^{4/3}-2 b^{1/3}\,(b c-a d)^{2/3}\left((c+d x)\,(a d+b\,(c+2 d x))\right)^{1/3}+\right.\right.}$$

$$\left.\left.4 b^{2/3}\left((c+d x)\,(a d+b\,(c+2 d x))\right)^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\,(a d+b\,(c+2 d x))\right)^{1/3}\right)^2\right)$$

$$\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\,(a d+b\,(c+2 d x))\right)^{1/3}}{\left(1+\sqrt{3}\right)(b c-a d)^{2/3}+2 b^{1/3}\left((c+d x)\,(a d+b\,(c+2 d x))\right)^{1/3}}\right],-7-4\sqrt{3}\right]\Bigg)\Big/$$

$$\Bigg(32 b^{2/3} d^3\,(c+d x)^{1/3}\,(b c+a d+2 b d x)^{1/3}\,(3 b c+a d+4 b d x)\sqrt{d^2\,(3 b c+a d+4 b d x)^2}$$

$$\sqrt{\frac{(b\,c-a\,d)^{2/3}\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2}}\;-$$

$$\Bigg(3\times 3^{3/4}\,(b\,c-a\,d)^{5/3}\,\left((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x)\right)^{1/3}\sqrt{\left(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x\right)^2}\,\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)$$

$$\sqrt{\left((b\,c-a\,d)^{4/3}-2\,b^{1/3}\,(b\,c-a\,d)^{2/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}+4\,b^{2/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{2/3}\right)\Big/}$$
$$\overline{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}}\right],\,-7-4\,\sqrt{3}\right]\Bigg)\Big/$$

$$\Bigg(8\,\sqrt{2}\,b^{2/3}\,d^3\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\,\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}$$

$$\sqrt{\frac{(b\,c-a\,d)^{2/3}\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\left((c+d\,x)\,(a\,d+b\,(c+2\,d\,x))\right)^{1/3}\right)^2}}\Bigg)$$

Result (type 5, 119 leaves) :

$$-\frac{3\,(c+d\,x)^{2/3}\left(6\,b\,c-10\,a\,d-4\,b\,d\,x+\frac{3\times 2^{1/3}\,(a\,d+b\,(c+2\,d\,x))\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{a\,d+b\,(c+2\,d\,x)}{-b\,c+a\,d}\right]}{\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{2/3}}\right)}{32\,d^3\,\left(a\,d+b\,(c+2\,d\,x)\right)^{1/3}}$$

Problem 3032: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{4/3}}\,dx$$

Optimal (type 4, 1333 leaves, 6 steps) :

$$-\frac{3\,(c+d\,x)^{2/3}}{d\,(b\,c-a\,d)\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}}+\left(3\,((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x))^{1/3}\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\,\sqrt{(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x)^2}\right)\Big/$$

$$\left(2\,b^{2/3}\,d^3\,(b\,c-a\,d)\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\,\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}\right)\right)-$$

$$\left(3\times 3^{1/4}\sqrt{2-\sqrt{3}}\,((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x))^{1/3}\sqrt{(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x)^2}\,\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2\,b^{1/3}\,(b\,c-a\,d)^{2/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}+4\,b^{2/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}\right)^2\right)}$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(4\,b^{2/3}\,d\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\right.$$

$$\left.\sqrt{\frac{(b\,c-a\,d)^{2/3}\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}\right)^2}}\right)+$$

$$\left(3^{3/4}\,((c+d\,x)\,(b\,c+a\,d+2\,b\,d\,x))^{1/3}\sqrt{(d\,(3\,b\,c+a\,d)+4\,b\,d^2\,x)^2}\,\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}\right)\right.$$

$$\sqrt{\left(\left((b\,c-a\,d)^{4/3}-2\,b^{1/3}\,(b\,c-a\,d)^{2/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}+4\,b^{2/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{2/3}\right)\Big/\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}\right)^2\right)}$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\left(1-\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}}{\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(\sqrt{2}\,b^{2/3}\,d\,(b\,c-a\,d)^{1/3}\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}\,(3\,b\,c+a\,d+4\,b\,d\,x)\sqrt{d^2\,(3\,b\,c+a\,d+4\,b\,d\,x)^2}\right.$$

$$\left.\sqrt{\frac{(b\,c-a\,d)^{2/3}\left((b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}\right)}{\left(\left(1+\sqrt{3}\right)(b\,c-a\,d)^{2/3}+2\,b^{1/3}\,((c+d\,x)\,(a\,d+b\,(c+2\,d\,x)))^{1/3}\right)^2}}\right)$$

Result (type 5, 127 leaves):

$$\frac{12\,b\,(c+d\,x)-3\times 2^{1/3}\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{1/3}(a\,d+b\,(c+2\,d\,x))\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{2}{3},\frac{5}{3},\frac{a\,d+b\,(c+2\,d\,x)}{-b\,c+a\,d}\right]}{4\,b\,d\,(-b\,c+a\,d)\,(c+d\,x)^{1/3}\,(a\,d+b\,(c+2\,d\,x))^{1/3}}$$

Problem 3033: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,x)\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{4/3}}\,dx$$

Optimal (type 6, 113 leaves, 2 steps):

$$\frac{3\,(c+d\,x)^{2/3}\left(-\frac{b\,c+a\,d+2\,b\,d\,x}{b\,c-a\,d}\right)^{1/3}\text{AppellF1}\left[\frac{2}{3},\frac{4}{3},1,\frac{5}{3},\frac{2\,b\,(c+d\,x)}{b\,c-a\,d},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{2\,(b\,c-a\,d)^2\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}}$$

Result (type 6, 395 leaves):

$$\left(-15\,b\,(c+d\,x)\,\text{AppellF1}\left[\frac{2}{3},-\frac{2}{3},1,\frac{5}{3},\frac{b\,c-a\,d}{2\,b\,c+2\,b\,d\,x},\frac{b\,c-a\,d}{b\,c+b\,d\,x}\right]+\right.$$
$$\left.6\,d\,(a+b\,x)\left(3\,\text{AppellF1}\left[\frac{5}{3},-\frac{2}{3},2,\frac{8}{3},\frac{b\,c-a\,d}{2\,b\,c+2\,b\,d\,x},\frac{b\,c-a\,d}{b\,c+b\,d\,x}\right]-\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},\frac{b\,c-a\,d}{2\,b\,c+2\,b\,d\,x},\frac{b\,c-a\,d}{b\,c+b\,d\,x}\right]\right)\right)\Big/$$
$$\left(2\,b\,d\,(a+b\,x)\,(c+d\,x)^{1/3}\,(a\,d+b\,(c+2\,d\,x))^{1/3}\left(5\,b\,(c+d\,x)\,\text{AppellF1}\left[\frac{2}{3},-\frac{2}{3},1,\frac{5}{3},\frac{b\,c-a\,d}{2\,b\,c+2\,b\,d\,x},\frac{b\,c-a\,d}{b\,c+b\,d\,x}\right]+\right.\right.$$
$$\left.\left.(b\,c-a\,d)\left(3\,\text{AppellF1}\left[\frac{5}{3},-\frac{2}{3},2,\frac{8}{3},\frac{b\,c-a\,d}{2\,b\,c+2\,b\,d\,x},\frac{b\,c-a\,d}{b\,c+b\,d\,x}\right]-\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},\frac{b\,c-a\,d}{2\,b\,c+2\,b\,d\,x},\frac{b\,c-a\,d}{b\,c+b\,d\,x}\right]\right)\right)\right)$$

Problem 3034: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,x)^2\,(c+d\,x)^{1/3}\,(b\,c+a\,d+2\,b\,d\,x)^{4/3}}\,dx$$

Optimal (type 6, 114 leaves, 2 steps):

$$-\frac{3\,d\,(c+d\,x)^{2/3}\left(-\frac{b\,c+a\,d+2\,b\,d\,x}{b\,c-a\,d}\right)^{1/3}\text{AppellF1}\left[\frac{2}{3},\frac{4}{3},2,\frac{5}{3},\frac{2\,b\,(c+d\,x)}{b\,c-a\,d},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{2\,(b\,c-a\,d)^3\,(b\,c+a\,d+2\,b\,d\,x)^{1/3}}$$

Result (type 6, 605 leaves):

$$\frac{1}{5\left(a d+b\left(c+2 d x\right)\right)^{1/3}}\left(c+d x\right)^{2/3}\left(-\frac{5\left(13 a d+b\left(c+14 d x\right)\right)}{\left(b c-a d\right)^3\left(a+b x\right)}+\frac{1}{\left(-b c+a d\right)^3}d\left(-\left(\left(400 b\left(b c-a d\right)\left(c+d x\right)\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]\right)\middle/\left(d\left(a+b x\right)\left(10 b\left(c+d x\right)\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]+\left(b c-a d\right)\left(6\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},2,\frac{8}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]+\text{AppellF1}\left[\frac{5}{3},\frac{4}{3},1,\frac{8}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]\right)\right)\right)\right)+7\left(-10+\frac{5 c}{c+d x}-\frac{5 a d}{b c+b d x}+\left(16\left(b c-a d\right)^2\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]\right)\middle/\left(d\left(a+b x\right)\left(16 b\left(c+d x\right)\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]+\left(b c-a d\right)\left(6\,\text{AppellF1}\left[\frac{8}{3},\frac{1}{3},2,\frac{11}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]+\text{AppellF1}\left[\frac{8}{3},\frac{4}{3},1,\frac{11}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]\right)\right)\right)\right)\right)$$

Problem 3035: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(a+b x\right)^3\left(c+d x\right)^{1/3}\left(b c+a d+2 b d x\right)^{4/3}}\,dx$$

Optimal (type 6, 116 leaves, 2 steps):

$$\frac{3 d^2\left(c+d x\right)^{2/3}\left(-\frac{b c+a d+2 b d x}{b c-a d}\right)^{1/3}\text{AppellF1}\left[\frac{2}{3},\frac{4}{3},3,\frac{5}{3},\frac{2 b\left(c+d x\right)}{b c-a d},\frac{b\left(c+d x\right)}{b c-a d}\right]}{2\left(b c-a d\right)^4\left(b c+a d+2 b d x\right)^{1/3}}$$

Result (type 6, 638 leaves):

$$\frac{1}{10\,(b c-a d)^4}\,(c+d x)^{2/3}\,(a d+b\,(c+2 d x))^{2/3}\left(5\left(\frac{-b c+a d}{(a+b x)^2}+\frac{8 d}{a+b x}+\frac{48 d^2}{b c+a d+2 b d x}\right)-\frac{1}{a d+b\,(c+2 d x)}4 d^2\left(\left(475 b\,(b c-a d)\,(c+d x)\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]\right)\Big/\left(d\,(a+b x)\left(10 b\,(c+d x)\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},1,\frac{5}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]+(b c-a d)\left(6\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},2,\frac{8}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]+\text{AppellF1}\left[\frac{5}{3},\frac{4}{3},1,\frac{8}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]\right)\right)\right)+8\left(10-\frac{5 c}{c+d x}+\frac{5 a d}{b c+b d x}-\left(16\,(b c-a d)^2\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]\right)\Big/\left(d\,(a+b x)\left(16 b\,(c+d x)\,\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},1,\frac{8}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]+(b c-a d)\left(6\,\text{AppellF1}\left[\frac{8}{3},\frac{1}{3},2,\frac{11}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]+\text{AppellF1}\left[\frac{8}{3},\frac{4}{3},1,\frac{11}{3},\frac{b c-a d}{2 b c+2 b d x},\frac{b c-a d}{b c+b d x}\right]\right)\right)\right)\right)\right)$$

Problem 3036: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(d-3 e x)^{1/3}\,(d+e x)\,(d+3 e x)^{1/3}}\,dx$$

Optimal (type 3, 120 leaves, 1 step):

$$\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{(d-3 e x)^{2/3}}{\sqrt{3}\,d^{1/3}\,(d+3 e x)^{1/3}}\right]}{4\,d^{2/3}\,e}+\frac{\text{Log}[d+e x]}{4\,d^{2/3}\,e}-\frac{3\,\text{Log}\left[-\frac{(d-3 e x)^{2/3}}{2\,d^{1/3}}-(d+3 e x)^{1/3}\right]}{8\,d^{2/3}\,e}$$

Result (type 6, 196 leaves):

$$-\left(\left(45\,(d+e x)\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},\frac{1}{3},\frac{5}{3},\frac{4 d}{3\,(d+e x)},\frac{2 d}{3\,(d+e x)}\right]\right)\Big/\left(2 e\,(d-3 e x)^{1/3}\,(d+3 e x)^{1/3}\left(15\,(d+e x)\,\text{AppellF1}\left[\frac{2}{3},\frac{1}{3},\frac{1}{3},\frac{5}{3},\frac{4 d}{3\,(d+e x)},\frac{2 d}{3\,(d+e x)}\right]+2 d\left(\text{AppellF1}\left[\frac{5}{3},\frac{1}{3},\frac{4}{3},\frac{8}{3},\frac{4 d}{3\,(d+e x)},\frac{2 d}{3\,(d+e x)}\right]+2\,\text{AppellF1}\left[\frac{5}{3},\frac{4}{3},\frac{1}{3},\frac{8}{3},\frac{4 d}{3\,(d+e x)},\frac{2 d}{3\,(d+e x)}\right]\right)\right)\right)\right)$$

Problem 3037: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{4/3}\,(e+f x)^2}{(c+d x)^{4/3}}\,dx$$

Optimal (type 3, 562 leaves, 5 steps):

$$\frac{3\left(d e-c f\right)^2\left(a+b x\right)^{7/3}}{d^2\left(b c-a d\right)\left(c+d x\right)^{1/3}}-\frac{4\left(a^2 d^2 f^2-a b d f\left(9 d e-7 c f\right)-b^2\left(27 d^2 e^2-63 c d e f+35 c^2 f^2\right)\right)\left(a+b x\right)^{1/3}\left(c+d x\right)^{2/3}}{27 b d^4}+$$
$$\frac{\left(a^2 d^2 f^2-a b d f\left(9 d e-7 c f\right)-b^2\left(27 d^2 e^2-63 c d e f+35 c^2 f^2\right)\right)\left(a+b x\right)^{4/3}\left(c+d x\right)^{2/3}}{9 b d^3\left(b c-a d\right)}+\frac{f^2\left(a+b x\right)^{7/3}\left(c+d x\right)^{2/3}}{3 b d^2}-$$
$$\frac{1}{27\sqrt{3}\, b^{5/3} d^{13/3}}4\left(b c-a d\right)\left(a^2 d^2 f^2-a b d f\left(9 d e-7 c f\right)-b^2\left(27 d^2 e^2-63 c d e f+35 c^2 f^2\right)\right)\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3}\left(c+d x\right)^{1/3}}{\sqrt{3}\, d^{1/3}\left(a+b x\right)^{1/3}}\right]-$$
$$\frac{2\left(b c-a d\right)\left(a^2 d^2 f^2-a b d f\left(9 d e-7 c f\right)-b^2\left(27 d^2 e^2-63 c d e f+35 c^2 f^2\right)\right)\text{Log}[a+b x]}{81 b^{5/3} d^{13/3}}-$$
$$\frac{2\left(b c-a d\right)\left(a^2 d^2 f^2-a b d f\left(9 d e-7 c f\right)-b^2\left(27 d^2 e^2-63 c d e f+35 c^2 f^2\right)\right)\text{Log}\left[-1+\frac{b^{1/3}\left(c+d x\right)^{1/3}}{d^{1/3}\left(a+b x\right)^{1/3}}\right]}{27 b^{5/3} d^{13/3}}$$

Result (type 5, 282 leaves):

$$\frac{1}{27 b d^4}\left(a+b x\right)^{1/3}\left(c+d x\right)^{2/3}$$
$$\left(\frac{1}{c+d x}\left(2 a^2 d^2 f^2\left(c+d x\right)+b^2\left(140 c^3 f^2+7 c^2 d f\left(-36 e+5 f x\right)+3 c d^2\left(36 e^2-21 e f x-5 f^2 x^2\right)+9 d^3 x\left(3 e^2+3 e f x+f^2 x^2\right)\right)+\right.\right.$$
$$\left.a b d\left(-133 c^2 f^2+c d f\left(225 e-37 f x\right)+d^2\left(-81 e^2+63 e f x+15 f^2 x^2\right)\right)\right)+\frac{1}{\left(\frac{d\left(a+b x\right)}{-b c+a d}\right)^{1/3}}$$
$$\left.2\left(-a^2 d^2 f^2+a b d f\left(9 d e-7 c f\right)+b^2\left(27 d^2 e^2-63 c d e f+35 c^2 f^2\right)\right)\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b\left(c+d x\right)}{b c-a d}\right]\right)$$

Problem 3038: Result unnecessarily involves higher level functions.

$$\int\frac{\left(a+b x\right)^{4/3}\left(e+f x\right)}{\left(c+d x\right)^{4/3}}\,dx$$

Optimal (type 3, 328 leaves, 4 steps):

$$\frac{3\,(d\,e-c\,f)\,(a+b\,x)^{7/3}}{d\,(b\,c-a\,d)\,(c+d\,x)^{1/3}}+\frac{2\,(6\,b\,d\,e-7\,b\,c\,f+a\,d\,f)\,(a+b\,x)^{1/3}\,(c+d\,x)^{2/3}}{3\,d^3}-$$
$$\frac{(6\,b\,d\,e-7\,b\,c\,f+a\,d\,f)\,(a+b\,x)^{4/3}\,(c+d\,x)^{2/3}}{2\,d^2\,(b\,c-a\,d)}+\frac{2\,(b\,c-a\,d)\,(6\,b\,d\,e-7\,b\,c\,f+a\,d\,f)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,b^{1/3}\,(c+d\,x)^{1/3}}{\sqrt{3}\,d^{1/3}\,(a+b\,x)^{1/3}}\right]}{3\,\sqrt{3}\,b^{2/3}\,d^{10/3}}+$$
$$\frac{(b\,c-a\,d)\,(6\,b\,d\,e-7\,b\,c\,f+a\,d\,f)\,\text{Log}[a+b\,x]}{9\,b^{2/3}\,d^{10/3}}+\frac{(b\,c-a\,d)\,(6\,b\,d\,e-7\,b\,c\,f+a\,d\,f)\,\text{Log}\left[-1+\frac{b^{1/3}\,(c+d\,x)^{1/3}}{d^{1/3}\,(a+b\,x)^{1/3}}\right]}{3\,b^{2/3}\,d^{10/3}}$$

Result (type 5, 137 leaves):

$$\frac{1}{6\,d^3}(a+b\,x)^{1/3}\,(c+d\,x)^{2/3}$$
$$\left(6\,b\,d\,e-10\,b\,c\,f+7\,a\,d\,f+3\,b\,d\,f\,x-\frac{18\,(b\,c-a\,d)\,(-d\,e+c\,f)}{c+d\,x}+\frac{2\,(6\,b\,d\,e-7\,b\,c\,f+a\,d\,f)\,\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/3}}\right)$$

Problem 3039: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{4/3}}{(c+d\,x)^{4/3}}\,dx$$

Optimal (type 3, 195 leaves, 3 steps):

$$-\frac{3\,(a+b\,x)^{4/3}}{d\,(c+d\,x)^{1/3}}+\frac{4\,b\,(a+b\,x)^{1/3}\,(c+d\,x)^{2/3}}{d^2}+\frac{4\,b^{1/3}\,(b\,c-a\,d)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,b^{1/3}\,(c+d\,x)^{1/3}}{\sqrt{3}\,d^{1/3}\,(a+b\,x)^{1/3}}\right]}{\sqrt{3}\,d^{7/3}}+$$
$$\frac{2\,b^{1/3}\,(b\,c-a\,d)\,\text{Log}[a+b\,x]}{3\,d^{7/3}}+\frac{2\,b^{1/3}\,(b\,c-a\,d)\,\text{Log}\left[-1+\frac{b^{1/3}\,(c+d\,x)^{1/3}}{d^{1/3}\,(a+b\,x)^{1/3}}\right]}{d^{7/3}}$$

Result (type 5, 95 leaves):

$$\frac{(a+b\,x)^{1/3}\,(c+d\,x)^{2/3}\left(\frac{4\,b\,c-3\,a\,d+b\,d\,x}{c+d\,x}+\frac{2\,b\,\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{1/3}}\right)}{d^2}$$

Problem 3040: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{4/3}}{(c+d x)^{4/3} (e+f x)} \, dx$$

Optimal (type 3, 380 leaves, 4 steps):

$$\frac{3 (b c-a d) (a+b x)^{1/3}}{d (d e-c f) (c+d x)^{1/3}}-\frac{\sqrt{3}\, b^{4/3} \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3} (c+d x)^{1/3}}{\sqrt{3}\, d^{1/3} (a+b x)^{1/3}}\right]}{d^{4/3} f}+\frac{\sqrt{3}\, (b e-a f)^{4/3} \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 (b e-a f)^{1/3} (c+d x)^{1/3}}{\sqrt{3}\, (d e-c f)^{1/3} (a+b x)^{1/3}}\right]}{f (d e-c f)^{4/3}}-$$

$$\frac{b^{4/3} \text{Log}[a+b x]}{2 d^{4/3} f}-\frac{(b e-a f)^{4/3} \text{Log}[e+f x]}{2 f (d e-c f)^{4/3}}+\frac{3 (b e-a f)^{4/3} \text{Log}\left[-(a+b x)^{1/3}+\frac{(b e-a f)^{1/3} (c+d x)^{1/3}}{(d e-c f)^{1/3}}\right]}{2 f (d e-c f)^{4/3}}-\frac{3 b^{4/3} \text{Log}\left[-1+\frac{b^{1/3} (c+d x)^{1/3}}{d^{1/3} (a+b x)^{1/3}}\right]}{2 d^{4/3} f}$$

Result (type 6, 559 leaves):

$$\frac{1}{5 d^2 (d e-c f) (a+b x)^{2/3} (c+d x)^{1/3}} 3 \left(-5 d (-b c+a d) (a+b x)-\frac{1}{d (e+f x)}\right.$$

$$2 b (b c-a d) (c+d x) \left(\left(5 f (-2 b d e+b c f+a d f) (c+d x) \text{AppellF1}\left[1, \frac{2}{3}, 1, 2, \frac{b c-a d}{b c+b d x}, \frac{-d e+c f}{f (c+d x)}\right]\right) \Big/\right.$$

$$\left(6 b f (c+d x) \text{AppellF1}\left[1, \frac{2}{3}, 1, 2, \frac{b c-a d}{b c+b d x}, \frac{-d e+c f}{f (c+d x)}\right]+b (-3 d e+3 c f) \text{AppellF1}\left[2, \frac{2}{3}, 2, 3, \frac{b c-a d}{b c+b d x}, \frac{-d e+c f}{f (c+d x)}\right]+\right.$$

$$\left.\left. 2 (b c-a d) f \text{AppellF1}\left[2, \frac{5}{3}, 1, 3, \frac{b c-a d}{b c+b d x}, \frac{-d e+c f}{f (c+d x)}\right]\right)\right)-\left(4 b (d e-c f)^2 \text{AppellF1}\left[\frac{5}{3}, \frac{2}{3}, 1, \frac{8}{3}, \frac{b (c+d x)}{b c-a d}, \frac{f (c+d x)}{-d e+c f}\right]\right) \Big/$$

$$\left(-\frac{8 (b c-a d) (-d e+c f) \text{AppellF1}\left[\frac{5}{3}, \frac{2}{3}, 1, \frac{8}{3}, \frac{b (c+d x)}{b c-a d}, \frac{f (c+d x)}{-d e+c f}\right]}{c+d x}+(-3 b c f+3 a d f)\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{8}{3}, \frac{2}{3}, 2, \frac{11}{3}, \frac{b (c+d x)}{b c-a d}, \frac{f (c+d x)}{-d e+c f}\right]+2 b (d e-c f) \text{AppellF1}\left[\frac{8}{3}, \frac{5}{3}, 1, \frac{11}{3}, \frac{b (c+d x)}{b c-a d}, \frac{f (c+d x)}{-d e+c f}\right]\right)\right)\right)$$

Problem 3041: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{4/3}}{(c+d x)^{4/3} (e+f x)^2} \, dx$$

Optimal (type 3, 301 leaves, 3 steps):

$$-\frac{3\,(a+b\,x)^{4/3}}{(d\,e-c\,f)\,(c+d\,x)^{1/3}\,(e+f\,x)}+\frac{4\,(b\,e-a\,f)\,(a+b\,x)^{1/3}\,(c+d\,x)^{2/3}}{(d\,e-c\,f)^2\,(e+f\,x)}+\frac{4\,(b\,c-a\,d)\,(b\,e-a\,f)^{1/3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,(b\,e-a\,f)^{1/3}\,(c+d\,x)^{1/3}}{\sqrt{3}\,(d\,e-c\,f)^{1/3}\,(a+b\,x)^{1/3}}\right]}{\sqrt{3}\,(d\,e-c\,f)^{7/3}}-\frac{2\,(b\,c-a\,d)\,(b\,e-a\,f)^{1/3}\,\text{Log}[e+f\,x]}{3\,(d\,e-c\,f)^{7/3}}+\frac{2\,(b\,c-a\,d)\,(b\,e-a\,f)^{1/3}\,\text{Log}\left[-(a+b\,x)^{1/3}+\frac{(b\,e-a\,f)^{1/3}\,(c+d\,x)^{1/3}}{(d\,e-c\,f)^{1/3}}\right]}{(d\,e-c\,f)^{7/3}}$$

Result (type 5, 160 leaves) :

$$\left((a+b\,x)^{1/3}\left(b\,(4\,c\,e+d\,e\,x+3\,c\,f\,x)-a\,(3\,d\,e+c\,f+4\,d\,f\,x)-4\,(b\,c-a\,d)\left(\frac{(b\,e-a\,f)\,(c+d\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right)^{1/3}(e+f\,x)\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{(-d\,e+c\,f)\,(a+b\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right]\right)\right)\Big/\left((d\,e-c\,f)^2\,(c+d\,x)^{1/3}\,(e+f\,x)\right)$$

Problem 3042: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^{4/3}}{(c+d\,x)^{4/3}\,(e+f\,x)^3}\,dx$$

Optimal (type 3, 434 leaves, 4 steps) :

$$\frac{3\,d\,(a+b\,x)^{7/3}}{(b\,c-a\,d)\,(d\,e-c\,f)\,(c+d\,x)^{1/3}\,(e+f\,x)^2}-\frac{(6\,b\,d\,e+b\,c\,f-7\,a\,d\,f)\,(a+b\,x)^{4/3}\,(c+d\,x)^{2/3}}{2\,(b\,c-a\,d)\,(d\,e-c\,f)^2\,(e+f\,x)^2}+\frac{2\,(6\,b\,d\,e+b\,c\,f-7\,a\,d\,f)\,(a+b\,x)^{1/3}\,(c+d\,x)^{2/3}}{3\,(d\,e-c\,f)^3\,(e+f\,x)}+\frac{2\,(b\,c-a\,d)\,(6\,b\,d\,e+b\,c\,f-7\,a\,d\,f)\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,(b\,e-a\,f)^{1/3}\,(c+d\,x)^{1/3}}{\sqrt{3}\,(d\,e-c\,f)^{1/3}\,(a+b\,x)^{1/3}}\right]}{3\,\sqrt{3}\,(b\,e-a\,f)^{2/3}\,(d\,e-c\,f)^{10/3}}-\frac{(b\,c-a\,d)\,(6\,b\,d\,e+b\,c\,f-7\,a\,d\,f)\,\text{Log}[e+f\,x]}{9\,(b\,e-a\,f)^{2/3}\,(d\,e-c\,f)^{10/3}}+\frac{(b\,c-a\,d)\,(6\,b\,d\,e+b\,c\,f-7\,a\,d\,f)\,\text{Log}\left[-(a+b\,x)^{1/3}+\frac{(b\,e-a\,f)^{1/3}\,(c+d\,x)^{1/3}}{(d\,e-c\,f)^{1/3}}\right]}{3\,(b\,e-a\,f)^{2/3}\,(d\,e-c\,f)^{10/3}}$$

Result (type 5, 208 leaves) :

$$\frac{1}{6\,(d\,e-c\,f)^3\,(c+d\,x)^{1/3}}(a+b\,x)^{1/3}\left(18\,d\,(b\,c-a\,d)+\frac{3\,(b\,e-a\,f)\,(d\,e-c\,f)\,(c+d\,x)}{(e+f\,x)^2}+\frac{(3\,b\,d\,e+7\,b\,c\,f-10\,a\,d\,f)\,(c+d\,x)}{e+f\,x}-\frac{4\,(6\,b\,d\,e+b\,c\,f-7\,a\,d\,f)\,(c+d\,x)\,\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{(-d\,e+c\,f)\,(a+b\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right]}{\left(\frac{(b\,e-a\,f)\,(c+d\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right)^{2/3}(e+f\,x)}\right)$$

Problem 3043: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^{4/3}}{(c+d x)^{4/3} (e+f x)^4} \, dx$$

Optimal (type 3, 645 leaves, 6 steps):

$$\frac{3 (b c-a d) (a+b x)^{1/3}}{d (d e-c f) (c+d x)^{1/3} (e+f x)^3}+\frac{(b d e+9 b c f-10 a d f) (a+b x)^{1/3} (c+d x)^{2/3}}{3 d (d e-c f)^2 (e+f x)^3}+\frac{(3 b d e+32 b c f-35 a d f) (a+b x)^{1/3} (c+d x)^{2/3}}{9 (d e-c f)^3 (e+f x)^2}+$$
$$\frac{\left(140 a^2 d^2 f^2-7 a b d f (21 d e+19 c f)+b^2 \left(9 d^2 e^2+129 c d e f+2 c^2 f^2\right)\right) (a+b x)^{1/3} (c+d x)^{2/3}}{27 (b e-a f) (d e-c f)^4 (e+f x)}+$$
$$\left(4 (b c-a d) \left(35 a^2 d^2 f^2-7 a b d f (9 d e+c f)+b^2 \left(27 d^2 e^2+9 c d e f-c^2 f^2\right)\right) \text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 (b e-a f)^{1/3} (c+d x)^{1/3}}{\sqrt{3} (d e-c f)^{1/3} (a+b x)^{1/3}}\right]\right) \Big/$$
$$\left(27 \sqrt{3} (b e-a f)^{5/3} (d e-c f)^{13/3}\right)-\frac{2 (b c-a d) \left(35 a^2 d^2 f^2-7 a b d f (9 d e+c f)+b^2 \left(27 d^2 e^2+9 c d e f-c^2 f^2\right)\right) \text{Log}[e+f x]}{81 (b e-a f)^{5/3} (d e-c f)^{13/3}}+$$
$$\left(2 (b c-a d) \left(35 a^2 d^2 f^2-7 a b d f (9 d e+c f)+b^2 \left(27 d^2 e^2+9 c d e f-c^2 f^2\right)\right) \text{Log}\left[-(a+b x)^{1/3}+\frac{(b e-a f)^{1/3} (c+d x)^{1/3}}{(d e-c f)^{1/3}}\right]\right) \Big/$$
$$\left(27 (b e-a f)^{5/3} (d e-c f)^{13/3}\right)$$

Result (type 5, 371 leaves):

$$\frac{1}{27 (b e-a f)^2 (d e-c f)^4 (c+d x)^{1/3} (e+f x)^3}$$
$$(a+b x)^{1/3} \Big((b e-a f) \Big(9 (b e-a f)^2 (d e-c f)^2 (c+d x)+3 (b e-a f) (d e-c f) (3 b d e+5 b c f-8 a d f) (c+d x) (e+f x)+$$
$$\left(59 a^2 d^2 f^2-2 a b d f (33 d e+26 c f)+b^2 \left(9 d^2 e^2+48 c d e f+2 c^2 f^2\right)\right) (c+d x) (e+f x)^2+81 d^2 (b c-a d) (b e-a f) (e+f x)^3\Big)+$$
$$4 (b c-a d) \left(-35 a^2 d^2 f^2+7 a b d f (9 d e+c f)+b^2 \left(-27 d^2 e^2-9 c d e f+c^2 f^2\right)\right) \left(\frac{(b e-a f) (c+d x)}{(b c-a d) (e+f x)}\right)^{1/3}$$
$$(e+f x)^3 \text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},\frac{(-d e+c f) (a+b x)}{(b c-a d) (e+f x)}\right]\Big)$$

Problem 3044: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+b x) \sqrt{c+d x} (e+f x)^{1/4}} \, dx$$

Optimal (type 4, 266 leaves, 5 steps):

$$\frac{2\,(d\,e-c\,f)^{1/4}\sqrt{-\frac{f\,(c+d\,x)}{d\,e-c\,f}}\;\text{EllipticPi}\left[-\frac{\sqrt{b}\,\sqrt{d\,e-c\,f}}{\sqrt{d}\,\sqrt{b\,e-a\,f}},\,\text{ArcSin}\left[\frac{d^{1/4}\,(e+f\,x)^{1/4}}{(d\,e-c\,f)^{1/4}}\right],\,-1\right]}{\sqrt{b}\,d^{1/4}\,\sqrt{b\,e-a\,f}\,\sqrt{c+d\,x}}-\frac{2\,(d\,e-c\,f)^{1/4}\sqrt{-\frac{f\,(c+d\,x)}{d\,e-c\,f}}\;\text{EllipticPi}\left[\frac{\sqrt{b}\,\sqrt{d\,e-c\,f}}{\sqrt{d}\,\sqrt{b\,e-a\,f}},\,\text{ArcSin}\left[\frac{d^{1/4}\,(e+f\,x)^{1/4}}{(d\,e-c\,f)^{1/4}}\right],\,-1\right]}{\sqrt{b}\,d^{1/4}\,\sqrt{b\,e-a\,f}\,\sqrt{c+d\,x}}$$

Result (type 6, 270 leaves):

$$-\left(\left(28\,d\,f\,(a+b\,x)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},\frac{1}{4},\frac{7}{4},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\right)\Big/\left(3\,b\,\sqrt{c+d\,x}\,(e+f\,x)^{1/4}\left(7\,d\,f\,(a+b\,x)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},\frac{1}{4},\frac{7}{4},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+(-b\,d\,e+a\,d\,f)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},\frac{5}{4},\frac{11}{4},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+2\,(-b\,c+a\,d)\,f\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},\frac{1}{4},\frac{11}{4},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\right)\right)\right)$$

Problem 3045: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+b\,x)\,\sqrt{c+d\,x}\,(e+f\,x)^{3/4}}\,dx$$

Optimal (type 4, 252 leaves, 5 steps):

$$-\frac{2\,(d\,e-c\,f)^{1/4}\sqrt{-\frac{f\,(c+d\,x)}{d\,e-c\,f}}\;\text{EllipticPi}\left[-\frac{\sqrt{b}\,\sqrt{d\,e-c\,f}}{\sqrt{d}\,\sqrt{b\,e-a\,f}},\,\text{ArcSin}\left[\frac{d^{1/4}\,(e+f\,x)^{1/4}}{(d\,e-c\,f)^{1/4}}\right],\,-1\right]}{d^{1/4}\,(b\,e-a\,f)\,\sqrt{c+d\,x}}-\frac{2\,(d\,e-c\,f)^{1/4}\sqrt{-\frac{f\,(c+d\,x)}{d\,e-c\,f}}\;\text{EllipticPi}\left[\frac{\sqrt{b}\,\sqrt{d\,e-c\,f}}{\sqrt{d}\,\sqrt{b\,e-a\,f}},\,\text{ArcSin}\left[\frac{d^{1/4}\,(e+f\,x)^{1/4}}{(d\,e-c\,f)^{1/4}}\right],\,-1\right]}{d^{1/4}\,(b\,e-a\,f)\,\sqrt{c+d\,x}}$$

Result (type 6, 271 leaves):

$$-\left(\left(36\,d\,f\,(a+b\,x)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},\frac{3}{4},\frac{9}{4},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\right)\bigg/\left(5\,b\,\sqrt{c+d\,x}\,(e+f\,x)^{3/4}\left(9\,d\,f\,(a+b\,x)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},\frac{3}{4},\frac{9}{4},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+(-3\,b\,d\,e+3\,a\,d\,f)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},\frac{7}{4},\frac{13}{4},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+2\,(-b\,c+a\,d)\,f\,\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},\frac{3}{4},\frac{13}{4},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\right)\right)\right)$$

Problem 3047: Result unnecessarily involves higher level functions.

$$\int (a+b\,x)\,(c+d\,x)^n\,(e+f\,x)^{-n}\,dx$$

Optimal (type 5, 134 leaves, 3 steps):

$$\frac{b\,(c+d\,x)^{1+n}\,(e+f\,x)^{1-n}}{2\,d\,f}+\frac{1}{2\,d^2\,f\,(1+n)}(2\,a\,d\,f-b\,(c\,f\,(1-n)+d\,e\,(1+n)))\,(c+d\,x)^{1+n}\,(e+f\,x)^{-n}\left(\frac{d\,(e+f\,x)}{d\,e-c\,f}\right)^n\text{Hypergeometric2F1}\left[n,1+n,2+n,-\frac{f\,(c+d\,x)}{d\,e-c\,f}\right]$$

Result (type 6, 201 leaves):

$$(c+d\,x)^n\,(e+f\,x)^{-n}\left(\left(3\,b\,c\,e\,x^2\,\text{AppellF1}\left[2,-n,n,3,-\frac{d\,x}{c},-\frac{f\,x}{e}\right]\right)\bigg/\left(6\,c\,e\,\text{AppellF1}\left[2,-n,n,3,-\frac{d\,x}{c},-\frac{f\,x}{e}\right]+2\,n\,x\left(d\,e\,\text{AppellF1}\left[3,1-n,n,4,-\frac{d\,x}{c},-\frac{f\,x}{e}\right]-c\,f\,\text{AppellF1}\left[3,-n,1+n,4,-\frac{d\,x}{c},-\frac{f\,x}{e}\right]\right)\right)-\frac{a\left(\frac{f\,(c+d\,x)}{-d\,e+c\,f}\right)^{-n}(e+f\,x)\,\text{Hypergeometric2F1}\left[1-n,-n,2-n,\frac{d\,(e+f\,x)}{d\,e-c\,f}\right]}{f\,(-1+n)}\right)$$

Problem 3053: Result unnecessarily involves higher level functions.

$$\int (a+b\,x)^{-n}\,(c+d\,x)\,(e+f\,x)^n\,dx$$

Optimal (type 5, 135 leaves, 3 steps):

$$\frac{d\,(a+b\,x)^{1-n}\,(e+f\,x)^{1+n}}{2\,b\,f}+\frac{1}{2\,b\,f^2\,(1+n)}(b\,(2\,c\,f-d\,e\,(1-n))-a\,d\,f\,(1+n))\,(a+b\,x)^{-n}\left(-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right)^n(e+f\,x)^{1+n}\,\text{Hypergeometric2F1}\left[n,1+n,2+n,\frac{b\,(e+f\,x)}{b\,e-a\,f}\right]$$

Result (type 6, 192 leaves):

$$(a+b x)^{-n} (e+f x)^n \left(\left(3 a d e x^2 \text{AppellF1}\left[2, n, -n, 3, -\frac{b x}{a}, -\frac{f x}{e}\right]\right) \middle/ \left(6 a e \text{AppellF1}\left[2, n, -n, 3, -\frac{b x}{a}, -\frac{f x}{e}\right] + 2 n x \left(a f \text{AppellF1}\left[3, n, 1-n, 4, -\frac{b x}{a}, -\frac{f x}{e}\right] - b e \text{AppellF1}\left[3, 1+n, -n, 4, -\frac{b x}{a}, -\frac{f x}{e}\right]\right)\right) + \frac{c \left(\frac{f (a+b x)}{-b e+a f}\right)^n (e+f x) \text{Hypergeometric2F1}\left[n, 1+n, 2+n, \frac{b (e+f x)}{b e-a f}\right]}{f (1+n)}\right)$$

Problem 3059: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{-m} (e+f x)^p \, dx$$

Optimal (type 6, 121 leaves, 3 steps):

$$\frac{(a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m (e+f x)^p \left(\frac{b (e+f x)}{b e-a f}\right)^{-p} \text{AppellF1}\left[1+m, m, -p, 2+m, -\frac{d (a+b x)}{b c-a d}, -\frac{f (a+b x)}{b e-a f}\right]}{b (1+m)}$$

Result (type 6, 290 leaves):

$$\left((b c-a d) (b e-a f) (2+m) (a+b x)^{1+m} (c+d x)^{-m} (e+f x)^p \text{AppellF1}\left[1+m, m, -p, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right) \middle/ \left(b (1+m) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m, m, -p, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right] - (a+b x) \left((-b c+a d) f p \, \text{AppellF1}\left[2+m, m, 1-p, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right] + d (b e-a f) m \, \text{AppellF1}\left[2+m, 1+m, -p, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3060: Result unnecessarily involves higher level functions.

$$\int (5-4 x)^4 (1+2 x)^{-m} (2+3 x)^m \, dx$$

Optimal (type 5, 188 leaves, 4 steps):

$$-\frac{1}{45}(88-m)(5-4x)^2(1+2x)^{1-m}(2+3x)^{1+m}-\frac{2}{15}(5-4x)^3(1+2x)^{1-m}(2+3x)^{1+m}-\frac{(1+2x)^{1-m}(2+3x)^{1+m}\left(386850-25441m+426m^2-2m^3-24\left(4359-154m+m^2\right)x\right)}{1215}+\frac{1}{1215(1-m)}2^{-1-m}\left(3528363-639760m+29050m^2-440m^3+2m^4\right)(1+2x)^{1-m}\,\text{Hypergeometric2F1}[1-m,-m,2-m,-3(1+2x)]$$

Result (type 6, 155 leaves):

$$\left(483\times2^{-1-m}(-5+4x)^5(2+4x)^{-m}(8+12x)^m\,\text{AppellF1}\left[5,-m,m,6,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]\right)\Big/\left(5\left(966\,\text{AppellF1}\left[5,-m,m,6,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]+m(-5+4x)\left(21\,\text{AppellF1}\left[6,1-m,m,7,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]-23\,\text{AppellF1}\left[6,-m,1+m,7,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]\right)\right)\right)$$

Problem 3061: Result unnecessarily involves higher level functions.

$$\int(a+bx)^m(c+dx)^{-m}(e+fx)^3\,dx$$

Optimal (type 5, 432 leaves, 4 steps):

$$\frac{f(a+bx)^{1+m}(c+dx)^{1-m}(e+fx)^2}{4bd}+\frac{1}{24b^3d^3}f(a+bx)^{1+m}(c+dx)^{1-m}\left(a^2d^2f^2\left(6-5m+m^2\right)-2abdf\left(6de(2-m)-cf\left(3-m^2\right)\right)+b^2\left(30d^2e^2-12cdef(2+m)+c^2f^2\left(6+5m+m^2\right)\right)-2bdf\left(adf(3-m)-b\left(6de-cf(3+m)\right)\right)x\right)-\frac{1}{24b^4d^3(1+m)}\left(a^3d^3f^3\left(6-11m+6m^2-m^3\right)-3a^2bd^2f^2\left(2-3m+m^2\right)\left(4de-cf(1+m)\right)+3ab^2df(1-m)\left(12d^2e^2-8cdef(1+m)+c^2f^2\left(2+3m+m^2\right)\right)-b^3\left(24d^3e^3-36cd^2e^2f(1+m)+12c^2def^2\left(2+3m+m^2\right)-c^3f^3\left(6+11m+6m^2+m^3\right)\right)\right)(a+bx)^{1+m}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\text{Hypergeometric2F1}\left[m,1+m,2+m,-\frac{d(a+bx)}{bc-ad}\right]$$

Result (type 6, 440 leaves):

$$(a+b\,x)^m\,(c+d\,x)^{-m}\left(\left(9\,a\,c\,e^2\,f\,x^2\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/\right.$$
$$\left(6\,a\,c\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+2\,m\,x\left(b\,c\,\text{AppellF1}\left[3,1-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-a\,d\,\text{AppellF1}\left[3,-m,1+m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)+$$
$$\left(4\,a\,c\,e\,f^2\,x^3\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(4\,a\,c\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+m\,x\left(b\,c\,\text{AppellF1}\left[4,1-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-a\,d\,\text{AppellF1}\left[4,-m,1+m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)+$$
$$\left(5\,a\,c\,f^3\,x^4\,\text{AppellF1}\left[4,-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(20\,a\,c\,\text{AppellF1}\left[4,-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+4\,b\,c\,m\,x\,\text{AppellF1}\left[5,1-m,m,6,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-4\,a\,d\,m\,x\,\text{AppellF1}\left[5,-m,1+m,6,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)-$$
$$\left.\frac{e^3\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-m}(c+d\,x)\,\text{Hypergeometric2F1}\left[1-m,-m,2-m,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{d\,(-1+m)}\right)$$

Problem 3062: Result unnecessarily involves higher level functions.

$$\int(a+b\,x)^m\,(c+d\,x)^{-m}\,(e+f\,x)^2\,dx$$

Optimal (type 5, 250 leaves, 4 steps):

$$-\frac{f\,(a\,d\,f\,(2-m)-b\,(4\,d\,e-c\,f\,(2+m)))\,(a+b\,x)^{1+m}\,(c+d\,x)^{1-m}}{6\,b^2\,d^2}+\frac{f\,(a+b\,x)^{1+m}\,(c+d\,x)^{1-m}\,(e+f\,x)}{3\,b\,d}+\frac{1}{6\,b^3\,d^2\,(1+m)}$$
$$\left(a^2\,d^2\,f^2\,(2-3\,m+m^2)-2\,a\,b\,d\,f\,(1-m)\,(3\,d\,e-c\,f\,(1+m))+b^2\,(6\,d^2\,e^2-6\,c\,d\,e\,f\,(1+m)+c^2\,f^2\,(2+3\,m+m^2))\right)$$
$$(a+b\,x)^{1+m}\,(c+d\,x)^{-m}\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^m\text{Hypergeometric2F1}\left[m,1+m,2+m,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]$$

Result (type 6, 320 leaves):

$$(a+b x)^m (c+d x)^{-m} \left(\left(3 a c e f x^2 \text{AppellF1}\left[2,-m,m,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(3 a c \text{AppellF1}\left[2,-m,m,3,-\frac{b x}{a},-\frac{d x}{c}\right]+m x \left(b c \text{AppellF1}\left[3,1-m,m,4,-\frac{b x}{a},-\frac{d x}{c}\right]-a d \text{AppellF1}\left[3,-m,1+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\right)+\left(4 a c f^2 x^3 \text{AppellF1}\left[3,-m,m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(12 a c \text{AppellF1}\left[3,-m,m,4,-\frac{b x}{a},-\frac{d x}{c}\right]+3 b c m x \text{AppellF1}\left[4,1-m,m,5,-\frac{b x}{a},-\frac{d x}{c}\right]-3 a d m x \text{AppellF1}\left[4,-m,1+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)-\frac{e^2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} (c+d x) \text{Hypergeometric2F1}\left[1-m,-m,2-m,\frac{b (c+d x)}{b c-a d}\right]}{d (-1+m)}\right)$$

Problem 3063: Result unnecessarily involves higher level functions.

$$\int (a+b x)^m (c+d x)^{-m} (e+f x) \, dx$$

Optimal (type 5, 135 leaves, 3 steps):

$$\frac{f (a+b x)^{1+m} (c+d x)^{1-m}}{2 b d}-\frac{1}{2 b^2 d (1+m)}(a d f (1-m)-b (2 d e-c f (1+m))) (a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[m,1+m,2+m,-\frac{d (a+b x)}{b c-a d}\right]$$

Result (type 6, 201 leaves):

$$(a+b x)^m (c+d x)^{-m} \left(\left(3 a c f x^2 \text{AppellF1}\left[2,-m,m,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(6 a c \text{AppellF1}\left[2,-m,m,3,-\frac{b x}{a},-\frac{d x}{c}\right]+2 m x \left(b c \text{AppellF1}\left[3,1-m,m,4,-\frac{b x}{a},-\frac{d x}{c}\right]-a d \text{AppellF1}\left[3,-m,1+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\right)-\frac{e \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} (c+d x) \text{Hypergeometric2F1}\left[1-m,-m,2-m,\frac{b (c+d x)}{b c-a d}\right]}{d (-1+m)}\right)$$

Problem 3065: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{-m}}{e+f x} \, dx$$

Optimal (type 5, 128 leaves, 5 steps):

$$-\frac{(a+b x)^m (c+d x)^{-m} \text{Hypergeometric2F1}\left[1, m, 1+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{f m}+\frac{(a+b x)^m (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[m, m, 1+m, -\frac{d (a+b x)}{b c-a d}\right]}{f m}$$

Result (type 6, 292 leaves):

$$-\left(\left((b c-a d) (b e-a f)^2 (2+m) (a+b x)^{1+m} (c+d x)^{-m} \text{AppellF1}\left[1+m, m, 1, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right) \Big/ \left(b (-b e+a f) (1+m) (e+f x) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m, m, 1, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]+(a+b x) \left((-b c f+a d f) \text{AppellF1}\left[2+m, m, 2, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]+d (-b e+a f) m \text{AppellF1}\left[2+m, 1+m, 1, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)\right)$$

Problem 3067: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{-m}}{(e+f x)^3} \, dx$$

Optimal (type 5, 174 leaves, 2 steps):

$$-\frac{f (a+b x)^{1+m} (c+d x)^{1-m}}{2 (b e-a f) (d e-c f) (e+f x)^2}+\left((b c-a d) (b (2 d e-c f (1-m))-a d f (1+m)) (a+b x)^{1+m} (c+d x)^{-1-m} \text{Hypergeometric2F1}\left[2, 1+m, 2+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]\right) \Big/ \left(2 (b e-a f)^3 (d e-c f) (1+m)\right)$$

Result (type 5, 432 leaves):

$$\left((b e-a f)^4 (a+b x)^{1+m} (c+d x)^{-m}\right.$$
$$\left(\left(-2 b e+a f (1+m)+b f (-1+m) x\right) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]-2 \left(a f (1+m)+b (-e+f m x)\right)\right.$$
$$\left.\left.\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\right]+f (1+m) (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]\right)\right)\Big/$$
$$\left((2 b e-2 a f) (-b e+a f)^3 (e+f x)^2 \left((b e-a f) (-a f (1+m)+b (e-f m x)) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]+\right.\right.$$
$$\frac{1}{c+d x} (a+b x) \left(\left(a f (1+m) (-2 c f+d (e-f x))+b (c f (e (2+m)-f m x)+d e (-e+f (1+2 m) x))\right)\right)$$
$$\left.\left.\left.\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\right]+f (-d e+c f) (1+m) (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]\right)\right)\right)$$

Problem 3068: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{-m}}{(e+f x)^4} \, dx$$

Optimal (type 5, 309 leaves, 4 steps):

$$-\frac{f (a+b x)^{1+m} (c+d x)^{1-m}}{3 (b e-a f) (d e-c f) (e+f x)^3}-\frac{f (b (4 d e-c f (2-m))-a d f (2+m)) (a+b x)^{1+m} (c+d x)^{1-m}}{6 (b e-a f)^2 (d e-c f)^2 (e+f x)^2}-$$
$$\left((b c-a d) \left(2 a b d f (3 d e-c f (1-m)) (1+m)-a^2 d^2 f^2 \left(2+3 m+m^2\right)-b^2 \left(6 d^2 e^2-6 c d e f (1-m)+c^2 f^2 \left(2-3 m+m^2\right)\right)\right)\right.$$
$$\left.(a+b x)^{1+m} (c+d x)^{-1-m} \text{Hypergeometric2F1}\left[2,1+m,2+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]\right)\Big/\left(6 (b e-a f)^4 (d e-c f)^2 (1+m)\right)$$

Result (type 5, 1697 leaves):

$$\left((a+b x)^{1+m} (c+d x)^{1-m} \left(6 (b e-a f)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]+\right.\right.$$
$$6 (b e-a f)^2 m \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]+6 f (b e-a f) (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]+$$
$$6 f (-b e+a f) m^2 (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]+2 f^2 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]-$$
$$f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]-2 f^2 m^2 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]+$$

$$f^2 m^3 (a+bx)^2 \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, m\right] - 6 (be-af)^2 \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 1+m\right] -$$

$$6 (be-af)^2 m \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 1+m\right] + 12 f (be-af) m (a+bx) \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 1+m\right] +$$

$$12 f (be-af) m^2 (a+bx) \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 1+m\right] + 3 f^2 m (a+bx)^2 \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 1+m\right] -$$

$$3 f^2 m^3 (a+bx)^2 \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 1+m\right] + 6 f (-be+af) (a+bx) \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 2+m\right] +$$

$$12 f (-be+af) m (a+bx) \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 2+m\right] +$$

$$6 f (-be+af) m^2 (a+bx) \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 2+m\right] + 3 f^2 m (a+bx)^2 \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 2+m\right] +$$

$$6 f^2 m^2 (a+bx)^2 \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 2+m\right] + 3 f^2 m^3 (a+bx)^2 \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 2+m\right] -$$

$$2 f^2 (a+bx)^2 \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 3+m\right] - 5 f^2 m (a+bx)^2 \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 3+m\right] -$$

$$4 f^2 m^2 (a+bx)^2 \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 3+m\right] - f^2 m^3 (a+bx)^2 \text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 3+m\right]\Bigg)\Bigg) \Bigg/$$

$$\Bigg(3 (1+m) (e+fx)^3 \Bigg((be-af)(c+dx)\left(a^2 f^2 (2+3m+m^2) + 2abf(1+m)(-2e+fmx) + b^2 (2e^2 - 4efmx + f^2(-1+m)mx^2)\right)$$

$$\text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, m\right] -$$

$$(a+bx)\Bigg(\left(a^2 f^2 (2+3m+m^2)\left(-3cf + d(e-2fx)\right) - 2abf(1+m)\left(cf(-e(6+m)+2fmx) + d(2e^2 - 2ef(2+m)x + f^2 m x^2)\right) + \right.$$

$$\left. b^2 \left(cf(-2e^2(3+2m) + 2efm(3+m)x - f^2(-1+m)mx^2) + de(2e^2 - 4ef(1+2m)x + f^2 m(1+3m)x^2)\right)\right)$$

$$\text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 1+m\right] + f(1+m)(a+bx)$$

$$\Bigg(\left(af(2+m)(-2de+3cf+dfx) + bcf(-e(6+m)+2fmx) + bde(4e - f(2+3m)x)\right)$$

$$\text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 2+m\right] + f(de-cf)(2+m)(a+bx)\text{HurwitzLerchPhi}\left[\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}, 1, 3+m\right]\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 3069: Result unnecessarily involves higher level functions.

$$\int \frac{(1+2x)^{-m}\,(2+3x)^m}{(5-4x)^5}\,dx$$

Optimal (type 5, 179 leaves, 5 steps):

$$\frac{(1+2x)^{1-m}\,(2+3x)^{1+m}}{322\,(5-4x)^4}+\frac{(66+m)\,(1+2x)^{1-m}\,(2+3x)^{1+m}}{77763\,(5-4x)^3}+\frac{\left(4359+220\,m+2\,m^2\right)\,(1+2x)^{1-m}\,(2+3x)^{1+m}}{25039686\,(5-4x)^2}+\frac{\left(32010+4358\,m+132\,m^2+m^3\right)\,(1+2x)^{1-m}\,(2+3x)^{-1+m}\,\text{Hypergeometric2F1}\left[2,\,1-m,\,2-m,\,\frac{23\,(1+2x)}{14\,(2+3x)}\right]}{2453889228\,(1-m)}$$

Result (type 6, 153 leaves):

$$\left(15\times 2^{-4-m}\,(2+4x)^{-m}\,(8+12x)^m\,\text{AppellF1}\left[4,\,-m,\,m,\,5,\,\frac{23}{15-12x},\,\frac{7}{5-4x}\right]\right)\Big/\left((-5+4x)^3\left(15\,(-5+4x)\,\text{AppellF1}\left[4,\,-m,\,m,\,5,\,\frac{23}{15-12x},\,\frac{7}{5-4x}\right]+m\left(23\,\text{AppellF1}\left[5,\,1-m,\,m,\,6,\,\frac{23}{15-12x},\,\frac{7}{5-4x}\right]-21\,\text{AppellF1}\left[5,\,-m,\,1+m,\,6,\,\frac{23}{15-12x},\,\frac{7}{5-4x}\right]\right)\right)\right)$$

Problem 3070: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^m\,(c+d\,x)^{-1-m}\,(e+f\,x)^p\,dx$$

Optimal (type 6, 130 leaves, 3 steps):

$$\frac{1}{(b\,c-a\,d)\,(1+m)}(a+b\,x)^{1+m}\,(c+d\,x)^{-m}\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^m(e+f\,x)^p\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-p}\text{AppellF1}\left[1+m,\,1+m,\,-p,\,2+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d},\,-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]$$

Result (type 6, 300 leaves):

$$\left((b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-1-m}\,(e+f\,x)^p\,\text{AppellF1}\left[1+m,\,1+m,\,-p,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\Big/\left(b\,(1+m)\left((b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,\text{AppellF1}\left[1+m,\,1+m,\,-p,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]-(a+b\,x)\left((-b\,c+a\,d)\,f\,p\,\text{AppellF1}\left[2+m,\,1+m,\,1-p,\,3+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+d\,(b\,e-a\,f)\,(1+m)\,\text{AppellF1}\left[2+m,\,2+m,\,-p,\,3+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\right)\right)$$

Problem 3071: Result unnecessarily involves higher level functions and more than twice size of optimal

antiderivative.

$$\int (5-4x)^3 (1+2x)^{-1-m} (2+3x)^m \, dx$$

Optimal (type 5, 142 leaves, 3 steps):

$$-\frac{2}{9}(5-4x)^2(1+2x)^{-m}(2+3x)^{1+m}-\frac{(1+2x)^{-m}(2+3x)^{1+m}\left(9261-512m+4m^2-4(109-2m)mx\right)}{27m}+\frac{2^{-1-m}\left(27783-8324m+390m^2-4m^3\right)(1+2x)^{1-m}\,\text{Hypergeometric2F1}[1-m,-m,2-m,-3(1+2x)]}{27(1-m)m}$$

Result (type 6, 395 leaves):

$$\frac{7}{4}\left(\left(483(5-4x)^2(4+8x)^{-m}(8+12x)^m\,\text{AppellF1}\left[2,-m,m,3,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]\right)\Big/\left(483\,\text{AppellF1}\left[2,-m,m,3,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]+m(-5+4x)\left(21\,\text{AppellF1}\left[3,1-m,m,4,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]-23\,\text{AppellF1}\left[3,-m,1+m,4,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]\right)\right)-\left(23\times2^{3+m}(2+3x)^m(-5+4x)^3(2+4x)^{-m}\,\text{AppellF1}\left[3,-m,m,4,-\frac{3}{23}(-5+4x),\frac{1}{7}(5-4x)\right]\right)\Big/\left(3\left(644\,\text{AppellF1}\left[3,-m,m,4,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]+m(-5+4x)\left(21\,\text{AppellF1}\left[4,1-m,m,5,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]-23\,\text{AppellF1}\left[4,-m,1+m,5,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]\right)\right)\right)+\frac{7\times2^{2-m}(1+2x)^{1-m}\,\text{Hypergeometric2F1}[1-m,-m,2-m,-3-6x]}{-1+m}-\frac{196(-3-6x)^m(1+2x)^{-m}(2+3x)^{1+m}\,\text{Hypergeometric2F1}[1+m,1+m,2+m,4+6x]}{1+m}\right)$$

Problem 3072: Result unnecessarily involves higher level functions.

$$\int (5-4x)^2 (1+2x)^{-1-m} (2+3x)^m \, dx$$

Optimal (type 5, 121 leaves, 3 steps):

$$-\frac{7(21-m)(1+2x)^{-m}(2+3x)^{1+m}}{3m}-\frac{1}{3}(5-4x)(1+2x)^{-m}(2+3x)^{1+m}+\frac{2^{-1-m}\left(441-86m+2m^2\right)(1+2x)^{1-m}\,\text{Hypergeometric2F1}[1-m,-m,2-m,-3(1+2x)]}{3(1-m)m}$$

Result (type 6, 241 leaves):

$$\frac{7}{4}\left(\left(69\,(5-4x)^2\,(4+8x)^{-m}\,(8+12x)^m\,\text{AppellF1}\left[2,-m,m,3,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]\right)\Big/\left(483\,\text{AppellF1}\left[2,-m,m,3,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]+m\,(-5+4x)\left(21\,\text{AppellF1}\left[3,1-m,m,4,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]-23\,\text{AppellF1}\left[3,-m,1+m,4,\frac{3}{23}(5-4x),\frac{1}{7}(5-4x)\right]\right)\right)+\frac{2^{2-m}\,(1+2x)^{1-m}\,\text{Hypergeometric2F1}[1-m,-m,2-m,-3-6x]}{-1+m}-\frac{28\,(-3-6x)^m\,(1+2x)^{-m}\,(2+3x)^{1+m}\,\text{Hypergeometric2F1}[1+m,1+m,2+m,4+6x]}{1+m}\right)$$

Problem 3075: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,x)^m\,(c+d\,x)^{-1-m}}{e+f\,x}\,dx$$

Optimal (type 5, 72 leaves, 1 step):

$$-\frac{(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}\right]}{(d\,e-c\,f)\,m}$$

Result (type 6, 362 leaves):

$$\frac{1}{d\,e-c\,f}(a+b\,x)^m\,(c+d\,x)^{-m}\left(\left((b\,c-a\,d)\,f\,(b\,e-a\,f)^2\,(2+m)\,(a+b\,x)\,\text{AppellF1}\left[1+m,m,1,2+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\Big/\left(b\,(-b\,e+a\,f)\,(1+m)\,(e+f\,x)\left((b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,\text{AppellF1}\left[1+m,m,1,2+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+(a+b\,x)\left((-b\,c\,f+a\,d\,f)\,\text{AppellF1}\left[2+m,m,2,3+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+d\,(-b\,e+a\,f)\,m\,\text{AppellF1}\left[2+m,1+m,1,3+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\right)\right)-\frac{\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-m}\,\text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{m}\right)$$

Problem 3077: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{-1-m}}{(e+f x)^3} \, dx$$

Optimal (type 5, 283 leaves, 4 steps):

$$-\frac{f (a+b x)^{1+m} (c+d x)^{-m}}{2 (b e-a f) (d e-c f) (e+f x)^2}-\frac{f (b (3 d e-c f (1-m))-a d f (2+m)) (a+b x)^{1+m} (c+d x)^{-m}}{2 (b e-a f)^2 (d e-c f)^2 (e+f x)}+$$
$$\Big(\big(2 a b d f (1+m) (2 d e+c f m)-b^2 (2 d^2 e^2+4 c d e f m-c^2 f^2 (1-m) m)-a^2 d^2 f^2 (2+3 m+m^2)\big)$$
$$(a+b x)^m (c+d x)^{-m} \text{Hypergeometric2F1}\Big[1,-m,1-m,\frac{(b e-a f) (c+d x)}{(d e-c f) (a+b x)}\Big]\Big) \Big/ \left(2 (b e-a f)^2 (d e-c f)^3 m\right)$$

Result (type 5, 2361 leaves):

$$-\Bigg(\Bigg((b e-a f)^3 (a+b x)^{1+m} (c+d x)^{-m}$$
$$\Bigg(2 (b e-a f)^2 \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\Big]+2 (b e-a f)^2 m \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\Big]+$$
$$4 f (-b e+a f) m (a+b x) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\Big]+4 f (-b e+a f) m^2 (a+b x)$$
$$\text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\Big]-f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\Big]+$$
$$f^2 m^3 (a+b x)^2 \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\Big]+4 f (b e-a f) (a+b x) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\Big]+$$
$$8 f (b e-a f) m (a+b x) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\Big]+4 f (b e-a f) m^2 (a+b x)$$
$$\text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\Big]-2 f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\Big]-$$
$$4 f^2 m^2 (a+b x)^2 \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\Big]-2 f^2 m^3 (a+b x)^2 \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\Big]+$$
$$2 f^2 (a+b x)^2 \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\Big]+5 f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\Big]+$$
$$4 f^2 m^2 (a+b x)^2 \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\Big]+f^2 m^3 (a+b x)^2 \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\Big]\Bigg)\Bigg) \Big/$$

$$\Big(2\,(-b\,e+a\,f)^3\,(1+m)\,(e+f\,x)^2\,\Big(b^3\,c\,e^3-a\,b^2\,c\,e^2\,f+b^3\,d\,e^3\,x+2\,b^3\,c\,e^2\,f\,x-a\,b^2\,d\,e^2\,f\,x-2\,a\,b^2\,c\,e\,f^2\,x+$$
$$2\,b^3\,d\,e^2\,f\,x^2+b^3\,c\,e\,f^2\,x^2-2\,a\,b^2\,d\,e\,f^2\,x^2-a\,b^2\,c\,f^3\,x^2+b^3\,d\,e\,f^2\,x^3-a\,b^2\,d\,f^3\,x^3-$$
$$f\,(-b\,e+a\,f)\,(1+m)\,(a+b\,x)\,(c+d\,x)\,(a\,f\,(2+m)+b\,(-2\,e+f\,m\,x))\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,1+m\Big]+f\,(1+m)\,(a+b\,x)^2$$
$$(a\,f\,(2+m)\,(-d\,e+2\,c\,f+d\,f\,x)+b\,c\,f\,(-e\,(4+m)+f\,m\,x)+2\,b\,d\,e\,(e-f\,(1+m)\,x))\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,2+m\Big]+$$
$$2\,a^3\,d\,e\,f^2\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]-2\,a^3\,c\,f^3\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]+$$
$$3\,a^3\,d\,e\,f^2\,m\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]-3\,a^3\,c\,f^3\,m\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]+$$
$$a^3\,d\,e\,f^2\,m^2\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]-a^3\,c\,f^3\,m^2\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]+$$
$$6\,a^2\,b\,d\,e\,f^2\,x\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]-6\,a^2\,b\,c\,f^3\,x\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]+$$
$$9\,a^2\,b\,d\,e\,f^2\,m\,x\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]-9\,a^2\,b\,c\,f^3\,m\,x\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]+$$
$$3\,a^2\,b\,d\,e\,f^2\,m^2\,x\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]-3\,a^2\,b\,c\,f^3\,m^2\,x\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]+$$
$$6\,a\,b^2\,d\,e\,f^2\,x^2\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]-6\,a\,b^2\,c\,f^3\,x^2\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]+$$
$$9\,a\,b^2\,d\,e\,f^2\,m\,x^2\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]-9\,a\,b^2\,c\,f^3\,m\,x^2\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]+$$
$$3\,a\,b^2\,d\,e\,f^2\,m^2\,x^2\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]-3\,a\,b^2\,c\,f^3\,m^2\,x^2\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]+$$
$$2\,b^3\,d\,e\,f^2\,x^3\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]-2\,b^3\,c\,f^3\,x^3\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]+$$
$$3\,b^3\,d\,e\,f^2\,m\,x^3\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]-3\,b^3\,c\,f^3\,m\,x^3\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]+$$
$$b^3\,d\,e\,f^2\,m^2\,x^3\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]-b^3\,c\,f^3\,m^2\,x^3\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]\Big)\Big)\Big)$$

Problem 3078: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{-1-m}}{(e+f x)^4} \, dx$$

Optimal (type 5, 498 leaves, 5 steps):

$$-\frac{f (a+b x)^{1+m} (c+d x)^{-m}}{3 (b e-a f) (d e-c f) (e+f x)^3}-\frac{f (b (5 d e-c f (2-m))-a d f (3+m)) (a+b x)^{1+m} (c+d x)^{-m}}{6 (b e-a f)^2 (d e-c f)^2 (e+f x)^2}-$$
$$\left(f \left(a^2 d^2 f^2 \left(6+5 m+m^2\right)-a b d f \left(d e (15+8 m)-c f \left(3-2 m-2 m^2\right)\right)+b^2 \left(11 d^2 e^2-c d e f (7-8 m)+c^2 f^2 \left(2-3 m+m^2\right)\right)\right) (a+b x)^{1+m} (c+d x)^{-m}\right) \Big/$$
$$\left(6 (b e-a f)^3 (d e-c f)^3 (e+f x)\right)+$$
$$\left(\left(3 a b^2 d f (1+m) \left(6 d^2 e^2+6 c d e f m-c^2 f^2 (1-m) m\right)-3 a^2 b d^2 f^2 (3 d e+c f m) \left(2+3 m+m^2\right)+a^3 d^3 f^3 \left(6+11 m+6 m^2+m^3\right)-\right.\right.$$
$$\left.b^3 \left(6 d^3 e^3+18 c d^2 e^2 f m-9 c^2 d e f^2 (1-m) m+c^3 f^3 m \left(2-3 m+m^2\right)\right)\right) (a+b x)^m$$
$$\left.(c+d x)^{-m} \text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b e-a f) (c+d x)}{(d e-c f) (a+b x)}\right]\right) \Big/ \left(6 (b e-a f)^3 (d e-c f)^4 m\right)$$

Result (type 5, 7153 leaves):

$$\left((a+b x)^{1+m} (c+d x)^{-m} \left(-\left(a^3 f^3 \left(6+11 m+6 m^2+m^3\right)+3 a^2 b f^2 \left(2+3 m+m^2\right) (-3 e+f m x)+3 a b^2 f (1+m) \left(6 e^2-6 e f m x+f^2 (-1+m) m x^2\right)+\right.\right.\right.$$
$$\left.b^3 \left(-6 e^3+18 e^2 f m x-9 e f^2 (-1+m) m x^2+f^3 m \left(2-3 m+m^2\right) x^3\right)\right) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\right]+f (1+m) (a+b x)$$
$$\left(3 \left(a^2 f^2 \left(6+5 m+m^2\right)+2 a b f (2+m) (-3 e+f m x)+b^2 \left(6 e^2-6 e f m x+f^2 (-1+m) m x^2\right)\right) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]-\right.$$
$$f (2+m) (a+b x) \left(3 (a f (3+m)+b (-3 e+f m x)) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]-\right.$$
$$\left.\left.\left.\left.f (3+m) (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,4+m\right]\right)\right)\right)\right) \Big/$$
$$\left(3 (e+f x)^3 \left(2 b^4 c e^4-2 a b^3 c e^3 f+2 b^4 d e^4 x+6 b^4 c e^3 f x-2 a b^3 d e^3 f x-6 a b^3 c e^2 f^2 x+6 b^4 d e^3 f x^2+6 b^4 c e^2 f^2 x^2-\right.\right.$$
$$6 a b^3 d e^2 f^2 x^2-6 a b^3 c e f^3 x^2+6 b^4 d e^2 f^2 x^3+2 b^4 c e f^3 x^3-6 a b^3 d e f^3 x^3-$$
$$2 a b^3 c f^4 x^3+2 b^4 d e f^3 x^4-2 a b^3 d f^4 x^4-f (b e-a f) (1+m) (a+b x) (c+d x)$$
$$\left(a^2 f^2 \left(6+5 m+m^2\right)+2 a b f (2+m) (-3 e+f m x)+b^2 \left(6 e^2-6 e f m x+f^2 (-1+m) m x^2\right)\right) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\right]-$$
$$f (1+m) (a+b x)^2 \left(a^2 f^2 \left(6+5 m+m^2\right) (-d e+3 c f+2 d f x)+2 a b f (2+m) \left(c f (-e (9+m)+2 f m x)+d \left(3 e^2-2 e f (3+m) x+f^2 m x^2\right)\right)+\right.$$
$$b^2 \left(c f \left(6 e^2 (3+m)-2 e f m (5+m) x+f^2 (-1+m) m x^2\right)-3 d e \left(2 e^2-4 e f (1+m) x+f^2 m (1+m) x^2\right)\right)\Big)$$

$$\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 2 + m\right] + 12 a^3 b d e^2 f^2 \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] -$$

$$18 a^3 b c e f^3 \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] - 12 a^4 d e f^3 \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] +$$

$$18 a^4 c f^4 \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] + 18 a^3 b d e^2 f^2 m \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] -$$

$$29 a^3 b c e f^3 m \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] - 22 a^4 d e f^3 m \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] +$$

$$33 a^4 c f^4 m \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] + 6 a^3 b d e^2 f^2 m^2 \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] -$$

$$12 a^3 b c e f^3 m^2 \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] - 12 a^4 d e f^3 m^2 \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] +$$

$$18 a^4 c f^4 m^2 \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] - a^3 b c e f^3 m^3 \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] -$$

$$2 a^4 d e f^3 m^3 \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] + 3 a^4 c f^4 m^3 \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] +$$

$$36 a^2 b^2 d e^2 f^2 x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] - 54 a^2 b^2 c e f^3 x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] -$$

$$42 a^3 b d e f^3 x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] + 54 a^3 b c f^4 x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] +$$

$$6 a^4 d f^4 x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] + 54 a^2 b^2 d e^2 f^2 m x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] -$$

$$87 a^2 b^2 c e f^3 m x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] - 81 a^3 b d e f^3 m x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] +$$

$$103 a^3 b c f^4 m x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] + 11 a^4 d f^4 m x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] +$$

$$18 a^2 b^2 d e^2 f^2 m^2 x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] - 36 a^2 b^2 c e f^3 m^2 x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] -$$

$$48 a^3 b d e f^3 m^2 x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] + 60 a^3 b c f^4 m^2 x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] +$$

$$6 a^4 d f^4 m^2 x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] - 3 a^2 b^2 c e f^3 m^3 x \text{HurwitzLerchPhi}\left[\frac{(d e - c f)\,(a + b x)}{(b e - a f)\,(c + d x)}, 1, 3 + m\right] -$$

$9 a^3 b d e f^3 m^3 x \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 11 a^3 b c f^4 m^3 x \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$

$a^4 d f^4 m^3 x \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 36 a b^3 d e^2 f^2 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] -$

$54 a b^3 c e f^3 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - 54 a^2 b^2 d e f^3 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$

$54 a^2 b^2 c f^4 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 18 a^3 b d f^4 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$

$54 a b^3 d e^2 f^2 m x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - 87 a b^3 c e f^3 m x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] -$

$111 a^2 b^2 d e f^3 m x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 111 a^2 b^2 c f^4 m x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$

$33 a^3 b d f^4 m x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 18 a b^3 d e^2 f^2 m^2 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] -$

$36 a b^3 c e f^3 m^2 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - 72 a^2 b^2 d e f^3 m^2 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$

$72 a^2 b^2 c f^4 m^2 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 18 a^3 b d f^4 m^2 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] -$

$3 a b^3 c e f^3 m^3 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - 15 a^2 b^2 d e f^3 m^3 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$

$15 a^2 b^2 c f^4 m^3 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 3 a^3 b d f^4 m^3 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$

$12 b^4 d e^2 f^2 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - 18 b^4 c e f^3 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] -$

$30 a b^3 d e f^3 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 18 a b^3 c f^4 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$

$18 a^2 b^2 d f^4 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 18 b^4 d e^2 f^2 m x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] -$

$29 b^4 c e f^3 m x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - 67 a b^3 d e f^3 m x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$

$45 a b^3 c f^4 m x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 33 a^2 b^2 d f^4 m x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$

$$6 b^4 d e^2 f^2 m^2 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - 12 b^4 c e f^3 m^2 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] -$$

$$48 a b^3 d e f^3 m^2 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 36 a b^3 c f^4 m^2 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$$

$$18 a^2 b^2 d f^4 m^2 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - b^4 c e f^3 m^3 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] -$$

$$11 a b^3 d e f^3 m^3 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 9 a b^3 c f^4 m^3 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$$

$$3 a^2 b^2 d f^4 m^3 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - 6 b^4 d e f^3 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$$

$$6 a b^3 d f^4 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - 15 b^4 d e f^3 m x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$$

$$4 b^4 c f^4 m x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 11 a b^3 d f^4 m x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] -$$

$$12 b^4 d e f^3 m^2 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + 6 b^4 c f^4 m^2 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$$

$$6 a b^3 d f^4 m^2 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - 3 b^4 d e f^3 m^3 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$$

$$2 b^4 c f^4 m^3 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] + a b^3 d f^4 m^3 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] +$$

$$6 a^4 d e f^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 4+m\right] - 6 a^4 c f^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 4+m\right] +$$

$$11 a^4 d e f^3 m \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 4+m\right] - 11 a^4 c f^4 m \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 4+m\right] +$$

$$6 a^4 d e f^3 m^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 4+m\right] - 6 a^4 c f^4 m^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 4+m\right] +$$

$$a^4 d e f^3 m^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 4+m\right] - a^4 c f^4 m^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 4+m\right] +$$

$$24 a^3 b d e f^3 x \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 4+m\right] - 24 a^3 b c f^4 x \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 4+m\right] +$$

$$44 a^3 b d e f^3 m x \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 4+m\right] - 44 a^3 b c f^4 m x \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 4+m\right] +$$

$$24 a^3 b d e f^3 m^2 x \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-24 a^3 b c f^4 m^2 x \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$4 a^3 b d e f^3 m^3 x \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-4 a^3 b c f^4 m^3 x \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$36 a^2 b^2 d e f^3 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-36 a^2 b^2 c f^4 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$66 a^2 b^2 d e f^3 m x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-66 a^2 b^2 c f^4 m x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$36 a^2 b^2 d e f^3 m^2 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-36 a^2 b^2 c f^4 m^2 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$6 a^2 b^2 d e f^3 m^3 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-6 a^2 b^2 c f^4 m^3 x^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$24 a b^3 d e f^3 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-24 a b^3 c f^4 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$44 a b^3 d e f^3 m x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-44 a b^3 c f^4 m x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$24 a b^3 d e f^3 m^2 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-24 a b^3 c f^4 m^2 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$4 a b^3 d e f^3 m^3 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-4 a b^3 c f^4 m^3 x^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$6 b^4 d e f^3 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-6 b^4 c f^4 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$11 b^4 d e f^3 m x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-11 b^4 c f^4 m x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$6 b^4 d e f^3 m^2 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-6 b^4 c f^4 m^2 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]+$$
$$b^4 d e f^3 m^3 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]-b^4 c f^4 m^3 x^4 \text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,4+m\right]\Bigg)\Bigg)$$

Problem 3079: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{-2-m} (e+f x)^p \, dx$$

Optimal (type 6, 131 leaves, 3 steps):

$$\frac{1}{(b c-a d)^2 (1+m)} b (a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m (e+f x)^p \left(\frac{b (e+f x)}{b e-a f}\right)^{-p} \text{AppellF1}\left[1+m, 2+m, -p, 2+m, -\frac{d (a+b x)}{b c-a d}, -\frac{f (a+b x)}{b e-a f}\right]$$

Result (type 6, 300 leaves):

$$\left((b c-a d) (b e-a f) (2+m) (a+b x)^{1+m} (c+d x)^{-2-m} (e+f x)^p \text{AppellF1}\left[1+m, 2+m, -p, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right) \Big/ \left(b (1+m) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m, 2+m, -p, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right] - (a+b x) \left((-b c+a d) f p \text{AppellF1}\left[2+m, 2+m, 1-p, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right] + d (b e-a f) (2+m) \text{AppellF1}\left[2+m, 3+m, -p, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3080: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (5-4 x)^3 (1+2 x)^{-2-m} (2+3 x)^m \, dx$$

Optimal (type 5, 132 leaves, 3 steps):

$$-\frac{1}{3} (5-4 x)^2 (1+2 x)^{-1-m} (2+3 x)^{1+m} - \frac{(1+2 x)^{-1-m} (2+3 x)^{1+m} \left(2768-315 m+4 m^2-8 (43-m) (1+m) x\right)}{9 (1+m)} + \frac{2^{-m} \left(1323-128 m+2 m^2\right) (1+2 x)^{-m} \text{Hypergeometric2F1}[-m, -m, 1-m, -3 (1+2 x)]}{9 m}$$

Result (type 6, 273 leaves):

$$\frac{7}{2}\left(-\frac{98\,(1+2x)^{-1-m}\,(2+3x)^{1+m}}{1+m}-\left(69\,(5-4x)^2\,(2+4x)^{-m}\,(4+6x)^m\,\text{AppellF1}\left[2,-m,m,3,-\frac{3}{23}\,(-5+4x),\frac{1}{7}\,(5-4x)\right]\right)\Big/\left(483\,\text{AppellF1}\left[2,-m,m,3,\frac{3}{23}\,(5-4x),\frac{1}{7}\,(5-4x)\right]+m\,(-5+4x)\left(21\,\text{AppellF1}\left[3,1-m,m,4,\frac{3}{23}\,(5-4x),\frac{1}{7}\,(5-4x)\right]-23\,\text{AppellF1}\left[3,-m,1+m,4,\frac{3}{23}\,(5-4x),\frac{1}{7}\,(5-4x)\right]\right)\right)+\frac{2^{3-m}\,(1+2x)^{1-m}\,\text{Hypergeometric2F1}[1-m,-m,2-m,-3-6x]}{1-m}+\frac{84\,(-1-2x)^m\,(1+2x)^{-m}\,(2+3x)\,(6+9x)^m\,\text{Hypergeometric2F1}[1+m,1+m,2+m,4+6x]}{1+m}\right)$$

Problem 3081: Result unnecessarily involves higher level functions.

$$\int (a+b x)^m\,(c+d x)^{-2-m}\,(e+f x)^2\,dx$$

Optimal (type 5, 204 leaves, 4 steps):

$$\frac{(d e-c f)\,(a d f\,(1+m)+b\,(d e-c f\,(2+m)))\,(a+b x)^{1+m}\,(c+d x)^{-1-m}}{b d^2\,(b c-a d)\,(1+m)}+\frac{f\,(a+b x)^{1+m}\,(c+d x)^{-1-m}\,(e+f x)}{b d}-\frac{1}{b d^3 m}f\,(a d f m+b\,(2 d e-c f\,(2+m)))\,(a+b x)^m\left(-\frac{d\,(a+b x)}{b c-a d}\right)^{-m}(c+d x)^{-m}\,\text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{b\,(c+d x)}{b c-a d}\right]$$

Result (type 6, 300 leaves):

$$\frac{1}{3}\,(a+b x)^m\,(c+d x)^{-2-m}\left(\frac{3 e^2\,(a+b x)\,(c+d x)}{(b c-a d)\,(1+m)}-\left(9 a c e f x^2\,\text{AppellF1}\left[2,-m,2+m,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(-3 a c\,\text{AppellF1}\left[2,-m,2+m,3,-\frac{b x}{a},-\frac{d x}{c}\right]-b c m x\,\text{AppellF1}\left[3,1-m,2+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]+a d\,(2+m)\,x\,\text{AppellF1}\left[3,-m,3+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)-\left(4 a c f^2 x^3\,\text{AppellF1}\left[3,-m,2+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(-4 a c\,\text{AppellF1}\left[3,-m,2+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]-b c m x\,\text{AppellF1}\left[4,1-m,2+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]+a d\,(2+m)\,x\,\text{AppellF1}\left[4,-m,3+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\right)$$

Problem 3084: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{-2-m}}{e+f x} \, dx$$

Optimal (type 5, 120 leaves, 2 steps):

$$\frac{d (a+b x)^{1+m} (c+d x)^{-1-m}}{(b c-a d) (d e-c f) (1+m)}+\frac{f (a+b x)^m (c+d x)^{-m} \text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b e-a f) (c+d x)}{(d e-c f) (a+b x)}\right]}{(d e-c f)^2 m}$$

Result (type 5, 578 leaves):

$$-\left(\left((a+b x)^{1+m} (c+d x)^{-2-m} \left(6 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]+5 m \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]+\right.\right.\right.$$
$$m^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]-\frac{3 f (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]}{-b e+a f}-$$
$$\frac{f m (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]}{-b e+a f}+\frac{(d e-c f) (a+b x) \text{Hypergeometric2F1}\left[2,3+m,4+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)}-$$
$$\left.\left.\frac{f (-d e+c f) (a+b x)^2 \text{Hypergeometric2F1}\left[2,3+m,4+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)}\right)\right)\Big/$$
$$\left((-b e+a f) (3+m) \left(\frac{-a d (1+m)+b c (2+m)+b d x}{b c-a d}-\frac{b (2+m) (e+f x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]}{b e-a f}+\right.\right.$$
$$\left.\left.\left.\frac{b (-d e+c f) (a+b x) (e+f x) \text{Hypergeometric2F1}\left[2,3+m,4+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (3+m) (c+d x)}\right)\right)\right)$$

Problem 3085: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{-2-m}}{(e+f x)^2} \, dx$$

Optimal (type 5, 233 leaves, 4 steps):

$$-\frac{d\,(a\,d\,f\,(2+m)-b\,(d\,e+c\,f\,(1+m)))\,(a+b\,x)^{1+m}\,(c+d\,x)^{-1-m}}{(b\,c-a\,d)\,(b\,e-a\,f)\,(d\,e-c\,f)^2\,(1+m)}-\frac{f\,(a+b\,x)^{1+m}\,(c+d\,x)^{-1-m}}{(b\,e-a\,f)\,(d\,e-c\,f)\,(e+f\,x)}-$$
$$\frac{f\,(a\,d\,f\,(2+m)-b\,(2\,d\,e+c\,f\,m))\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}\right]}{(b\,e-a\,f)\,(d\,e-c\,f)^3\,m}$$

Result (type 5, 21 480 leaves) : Display of huge result suppressed!

Problem 3086: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,x)^m\,(c+d\,x)^{-2-m}}{(e+f\,x)^3}\,dx$$

Optimal (type 5, 432 leaves, 5 steps) :

$$\left(d\,\left(a^2\,d^2\,f^2\,\left(6+5\,m+m^2\right)+b^2\,\left(2\,d^2\,e^2+5\,c\,d\,e\,f\,(1+m)-c^2\,f^2\,\left(1-m^2\right)\right)-a\,b\,d\,f\,\left(d\,e\,(9+5\,m)+c\,f\,\left(3+5\,m+2\,m^2\right)\right)\right)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-1-m}\right)\Big/$$
$$\left(2\,(b\,c-a\,d)\,(b\,e-a\,f)^2\,(d\,e-c\,f)^3\,(1+m)\right)-\frac{f\,(a+b\,x)^{1+m}\,(c+d\,x)^{-1-m}}{2\,(b\,e-a\,f)\,(d\,e-c\,f)\,(e+f\,x)^2}-\frac{f\,(b\,(4\,d\,e-c\,f\,(1-m))-a\,d\,f\,(3+m))\,(a+b\,x)^{1+m}\,(c+d\,x)^{-1-m}}{2\,(b\,e-a\,f)^2\,(d\,e-c\,f)^2\,(e+f\,x)}-$$
$$\left(f\,\left(2\,a\,b\,d\,f\,(2+m)\,(3\,d\,e+c\,f\,m)-b^2\,\left(6\,d^2\,e^2+6\,c\,d\,e\,f\,m-c^2\,f^2\,(1-m)\,m\right)-a^2\,d^2\,f^2\,\left(6+5\,m+m^2\right)\right)\,(a+b\,x)^m\right.$$
$$\left.(c+d\,x)^{-m}\,\text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}\right]\right)\Big/\left(2\,(b\,e-a\,f)^2\,(d\,e-c\,f)^4\,m\right)$$

Result (type 5, 57 971 leaves) : Display of huge result suppressed!

Problem 3087: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^m\,(c+d\,x)^{-3-m}\,(e+f\,x)^p\,dx$$

Optimal (type 6, 133 leaves, 3 steps) :

$$\frac{1}{(b\,c-a\,d)^3\,(1+m)}b^2\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m}\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^m\,(e+f\,x)^p\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-p}\,\text{AppellF1}\left[1+m,3+m,-p,2+m,-\frac{d\,(a+b\,x)}{b\,c-a\,d},-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]$$

Result (type 6, 300 leaves) :

$$\left((b c-a d) (b e-a f) (2+m) (a+b x)^{1+m} (c+d x)^{-3-m} (e+f x)^p \text{AppellF1}\left[1+m,3+m,-p,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\Big/ \left(b (1+m) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m,3+m,-p,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]-(a+b x) \left((-b c+a d) f p \text{AppellF1}\left[2+m,3+m,1-p,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]+d (b e-a f) (3+m) \text{AppellF1}\left[2+m,4+m,-p,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3088: Result unnecessarily involves higher level functions.

$$\int (5-4 x)^4 (1+2 x)^{-3-m} (2+3 x)^m \, dx$$

Optimal (type 5, 188 leaves, 4 steps):

$$-\frac{1}{9} (107-2 m) (5-4 x)^2 (1+2 x)^{-2-m} (2+3 x)^{1+m}-\frac{1}{3} (5-4 x)^3 (1+2 x)^{-2-m} (2+3 x)^{1+m}+\frac{7 (1+2 x)^{-2-m} (2+3 x)^{1+m} \left(3 \left(4638+485 m+108 m^2-2 m^3\right)+2 \left(15209+1882 m-530 m^2+8 m^3\right) x\right)}{9 \left(2+3 m+m^2\right)}-\frac{2^{2-m} \left(1323-85 m+m^2\right) (1+2 x)^{-m} \text{Hypergeometric2F1}[-m,-m,1-m,-3 (1+2 x)]}{9 m}$$

Result (type 6, 318 leaves):

$$21 \left(\frac{392 (1+2 x)^{-1-m} (2+3 x)^{1+m}}{3+3 m}+\left(23 (5-4 x)^2 (2+4 x)^{-m} (4+6 x)^m \text{AppellF1}\left[2,-m,m,3,-\frac{3}{23} (-5+4 x),\frac{1}{7} (5-4 x)\right]\right)\Big/ \left(483 \text{AppellF1}\left[2,-m,m,3,\frac{3}{23} (5-4 x),\frac{1}{7} (5-4 x)\right]+m (-5+4 x) \left(21 \text{AppellF1}\left[3,1-m,m,4,\frac{3}{23} (5-4 x),\frac{1}{7} (5-4 x)\right]-23 \text{AppellF1}\left[3,-m,1+m,4,\frac{3}{23} (5-4 x),\frac{1}{7} (5-4 x)\right]\right)\right)+\frac{2^{2-m} (1+2 x)^{1-m} \text{Hypergeometric2F1}[1-m,-m,2-m,-3-6 x]}{-1+m}-\frac{56 (-3-6 x)^m (1+2 x)^{-m} (2+3 x)^{1+m} \text{Hypergeometric2F1}[1+m,1+m,2+m,4+6 x]}{1+m}-\frac{1029 (-1-2 x)^m (1+2 x)^{-m} (2+3 x) (6+9 x)^m \text{Hypergeometric2F1}[1+m,3+m,2+m,4+6 x]}{1+m}\right)$$

Problem 3090: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{-3-m} (e+f x)^2 \, dx$$

Optimal (type 5, 205 leaves, 4 steps):

$$\frac{(d e-c f)^2 (a+b x)^{1+m} (c+d x)^{-2-m}}{d^2 (b c-a d) (2+m)}-\frac{(d e-c f) (2 a d f (2+m)-b (d e+c f (3+2 m))) (a+b x)^{1+m} (c+d x)^{-1-m}}{d^2 (b c-a d)^2 (1+m) (2+m)}-\frac{f^2 (a+b x)^m \left(-\frac{d (a+b x)}{b c-a d}\right)^{-m} (c+d x)^{-m} \text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{b (c+d x)}{b c-a d}\right]}{d^3 m}$$

Result (type 6, 426 leaves):

$$\frac{1}{3} (a+b x)^m (c+d x)^{-3-m} \left(\left(6 e f \left(\frac{c (a+b x)}{a (c+d x)}\right)^{-m} (c+d x) \left(b^2 c^2 (1+m) x^2 \left(\frac{c (a+b x)}{a (c+d x)}\right)^m-a b c x \left(\frac{c (a+b x)}{a (c+d x)}\right)^m (-c m+d (2+m) x)+a^2 \left(d^2 x^2-c^2 \left(-1+\left(\frac{c (a+b x)}{a (c+d x)}\right)^m\right)-c d x \left(-2+2 \left(\frac{c (a+b x)}{a (c+d x)}\right)^m+m \left(\frac{c (a+b x)}{a (c+d x)}\right)^m\right)\right)\right)\right)\Big/\left(c (b c-a d)^2 (1+m) (2+m)\right)-\left(4 a c f^2 x^3 \text{AppellF1}\left[3,-m,3+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(-4 a c \text{AppellF1}\left[3,-m,3+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]-b c m x \text{AppellF1}\left[4,1-m,3+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]+a d (3+m) x \text{AppellF1}\left[4,-m,4+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)-\frac{3 e^2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} (c+d x) \text{Hypergeometric2F1}\left[-2-m,-m,-1-m,\frac{b (c+d x)}{b c-a d}\right]}{d (2+m)}\right)$$

Problem 3093: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{-3-m}}{e+f x} \, dx$$

Optimal (type 5, 196 leaves, 4 steps):

$$\frac{d (a+b x)^{1+m} (c+d x)^{-2-m}}{(b c-a d) (d e-c f) (2+m)}+\frac{d (a d f (2+m)+b (d e-c f (3+m))) (a+b x)^{1+m} (c+d x)^{-1-m}}{(b c-a d)^2 (d e-c f)^2 (1+m) (2+m)}-\frac{f^2 (a+b x)^m (c+d x)^{-m} \text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b e-a f) (c+d x)}{(d e-c f) (a+b x)}\right]}{(d e-c f)^3 m}$$

Result (type 5, 12578 leaves):

$$\left((a+b x)^{1+2 m} (c+d x)^{-6-2 m} \left(\frac{-b c-b d x}{-b c+a d}\right)^{3+m} (-b e-b f x) \left(1-\frac{d (a+b x)}{-b c+a d}\right)^{-3-m}\right.$$

$$\left(24\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]+26\,m\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]+\right.$$

$$9 m^2\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]+m^3\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]+$$

$$\frac{24 f (a+b x)\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]}{b e-a f}+\frac{14 f m (a+b x)\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]}{b e-a f}+$$

$$\frac{2 f m^2 (a+b x)\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]}{b e-a f}+\frac{8 f^2 (a+b x)^2\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]}{(b e-a f)^2}+$$

$$\frac{2 f^2 m (a+b x)^2\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]}{(b e-a f)^2}+\frac{5 (d e-c f) (a+b x)\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)}+$$

$$\frac{2 (d e-c f) m (a+b x)\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)}+$$

$$\frac{8 f (d e-c f) (a+b x)^2\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)}+$$

$$\frac{2 f (d e-c f) m (a+b x)^2\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)}+$$

$$\frac{3 f^2 (d e-c f) (a+b x)^3\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^3 (c+d x)}+$$

$$\frac{(d e-c f) (a+b x)\,\text{HypergeometricPFQ}\left[\{2,2,4+m\},\{1,5+m\},\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)}+$$

$$\frac{2 f (d e-c f) (a+b x)^2\,\text{HypergeometricPFQ}\left[\{2,2,4+m\},\{1,5+m\},\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)}+$$

$$\left.\left.\frac{f^2 (d e-c f) (a+b x)^3\,\text{HypergeometricPFQ}\left[\{2,2,4+m\},\{1,5+m\},\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^3 (c+d x)}\right)\right)\Big/$$

$$\Bigg(b\,(-b\,e+a\,f)\,(1+m)\,(2+m)\,(4+m)\,(e+f\,x)^2\,\Bigg(\frac{1}{b\,(-b\,e+a\,f)\,(1+m)\,(2+m)\,(4+m)\,(e+f\,x)}\,(a+b\,x)^{1+m}\,(c+d\,x)^{-3-m}\,\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{3+m}$$

$$(-b\,e-b\,f\,x)\,\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-3-m}\Bigg(\frac{24\,b\,f\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]}{b\,e-a\,f}+\frac{14\,b\,f\,m\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]}{b\,e-a\,f}+$$

$$\frac{2\,b\,f\,m^2\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]}{b\,e-a\,f}+\frac{16\,b\,f^2\,(a+b\,x)\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]}{(b\,e-a\,f)^2}+$$

$$\frac{4\,b\,f^2\,m\,(a+b\,x)\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]}{(b\,e-a\,f)^2}+\frac{1}{d\,e-c\,f}24\,f\,(c+d\,x)\,\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)$$

$$\left(\frac{1}{1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}}+(-3-m)\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]\right)+\frac{1}{d\,e-c\,f}14\,f\,m\,(c+d\,x)\,\Bigg(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+$$

$$\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\Bigg)\left(\frac{1}{1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}}+(-3-m)\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]\right)+\frac{1}{d\,e-c\,f}2\,f\,m^2\,(c+d\,x)$$

$$\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\left(\frac{1}{1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}}+(-3-m)\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]\right)+$$

$$\frac{1}{(d\,e-c\,f)\,(a+b\,x)}24\,(b\,e-a\,f)\,(c+d\,x)\,\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)$$

$$\left(\frac{1}{1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}}+(-3-m)\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]\right)+\frac{1}{(d\,e-c\,f)\,(a+b\,x)}26\,(b\,e-a\,f)\,m\,(c+d\,x)$$

$$\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\left(\frac{1}{1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}}+(-3-m)\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]\right)+$$

$$\frac{1}{(d\,e-c\,f)\,(a+b\,x)}9\,(b\,e-a\,f)\,m^2\,(c+d\,x)\,\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)$$

$$\left(\frac{1}{1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}}+(-3-m)\,\text{HurwitzLerchPhi}\Big[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\Big]\right)+\frac{1}{(d\,e-c\,f)\,(a+b\,x)}(b\,e-a\,f)\,m^3\,(c+d\,x)$$

$$\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\left(\frac{1}{1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}}+(-3-m)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\right]\right)+$$

$$\frac{1}{(b\,e-a\,f)\,(d\,e-c\,f)}8\,f^2\,(a+b\,x)\,(c+d\,x)\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)$$

$$\left(\frac{1}{1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}}+(-3-m)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\right]\right)+\frac{1}{(b\,e-a\,f)\,(d\,e-c\,f)}2\,f^2\,m\,(a+b\,x)\,(c+d\,x)$$

$$\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\left(\frac{1}{1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}}+(-3-m)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\right]\right)+$$

$$5\,(4+m)\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\left(\frac{1}{\left(1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right)^2}-\right.$$

$$\left.\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\right)+2\,m\,(4+m)\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)$$

$$\left(\frac{1}{\left(1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right)^2}-\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\right)+\frac{1}{b\,e-a\,f}8\,f\,(4+m)\,(a+b\,x)$$

$$\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\left(\frac{1}{\left(1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right)^2}-\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\right)+$$

$$\frac{1}{b\,e-a\,f}2\,f\,m\,(4+m)\,(a+b\,x)\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)$$

$$\left(\frac{1}{\left(1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right)^2}-\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\right)+\frac{1}{(b\,e-a\,f)^2}3\,f^2\,(4+m)\,(a+b\,x)^2$$

$$\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\left(\frac{1}{\left(1-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right)^2}-\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\right)-$$

$$\frac{5\,d\,(d\,e-c\,f)\,(a+b\,x)\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)^2}-$$

$$\frac{2 d (d e - c f) m (a + b x) \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e - a f) (c + d x)^2} -$$

$$\frac{8 d f (d e - c f) (a + b x)^2 \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e - a f)^2 (c + d x)^2} -$$

$$\frac{2 d f (d e - c f) m (a + b x)^2 \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e - a f)^2 (c + d x)^2} -$$

$$\frac{3 d f^2 (d e - c f) (a + b x)^3 \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e - a f)^3 (c + d x)^2} +$$

$$\frac{5 b (d e - c f) \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e - a f) (c + d x)} + \frac{2 b (d e - c f) m \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e - a f) (c + d x)} +$$

$$\frac{16 b f (d e - c f) (a + b x) \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e - a f)^2 (c + d x)} +$$

$$\frac{4 b f (d e - c f) m (a + b x) \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e - a f)^2 (c + d x)} +$$

$$\frac{9 b f^2 (d e - c f) (a + b x)^2 \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e - a f)^3 (c + d x)} +$$

$$(4 + m) \left(-\frac{d (d e - c f) (a + b x)}{(b e - a f) (c + d x)^2} + \frac{b (d e - c f)}{(b e - a f) (c + d x)}\right) \left(-\frac{(b e - a f)^2 (c + d x)^2 (b c e + a d e - 2 a c f + 2 b d e x - b c f x - a d f x)}{(-b c + a d)^3 (e + f x)^3} -\right.$$

$$\left.\text{HypergeometricPFQ}\left[\{2, 2, 4 + m\}, \{1, 5 + m\}, \frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}\right]\right) + \frac{1}{b e - a f} 2 f (4 + m) (a + b x)$$

$$\left(-\frac{d (d e - c f) (a + b x)}{(b e - a f) (c + d x)^2} + \frac{b (d e - c f)}{(b e - a f) (c + d x)}\right) \left(-\frac{(b e - a f)^2 (c + d x)^2 (b c e + a d e - 2 a c f + 2 b d e x - b c f x - a d f x)}{(-b c + a d)^3 (e + f x)^3} -\right.$$

$$\left.\text{HypergeometricPFQ}\left[\{2, 2, 4 + m\}, \{1, 5 + m\}, \frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}\right]\right) + \frac{1}{(b e - a f)^2} f^2 (4 + m) (a + b x)^2$$

$$\left(-\frac{d (d e - c f) (a + b x)}{(b e - a f) (c + d x)^2} + \frac{b (d e - c f)}{(b e - a f) (c + d x)}\right) \left(-\frac{(b e - a f)^2 (c + d x)^2 (b c e + a d e - 2 a c f + 2 b d e x - b c f x - a d f x)}{(-b c + a d)^3 (e + f x)^3} -\right.$$

$$\left.\text{HypergeometricPFQ}\left[\{2, 2, 4 + m\}, \{1, 5 + m\}, \frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}\right]\right) -$$

$$\frac{d\,(d e-c f)\,(a+b x)\,\text{HypergeometricPFQ}\left[\{2,2,4+m\},\{1,5+m\},\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)}\right]}{(b e-a f)\,(c+d x)^2}-$$

$$\frac{2 d f\,(d e-c f)\,(a+b x)^2\,\text{HypergeometricPFQ}\left[\{2,2,4+m\},\{1,5+m\},\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)}\right]}{(b e-a f)^2\,(c+d x)^2}-$$

$$\frac{d f^2\,(d e-c f)\,(a+b x)^3\,\text{HypergeometricPFQ}\left[\{2,2,4+m\},\{1,5+m\},\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)}\right]}{(b e-a f)^3\,(c+d x)^2}+$$

$$\frac{b\,(d e-c f)\,\text{HypergeometricPFQ}\left[\{2,2,4+m\},\{1,5+m\},\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)}\right]}{(b e-a f)\,(c+d x)}+$$

$$\frac{4 b f\,(d e-c f)\,(a+b x)\,\text{HypergeometricPFQ}\left[\{2,2,4+m\},\{1,5+m\},\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)}\right]}{(b e-a f)^2\,(c+d x)}+$$

$$\left.\frac{3 b f^2\,(d e-c f)\,(a+b x)^2\,\text{HypergeometricPFQ}\left[\{2,2,4+m\},\{1,5+m\},\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)}\right]}{(b e-a f)^3\,(c+d x)}\right)-$$

$$\frac{1}{(-b c+a d)\,(-b e+a f)\,(1+m)\,(2+m)\,(4+m)\,(e+f x)}\,d\,(-3-m)\,(a+b x)^{1+m}\,(c+d x)^{-3-m}\left(\frac{-b c-b d x}{-b c+a d}\right)^{3+m}(-b e-b f x)$$

$$\left(1-\frac{d\,(a+b x)}{-b c+a d}\right)^{-4-m}\left(24\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)},1,3+m\right]+26\,m\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)},1,3+m\right]+\right.$$

$$9 m^2\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)},1,3+m\right]+m^3\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)},1,3+m\right]+$$

$$\frac{24 f\,(a+b x)\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)},1,3+m\right]}{b e-a f}+\frac{14 f m\,(a+b x)\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)},1,3+m\right]}{b e-a f}+$$

$$\frac{2 f m^2\,(a+b x)\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)},1,3+m\right]}{b e-a f}+\frac{8 f^2\,(a+b x)^2\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)},1,3+m\right]}{(b e-a f)^2}+$$

$$\frac{2 f^2 m\,(a+b x)^2\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)},1,3+m\right]}{(b e-a f)^2}+\frac{5\,(d e-c f)\,(a+b x)\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)}\right]}{(b e-a f)\,(c+d x)}+$$

$$\frac{2\,(d e-c f)\,m\,(a+b x)\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)}\right]}{(b e-a f)\,(c+d x)}+$$

$$\frac{8 f (d e - c f) (a + b x)^2 \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}\right]}{(b e - a f)^2 (c + d x)} +$$

$$\frac{2 f (d e - c f) m (a + b x)^2 \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}\right]}{(b e - a f)^2 (c + d x)} +$$

$$\frac{3 f^2 (d e - c f) (a + b x)^3 \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}\right]}{(b e - a f)^3 (c + d x)} +$$

$$\frac{(d e - c f) (a + b x) \text{HypergeometricPFQ}\left[\{2, 2, 4 + m\}, \{1, 5 + m\}, \frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}\right]}{(b e - a f) (c + d x)} +$$

$$\frac{2 f (d e - c f) (a + b x)^2 \text{HypergeometricPFQ}\left[\{2, 2, 4 + m\}, \{1, 5 + m\}, \frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}\right]}{(b e - a f)^2 (c + d x)} +$$

$$\left.\frac{f^2 (d e - c f) (a + b x)^3 \text{HypergeometricPFQ}\left[\{2, 2, 4 + m\}, \{1, 5 + m\}, \frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}\right]}{(b e - a f)^3 (c + d x)}\right) -$$

$$\frac{1}{(-b e + a f) (1 + m) (2 + m) (4 + m) (e + f x)} f (a + b x)^{1+m} (c + d x)^{-3-m} \left(\frac{-b c - b d x}{-b c + a d}\right)^{3+m} \left(1 - \frac{d (a + b x)}{-b c + a d}\right)^{-3-m}$$

$$\left(24 \text{HurwitzLerchPhi}\left[\frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}, 1, 3 + m\right] + 26 m \text{HurwitzLerchPhi}\left[\frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}, 1, 3 + m\right] +\right.$$

$$9 m^2 \text{HurwitzLerchPhi}\left[\frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}, 1, 3 + m\right] + m^3 \text{HurwitzLerchPhi}\left[\frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}, 1, 3 + m\right] +$$

$$\frac{24 f (a + b x) \text{HurwitzLerchPhi}\left[\frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}, 1, 3 + m\right]}{b e - a f} + \frac{14 f m (a + b x) \text{HurwitzLerchPhi}\left[\frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}, 1, 3 + m\right]}{b e - a f} +$$

$$\frac{2 f m^2 (a + b x) \text{HurwitzLerchPhi}\left[\frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}, 1, 3 + m\right]}{b e - a f} + \frac{8 f^2 (a + b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}, 1, 3 + m\right]}{(b e - a f)^2} +$$

$$\frac{2 f^2 m (a + b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}, 1, 3 + m\right]}{(b e - a f)^2} + \frac{5 (d e - c f) (a + b x) \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}\right]}{(b e - a f) (c + d x)} +$$

$$\frac{2 (d e - c f) m (a + b x) \text{Hypergeometric2F1}\left[2, 4 + m, 5 + m, \frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}\right]}{(b e - a f) (c + d x)} +$$

$$\frac{8\,f\,(d\,e-c\,f)\,(a+b\,x)^2\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)}+$$

$$\frac{2\,f\,(d\,e-c\,f)\,m\,(a+b\,x)^2\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)}+$$

$$\frac{3\,f^2\,(d\,e-c\,f)\,(a+b\,x)^3\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^3\,(c+d\,x)}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{HypergeometricPFQ}\left[\{2,2,4+m\},\{1,5+m\},\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)}+$$

$$\frac{2\,f\,(d\,e-c\,f)\,(a+b\,x)^2\,\text{HypergeometricPFQ}\left[\{2,2,4+m\},\{1,5+m\},\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)}+$$

$$\left.\frac{f^2\,(d\,e-c\,f)\,(a+b\,x)^3\,\text{HypergeometricPFQ}\left[\{2,2,4+m\},\{1,5+m\},\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^3\,(c+d\,x)}\right)-$$

$$\frac{1}{b\,(-b\,e+a\,f)\,(1+m)\,(2+m)\,(4+m)\,(e+f\,x)^2}\,f\,(a+b\,x)^{1+m}\,(c+d\,x)^{-3-m}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{3+m}(-b\,e-b\,f\,x)\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-3-m}$$

$$\left(24\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\right]+26\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\right]+\right.$$

$$9\,m^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\right]+m^3\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\right]+$$

$$\frac{24\,f\,(a+b\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\right]}{b\,e-a\,f}+\frac{14\,f\,m\,(a+b\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\right]}{b\,e-a\,f}+$$

$$\frac{2\,f\,m^2\,(a+b\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\right]}{b\,e-a\,f}+\frac{8\,f^2\,(a+b\,x)^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\right]}{(b\,e-a\,f)^2}+$$

$$\frac{2\,f^2\,m\,(a+b\,x)^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},1,3+m\right]}{(b\,e-a\,f)^2}+\frac{5\,(d\,e-c\,f)\,(a+b\,x)\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)}+$$

$$\frac{2\,(d\,e-c\,f)\,m\,(a+b\,x)\,\text{Hypergeometric2F1}\left[2,4+m,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)}+$$

$$\frac{8\,f\,(d\,e-c\,f)\,(a+b\,x)^2\,\text{Hypergeometric2F1}\left[2,\,4+m,\,5+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)}+$$

$$\frac{2\,f\,(d\,e-c\,f)\,m\,(a+b\,x)^2\,\text{Hypergeometric2F1}\left[2,\,4+m,\,5+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)}+$$

$$\frac{3\,f^2\,(d\,e-c\,f)\,(a+b\,x)^3\,\text{Hypergeometric2F1}\left[2,\,4+m,\,5+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^3\,(c+d\,x)}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{HypergeometricPFQ}\left[\{2,\,2,\,4+m\},\,\{1,\,5+m\},\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)}+$$

$$\frac{2\,f\,(d\,e-c\,f)\,(a+b\,x)^2\,\text{HypergeometricPFQ}\left[\{2,\,2,\,4+m\},\,\{1,\,5+m\},\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)}+$$

$$\left.\frac{f^2\,(d\,e-c\,f)\,(a+b\,x)^3\,\text{HypergeometricPFQ}\left[\{2,\,2,\,4+m\},\,\{1,\,5+m\},\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^3\,(c+d\,x)}\right)-$$

$$\frac{1}{(-b\,c+a\,d)\,(-b\,e+a\,f)\,(1+m)\,(2+m)\,(4+m)\,(e+f\,x)}\,d\,(3+m)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-3-m}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{2+m}(-b\,e-b\,f\,x)$$

$$\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-3-m}\left(24\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,3+m\right]+26\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,3+m\right]+\right.$$

$$9\,m^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,3+m\right]+m^3\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,3+m\right]+$$

$$\frac{24\,f\,(a+b\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,3+m\right]}{b\,e-a\,f}+\frac{14\,f\,m\,(a+b\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,3+m\right]}{b\,e-a\,f}+$$

$$\frac{2\,f\,m^2\,(a+b\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,3+m\right]}{b\,e-a\,f}+\frac{8\,f^2\,(a+b\,x)^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,3+m\right]}{(b\,e-a\,f)^2}+$$

$$\frac{2\,f^2\,m\,(a+b\,x)^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,3+m\right]}{(b\,e-a\,f)^2}+\frac{5\,(d\,e-c\,f)\,(a+b\,x)\,\text{Hypergeometric2F1}\left[2,\,4+m,\,5+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)}+$$

$$\frac{2\,(d\,e-c\,f)\,m\,(a+b\,x)\,\text{Hypergeometric2F1}\left[2,\,4+m,\,5+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)}+$$

$$\frac{8 f (d e-c f) (a+b x)^2 \text{Hypergeometric2F1}\left[2, 4+m, 5+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)}+$$

$$\frac{2 f (d e-c f) m (a+b x)^2 \text{Hypergeometric2F1}\left[2, 4+m, 5+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)}+$$

$$\frac{3 f^2 (d e-c f) (a+b x)^3 \text{Hypergeometric2F1}\left[2, 4+m, 5+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^3 (c+d x)}+$$

$$\frac{(d e-c f) (a+b x) \text{HypergeometricPFQ}\left[\{2, 2, 4+m\}, \{1, 5+m\}, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)}+$$

$$\frac{2 f (d e-c f) (a+b x)^2 \text{HypergeometricPFQ}\left[\{2, 2, 4+m\}, \{1, 5+m\}, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)}+$$

$$\left.\frac{f^2 (d e-c f) (a+b x)^3 \text{HypergeometricPFQ}\left[\{2, 2, 4+m\}, \{1, 5+m\}, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^3 (c+d x)}\right)+$$

$$\frac{1}{b (-b e+a f) (1+m) (2+m) (4+m) (e+f x)} d (-3-m) (a+b x)^{1+m} (c+d x)^{-4-m} \left(\frac{-b c-b d x}{-b c+a d}\right)^{3+m} (-b e-b f x) \left(1-\frac{d (a+b x)}{-b c+a d}\right)^{-3-m}$$

$$\left(24 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]+26 m \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]+\right.$$

$$9 m^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]+m^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]+$$

$$\frac{24 f (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]}{b e-a f}+\frac{14 f m (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]}{b e-a f}+$$

$$\frac{2 f m^2 (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]}{b e-a f}+\frac{8 f^2 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]}{(b e-a f)^2}+$$

$$\frac{2 f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]}{(b e-a f)^2}+\frac{5 (d e-c f) (a+b x) \text{Hypergeometric2F1}\left[2, 4+m, 5+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)}+$$

$$\frac{2 (d e-c f) m (a+b x) \text{Hypergeometric2F1}\left[2, 4+m, 5+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)}+$$

$$\frac{8 f (d e-c f) (a+b x)^2 \text{Hypergeometric2F1}\left[2, 4+m, 5+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)}+$$

$$\frac{2 f (d e-c f) m (a+b x)^2 \text{Hypergeometric2F1}\left[2, 4+m, 5+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)}+$$

$$\frac{3 f^2 (d e-c f) (a+b x)^3 \text{Hypergeometric2F1}\left[2, 4+m, 5+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^3 (c+d x)}+$$

$$\frac{(d e-c f) (a+b x) \text{HypergeometricPFQ}\left[\{2, 2, 4+m\}, \{1, 5+m\}, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)}+$$

$$\frac{2 f (d e-c f) (a+b x)^2 \text{HypergeometricPFQ}\left[\{2, 2, 4+m\}, \{1, 5+m\}, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)}+$$

$$\left.\frac{f^2 (d e-c f) (a+b x)^3 \text{HypergeometricPFQ}\left[\{2, 2, 4+m\}, \{1, 5+m\}, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^3 (c+d x)}\right)+$$

$$\frac{1}{(-b e+a f) (2+m) (4+m) (e+f x)} (a+b x)^m (c+d x)^{-3-m} \left(\frac{-b c-b d x}{-b c+a d}\right)^{3+m} (-b e-b f x) \left(1-\frac{d (a+b x)}{-b c+a d}\right)^{-3-m}$$

$$\left(24 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]+26 m \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]+\right.$$

$$9 m^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]+m^3 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]+$$

$$\frac{24 f (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]}{b e-a f}+\frac{14 f m (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]}{b e-a f}+$$

$$\frac{2 f m^2 (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]}{b e-a f}+\frac{8 f^2 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]}{(b e-a f)^2}+$$

$$\frac{2 f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]}{(b e-a f)^2}+\frac{5 (d e-c f) (a+b x) \text{Hypergeometric2F1}\left[2, 4+m, 5+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)}+$$

$$\frac{2 (d e-c f) m (a+b x) \text{Hypergeometric2F1}\left[2, 4+m, 5+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)}+$$

$$\frac{8\,f\,(d\,e-c\,f)\,(a+b\,x)^2\,\text{Hypergeometric2F1}\left[2,\,4+m,\,5+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)}+$$

$$\frac{2\,f\,(d\,e-c\,f)\,m\,(a+b\,x)^2\,\text{Hypergeometric2F1}\left[2,\,4+m,\,5+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)}+$$

$$\frac{3\,f^2\,(d\,e-c\,f)\,(a+b\,x)^3\,\text{Hypergeometric2F1}\left[2,\,4+m,\,5+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^3\,(c+d\,x)}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{HypergeometricPFQ}\left[\{2,\,2,\,4+m\},\,\{1,\,5+m\},\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)}+$$

$$\frac{2\,f\,(d\,e-c\,f)\,(a+b\,x)^2\,\text{HypergeometricPFQ}\left[\{2,\,2,\,4+m\},\,\{1,\,5+m\},\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)}+$$

$$\left.\left.\left.\frac{f^2\,(d\,e-c\,f)\,(a+b\,x)^3\,\text{HypergeometricPFQ}\left[\{2,\,2,\,4+m\},\,\{1,\,5+m\},\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^3\,(c+d\,x)}\right)\right)\right)$$

Problem 3094: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,x)^m\,(c+d\,x)^{-3-m}}{(e+f\,x)^2}\,dx$$

Optimal (type 5, 384 leaves, 5 steps):

$$-\frac{d\,(a\,d\,f\,(3+m)-b\,(d\,e+c\,f\,(2+m)))\,(a+b\,x)^{1+m}\,(c+d\,x)^{-2-m}}{(b\,c-a\,d)\,(b\,e-a\,f)\,(d\,e-c\,f)^2\,(2+m)}-$$

$$\left(d\,\left(a^2\,d^2\,f^2\,(6+5\,m+m^2)-b^2\,(d^2\,e^2-c\,d\,e\,f\,(5+2\,m)-c^2\,f^2\,(2+3\,m+m^2))-a\,b\,d\,f\,(d\,e\,(3+2\,m)+c\,f\,(9+8\,m+2\,m^2))\right)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-1-m}\right)\Big/$$

$$\left((b\,c-a\,d)^2\,(b\,e-a\,f)\,(d\,e-c\,f)^3\,(1+m)\,(2+m)\right)-\frac{f\,(a+b\,x)^{1+m}\,(c+d\,x)^{-2-m}}{(b\,e-a\,f)\,(d\,e-c\,f)\,(e+f\,x)}+$$

$$\frac{f^2\,(a\,d\,f\,(3+m)-b\,(3\,d\,e+c\,f\,m))\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{Hypergeometric2F1}\left[1,\,-m,\,1-m,\,\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}\right]}{(b\,e-a\,f)\,(d\,e-c\,f)^4\,m}$$

Result (type 5, 38 673 leaves): Display of huge result suppressed!

Problem 3095: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{-4-m} (e+f x)^p \, dx$$

Optimal (type 6, 133 leaves, 3 steps):

$$\frac{1}{(b c-a d)^4 (1+m)} b^3 (a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m (e+f x)^p \left(\frac{b (e+f x)}{b e-a f}\right)^{-p} \text{AppellF1}\left[1+m, 4+m, -p, 2+m, -\frac{d (a+b x)}{b c-a d}, -\frac{f (a+b x)}{b e-a f}\right]$$

Result (type 6, 300 leaves):

$$\left((b c-a d) (b e-a f) (2+m) (a+b x)^{1+m} (c+d x)^{-4-m} (e+f x)^p \text{AppellF1}\left[1+m, 4+m, -p, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right) \Big/ \left(b (1+m) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m, 4+m, -p, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right] - (a+b x) \left((-b c+a d) f p \text{AppellF1}\left[2+m, 4+m, 1-p, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right] + d (b e-a f) (4+m) \text{AppellF1}\left[2+m, 5+m, -p, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3097: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{-4-m} (e+f x)^3 \, dx$$

Optimal (type 5, 406 leaves, 10 steps):

$$\frac{(d e-c f)^3 (a+b x)^{1+m} (c+d x)^{-3-m}}{d^3 (b c-a d) (3+m)} + \frac{3 f (d e-c f)^2 (a+b x)^{1+m} (c+d x)^{-2-m}}{d^3 (b c-a d) (2+m)} + \frac{2 b (d e-c f)^3 (a+b x)^{1+m} (c+d x)^{-2-m}}{d^3 (b c-a d)^2 (2+m) (3+m)} + \frac{3 f^2 (d e-c f) (a+b x)^{1+m} (c+d x)^{-1-m}}{d^3 (b c-a d) (1+m)} + \frac{3 b f (d e-c f)^2 (a+b x)^{1+m} (c+d x)^{-1-m}}{d^3 (b c-a d)^2 (1+m) (2+m)} + \frac{2 b^2 (d e-c f)^3 (a+b x)^{1+m} (c+d x)^{-1-m}}{d^3 (b c-a d)^3 (1+m) (2+m) (3+m)} - \frac{f^3 (a+b x)^m \left(-\frac{d (a+b x)}{b c-a d}\right)^{-m} (c+d x)^{-m} \text{Hypergeometric2F1}\left[-m, -m, 1-m, \frac{b (c+d x)}{b c-a d}\right]}{d^4 m}$$

Result (type 6, 1833 leaves):

$$\frac{1}{c (b c-a d)^3 (1+m) (2+m) (3+m)}$$

$$3\,e\,f^2\,(a+b\,x)^m\left(\frac{c\,(a+b\,x)}{a\,(c+d\,x)}\right)^{-m}(c+d\,x)^{-3-m}\left(b^3\,c^3\,(2+3\,m+m^2)\,x^3\left(\frac{c\,(a+b\,x)}{a\,(c+d\,x)}\right)^m-a\,b^2\,c^2\,(1+m)\,x^2\left(\frac{c\,(a+b\,x)}{a\,(c+d\,x)}\right)^m(-c\,m+2\,d\,(3+m)\,x)+\right.$$

$$a^2\,b\,c\,x\left(\frac{c\,(a+b\,x)}{a\,(c+d\,x)}\right)^m\left(-2\,c^2\,m-2\,c\,d\,m\,(3+m)\,x+d^2\,(6+5\,m+m^2)\,x^2\right)+a^3\left(-2\,d^3\,x^3+2\,c^3\left(-1+\left(\frac{c\,(a+b\,x)}{a\,(c+d\,x)}\right)^m\right)+\right.$$

$$\left.\left.2\,c^2\,d\,x\left(-3+3\left(\frac{c\,(a+b\,x)}{a\,(c+d\,x)}\right)^m+m\left(\frac{c\,(a+b\,x)}{a\,(c+d\,x)}\right)^m\right)+c\,d^2\,x^2\left(-6+6\left(\frac{c\,(a+b\,x)}{a\,(c+d\,x)}\right)^m+5\,m\left(\frac{c\,(a+b\,x)}{a\,(c+d\,x)}\right)^m+m^2\left(\frac{c\,(a+b\,x)}{a\,(c+d\,x)}\right)^m\right)\right)\right)-$$

$$\left(5\,a\,c\,f^3\,x^4\,(a+b\,x)^m\,(c+d\,x)^{-4-m}\,\text{AppellF1}\left[4,-m,4+m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/\left(4\left(-5\,a\,c\,\text{AppellF1}\left[4,-m,4+m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-\right.\right.$$

$$\left.\left.b\,c\,m\,x\,\text{AppellF1}\left[5,1-m,4+m,6,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+a\,d\,(4+m)\,x\,\text{AppellF1}\left[5,-m,5+m,6,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)+$$

$$\left(3\,e^2\,f\,x^2\,(a+b\,x)^m\,(c+d\,x)^{-4-m}\left(1+\frac{d\,x}{c}\right)\left((c+d\,x)\left(b^3\,c^3\,m\,(1+m)\,x^3+a\,b^2\,c^2\,m\,x^2\,(c\,(-3+m)-2\,d\,(3+m)\,x)-a^2\,b\,c\,x\right.\right.\right.$$

$$\left(d^2\,(3+m)\,x^2\left(-2-m+2\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)+2\,c\,d\,(3+m)\,x\left(-2+m+2\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)+2\,c^2\left(-3+2\,m+3\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m+m\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)\right)+$$

$$a^3\left(2\,d^3\,m\,x^3\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m-6\,c^3\left(-1+\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)+2\,c^2\,d\,x\left(6-6\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m+m\left(2+\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)\right)+\right.$$

$$\left.\left.\left.c\,d^2\,x^2\left(6+m^2-6\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m+m\left(5+4\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)\right)\right)\right)\right)\text{Gamma}[1-m]+$$

$$m\,(3\,c+d\,x)\left(b^3\,c^3\,(2+3\,m+m^2)\,x^3+a\,b^2\,c^2\,(1+m)\,x^2\,(c\,m-2\,d\,(3+m)\,x)+a^2\,b\,c\,x\left(-2\,c^2\,m-2\,c\,d\,m\,(3+m)\,x+d^2\,(6+5\,m+m^2)\,x^2\right)+\right.$$

$$a^3\left(-2\,d^3\,x^3\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m-2\,c^3\left(-1+\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)-2\,c^2\,d\,x\left(-3-m+3\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)-c\,d^2\,x^2\left(-6-5\,m-m^2+6\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)\right)\right)$$

$$\left.\left.\text{Gamma}[-m]\right)\right)\Big/\left((c+d\,x)\left(b^3\,c^3\,m\,(2+3\,m+m^2)\,x^3-3\,a\,b^2\,c^2\,m\,(1+m)\,x^2\,(c+d\,(3+m)\,x)+\right.\right.$$

$$3\,a^2\,b\,c\,m\,x\left(2\,c^2+2\,c\,d\,(3+m)\,x+d^2\,(6+5\,m+m^2)\,x^2\right)+a^3\left(6\,c^3\left(-1+\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)+6\,c^2\,d\,x\left(-3-m+3\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)+\right.$$

$$\left.\left.3\,c\,d^2\,x^2\left(-6-5\,m-m^2+6\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)+d^3\,x^3\left(-6-11\,m-6\,m^2-m^3+6\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)\right)\right)\text{Gamma}[1-m]+$$

$$m\left(b^3\,c^3\,(2+3\,m+m^2)\,x^3\,(3\,c\,(2+m)+d\,m\,x)-3\,a\,b^2\,c^2\,(1+m)\,x^2\left(c^2\,m+c\,d\,(12+14\,m+3\,m^2)\,x+d^2\,m\,(3+m)\,x^2\right)+\right.$$

$$3\,a^2\,b\,c\,x\left(2\,c^3\,m+2\,c^2\,d\,m\,(4+m)\,x+c\,d^2\,(12+34\,m+19\,m^2+3\,m^3)\,x^2+d^3\,m\,(6+5\,m+m^2)\,x^3\right)+$$

$$a^3\left(6\,c^4\left(-1+\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)+6\,c^3\,d\,x\left(-4-m+4\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)+d^4\,x^4\left(-6-11\,m-6\,m^2-m^3+6\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)+\right.$$

$$3\,c\,d^3\,x^3\left(-12-16\,m-7\,m^2-m^3+8\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)+3\,c^2\,d^2\,x^2\left(-7\,m-m^2+12\left(-1+\left(\frac{a\,(c+d\,x)}{c\,(a+b\,x)}\right)^m\right)\right)\Big)\Big)\,\text{Gamma}[-m]\Big)-$$

$$\frac{e^3\,(c+d\,x)^{-3-m}\left(a-\frac{b\,c}{d}+\frac{b\,(c+d\,x)}{d}\right)^m\left(1+\frac{b\,(c+d\,x)}{\left(a-\frac{b\,c}{d}\right)d}\right)^{-m}\text{Hypergeometric2F1}\left[-3-m,\,-m,\,-2-m,\,-\frac{b\,(c+d\,x)}{\left(a-\frac{b\,c}{d}\right)d}\right]}{d\,(3+m)}$$

Problem 3101: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,x)^m\,(c+d\,x)^{-4-m}}{e+f\,x}\,dx$$

Optimal (type 5, 330 leaves, 5 steps):

$$\frac{d\,(a+b\,x)^{1+m}\,(c+d\,x)^{-3-m}}{(b\,c-a\,d)\,(d\,e-c\,f)\,(3+m)}+\frac{d\,(a\,d\,f\,(3+m)+b\,(2\,d\,e-c\,f\,(5+m)))\,(a+b\,x)^{1+m}\,(c+d\,x)^{-2-m}}{(b\,c-a\,d)^2\,(d\,e-c\,f)^2\,(2+m)\,(3+m)}+$$

$$\left(d\left(a^2\,d^2\,f^2\,(6+5\,m+m^2)+a\,b\,d\,f\,(3+m)\,(d\,e-c\,f\,(5+2\,m))+b^2\,(2\,d^2\,e^2-c\,d\,e\,f\,(7+m)+c^2\,f^2\,(11+6\,m+m^2))\right)(a+b\,x)^{1+m}\,(c+d\,x)^{-1-m}\right)\Big/$$

$$\left((b\,c-a\,d)^3\,(d\,e-c\,f)^3\,(1+m)\,(2+m)\,(3+m)\right)+\frac{f^3\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{Hypergeometric2F1}\left[1,\,-m,\,1-m,\,\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}\right]}{(d\,e-c\,f)^4\,m}$$

Result (type 5, 26 263 leaves): Display of huge result suppressed!

Problem 3102: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,x)^m\,(c+d\,x)^{-4-m}}{(e+f\,x)^2}\,dx$$

Optimal (type 5, 634 leaves, 6 steps):

$$-\frac{d\,(a\,d\,f\,(4+m)-b\,(d\,e+c\,f\,(3+m)))\,(a+b\,x)^{1+m}\,(c+d\,x)^{-3-m}}{(b\,c-a\,d)\,(b\,e-a\,f)\,(d\,e-c\,f)^2\,(3+m)}-$$
$$\left(d\,\left(a^2\,d^2\,f^2\,\left(12+7\,m+m^2\right)-b^2\,\left(2\,d^2\,e^2-2\,c\,d\,e\,f\,(4+m)-c^2\,f^2\,\left(6+5\,m+m^2\right)\right)-2\,a\,b\,d\,f\,\left(d\,e\,(2+m)+c\,f\,\left(10+6\,m+m^2\right)\right)\right)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-2-m}\right)\Big/$$
$$\left((b\,c-a\,d)^2\,(b\,e-a\,f)\,(d\,e-c\,f)^3\,(2+m)\,(3+m)\right)-$$
$$\frac{1}{(b\,c-a\,d)^3\,(b\,e-a\,f)\,(d\,e-c\,f)^4\,(1+m)\,(2+m)\,(3+m)}\,d\,\left(a^3\,d^3\,f^3\,\left(24+26\,m+9\,m^2+m^3\right)-a^2\,b\,d^2\,f^2\,(3+m)\,\left(d\,e\,(4+3\,m)+c\,f\,\left(20+15\,m+3\,m^2\right)\right)-\right.$$
$$b^3\,\left(2\,d^3\,e^3-2\,c\,d^2\,e^2\,f\,(5+m)+c^2\,d\,e\,f^2\,\left(26+17\,m+3\,m^2\right)+c^3\,f^3\,\left(6+11\,m+6\,m^2+m^3\right)\right)-$$
$$\left.a\,b^2\,d\,f\,\left(2\,d^2\,e^2\,(2+m)-2\,c\,d\,e\,f\,\left(16+15\,m+3\,m^2\right)-c^2\,f^2\,\left(44+50\,m+21\,m^2+3\,m^3\right)\right)\right)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-1-m}-$$
$$\frac{f\,(a+b\,x)^{1+m}\,(c+d\,x)^{-3-m}}{(b\,e-a\,f)\,(d\,e-c\,f)\,(e+f\,x)}-\frac{f^3\,(a\,d\,f\,(4+m)-b\,(4\,d\,e+c\,f\,m))\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}\right]}{(b\,e-a\,f)\,(d\,e-c\,f)^5\,m}$$

Result (type 5, 64 249 leaves) : Display of huge result suppressed!

Problem 3103: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^m\,(c+d\,x)^{-5-m}\,(e+f\,x)^p\,dx$$

Optimal (type 6, 133 leaves, 3 steps) :

$$\frac{1}{(b\,c-a\,d)^5\,(1+m)}b^4\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m}\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^m\,(e+f\,x)^p\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-p}\,\text{AppellF1}\left[1+m,5+m,-p,2+m,-\frac{d\,(a+b\,x)}{b\,c-a\,d},-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]$$

Result (type 6, 300 leaves) :

$$\left((b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-5-m}\,(e+f\,x)^p\,\text{AppellF1}\left[1+m,5+m,-p,2+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\Big/$$
$$\left(b\,(1+m)\,\left((b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,\text{AppellF1}\left[1+m,5+m,-p,2+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]-\right.\right.$$
$$(a+b\,x)\,\left((-b\,c+a\,d)\,f\,p\,\text{AppellF1}\left[2+m,5+m,1-p,3+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+\right.$$
$$\left.\left.\left.d\,(b\,e-a\,f)\,(5+m)\,\text{AppellF1}\left[2+m,6+m,-p,3+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\right)\right)$$

Problem 3105: Attempted integration timed out after 120 seconds.

$$\int (a+b\,x)^m\,(c+d\,x)^{-5-m}\,(e+f\,x)^4\,dx$$

Optimal (type 5, 650 leaves, 14 steps):

$$\frac{(d e-c f)^4 (a+b x)^{1+m} (c+d x)^{-4-m}}{d^4 (b c-a d) (4+m)}+\frac{4 f (d e-c f)^3 (a+b x)^{1+m} (c+d x)^{-3-m}}{d^4 (b c-a d) (3+m)}+\frac{3 b (d e-c f)^4 (a+b x)^{1+m} (c+d x)^{-3-m}}{d^4 (b c-a d)^2 (3+m) (4+m)}+$$
$$\frac{6 f^2 (d e-c f)^2 (a+b x)^{1+m} (c+d x)^{-2-m}}{d^4 (b c-a d) (2+m)}+\frac{8 b f (d e-c f)^3 (a+b x)^{1+m} (c+d x)^{-2-m}}{d^4 (b c-a d)^2 (2+m) (3+m)}+\frac{6 b^2 (d e-c f)^4 (a+b x)^{1+m} (c+d x)^{-2-m}}{d^4 (b c-a d)^3 (2+m) (3+m) (4+m)}+$$
$$\frac{4 f^3 (d e-c f) (a+b x)^{1+m} (c+d x)^{-1-m}}{d^4 (b c-a d) (1+m)}+\frac{6 b f^2 (d e-c f)^2 (a+b x)^{1+m} (c+d x)^{-1-m}}{d^4 (b c-a d)^2 (1+m) (2+m)}+\frac{8 b^2 f (d e-c f)^3 (a+b x)^{1+m} (c+d x)^{-1-m}}{d^4 (b c-a d)^3 (1+m) (2+m) (3+m)}+$$
$$\frac{6 b^3 (d e-c f)^4 (a+b x)^{1+m} (c+d x)^{-1-m}}{d^4 (b c-a d)^4 (1+m) (2+m) (3+m) (4+m)}-\frac{f^4 (a+b x)^m \left(-\frac{d (a+b x)}{b c-a d}\right)^{-m} (c+d x)^{-m} \text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{b (c+d x)}{b c-a d}\right]}{d^5 m}$$

Result (type 1, 1 leaves):

???

Problem 3110: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{-5-m}}{e+f x} \, dx$$

Optimal (type 5, 557 leaves, 6 steps):

$$\frac{d (a+b x)^{1+m} (c+d x)^{-4-m}}{(b c-a d) (d e-c f) (4+m)}+\frac{d (a d f (4+m)+b (3 d e-c f (7+m))) (a+b x)^{1+m} (c+d x)^{-3-m}}{(b c-a d)^2 (d e-c f)^2 (3+m) (4+m)}+$$
$$\left(d \left(a^2 d^2 f^2 (12+7 m+m^2)+2 a b d f (4+m) (d e-c f (4+m))+b^2 \left(6 d^2 e^2-2 c d e f (10+m)+c^2 f^2 (26+9 m+m^2)\right)\right) (a+b x)^{1+m} (c+d x)^{-2-m}\right) \Big/$$
$$\left((b c-a d)^3 (d e-c f)^3 (2+m) (3+m) (4+m)\right)+$$
$$\Big(d \Big(a^3 d^3 f^3 (24+26 m+9 m^2+m^3)+a^2 b d^2 f^2 (12+7 m+m^2) (d e-c f (7+3 m))+a b^2 d f (4+m) \left(2 d^2 e^2-2 c d e f (5+m)+c^2 f^2 (26+17 m+3 m^2)\right)+$$
$$b^3 \left(6 d^3 e^3-2 c d^2 e^2 f (13+m)+c^2 d e f^2 (46+11 m+m^2)-c^3 f^3 (50+35 m+10 m^2+m^3)\right)\Big) (a+b x)^{1+m} (c+d x)^{-1-m}\Big) \Big/$$
$$\left((b c-a d)^4 (d e-c f)^4 (1+m) (2+m) (3+m) (4+m)\right)-\frac{f^4 (a+b x)^m (c+d x)^{-m} \text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b e-a f) (c+d x)}{(d e-c f) (a+b x)}\right]}{(d e-c f)^5 m}$$

Result (type 5, 50481 leaves): Display of huge result suppressed!

Problem 3111: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{1-m} (e+f x)^p \, dx$$

Optimal (type 6, 131 leaves, 3 steps):

$$\frac{1}{b^2 (1+m)} (b c-a d) (a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m (e+f x)^p \left(\frac{b (e+f x)}{b e-a f}\right)^{-p} \text{AppellF1}\left[1+m,-1+m,-p,2+m,-\frac{d (a+b x)}{b c-a d},-\frac{f (a+b x)}{b e-a f}\right]$$

Result (type 6, 298 leaves):

$$\left((b c-a d) (b e-a f) (2+m) (a+b x)^{1+m} (c+d x)^{1-m} (e+f x)^p \text{AppellF1}\left[1+m,-1+m,-p,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right) \Big/ \left(b (1+m) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m,-1+m,-p,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right] - (a+b x) \left((-b c+a d) f p \text{AppellF1}\left[2+m,-1+m,1-p,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right] + d (b e-a f) (-1+m) \text{AppellF1}\left[2+m,m,-p,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3112: Result unnecessarily involves higher level functions.

$$\int (a+b x)^m (c+d x)^{1-m} (e+f x)^3 \, dx$$

Optimal (type 5, 445 leaves, 4 steps):

$$\frac{f (a+b x)^{1+m} (c+d x)^{2-m} (e+f x)^2}{5 b d} + \frac{1}{60 b^3 d^3} f (a+b x)^{1+m} (c+d x)^{2-m} \left(a^2 d^2 f^2 \left(12-7 m+m^2\right) - a b d f \left(15 d e (3-m) - c f \left(9+2 m-2 m^2\right)\right) + b^2 \left(48 d^2 e^2 - 15 c d e f (2+m) + c^2 f^2 \left(6+5 m+m^2\right)\right) - 3 b d f \left(a d f (4-m) - b (7 d e - c f (3+m))\right) x\right) - \frac{1}{60 b^5 d^3 (1+m)} (b c-a d) \left(a^3 d^3 f^3 \left(24-26 m+9 m^2-m^3\right) - 3 a^2 b d^2 f^2 \left(6-5 m+m^2\right) (5 d e - c f (1+m)) + 3 a b^2 d f (2-m) \left(20 d^2 e^2 - 10 c d e f (1+m) + c^2 f^2 \left(2+3 m+m^2\right)\right) - b^3 \left(60 d^3 e^3 - 60 c d^2 e^2 f (1+m) + 15 c^2 d e f^2 \left(2+3 m+m^2\right) - c^3 f^3 \left(6+11 m+6 m^2+m^3\right)\right)\right) (a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[-1+m,1+m,2+m,-\frac{d (a+b x)}{b c-a d}\right]$$

Result (type 6, 461 leaves):

$$\frac{1}{4} (a+b x)^m (c+d x)^{1-m} \left(\left(18 a c e^2 f x^2 \text{AppellF1}\left[2, -m, -1+m, 3, -\frac{b x}{a}, -\frac{d x}{c}\right]\right) \Big/ \left(3 a c \text{AppellF1}\left[2, -m, -1+m, 3, -\frac{b x}{a}, -\frac{d x}{c}\right] + b c m x \text{AppellF1}\left[3, 1-m, -1+m, 4, -\frac{b x}{a}, -\frac{d x}{c}\right] - a d (-1+m) x \text{AppellF1}\left[3, -m, m, 4, -\frac{b x}{a}, -\frac{d x}{c}\right]\right) + \left(16 a c e f^2 x^3 \text{AppellF1}\left[3, -m, -1+m, 4, -\frac{b x}{a}, -\frac{d x}{c}\right]\right) \Big/ \left(4 a c \text{AppellF1}\left[3, -m, -1+m, 4, -\frac{b x}{a}, -\frac{d x}{c}\right] + b c m x \text{AppellF1}\left[4, 1-m, -1+m, 5, -\frac{b x}{a}, -\frac{d x}{c}\right] - a d (-1+m) x \text{AppellF1}\left[4, -m, m, 5, -\frac{b x}{a}, -\frac{d x}{c}\right]\right) + \left(5 a c f^3 x^4 \text{AppellF1}\left[4, -m, -1+m, 5, -\frac{b x}{a}, -\frac{d x}{c}\right]\right) \Big/ \left(5 a c \text{AppellF1}\left[4, -m, -1+m, 5, -\frac{b x}{a}, -\frac{d x}{c}\right] + b c m x \text{AppellF1}\left[5, 1-m, -1+m, 6, -\frac{b x}{a}, -\frac{d x}{c}\right] - a d (-1+m) x \text{AppellF1}\left[5, -m, m, 6, -\frac{b x}{a}, -\frac{d x}{c}\right]\right) - \frac{4 e^3 \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} (c+d x) \text{Hypergeometric2F1}\left[2-m, -m, 3-m, \frac{b (c+d x)}{b c-a d}\right]}{d (-2+m)} \right)$$

Problem 3113: Result unnecessarily involves higher level functions.

$$\int (a+b x)^m (c+d x)^{1-m} (e+f x)^2 \, dx$$

Optimal (type 5, 260 leaves, 4 steps):

$$-\frac{f (a d f (3-m) - b (5 d e - c f (2+m))) (a+b x)^{1+m} (c+d x)^{2-m}}{12 b^2 d^2} + \frac{f (a+b x)^{1+m} (c+d x)^{2-m} (e+f x)}{4 b d} + \frac{1}{12 b^4 d^2 (1+m)} (b c - a d) \left(a^2 d^2 f^2 (6 - 5 m + m^2) - 2 a b d f (2-m) (4 d e - c f (1+m)) + b^2 (12 d^2 e^2 - 8 c d e f (1+m) + c^2 f^2 (2 + 3 m + m^2))\right) (a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c - a d}\right)^m \text{Hypergeometric2F1}\left[-1+m, 1+m, 2+m, -\frac{d (a+b x)}{b c - a d}\right]$$

Result (type 6, 510 leaves):

$$c\,(a+b x)^m (c+d x)^{-m} \left(\left(3 a e\,(d e+2 c f)\, x^2\, \text{AppellF1}\left[2,-m,m,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right) \Big/ \left(6 a c\, \text{AppellF1}\left[2,-m,m,3,-\frac{b x}{a},-\frac{d x}{c}\right]+2 m x \left(b c\, \text{AppellF1}\left[3,1-m,m,4,-\frac{b x}{a},-\frac{d x}{c}\right]-a d\, \text{AppellF1}\left[3,-m,1+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\right)+ \left(4 a f\,(2 d e+c f)\, x^3\, \text{AppellF1}\left[3,-m,m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right) \Big/ \left(3 \left(4 a c\, \text{AppellF1}\left[3,-m,m,4,-\frac{b x}{a},-\frac{d x}{c}\right]+b c m x\, \text{AppellF1}\left[4,1-m,m,5,-\frac{b x}{a},-\frac{d x}{c}\right]-a d m x\, \text{AppellF1}\left[4,-m,1+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\right)+ \left(5 a d f^2 x^4\, \text{AppellF1}\left[4,-m,m,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right) \Big/ \left(20 a c\, \text{AppellF1}\left[4,-m,m,5,-\frac{b x}{a},-\frac{d x}{c}\right]+4 b c m x\, \text{AppellF1}\left[5,1-m,m,6,-\frac{b x}{a},-\frac{d x}{c}\right]-4 a d m x\, \text{AppellF1}\left[5,-m,1+m,6,-\frac{b x}{a},-\frac{d x}{c}\right]\right)- \frac{c e^2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} \text{Hypergeometric2F1}\left[1-m,-m,2-m,\frac{b (c+d x)}{b c-a d}\right]}{d\,(-1+m)}-\frac{e^2 x \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} \text{Hypergeometric2F1}\left[1-m,-m,2-m,\frac{b (c+d x)}{b c-a d}\right]}{-1+m}\right)$$

Problem 3114: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{1-m} (e+f x)\, dx$$

Optimal (type 5, 145 leaves, 3 steps):

$$\frac{f\,(a+b x)^{1+m} (c+d x)^{2-m}}{3 b d}-\frac{1}{3 b^3 d\,(1+m)} (b c-a d)\,(a d f\,(2-m)-b\,(3 d e-c f\,(1+m)))\,(a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b\,(c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[-1+m,1+m,2+m,-\frac{d\,(a+b x)}{b c-a d}\right]$$

Result (type 6, 322 leaves):

$$c\,(a+b\,x)^m\,(c+d\,x)^{-m}\left(\left(3\,a\,(d\,e+c\,f)\,x^2\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/\right.$$
$$\left(6\,a\,c\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+2\,m\,x\left(b\,c\,\text{AppellF1}\left[3,1-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-a\,d\,\text{AppellF1}\left[3,-m,1+m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)+$$
$$\left(4\,a\,d\,f\,x^3\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(12\,a\,c\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+3\,b\,c\,m\,x\,\text{AppellF1}\left[4,1-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-3\,a\,d\,m\,x\,\text{AppellF1}\left[4,-m,1+m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)-$$
$$\left.\frac{e\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-m}(c+d\,x)\,\text{Hypergeometric2F1}\left[1-m,-m,2-m,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{d\,(-1+m)}\right)$$

Problem 3115: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b\,x)^m\,(c+d\,x)^{1-m}\,dx$$

Optimal (type 5, 82 leaves, 2 steps):

$$\frac{(b\,c-a\,d)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m}\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^m\,\text{Hypergeometric2F1}\left[-1+m,1+m,2+m,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]}{b^2\,(1+m)}$$

Result (type 6, 202 leaves):

$$\frac{1}{d}c\,(a+b\,x)^m\,(c+d\,x)^{-m}\left(\left(3\,a\,d^2\,x^2\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/\right.$$
$$\left(6\,a\,c\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+2\,m\,x\left(b\,c\,\text{AppellF1}\left[3,1-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-a\,d\,\text{AppellF1}\left[3,-m,1+m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)-$$
$$\left.\frac{\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-m}(c+d\,x)\,\text{Hypergeometric2F1}\left[1-m,-m,2-m,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{-1+m}\right)$$

Problem 3116: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,x)^m\,(c+d\,x)^{1-m}}{e+f\,x}\,dx$$

Optimal (type 5, 230 leaves, 6 steps):

$$-\frac{d\,(d\,e-c\,f)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m}}{(b\,c-a\,d)\,f^2\,m}-\frac{(d\,e-c\,f)\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}\right]}{f^2\,m}+\frac{1}{b\,(b\,c-a\,d)\,f^2\,m\,(1+m)}$$

$$d\,(b\,(d\,e-c\,f\,(1-m))-a\,d\,f\,m)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m}\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^m\text{Hypergeometric2F1}\left[m,1+m,2+m,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]$$

Result (type 6, 622 leaves):

$$\left((a+b\,x)^m\,(c+d\,x)^{-m}\left(-d\,(-b\,c+a\,d)\,e\,(b\,e-a\,f)\,(-1+m)\,(2+m)\,(a+b\,x)\,\text{AppellF1}\left[1+m,m,1,2+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]-\right.\right.$$
$$c\,(b\,c-a\,d)\,f\,(b\,e-a\,f)\,(-1+m)\,(2+m)\,(a+b\,x)\,\text{AppellF1}\left[1+m,m,1,2+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+$$
$$b\,(1+m)\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-m}(c+d\,x)\,(e+f\,x)\left((b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,\text{AppellF1}\left[1+m,m,1,2+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+\right.$$
$$(a+b\,x)\left((-b\,c\,f+a\,d\,f)\,\text{AppellF1}\left[2+m,m,2,3+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+\right.$$
$$\left.\left.\left.\left.d\,(-b\,e+a\,f)\,m\,\text{AppellF1}\left[2+m,1+m,1,3+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\right)\text{Hypergeometric2F1}\left[1-m,-m,2-m,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]\right)\right)\Big/$$
$$\left(b\,f\,(1-m)\,(1+m)\,(e+f\,x)\left((b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,\text{AppellF1}\left[1+m,m,1,2+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+\right.\right.$$
$$(a+b\,x)\left((-b\,c\,f+a\,d\,f)\,\text{AppellF1}\left[2+m,m,2,3+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+\right.$$
$$\left.\left.\left.d\,(-b\,e+a\,f)\,m\,\text{AppellF1}\left[2+m,1+m,1,3+m,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\right)\right)$$

Problem 3117: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,x)^m\,(c+d\,x)^{1-m}}{(e+f\,x)^2}\,dx$$

Optimal (type 5, 190 leaves, 6 steps):

$$-\frac{(a+bx)^m (c+dx)^{1-m}}{f(e+fx)}+\frac{(adf(1-m)-b(de-cfm))(a+bx)^m (c+dx)^{-m}\,\text{Hypergeometric2F1}\left[1,m,1+m,\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right]}{f^2(be-af)m}+\frac{d(a+bx)^m (c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m \text{Hypergeometric2F1}\left[m,m,1+m,-\frac{d(a+bx)}{bc-ad}\right]}{f^2 m}$$

Result (type 6, 461 leaves):

$$\frac{1}{(be-af)(1+m)(e+fx)}(a+bx)^{1+m}(c+dx)^{-m}\left(-\left(\left(d(bc-ad)(be-af)^3(2+m)\,\text{AppellF1}\left[1+m,m,1,2+m,\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]\right)\Big/\left(bf(-be+af)\left((bc-ad)(be-af)(2+m)\,\text{AppellF1}\left[1+m,m,1,2+m,\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]+(a+bx)\left((-bcf+adf)\,\text{AppellF1}\left[2+m,m,2,3+m,\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]+d(-be+af)\,m\,\text{AppellF1}\left[2+m,1+m,1,3+m,\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]\right)\right)\right)\right)+c\left(\frac{(be-af)(c+dx)}{(bc-ad)(e+fx)}\right)^m \text{Hypergeometric2F1}\left[m,1+m,2+m,\frac{(-de+cf)(a+bx)}{(bc-ad)(e+fx)}\right]-\frac{de\left(\frac{(be-af)(c+dx)}{(bc-ad)(e+fx)}\right)^m \text{Hypergeometric2F1}\left[m,1+m,2+m,\frac{(-de+cf)(a+bx)}{(bc-ad)(e+fx)}\right]}{f}\right)$$

Problem 3118: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+bx)^m (c+dx)^{1-m}}{(e+fx)^3}\,dx$$

Optimal (type 5, 85 leaves, 1 step):

$$\frac{(bc-ad)^2 (a+bx)^{1+m} (c+dx)^{-1-m}\,\text{Hypergeometric2F1}\left[3,1+m,2+m,\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}\right]}{(be-af)^3(1+m)}$$

Result (type 5, 933 leaves):

$$
\begin{aligned}
&\Big((a+b x)^{1+m} (c+d x)^{-m} \\
&\quad \Big(-d e (b e-a f)^2 (1+m) (c+d x) \Big(\big(-2 b e+a f (1+m)+b f (-1+m) x\big) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, m\Big]-2 \big(a f (1+m)+ \\
&\qquad\qquad b (-e+f m x)\big) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 1+m\Big]+f (1+m) (a+b x) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 2+m\Big]\Big)+ \\
&\qquad c f (b e-a f)^2 (1+m) (c+d x) \Big(\big(-2 b e+a f (1+m)+b f (-1+m) x\big) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, m\Big]- \\
&\qquad\quad 2 \big(a f (1+m)+b (-e+f m x)\big) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 1+m\Big]+ \\
&\qquad\quad f (1+m) (a+b x) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 2+m\Big]\Big)+d (2 b e-2 a f) \left(\frac{(b e-a f) (c+d x)}{(b c-a d) (e+f x)}\right)^m \\
&\qquad (e+f x) \Big((b e-a f) (c+d x) \big(a f (1+m)+b (-e+f m x)\big) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, m\Big]- \\
&\qquad\quad (a+b x) \Big(\big(a f (1+m) (-2 c f+d (e-f x))+b (c f (e (2+m)-f m x)+d e (-e+f (1+2 m) x))\big) \\
&\qquad\qquad \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 1+m\Big]+f (-d e+c f) (1+m) (a+b x) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 2+m\Big]\Big)\Big) \\
&\qquad \text{Hypergeometric2F1}\Big[m, 1+m, 2+m, \frac{(-d e+c f) (a+b x)}{(b c-a d) (e+f x)}\Big]\Big)\Big) \Big/ \Big(f (2 b e-2 a f) (b e-a f) (1+m) (e+f x)^2 \\
&\quad \Big((b e-a f) (c+d x) \big(a f (1+m)+b (-e+f m x)\big) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, m\Big]-(a+b x) \\
&\qquad \Big(\big(a f (1+m) (-2 c f+d (e-f x))+b (c f (e (2+m)-f m x)+d e (-e+f (1+2 m) x))\big) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 1+m\Big]+ \\
&\qquad f (-d e+c f) (1+m) (a+b x) \text{HurwitzLerchPhi}\Big[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 2+m\Big]\Big)\Big)\Big)
\end{aligned}
$$

Problem 3119: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{1-m}}{(e+f x)^4} \, dx$$

Optimal (type 5, 176 leaves, 2 steps) :

$$-\frac{f\,(a+b\,x)^{1+m}\,(c+d\,x)^{2-m}}{3\,(b\,e-a\,f)\,(d\,e-c\,f)\,(e+f\,x)^3}+$$

$$\left((b\,c-a\,d)^2\,(b\,(3\,d\,e-c\,f\,(2-m))-a\,d\,f\,(1+m))\,(a+b\,x)^{1+m}\,(c+d\,x)^{-1-m}\,\text{Hypergeometric2F1}\left[3,\,1+m,\,2+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\right)\Big/\left(3\,(b\,e-a\,f)^4\,(d\,e-c\,f)\,(1+m)\right)$$

Result (type 5, 3837 leaves):

$$\Bigg(d\,(b\,e-a\,f)^4\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m}\left(\left(-2\,b\,e+a\,f\,(1+m)+b\,f\,(-1+m)\,x\right)\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-2\,(a\,f\,(1+m)+b\,(-e+f\,m\,x))\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+f\,(1+m)\,(a+b\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,2+m\right]\right)\Bigg)\Big/$$

$$\Bigg(f\,(2\,b\,e-2\,a\,f)\,(-b\,e+a\,f)^3\,(e+f\,x)^2\,\Bigg((b\,e-a\,f)\,(-a\,f\,(1+m)+b\,(e-f\,m\,x))\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+\frac{1}{c+d\,x}(a+b\,x)\,\Big((a\,f\,(1+m)\,(-2\,c\,f+d\,(e-f\,x))+b\,(c\,f\,(e\,(2+m)-f\,m\,x)+d\,e\,(-e+f\,(1+2\,m)\,x)))\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+f\,(-d\,e+c\,f)\,(1+m)\,(a+b\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,2+m\right]\Big)\Bigg)\Bigg)+$$

$$\Bigg(c\,(a+b\,x)^{1+m}\,(c+d\,x)^{1-m}\,\Bigg(6\,(b\,e-a\,f)^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+6\,(b\,e-a\,f)^2\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+6\,f\,(b\,e-a\,f)\,(a+b\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+$$

$$6\,f\,(-b\,e+a\,f)\,m^2\,(a+b\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+2\,f^2\,(a+b\,x)^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-$$

$$f^2\,m\,(a+b\,x)^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-2\,f^2\,m^2\,(a+b\,x)^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+$$

$$f^2\,m^3\,(a+b\,x)^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-6\,(b\,e-a\,f)^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]-$$

$$6\,(b\,e-a\,f)^2\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+12\,f\,(b\,e-a\,f)\,m\,(a+b\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+$$

$$12\,f\,(b\,e-a\,f)\,m^2\,(a+b\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+$$

$$3 f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 1+m\right] - 3 f^2 m^3 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 1+m\right] +$$

$$6 f (-b e+a f) (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 2+m\right] +$$

$$12 f (-b e+a f) m (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 2+m\right] + 6 f (-b e+a f) m^2 (a+b x)$$

$$\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 2+m\right] + 3 f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 2+m\right] +$$

$$6 f^2 m^2 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 2+m\right] + 3 f^2 m^3 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 2+m\right] -$$

$$2 f^2 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - 5 f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] -$$

$$4 f^2 m^2 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right] - f^2 m^3 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]\Big)\Big) \Big/$$

$$\Big(3 (1+m) (e+f x)^3 \Big(\left(b e-a f\right) (c+d x) \left(a^2 f^2 (2+3 m+m^2) + 2 a b f (1+m) (-2 e+f m x) + b^2 (2 e^2-4 e f m x+f^2 (-1+m) m x^2)\right)$$

$$\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, m\right] -$$

$$(a+b x) \Big(\Big(a^2 f^2 (2+3 m+m^2) (-3 c f+d (e-2 f x)) - 2 a b f (1+m) (c f (-e (6+m)+2 f m x) + d (2 e^2-2 e f (2+m) x+f^2 m x^2)) +$$

$$b^2 (c f (-2 e^2 (3+2 m) + 2 e f m (3+m) x - f^2 (-1+m) m x^2) + d e (2 e^2 - 4 e f (1+2 m) x + f^2 m (1+3 m) x^2))\Big)$$

$$\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 1+m\right] + f (1+m) (a+b x)$$

$$\Big(\left(a f (2+m) (-2 d e+3 c f+d f x) + b c f (-e (6+m)+2 f m x) + b d e (4 e-f (2+3 m) x)\right) \text{HurwitzLerchPhi}\Big[$$

$$\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 2+m\Big] + f (d e-c f) (2+m) (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, 3+m\right]\Big)\Big)\Big)\Big) -$$

$$\Big(d e (a+b x)^{1+m} (c+d x)^{1-m} \Big(6 (b e-a f)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, m\right] + 6 (b e-a f)^2 m$$

$$\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, m\right] + 6 f (b e-a f) (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, m\right] +$$

$$6 f (-b e+a f) m^2 (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, m\right] + 2 f^2 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}, 1, m\right] -$$

$$f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]-2 f^2 m^2 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]+$$

$$f^2 m^3 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]-6 (b e-a f)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\right]-$$

$$6 (b e-a f)^2 m \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\right]+12 f (b e-a f) m (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\right]+$$

$$12 f (b e-a f) m^2 (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\right]+$$

$$3 f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\right]-3 f^2 m^3 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\right]+$$

$$6 f (-b e+a f) (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]+$$

$$12 f (-b e+a f) m (a+b x) \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]+6 f (-b e+a f) m^2 (a+b x)$$

$$\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]+3 f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]+$$

$$6 f^2 m^2 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]+3 f^2 m^3 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,2+m\right]-$$

$$2 f^2 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]-5 f^2 m (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]-$$

$$4 f^2 m^2 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]-f^2 m^3 (a+b x)^2 \text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,3+m\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(3 f (1+m) (e+f x)^3 \Bigg(\left((b e-a f) (c+d x) \left(a^2 f^2 \left(2+3 m+m^2\right)+2 a b f (1+m) (-2 e+f m x)+b^2 \left(2 e^2-4 e f m x+f^2 (-1+m) m x^2\right)\right)\right.$$

$$\left.\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,m\right]\right)-$$

$$(a+b x) \Bigg(\Big(a^2 f^2 \left(2+3 m+m^2\right) (-3 c f+d (e-2 f x))-2 a b f (1+m) \left(c f (-e (6+m)+2 f m x)+d \left(2 e^2-2 e f (2+m) x+f^2 m x^2\right)\right)+$$

$$b^2 \left(c f \left(-2 e^2 (3+2 m)+2 e f m (3+m) x-f^2 (-1+m) m x^2\right)+d e \left(2 e^2-4 e f (1+2 m) x+f^2 m (1+3 m) x^2\right)\right)\Big)$$

$$\text{HurwitzLerchPhi}\left[\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)},1,1+m\right]+f (1+m) (a+b x)$$

$$\Big((a f (2+m) (-2 d e+3 c f+d f x)+b c f (-e (6+m)+2 f m x)+b d e (4 e-f (2+3 m) x))$$

$$\text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,2+m\right]+f(d e-c f)(2+m)(a+b x)\,\text{HurwitzLerchPhi}\left[\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)},1,3+m\right]\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 3120: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b x)^m (c+d x)^{1-m}}{(e+f x)^5}\,dx$$

Optimal (type 5, 311 leaves, 4 steps):

$$-\frac{f (a+b x)^{1+m} (c+d x)^{2-m}}{4 (b e-a f) (d e-c f) (e+f x)^4}-\frac{f (b (5 d e-c f (3-m))-a d f (2+m)) (a+b x)^{1+m} (c+d x)^{2-m}}{12 (b e-a f)^2 (d e-c f)^2 (e+f x)^3}-$$
$$\Bigg((b c-a d)^2 \left(2 a b d f (4 d e-c f (2-m)) (1+m)-a^2 d^2 f^2 \left(2+3 m+m^2\right)-b^2 \left(12 d^2 e^2-8 c d e f (2-m)+c^2 f^2 \left(6-5 m+m^2\right)\right)\right)$$
$$(a+b x)^{1+m} (c+d x)^{-1-m}\,\text{Hypergeometric2F1}\left[3,1+m,2+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]\Bigg)\Big/\left(12 (b e-a f)^5 (d e-c f)^2 (1+m)\right)$$

Result (type 5, 63 464 leaves): Display of huge result suppressed!

Problem 3121: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b x)^m (c+d x)^{1-m}}{(e+f x)^6}\,dx$$

Optimal (type 5, 542 leaves, 5 steps):

$$-\frac{f (a+b x)^{1+m} (c+d x)^{2-m}}{5 (b e-a f) (d e-c f) (e+f x)^5}-\frac{f (b (7 d e-c f (4-m))-a d f (3+m)) (a+b x)^{1+m} (c+d x)^{2-m}}{20 (b e-a f)^2 (d e-c f)^2 (e+f x)^4}-$$
$$\left(f \left(a^2 d^2 f^2 \left(6+5 m+m^2\right)-a b d f \left(3 d e (7+4 m)-c f \left(9+2 m-2 m^2\right)\right)+b^2 \left(27 d^2 e^2-3 c d e f (11-4 m)+c^2 f^2 \left(12-7 m+m^2\right)\right)\right)\right.$$
$$\left.(a+b x)^{1+m} (c+d x)^{2-m}\right)\Big/\left(60 (b e-a f)^3 (d e-c f)^3 (e+f x)^3\right)+$$
$$\frac{1}{60 (b e-a f)^6 (d e-c f)^3 (1+m)}(b c-a d)^2 \left(3 a^2 b d^2 f^2 (5 d e-c f (2-m)) \left(2+3 m+m^2\right)-a^3 d^3 f^3 \left(6+11 m+6 m^2+m^3\right)-3 a b^2 d f (1+m)\right.$$
$$\left.\left(20 d^2 e^2-10 c d e f (2-m)+c^2 f^2 \left(6-5 m+m^2\right)\right)+b^3 \left(60 d^3 e^3-60 c d^2 e^2 f (2-m)+15 c^2 d e f^2 \left(6-5 m+m^2\right)-c^3 f^3 \left(24-26 m+9 m^2-m^3\right)\right)\right)$$
$$(a+b x)^{1+m} (c+d x)^{-1-m}\,\text{Hypergeometric2F1}\left[3,1+m,2+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]$$

Result (type 5, 136 671 leaves): Display of huge result suppressed!

Problem 3122: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{2-m} (e+f x)^p \, dx$$

Optimal (type 6, 133 leaves, 3 steps):

$$\frac{1}{b^3 (1+m)} (b c-a d)^2 (a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m (e+f x)^p \left(\frac{b (e+f x)}{b e-a f}\right)^{-p} \text{AppellF1}\left[1+m,-2+m,-p,2+m,-\frac{d (a+b x)}{b c-a d},-\frac{f (a+b x)}{b e-a f}\right]$$

Result (type 6, 300 leaves):

$$\left((b c-a d) (b e-a f) (2+m) (a+b x)^{1+m} (c+d x)^{2-m} (e+f x)^p \text{AppellF1}\left[1+m,-2+m,-p,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right) \Big/ \left(b (1+m) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m,-2+m,-p,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]-(a+b x) \left((-b c+a d) f p \text{AppellF1}\left[2+m,-2+m,1-p,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]+d (b e-a f) (-2+m) \text{AppellF1}\left[2+m,-1+m,-p,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3123: Result unnecessarily involves higher level functions.

$$\int (a+b x)^m (c+d x)^{2-m} (e+f x)^3 \, dx$$

Optimal (type 5, 447 leaves, 4 steps):

$$\frac{f (a+b x)^{1+m} (c+d x)^{3-m} (e+f x)^2}{6 b d}+\frac{1}{120 b^3 d^3} f (a+b x)^{1+m} (c+d x)^{3-m} \left(a^2 d^2 f^2 \left(20-9 m+m^2\right)-2 a b d f \left(9 d e (4-m)-c f \left(6+2 m-m^2\right)\right)+b^2 \left(70 d^2 e^2-18 c d e f (2+m)+c^2 f^2 \left(6+5 m+m^2\right)\right)-4 b d f (a d f (5-m)-b (8 d e-c f (3+m))) x\right)-\frac{1}{120 b^6 d^3 (1+m)} (b c-a d)^2 \left(a^3 d^3 f^3 \left(60-47 m+12 m^2-m^3\right)-3 a^2 b d^2 f^2 \left(12-7 m+m^2\right) (6 d e-c f (1+m))+3 a b^2 d f (3-m) \left(30 d^2 e^2-12 c d e f (1+m)+c^2 f^2 \left(2+3 m+m^2\right)\right)-b^3 \left(120 d^3 e^3-90 c d^2 e^2 f (1+m)+18 c^2 d e f^2 \left(2+3 m+m^2\right)-c^3 f^3 \left(6+11 m+6 m^2+m^3\right)\right)\right) (a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[-2+m,1+m,2+m,-\frac{d (a+b x)}{b c-a d}\right]$$

Result (type 6, 467 leaves):

$$\frac{1}{4}(a+b x)^m (c+d x)^{2-m}\left(\left(18 a c e^2 f x^2 \text{AppellF1}\left[2,-m,-2+m,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(3 a c \text{AppellF1}\left[2,-m,-2+m,3,-\frac{b x}{a},-\frac{d x}{c}\right]+\right.\right.$$
$$\left.b c m x \text{AppellF1}\left[3,1-m,-2+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]-a d(-2+m) x \text{AppellF1}\left[3,-m,-1+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)+$$
$$\left(16 a c e f^2 x^3 \text{AppellF1}\left[3,-m,-2+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(4 a c \text{AppellF1}\left[3,-m,-2+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]+\right.$$
$$\left.b c m x \text{AppellF1}\left[4,1-m,-2+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]-a d(-2+m) x \text{AppellF1}\left[4,-m,-1+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)+$$
$$\left(5 a c f^3 x^4 \text{AppellF1}\left[4,-m,-2+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(5 a c \text{AppellF1}\left[4,-m,-2+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]+\right.$$
$$\left.b c m x \text{AppellF1}\left[5,1-m,-2+m,6,-\frac{b x}{a},-\frac{d x}{c}\right]-a d(-2+m) x \text{AppellF1}\left[5,-m,-1+m,6,-\frac{b x}{a},-\frac{d x}{c}\right]\right)-$$
$$\left.\frac{4 e^3\left(\frac{d(a+b x)}{-b c+a d}\right)^{-m}(c+d x) \text{Hypergeometric2F1}\left[3-m,-m,4-m,\frac{b(c+d x)}{b c-a d}\right]}{d(-3+m)}\right)$$

Problem 3124: Result unnecessarily involves higher level functions.

$$\int (a+b x)^m (c+d x)^{2-m} (e+f x)^2 \, dx$$

Optimal (type 5, 262 leaves, 4 steps):

$$-\frac{f(a d f(4-m)-b(6 d e-c f(2+m)))(a+b x)^{1+m}(c+d x)^{3-m}}{20 b^2 d^2}+\frac{f(a+b x)^{1+m}(c+d x)^{3-m}(e+f x)}{5 b d}+\frac{1}{20 b^5 d^2(1+m)}$$
$$(b c-a d)^2\left(a^2 d^2 f^2\left(12-7 m+m^2\right)-2 a b d f(3-m)(5 d e-c f(1+m))+b^2\left(20 d^2 e^2-10 c d e f(1+m)+c^2 f^2\left(2+3 m+m^2\right)\right)\right)$$
$$(a+b x)^{1+m}(c+d x)^{-m}\left(\frac{b(c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[-2+m,1+m,2+m,-\frac{d(a+b x)}{b c-a d}\right]$$

Result (type 6, 340 leaves):

$$\frac{1}{3}(a+bx)^m(c+dx)^{2-m}\left(\left(9\,a\,c\,e\,f\,x^2\,\text{AppellF1}\left[2,-m,-2+m,3,-\frac{bx}{a},-\frac{dx}{c}\right]\right)\Big/\left(3\,a\,c\,\text{AppellF1}\left[2,-m,-2+m,3,-\frac{bx}{a},-\frac{dx}{c}\right]+b\,c\,m\,x\,\text{AppellF1}\left[3,1-m,-2+m,4,-\frac{bx}{a},-\frac{dx}{c}\right]-a\,d\,(-2+m)\,x\,\text{AppellF1}\left[3,-m,-1+m,4,-\frac{bx}{a},-\frac{dx}{c}\right]\right)+\left(4\,a\,c\,f^2\,x^3\,\text{AppellF1}\left[3,-m,-2+m,4,-\frac{bx}{a},-\frac{dx}{c}\right]\right)\Big/\left(4\,a\,c\,\text{AppellF1}\left[3,-m,-2+m,4,-\frac{bx}{a},-\frac{dx}{c}\right]+b\,c\,m\,x\,\text{AppellF1}\left[4,1-m,-2+m,5,-\frac{bx}{a},-\frac{dx}{c}\right]-a\,d\,(-2+m)\,x\,\text{AppellF1}\left[4,-m,-1+m,5,-\frac{bx}{a},-\frac{dx}{c}\right]\right)-\frac{3\,e^2\left(\frac{d(a+bx)}{-bc+ad}\right)^{-m}(c+dx)\,\text{Hypergeometric2F1}\left[3-m,-m,4-m,\frac{b(c+dx)}{bc-ad}\right]}{d\,(-3+m)}\right)$$

Problem 3125: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+bx)^m\,(c+dx)^{2-m}\,(e+fx)\,dx$$

Optimal (type 5, 147 leaves, 3 steps):

$$\frac{f\,(a+bx)^{1+m}\,(c+dx)^{3-m}}{4\,b\,d}-\frac{1}{4\,b^4\,d\,(1+m)}(bc-ad)^2\,(a\,d\,f\,(3-m)-b\,(4\,d\,e-c\,f\,(1+m)))\,(a+bx)^{1+m}\,(c+dx)^{-m}\left(\frac{b\,(c+dx)}{bc-ad}\right)^m\text{Hypergeometric2F1}\left[-2+m,1+m,2+m,-\frac{d\,(a+bx)}{bc-ad}\right]$$

Result (type 6, 509 leaves):

$$c\,(a+b\,x)^m\,(c+d\,x)^{-m}\left(\left(3\,a\,c\,(2\,d\,e+c\,f)\,x^2\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/\right.$$
$$\left(6\,a\,c\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+2\,m\,x\left(b\,c\,\text{AppellF1}\left[3,1-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-a\,d\,\text{AppellF1}\left[3,-m,1+m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)+$$
$$\left(4\,a\,d\,(d\,e+2\,c\,f)\,x^3\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(3\left(4\,a\,c\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+b\,c\,m\,x\,\text{AppellF1}\left[4,1-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-a\,d\,m\,x\,\text{AppellF1}\left[4,-m,1+m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)+$$
$$\left(5\,a\,d^2\,f\,x^4\,\text{AppellF1}\left[4,-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(20\,a\,c\,\text{AppellF1}\left[4,-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+4\,b\,c\,m\,x\,\text{AppellF1}\left[5,1-m,m,6,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-4\,a\,d\,m\,x\,\text{AppellF1}\left[5,-m,1+m,6,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)-$$
$$\left.\frac{c^2\,e\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-m}\text{Hypergeometric2F1}\left[1-m,-m,2-m,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{d\,(-1+m)}-\frac{c\,e\,x\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-m}\text{Hypergeometric2F1}\left[1-m,-m,2-m,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{-1+m}\right)$$

Problem 3126: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b\,x)^m\,(c+d\,x)^{2-m}\,dx$$

Optimal (type 5, 84 leaves, 2 steps):

$$\frac{(b\,c-a\,d)^2\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m}\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^m\text{Hypergeometric2F1}\left[-2+m,1+m,2+m,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]}{b^3\,(1+m)}$$

Result (type 6, 319 leaves):

$$\frac{1}{d}c\,(a+b\,x)^m\,(c+d\,x)^{-m}\left(\left(3\,a\,c\,d^2\,x^2\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/\left(3\,a\,c\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+m\,x\left(b\,c\,\text{AppellF1}\left[3,1-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-a\,d\,\text{AppellF1}\left[3,-m,1+m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)+\left(4\,a\,d^3\,x^3\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/\left(12\,a\,c\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+3\,b\,c\,m\,x\,\text{AppellF1}\left[4,1-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-3\,a\,d\,m\,x\,\text{AppellF1}\left[4,-m,1+m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)-\frac{c\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-m}(c+d\,x)\,\text{Hypergeometric2F1}\left[1-m,-m,2-m,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{-1+m}\right)$$

Problem 3127: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,x)^m\,(c+d\,x)^{2-m}}{e+f\,x}\,dx$$

Optimal (type 5, 370 leaves, 6 steps):

$$-\frac{d\left(2\,a\,b\,c\,d\,f^2\,m-a^2\,d^2\,f^2\,m-b^2\left(2\,d^2\,e^2-4\,c\,d\,e\,f+c^2\,f^2\,(2+m)\right)\right)(a+b\,x)^{1+m}\,(c+d\,x)^{-m}}{2\,b^2\,(b\,c-a\,d)\,f^3\,m}+\frac{d^2\,(a+b\,x)^{2+m}\,(c+d\,x)^{-m}}{2\,b^2\,f}+\frac{(d\,e-c\,f)^2\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}\right]}{f^3\,m}+\left(d\left(2\,a\,b\,d\,f\,(d\,e-c\,f\,(2-m))\,m+a^2\,d^2\,f^2\,(1-m)\,m-b^2\left(2\,d^2\,e^2-2\,c\,d\,e\,f\,(2-m)+c^2\,f^2\,(2-3\,m+m^2)\right)\right)(a+b\,x)^{1+m}\,(c+d\,x)^{-m}\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^m\text{Hypergeometric2F1}\left[m,1+m,2+m,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]\right)\Big/\left(2\,b^2\,(b\,c-a\,d)\,f^3\,m\,(1+m)\right)$$

Result (type 6, 303 leaves):

$$-\left(\left((b c-a d)(b e-a f)^2(2+m)(a+b x)^{1+m}(c+d x)^{2-m}\text{AppellF1}\left[1+m,-2+m,1,2+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]\right)\Big/\left(b(-b e+a f)(1+m)(e+f x)\left((b c-a d)(b e-a f)(2+m)\text{AppellF1}\left[1+m,-2+m,1,2+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]+(a+b x)\left((-b c f+a d f)\text{AppellF1}\left[2+m,-2+m,2,3+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]-d(b e-a f)(-2+m)\text{AppellF1}\left[2+m,-1+m,1,3+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]\right)\right)\right)\right)$$

Problem 3128: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b x)^m(c+d x)^{2-m}}{(e+f x)^2}\,dx$$

Optimal (type 5, 316 leaves, 7 steps):

$$-\frac{2 d^2(d e-c f)(a+b x)^{1+m}(c+d x)^{-m}}{(b c-a d)f^3 m}+\frac{(d e-c f)^2(a+b x)^{1+m}(c+d x)^{-m}}{f^2(b e-a f)(e+f x)}+\frac{1}{f^3(b e-a f)m}(d e-c f)(a d f(2-m)-b(2 d e-c f m))(a+b x)^m(c+d x)^{-m}\text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b e-a f)(c+d x)}{(d e-c f)(a+b x)}\right]+\frac{1}{b(b c-a d)f^3 m(1+m)}d^2(b(2 d e-c f(2-m))-a d f m)(a+b x)^{1+m}(c+d x)^{-m}\left(\frac{b(c+d x)}{b c-a d}\right)^m\text{Hypergeometric2F1}\left[m,1+m,2+m,-\frac{d(a+b x)}{b c-a d}\right]$$

Result (type 6, 291 leaves):

$$\left((b c-a d)(b e-a f)(2+m)(a+b x)^{1+m}(c+d x)^{2-m}\text{AppellF1}\left[1+m,-2+m,2,2+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]\right)\Big/\left(b(1+m)(e+f x)^2\left((b c-a d)(b e-a f)(2+m)\text{AppellF1}\left[1+m,-2+m,2,2+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]+(a+b x)\left((-2 b c f+2 a d f)\text{AppellF1}\left[2+m,-2+m,3,3+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]-d(b e-a f)(-2+m)\text{AppellF1}\left[2+m,-1+m,2,3+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3129: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^m (c+d x)^{2-m}}{(e+f x)^3} \, dx$$

Optimal (type 5, 362 leaves, 7 steps):

$$\frac{(b e-a f) (a+b x)^{-1+m} (c+d x)^{2-m}}{2 f^2 (e+f x)^2}+\frac{(a d f (2-m)-b (3 d e-c f (1+m))) (a+b x)^{-1+m} (c+d x)^{2-m}}{2 f^2 (d e-c f) (e+f x)}-\left(\left(2 a b d f (2-m) (d e-c f m)-b^2 \left(2 d^2 e^2-2 c d e f m-c^2 f^2 (1-m) m\right)-a^2 d^2 f^2 \left(2-3 m+m^2\right)\right) (a+b x)^{-1+m} (c+d x)^{1-m} \text{Hypergeometric2F1}\left[1,-1+m,m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]\right) \Big/ \left(2 f^3 (b e-a f) (d e-c f) (1-m)\right)-\frac{d (b c-a d) (a+b x)^{-1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[-1+m,-1+m,m,-\frac{d (a+b x)}{b c-a d}\right]}{f^3 (1-m)}$$

Result (type 6, 304 leaves):

$$-\left(\left((b c-a d) (b e-a f)^4 (2+m) (a+b x)^{1+m} (c+d x)^{2-m} \text{AppellF1}\left[1+m,-2+m,3,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right) \Big/ \left(b (-b e+a f)^3 (1+m) (e+f x)^3 \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m,-2+m,3,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]+(a+b x) \left((-3 b c f+3 a d f) \text{AppellF1}\left[2+m,-2+m,4,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]-d (b e-a f) (-2+m) \text{AppellF1}\left[2+m,-1+m,3,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)\right)$$

Problem 3131: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{2-m}}{(e+f x)^5} \, dx$$

Optimal (type 5, 176 leaves, 2 steps):

$$-\frac{f\,(a+b\,x)^{1+m}\,(c+d\,x)^{3-m}}{4\,(b\,e-a\,f)\,(d\,e-c\,f)\,(e+f\,x)^4}+$$
$$\left((b\,c-a\,d)^3\,(b\,(4\,d\,e-c\,f\,(3-m))-a\,d\,f\,(1+m))\,(a+b\,x)^{1+m}\,(c+d\,x)^{-1-m}\,\text{Hypergeometric2F1}\left[4,\,1+m,\,2+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\right)\Big/$$
$$\left(4\,(b\,e-a\,f)^5\,(d\,e-c\,f)\,(1+m)\right)$$

Result (type 5, 3314 leaves) :

$$-\left(\left((a+b\,x)^{1+m}\,(c+d\,x)^{3-m}\left((-4\,b\,e+a\,f\,(1+m)+b\,f\,(-3+m)\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,-2+m\right]+4\right.\right.\right.$$
$$(3\,b\,e-a\,f\,(1+m)-b\,f\,(-2+m)\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,-1+m\right]-12\,b\,e\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+$$
$$6\,a\,f\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+6\,a\,f\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-$$
$$6\,b\,f\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+6\,b\,f\,m\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+$$
$$4\,b\,e\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]-4\,a\,f\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]-$$
$$4\,a\,f\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]-4\,b\,f\,m\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+$$
$$a\,f\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,2+m\right]+a\,f\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,2+m\right]+$$
$$\left.\left.b\,f\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,2+m\right]+b\,f\,m\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,2+m\right]\right)\right)\Big/$$
$$\left(4\,(e+f\,x)^4\left((b\,e-a\,f)\,(c+d\,x)\,(3\,b\,e-a\,f\,(1+m)-b\,f\,(-2+m)\,x)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,-2+m\right]+\right.\right.$$
$$\left(a^2\,f\,(1+m)\,(-4\,c\,f+d\,(e-3\,f\,x))-b^2\,\left(d\,e\,x\,(9\,e+f\,(5-4\,m)\,x)+c\,\left(6\,e^2-3\,e\,f\,m\,x+f^2\,(-2+m)\,x^2\right)\right)+\right.$$
$$\left.a\,b\,\left(c\,f\,(3\,e\,(4+m)+f\,(4-5\,m)\,x)+d\,\left(-3\,e^2+e\,f\,(8+5\,m)\,x-3\,f^2\,(-1+m)\,x^2\right)\right)\right)\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,-1+m\right]+$$
$$3\,b^2\,c\,e^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+6\,a\,b\,d\,e^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-$$
$$12\,a\,b\,c\,e\,f\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-3\,a^2\,d\,e\,f\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+$$

$$6\,a^2\,c\,f^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-3\,a\,b\,c\,e\,f\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-$$

$$3\,a^2\,d\,e\,f\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+6\,a^2\,c\,f^2\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+$$

$$9\,b^2\,d\,e^2\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-6\,b^2\,c\,e\,f\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-$$

$$6\,a\,b\,d\,e\,f\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+3\,a^2\,d\,f^2\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-$$

$$3\,b^2\,c\,e\,f\,m\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-9\,a\,b\,d\,e\,f\,m\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+$$

$$9\,a\,b\,c\,f^2\,m\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+3\,a^2\,d\,f^2\,m\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+$$

$$3\,b^2\,d\,e\,f\,x^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-3\,b^2\,c\,f^2\,x^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-$$

$$6\,b^2\,d\,e\,f\,m\,x^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+3\,b^2\,c\,f^2\,m\,x^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]+$$

$$3\,a\,b\,d\,f^2\,m\,x^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,m\right]-3\,a\,b\,d\,e^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+$$

$$4\,a\,b\,c\,e\,f\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+3\,a^2\,d\,e\,f\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]-$$

$$4\,a^2\,c\,f^2\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+a\,b\,c\,e\,f\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+$$

$$3\,a^2\,d\,e\,f\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]-4\,a^2\,c\,f^2\,m\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]-$$

$$3\,b^2\,d\,e^2\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+4\,b^2\,c\,e\,f\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+$$

$$4\,a\,b\,d\,e\,f\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]-4\,a\,b\,c\,f^2\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]-$$

$$a^2\,d\,f^2\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+b^2\,c\,e\,f\,m\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]+$$

$$7\,a\,b\,d\,e\,f\,m\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]-7\,a\,b\,c\,f^2\,m\,x\,\text{HurwitzLerchPhi}\left[\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)},\,1,\,1+m\right]-$$

$$a^2 d f^2 m x \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 1 + m\right] + b^2 d e f x^2 \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 1 + m\right] -$$

$$a b d f^2 x^2 \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 1 + m\right] + 4 b^2 d e f m x^2 \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 1 + m\right] -$$

$$3 b^2 c f^2 m x^2 \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 1 + m\right] - a b d f^2 m x^2 \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 1 + m\right] -$$

$$a^2 d e f \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 2 + m\right] + a^2 c f^2 \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 2 + m\right] -$$

$$a^2 d e f m \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 2 + m\right] + a^2 c f^2 m \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 2 + m\right] -$$

$$2 a b d e f x \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 2 + m\right] + 2 a b c f^2 x \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 2 + m\right] -$$

$$2 a b d e f m x \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 2 + m\right] + 2 a b c f^2 m x \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 2 + m\right] -$$

$$b^2 d e f x^2 \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 2 + m\right] + b^2 c f^2 x^2 \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 2 + m\right] -$$

$$b^2 d e f m x^2 \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 2 + m\right] + b^2 c f^2 m x^2 \,\text{HurwitzLerchPhi}\left[\frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}, 1, 2 + m\right]\Bigg)\Bigg)\Bigg)$$

Problem 3132: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + b x)^m\ (c + d x)^{2-m}}{(e + f x)^6}\, dx$$

Optimal (type 5, 311 leaves, 4 steps):

$$-\frac{f\ (a + b x)^{1+m}\ (c + d x)^{3-m}}{5\ (b e - a f)\ (d e - c f)\ (e + f x)^5} - \frac{f\ (b\ (6 d e - c f\ (4 - m)) - a d f\ (2 + m))\ (a + b x)^{1+m}\ (c + d x)^{3-m}}{20\ (b e - a f)^2\ (d e - c f)^2\ (e + f x)^4} -$$

$$\Bigg((b c - a d)^3\ (2 a b d f\ (5 d e - c f\ (3 - m))\ (1 + m) - a^2 d^2 f^2\ (2 + 3 m + m^2) - b^2\ (20 d^2 e^2 - 10 c d e f\ (3 - m) + c^2 f^2\ (12 - 7 m + m^2)))$$

$$(a + b x)^{1+m}\ (c + d x)^{-1-m}\ \text{Hypergeometric2F1}\left[4, 1 + m, 2 + m, \frac{(d e - c f)\ (a + b x)}{(b e - a f)\ (c + d x)}\right]\Bigg) \Big/ \left(20\ (b e - a f)^6\ (d e - c f)^2\ (1 + m)\right)$$

Result (type 5, 29 088 leaves): Display of huge result suppressed!

Problem 3133: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{2-m}}{(e+f x)^7} \, dx$$

Optimal (type 5, 541 leaves, 5 steps):

$$-\frac{f (a+b x)^{1+m} (c+d x)^{3-m}}{6 (b e-a f) (d e-c f) (e+f x)^6}-\frac{f (b (8 d e-c f (5-m))-a d f (3+m)) (a+b x)^{1+m} (c+d x)^{3-m}}{30 (b e-a f)^2 (d e-c f)^2 (e+f x)^5}-$$
$$\left(f \left(a^2 d^2 f^2 \left(6+5 m+m^2\right)-2 a b d f \left(d e (12+7 m)-c f \left(6+2 m-m^2\right)\right)+b^2 \left(38 d^2 e^2-2 c d e f (26-7 m)+c^2 f^2 \left(20-9 m+m^2\right)\right)\right)\right.$$
$$\left.(a+b x)^{1+m} (c+d x)^{3-m}\right) \Big/ \left(120 (b e-a f)^3 (d e-c f)^3 (e+f x)^4\right)+$$
$$\frac{1}{120 (b e-a f)^7 (d e-c f)^3 (1+m)} (b c-a d)^3 \left(3 a^2 b d^2 f^2 (6 d e-c f (3-m)) \left(2+3 m+m^2\right)-a^3 d^3 f^3 \left(6+11 m+6 m^2+m^3\right)-3 a b^2 d f (1+m)\right.$$
$$\left.\left(30 d^2 e^2-12 c d e f (3-m)+c^2 f^2 \left(12-7 m+m^2\right)\right)+b^3 \left(120 d^3 e^3-90 c d^2 e^2 f (3-m)+18 c^2 d e f^2 \left(12-7 m+m^2\right)-c^3 f^3 \left(60-47 m+12 m^2-m^3\right)\right)\right)$$
$$(a+b x)^{1+m} (c+d x)^{-1-m} \text{Hypergeometric2F1}\left[4, 1+m, 2+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]$$

Result (type 5, 79 140 leaves): Display of huge result suppressed!

Problem 3134: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^m (c+d x)^{3-m}}{e+f x} \, dx$$

Optimal (type 5, 488 leaves, 7 steps):

$$\frac{b (b e-a f)^3 (a+b x)^{-3+m} (c+d x)^{4-m}}{(b c-a d) f^4 (3-m)}-\frac{b (b (3 d e-c f (1-m))-a d f (2+m)) (a+b x)^{-2+m} (c+d x)^{4-m}}{6 d^2 f^2}+$$
$$\frac{b (a+b x)^{-1+m} (c+d x)^{4-m}}{3 d f}-\frac{(b e-a f)^3 (a+b x)^{-3+m} (c+d x)^{3-m} \text{Hypergeometric2F1}\left[1,-3+m,-2+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{f^4 (3-m)}-$$
$$\frac{1}{6 b^3 d^2 f^4 (2-m) (3-m)} (b c-a d)^2 \left(3 a^2 b d^2 f^2 (d e-c f (3-m)) (1-m) m+a^3 d^3 f^3 m \left(2-3 m+m^2\right)+\right.$$
$$\left.3 a b^2 d f m \left(2 d^2 e^2-2 c d e f (3-m)+c^2 f^2 \left(6-5 m+m^2\right)\right)-b^3 \left(6 d^3 e^3-6 c d^2 e^2 f (3-m)+3 c^2 d e f^2 \left(6-5 m+m^2\right)-c^3 f^3 \left(6-11 m+6 m^2-m^3\right)\right)\right)$$
$$(a+b x)^{-2+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[-3+m,-2+m,-1+m,-\frac{d (a+b x)}{b c-a d}\right]$$

Result (type 6, 303 leaves):

$$-\left(\left((b c-a d)(b e-a f)^2(2+m)(a+b x)^{1+m}(c+d x)^{3-m}\text{AppellF1}\left[1+m,-3+m,1,2+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]\right)\Big/\left(b(-b e+a f)(1+m)(e+f x)\left((b c-a d)(b e-a f)(2+m)\text{AppellF1}\left[1+m,-3+m,1,2+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]+(a+b x)\left((-b c f+a d f)\text{AppellF1}\left[2+m,-3+m,2,3+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]-d(b e-a f)(-3+m)\text{AppellF1}\left[2+m,-2+m,1,3+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]\right)\right)\right)\right)$$

Problem 3135: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b x)^m(c+d x)^{3-m}}{(e+f x)^2}\,dx$$

Optimal (type 5, 397 leaves, 2 steps):

$$\frac{3 b d(d e-c f)^2(a+b x)^m(c+d x)^{1-m}}{(b c-a d)f^4 m}+\frac{d^2(a+b x)^{1+m}(c+d x)^{1-m}}{2 b f^2}-\frac{(d e-c f)^2(a+b x)^m(c+d x)^{1-m}}{f^3(e+f x)}+\frac{1}{f^4(b e-a f)m}(d e-c f)^2(a d f(3-m)-b(3 d e-c f m))(a+b x)^m(c+d x)^{-m}\text{Hypergeometric2F1}\left[1,m,1+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]+\left(d^2\left(2 a b d f(2 d e-c f(3-m))m+a^2 d^2 f^2(1-m)m-b^2\left(6 d^2 e^2-4 c d e f(3-m)+c^2 f^2\left(6-5 m+m^2\right)\right)\right)(a+b x)^{1+m}(c+d x)^{-m}\left(\frac{b(c+d x)}{b c-a d}\right)^m\text{Hypergeometric2F1}\left[m,1+m,2+m,-\frac{d(a+b x)}{b c-a d}\right]\right)\Big/\left(2 b^2(b c-a d)f^4 m(1+m)\right)$$

Result (type 6, 291 leaves):

$$\left((b c-a d)(b e-a f)(2+m)(a+b x)^{1+m}(c+d x)^{3-m}\text{AppellF1}\left[1+m,-3+m,2,2+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]\right)\Big/\left(b(1+m)(e+f x)^2\left((b c-a d)(b e-a f)(2+m)\text{AppellF1}\left[1+m,-3+m,2,2+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]+(a+b x)\left((-2 b c f+2 a d f)\text{AppellF1}\left[2+m,-3+m,3,3+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]-d(b e-a f)(-3+m)\text{AppellF1}\left[2+m,-2+m,2,3+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3136: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b x)^m (c+d x)^{3-m}}{(e+f x)^3} \, dx$$

Optimal (type 5, 453 leaves, 8 steps):

$$-\frac{3 d^3 (d e-c f) (a+b x)^{1+m} (c+d x)^{-m}}{(b c-a d) f^4 m}-\frac{(d e-c f)^3 (a+b x)^{1+m} (c+d x)^{-m}}{2 f^3 (b e-a f) (e+f x)^2}+$$
$$\frac{(d e-c f)^2 (b (5 d e+c f (1-m))-a d f (6-m)) (a+b x)^{1+m} (c+d x)^{-m}}{2 f^3 (b e-a f)^2 (e+f x)}+\frac{1}{2 f^4 (b e-a f)^2 m}$$
$$(d e-c f) \left(2 a b d f (3-m) (2 d e-c f m)-b^2 \left(6 d^2 e^2-4 c d e f m-c^2 f^2 (1-m) m\right)-a^2 d^2 f^2 \left(6-5 m+m^2\right)\right)$$
$$(a+b x)^m (c+d x)^{-m} \text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b e-a f) (c+d x)}{(d e-c f) (a+b x)}\right]+\frac{1}{b (b c-a d) f^4 m (1+m)}$$
$$d^3 (b (3 d e-c f (3-m))-a d f m) (a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[m,1+m,2+m,-\frac{d (a+b x)}{b c-a d}\right]$$

Result (type 6, 304 leaves):

$$-\left(\left((b c-a d) (b e-a f)^4 (2+m) (a+b x)^{1+m} (c+d x)^{3-m} \text{AppellF1}\left[1+m,-3+m,3,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right/$$
$$\left(b (-b e+a f)^3 (1+m) (e+f x)^3 \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m,-3+m,3,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]+\right.\right.$$
$$(a+b x) \left((-3 b c f+3 a d f) \text{AppellF1}\left[2+m,-3+m,4,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]-\right.$$
$$\left.\left.\left.d (b e-a f) (-3+m) \text{AppellF1}\left[2+m,-2+m,3,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3137: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{1-n} (c+d x)^{1+n}}{b c+a d+2 b d x} \, dx$$

Optimal (type 5, 245 leaves, 6 steps):

$$\frac{(b c-a d)\,(3-2 n)\,(a+b x)^{2-n}\,(c+d x)^{-1+n}}{8 b^3\,(1-n)}+\frac{d\,(a+b x)^{3-n}\,(c+d x)^{-1+n}}{4 b^3}+$$
$$\frac{(b c-a d)^2\,(a+b x)^{1-n}\,(c+d x)^{-1+n}\,\text{Hypergeometric2F1}\left[1,-1+n,n,-\frac{b (c+d x)}{d (a+b x)}\right]}{8 b^3 d\,(1-n)}-$$
$$\frac{(b c-a d)^2\,(1-2 n^2)\,(a+b x)^{-n}\,\left(-\frac{d (a+b x)}{b c-a d}\right)^n\,(c+d x)^n\,\text{Hypergeometric2F1}\left[-1+n,n,1+n,\frac{b (c+d x)}{b c-a d}\right]}{8 b^2 d^2\,(1-n)\,n}$$

Result (type 6, 1073 leaves) :

$$\frac{1}{4}\,(a+b x)^{-n}\,(c+d x)^n\,\Bigg(\left(3 a c x^2\,\text{AppellF1}\left[2,n,-n,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/$$
$$\left(3 a c\,\text{AppellF1}\left[2,n,-n,3,-\frac{b x}{a},-\frac{d x}{c}\right]+n x\left(a d\,\text{AppellF1}\left[3,n,1-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]-b c\,\text{AppellF1}\left[3,1+n,-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\right)+$$
$$\left(2 a c\,(b c-a d)\,(-2+n)\,(a+b x)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{d (a+b x)}{-b c+a d},\frac{2 d (a+b x)}{-b c+a d}\right]\right)\Big/$$
$$\Bigg(b\,(-1+n)\,(a d+b\,(c+2 d x))\,\Bigg(-(b c-a d)\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{d (a+b x)}{-b c+a d},\frac{2 d (a+b x)}{-b c+a d}\right]+$$
$$d\,(a+b x)\left(n\,\text{AppellF1}\left[2-n,1-n,1,3-n,\frac{d (a+b x)}{-b c+a d},\frac{2 d (a+b x)}{-b c+a d}\right]-2\,\text{AppellF1}\left[2-n,-n,2,3-n,\frac{d (a+b x)}{-b c+a d},\frac{2 d (a+b x)}{-b c+a d}\right]\right)\Bigg)\Bigg)-$$
$$\left(c^2\,(b c-a d)\,(-2+n)\,(a+b x)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{d (a+b x)}{-b c+a d},\frac{2 d (a+b x)}{-b c+a d}\right]\right)\Big/$$
$$\Bigg(d\,(-1+n)\,(a d+b\,(c+2 d x))\,\Bigg(-(b c-a d)\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{d (a+b x)}{-b c+a d},\frac{2 d (a+b x)}{-b c+a d}\right]+$$
$$d\,(a+b x)\left(n\,\text{AppellF1}\left[2-n,1-n,1,3-n,\frac{d (a+b x)}{-b c+a d},\frac{2 d (a+b x)}{-b c+a d}\right]-2\,\text{AppellF1}\left[2-n,-n,2,3-n,\frac{d (a+b x)}{-b c+a d},\frac{2 d (a+b x)}{-b c+a d}\right]\right)\Bigg)\Bigg)+$$
$$\left(a^2 d\,(-b c+a d)\,(-2+n)\,(a+b x)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{d (a+b x)}{-b c+a d},\frac{2 d (a+b x)}{-b c+a d}\right]\right)\Big/$$
$$\Bigg(b^2\,(-1+n)\,(a d+b\,(c+2 d x))\,\Bigg(-(b c-a d)\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{d (a+b x)}{-b c+a d},\frac{2 d (a+b x)}{-b c+a d}\right]+$$
$$d\,(a+b x)\left(n\,\text{AppellF1}\left[2-n,1-n,1,3-n,\frac{d (a+b x)}{-b c+a d},\frac{2 d (a+b x)}{-b c+a d}\right]-2\,\text{AppellF1}\left[2-n,-n,2,3-n,\frac{d (a+b x)}{-b c+a d},\frac{2 d (a+b x)}{-b c+a d}\right]\right)\Bigg)\Bigg)+$$
$$\frac{c\left(\frac{d (a+b x)}{-b c+a d}\right)^n (c+d x)\,\text{Hypergeometric2F1}\left[n,1+n,2+n,\frac{b (c+d x)}{b c-a d}\right]}{d^2\,(1+n)}+\frac{a\left(\frac{d (a+b x)}{-b c+a d}\right)^n (c+d x)\,\text{Hypergeometric2F1}\left[n,1+n,2+n,\frac{b (c+d x)}{b c-a d}\right]}{b d\,(1+n)}\Bigg)$$

Problem 3138: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{1-n} (c+d x)^{1+n}}{(b c+a d+2 b d x)^2} \, dx$$

Optimal (type 5, 154 leaves, 4 steps):

$$-\frac{(b c-a d) (a+b x)^{1-n} (c+d x)^{-1+n} \text{Hypergeometric2F1}\left[2, 1-n, 2-n, -\frac{d (a+b x)}{b (c+d x)}\right]}{4 b^3 d (1-n)}+\frac{(a+b x)^{-n} \left(-\frac{d (a+b x)}{b c-a d}\right)^n (c+d x)^{1+n} \text{Hypergeometric2F1}\left[n, 1+n, 2+n, \frac{b (c+d x)}{b c-a d}\right]}{4 b d^2 (1+n)}$$

Result (type 6, 904 leaves):

$$\Bigg(\Bigg((a+b x)^{-n} (c+d x)^n \Bigg(-b^2 c^2 (-1+n) \text{AppellF1}\left[1, -n, n, 2, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]+2 a b c d (-1+n) \text{AppellF1}\left[1, -n, n, 2, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]-a^2 d^2 (-1+n) \text{AppellF1}\left[1, -n, n, 2, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]+a d \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} \left(2 (a d+b (c+2 d x)) \text{AppellF1}\left[1, -n, n, 2, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]+(b c-a d) n \left(\text{AppellF1}\left[2, 1-n, n, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]+\text{AppellF1}\left[2, -n, 1+n, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right) \text{Hypergeometric2F1}\left[1-n, -n, 2-n, \frac{d (a+b x)}{-b c+a d}\right]+b d x \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} \left(2 (a d+b (c+2 d x)) \text{AppellF1}\left[1, -n, n, 2, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]+(b c-a d) n \left(\text{AppellF1}\left[2, 1-n, n, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]+\text{AppellF1}\left[2, -n, 1+n, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right) \text{Hypergeometric2F1}\left[1-n, -n, 2-n, \frac{d (a+b x)}{-b c+a d}\right]\Bigg)\Bigg) \Bigg/ \left(4 b^2 d^2 (1-n)\right.$$

$$\left(2 (a d+b (c+2 d x)) \text{AppellF1}\left[1, -n, n, 2, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]+(b c-a d) n \left(\text{AppellF1}\left[2, 1-n, n, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]+\text{AppellF1}\left[2, -n, 1+n, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right)\Bigg)$$

Problem 3139: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{1-n} (c+d x)^{1+n}}{(b c+a d+2 b d x)^3} \, dx$$

Optimal (type 5, 230 leaves, 7 steps):

$$-\frac{(b c-a d) (a+b x)^{1-n} (c+d x)^n}{8 b^2 d (b c+a d+2 b d x)^2}-\frac{(1+2 n) (a+b x)^{1-n} (c+d x)^n}{8 b^2 d (b c+a d+2 b d x)}-\frac{\left(1-2 n^2\right) (a+b x)^{-n} (c+d x)^n \text{Hypergeometric2F1}\left[1,n,1+n,-\frac{b (c+d x)}{d (a+b x)}\right]}{8 b^2 d^2 n}+\frac{(a+b x)^{-n} \left(-\frac{d (a+b x)}{b c-a d}\right)^n (c+d x)^n \text{Hypergeometric2F1}\left[n,n,1+n,\frac{b (c+d x)}{b c-a d}\right]}{8 b^2 d^2 n}$$

Result (type 6, 1027 leaves):

$$\frac{1}{16\left(a d+b\left(c+2 d x\right)\right)}\left(a+b x\right)^{-n}\left(c+d x\right)^{n}\left(\left(3 a^2 \text{AppellF1}\left[2,-n,n,3,\frac{-b c+a d}{a d+b\left(c+2 d x\right)},\frac{b c-a d}{b c+a d+2 b d x}\right]\right)\Big/\right.$$
$$\left(b^2\left(3\left(a d+b\left(c+2 d x\right)\right)\text{AppellF1}\left[2,-n,n,3,\frac{-b c+a d}{a d+b\left(c+2 d x\right)},\frac{b c-a d}{b c+a d+2 b d x}\right]+\left(b c-a d\right) n\right.\right.$$
$$\left.\left.\left(\text{AppellF1}\left[3,1-n,n,4,\frac{-b c+a d}{a d+b\left(c+2 d x\right)},\frac{b c-a d}{b c+a d+2 b d x}\right]+\text{AppellF1}\left[3,-n,1+n,4,\frac{-b c+a d}{a d+b\left(c+2 d x\right)},\frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right)\right)+$$
$$\left(3 c^2 \text{AppellF1}\left[2,-n,n,3,\frac{-b c+a d}{a d+b\left(c+2 d x\right)},\frac{b c-a d}{b c+a d+2 b d x}\right]\right)\Big/$$
$$\left(d^2\left(3\left(a d+b\left(c+2 d x\right)\right)\text{AppellF1}\left[2,-n,n,3,\frac{-b c+a d}{a d+b\left(c+2 d x\right)},\frac{b c-a d}{b c+a d+2 b d x}\right]+\left(b c-a d\right) n\right.\right.$$
$$\left.\left.\left(\text{AppellF1}\left[3,1-n,n,4,\frac{-b c+a d}{a d+b\left(c+2 d x\right)},\frac{b c-a d}{b c+a d+2 b d x}\right]+\text{AppellF1}\left[3,-n,1+n,4,\frac{-b c+a d}{a d+b\left(c+2 d x\right)},\frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right)\right)-$$
$$\left(6 a c \text{AppellF1}\left[2,-n,n,3,\frac{-b c+a d}{a d+b\left(c+2 d x\right)},\frac{b c-a d}{b c+a d+2 b d x}\right]\right)\Big/$$
$$\left(b d\left(3\left(a d+b\left(c+2 d x\right)\right)\text{AppellF1}\left[2,-n,n,3,\frac{-b c+a d}{a d+b\left(c+2 d x\right)},\frac{b c-a d}{b c+a d+2 b d x}\right]+\left(b c-a d\right) n\right.\right.$$
$$\left.\left.\left(\text{AppellF1}\left[3,1-n,n,4,\frac{-b c+a d}{a d+b\left(c+2 d x\right)},\frac{b c-a d}{b c+a d+2 b d x}\right]+\text{AppellF1}\left[3,-n,1+n,4,\frac{-b c+a d}{a d+b\left(c+2 d x\right)},\frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right)\right)+$$
$$\left(4\left(b c-a d\right)\left(2+n\right)\left(c+d x\right)\text{AppellF1}\left[1+n,n,1,2+n,\frac{b\left(c+d x\right)}{b c-a d},\frac{2 b\left(c+d x\right)}{b c-a d}\right]\right)\Big/$$
$$\left(b d^2\left(1+n\right)\left(\left(b c-a d\right)\left(2+n\right)\text{AppellF1}\left[1+n,n,1,2+n,\frac{b\left(c+d x\right)}{b c-a d},\frac{2 b\left(c+d x\right)}{b c-a d}\right]+\right.\right.$$
$$\left.\left.\left.b\left(c+d x\right)\left(2 \text{AppellF1}\left[2+n,n,2,3+n,\frac{b\left(c+d x\right)}{b c-a d},\frac{2 b\left(c+d x\right)}{b c-a d}\right]+n \text{AppellF1}\left[2+n,1+n,1,3+n,\frac{b\left(c+d x\right)}{b c-a d},\frac{2 b\left(c+d x\right)}{b c-a d}\right]\right)\right)\right)\right)$$

Problem 3140: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\left(a+b x\right)^{1-n}\left(c+d x\right)^{1+n}}{\left(b c+a d+2 b d x\right)^4}\,dx$$

Optimal (type 5, 71 leaves, 1 step):

$$\frac{\left(a+b x\right)^{2-n}\left(c+d x\right)^{-2+n}\text{Hypergeometric2F1}\left[4,2-n,3-n,-\frac{d\left(a+b x\right)}{b\left(c+d x\right)}\right]}{b^4\left(b c-a d\right)\left(2-n\right)}$$

Result (type 6, 543 leaves):

$$\frac{1}{12\,b^2\,d^2}(a+b\,x)^{-n}\,(c+d\,x)^n\left(-\left(\left(3\,\text{AppellF1}\left[1,\,-n,\,n,\,2,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]\right)\Big/\left(2\,(a\,d+b\,(c+2\,d\,x))\,\text{AppellF1}\left[1,\,-n,\,n,\,2,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]+(b\,c-a\,d)\,n\left(\text{AppellF1}\left[2,\,1-n,\,n,\,3,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]+\text{AppellF1}\left[2,\,-n,\,1+n,\,3,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]\right)\right)\right)+\left(2\,(b\,c-a\,d)^2\,\text{AppellF1}\left[3,\,-n,\,n,\,4,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]\right)\Big/\left((a\,d+b\,(c+2\,d\,x))^2\left(4\,(a\,d+b\,(c+2\,d\,x))\,\text{AppellF1}\left[3,\,-n,\,n,\,4,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]+(b\,c-a\,d)\,n\left(\text{AppellF1}\left[4,\,1-n,\,n,\,5,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]+\text{AppellF1}\left[4,\,-n,\,1+n,\,5,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]\right)\right)\right)\right)$$

Problem 3141: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b\,x)^m\,(c+d\,x)^{2-m}}{b\,c+a\,d+2\,b\,d\,x}\,dx$$

Optimal (type 5, 231 leaves, 6 steps):

$$\frac{(b\,c-a\,d)\,(1+2\,m)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m}}{8\,b^3\,m}+\frac{d\,(a+b\,x)^{2+m}\,(c+d\,x)^{-m}}{4\,b^3}+\frac{(b\,c-a\,d)^2\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{Hypergeometric2F1}\left[1,\,-m,\,1-m,\,-\frac{b\,(c+d\,x)}{d\,(a+b\,x)}\right]}{8\,b^3\,d\,m}-\frac{(b\,c-a\,d)\,\left(1-4\,m+2\,m^2\right)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m}\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^m\,\text{Hypergeometric2F1}\left[m,\,1+m,\,2+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]}{8\,b^3\,m\,(1+m)}$$

Result (type 6, 269 leaves):

$$-\left(\left((b\,c-a\,d)\,(2+m)\,(a+b\,x)^{1+m}\,(c+d\,x)^{2-m}\,\text{AppellF1}\left[1+m,\,-2+m,\,1,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{2\,d\,(a+b\,x)}{-b\,c+a\,d}\right]\right)\Big/\left(b\,(1+m)\,(a\,d+b\,(c+2\,d\,x))\left(-(b\,c-a\,d)\,(2+m)\,\text{AppellF1}\left[1+m,\,-2+m,\,1,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{2\,d\,(a+b\,x)}{-b\,c+a\,d}\right]+d\,(a+b\,x)\left(2\,\text{AppellF1}\left[2+m,\,-2+m,\,2,\,3+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{2\,d\,(a+b\,x)}{-b\,c+a\,d}\right]+(-2+m)\,\text{AppellF1}\left[2+m,\,-1+m,\,1,\,3+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{2\,d\,(a+b\,x)}{-b\,c+a\,d}\right]\right)\right)\right)\right)$$

Problem 3142: Result unnecessarily involves higher level functions and more than twice size of optimal

antiderivative.

$$\int \frac{(a+b\,x)^m\,(c+d\,x)^{2-m}}{(b\,c+a\,d+2\,b\,d\,x)^2}\,dx$$

Optimal (type 5, 144 leaves, 4 steps):

$$-\frac{(b\,c-a\,d)\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{Hypergeometric2F1}\left[2,\,m,\,1+m,\,-\frac{d\,(a+b\,x)}{b\,(c+d\,x)}\right]}{4\,b^3\,d\,m}+\frac{(b\,c-a\,d)\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^m\,\text{Hypergeometric2F1}\left[-1+m,\,m,\,1+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]}{4\,b^3\,d\,m}$$

Result (type 6, 1377 leaves):

$$\frac{1}{4\,b^3}\,(a+b\,x)^m\,(c+d\,x)^{-m}\left(\left(2\,a\,b\,c\,\text{AppellF1}\left[1,\,m,\,-m,\,2,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]\right)\Big/\right.$$

$$\left(2\,(a\,d+b\,(c+2\,d\,x))\,\text{AppellF1}\left[1,\,m,\,-m,\,2,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]-(b\,c-a\,d)\,m\right.$$

$$\left.\left(\text{AppellF1}\left[2,\,m,\,1-m,\,3,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]+\text{AppellF1}\left[2,\,1+m,\,-m,\,3,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]\right)\right)-$$

$$\left(b^2\,c^2\,\text{AppellF1}\left[1,\,m,\,-m,\,2,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]\right)\Big/$$

$$\left(d\,\left(2\,(a\,d+b\,(c+2\,d\,x))\,\text{AppellF1}\left[1,\,m,\,-m,\,2,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]-(b\,c-a\,d)\,m\right.\right.$$

$$\left.\left.\left(\text{AppellF1}\left[2,\,m,\,1-m,\,3,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]+\text{AppellF1}\left[2,\,1+m,\,-m,\,3,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]\right)\right)\right)-$$

$$\left(a^2\,d\,\text{AppellF1}\left[1,\,m,\,-m,\,2,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]\right)\Big/$$

$$\left(2\,(a\,d+b\,(c+2\,d\,x))\,\text{AppellF1}\left[1,\,m,\,-m,\,2,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]-(b\,c-a\,d)\,m\right.$$

$$\left.\left(\text{AppellF1}\left[2,\,m,\,1-m,\,3,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]+\text{AppellF1}\left[2,\,1+m,\,-m,\,3,\,\frac{-b\,c+a\,d}{a\,d+b\,(c+2\,d\,x)},\,\frac{b\,c-a\,d}{b\,c+a\,d+2\,b\,d\,x}\right]\right)\right)-$$

$$\left(2\,b^2\,c\,(b\,c-a\,d)\,(-2+m)\,(c+d\,x)\,\text{AppellF1}\left[1-m,\,-m,\,1,\,2-m,\,\frac{b\,(c+d\,x)}{b\,c-a\,d},\,\frac{2\,b\,(c+d\,x)}{b\,c-a\,d}\right]\right)\Big/$$

$$\left(d\,(-1+m)\,(a\,d+b\,(c+2\,d\,x))\,\left((b\,c-a\,d)\,(-2+m)\,\text{AppellF1}\left[1-m,\,-m,\,1,\,2-m,\,\frac{b\,(c+d\,x)}{b\,c-a\,d},\,\frac{2\,b\,(c+d\,x)}{b\,c-a\,d}\right]+\right.\right.$$

$$\left.\left.b\,(c+d\,x)\,\left(m\,\text{AppellF1}\left[2-m,\,1-m,\,1,\,3-m,\,\frac{b\,(c+d\,x)}{b\,c-a\,d},\,\frac{2\,b\,(c+d\,x)}{b\,c-a\,d}\right]-2\,\text{AppellF1}\left[2-m,\,-m,\,2,\,3-m,\,\frac{b\,(c+d\,x)}{b\,c-a\,d},\,\frac{2\,b\,(c+d\,x)}{b\,c-a\,d}\right]\right)\right)\right)-$$

$$\left(2\,a\,b\,(-b\,c+a\,d)\,(-2+m)\,(c+d\,x)\,\text{AppellF1}\left[1-m,\,-m,\,1,\,2-m,\,\frac{b\,(c+d\,x)}{b\,c-a\,d},\,\frac{2\,b\,(c+d\,x)}{b\,c-a\,d}\right]\right)\Big/$$

$$\left((-1+m)\,(a\,d+b\,(c+2\,d\,x))\,\left((b\,c-a\,d)\,(-2+m)\,\text{AppellF1}\left[1-m,\,-m,\,1,\,2-m,\,\frac{b\,(c+d\,x)}{b\,c-a\,d},\,\frac{2\,b\,(c+d\,x)}{b\,c-a\,d}\right]+\right.\right.$$

$$\left.\left.b\,(c+d\,x)\,\left(m\,\text{AppellF1}\left[2-m,\,1-m,\,1,\,3-m,\,\frac{b\,(c+d\,x)}{b\,c-a\,d},\,\frac{2\,b\,(c+d\,x)}{b\,c-a\,d}\right]-2\,\text{AppellF1}\left[2-m,\,-m,\,2,\,3-m,\,\frac{b\,(c+d\,x)}{b\,c-a\,d},\,\frac{2\,b\,(c+d\,x)}{b\,c-a\,d}\right]\right)\right)\right)+$$

$$\left.\frac{(a+b\,x)\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^m\,\text{Hypergeometric2F1}\left[m,\,1+m,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right]}{1+m}\right)$$

Problem 3143: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{2-m}}{(b c+a d+2 b d x)^3} \, dx$$

Optimal (type 5, 261 leaves, 7 steps):

$$\frac{(b c-a d) (a+b x)^{-1+m} (c+d x)^{2-m}}{8 b d^2 (b c+a d+2 b d x)^2}+\frac{(1-2 m) (a+b x)^{-1+m} (c+d x)^{2-m}}{8 b d^2 (b c+a d+2 b d x)}-$$
$$\frac{\left(1-4 m+2 m^2\right) (a+b x)^{-1+m} (c+d x)^{1-m} \text{Hypergeometric2F1}\left[1,-1+m,m,-\frac{d (a+b x)}{b (c+d x)}\right]}{8 b^2 d^2 (1-m)}-$$
$$\frac{(b c-a d) (a+b x)^{-1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[-1+m,-1+m,m,-\frac{d (a+b x)}{b c-a d}\right]}{8 b^3 d^2 (1-m)}$$

Result (type 6, 1593 leaves):

$$\frac{1}{16 b^3}(a+b x)^m (c+d x)^{-m} \left(\left(8 a \text{AppellF1}\left[1,m,-m,2,\frac{-b c+a d}{a d+b (c+2 d x)},\frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right/$$
$$\left(2 (a d+b (c+2 d x)) \text{AppellF1}\left[1,m,-m,2,\frac{-b c+a d}{a d+b (c+2 d x)},\frac{b c-a d}{b c+a d+2 b d x}\right]-(b c-a d) m\right.$$
$$\left.\left(\text{AppellF1}\left[2,m,1-m,3,\frac{-b c+a d}{a d+b (c+2 d x)},\frac{b c-a d}{b c+a d+2 b d x}\right]+\text{AppellF1}\left[2,1+m,-m,3,\frac{-b c+a d}{a d+b (c+2 d x)},\frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right)-$$
$$\left(8 b c \text{AppellF1}\left[1,m,-m,2,\frac{-b c+a d}{a d+b (c+2 d x)},\frac{b c-a d}{b c+a d+2 b d x}\right]\right)\Big/$$
$$\left(d \left(2 (a d+b (c+2 d x)) \text{AppellF1}\left[1,m,-m,2,\frac{-b c+a d}{a d+b (c+2 d x)},\frac{b c-a d}{b c+a d+2 b d x}\right]-(b c-a d) m\right.\right.$$
$$\left.\left.\left(\text{AppellF1}\left[2,m,1-m,3,\frac{-b c+a d}{a d+b (c+2 d x)},\frac{b c-a d}{b c+a d+2 b d x}\right]+\text{AppellF1}\left[2,1+m,-m,3,\frac{-b c+a d}{a d+b (c+2 d x)},\frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right)\right)+$$
$$\left(6 a b c \text{AppellF1}\left[2,m,-m,3,\frac{-b c+a d}{a d+b (c+2 d x)},\frac{b c-a d}{b c+a d+2 b d x}\right]\right)\Big/\left((a d+b (c+2 d x))\right.$$
$$\left(3 (a d+b (c+2 d x)) \text{AppellF1}\left[2,m,-m,3,\frac{-b c+a d}{a d+b (c+2 d x)},\frac{b c-a d}{b c+a d+2 b d x}\right]-(b c-a d) m\right.$$
$$\left.\left.\left(\text{AppellF1}\left[3,m,1-m,4,\frac{-b c+a d}{a d+b (c+2 d x)},\frac{b c-a d}{b c+a d+2 b d x}\right]+\text{AppellF1}\left[3,1+m,-m,4,\frac{-b c+a d}{a d+b (c+2 d x)},\frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right)\right)-$$

$$\left(3 b^2 c^2 \text{AppellF1}\left[2, m, -m, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right) \Big/ \left(d (a d+b (c+2 d x)) \left(3 (a d+b (c+2 d x)) \text{AppellF1}\left[2, m, -m, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right] - (b c-a d) m \left(\text{AppellF1}\left[3, m, 1-m, 4, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right] + \text{AppellF1}\left[3, 1+m, -m, 4, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right)\right) -$$

$$\left(3 a^2 d \text{AppellF1}\left[2, m, -m, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right) \Big/ \left((a d+b (c+2 d x)) \left(3 (a d+b (c+2 d x)) \text{AppellF1}\left[2, m, -m, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right] - (b c-a d) m \left(\text{AppellF1}\left[3, m, 1-m, 4, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right] + \text{AppellF1}\left[3, 1+m, -m, 4, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right)\right) +$$

$$\left(4 b (-b c+a d) (-2+m) (c+d x) \text{AppellF1}\left[1-m, -m, 1, 2-m, \frac{b (c+d x)}{b c-a d}, \frac{2 b (c+d x)}{b c-a d}\right]\right) \Big/ \left(d (-1+m) (a d+b (c+2 d x)) \left((b c-a d) (-2+m) \text{AppellF1}\left[1-m, -m, 1, 2-m, \frac{b (c+d x)}{b c-a d}, \frac{2 b (c+d x)}{b c-a d}\right] + b (c+d x) \left(m \text{AppellF1}\left[2-m, 1-m, 1, 3-m, \frac{b (c+d x)}{b c-a d}, \frac{2 b (c+d x)}{b c-a d}\right] - 2 \text{AppellF1}\left[2-m, -m, 2, 3-m, \frac{b (c+d x)}{b c-a d}, \frac{2 b (c+d x)}{b c-a d}\right]\right)\right)\right)$$

Problem 3144: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^{2-m}}{(b c+a d+2 b d x)^4} \, dx$$

Optimal (type 5, 65 leaves, 1 step):

$$\frac{(a+b x)^{1+m} (c+d x)^{-1-m} \text{Hypergeometric2F1}\left[4, 1+m, 2+m, -\frac{d (a+b x)}{b (c+d x)}\right]}{b^4 (b c-a d) (1+m)}$$

Result (type 6, 812 leaves):

$$\frac{1}{24 b^3 d} (a+b x)^m (c+d x)^{-m} \left(-\left(\left(6\,\text{AppellF1}\left[1, m, -m, 2, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right) \middle/ \left(2 (a d+b (c+2 d x))\,\text{AppellF1}\left[1, m, -m, 2, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right] - (b c-a d)\, m \left(\text{AppellF1}\left[2, m, 1-m, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right] + \text{AppellF1}\left[2, 1+m, -m, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right)\right) + \frac{1}{(a d+b (c+2 d x))^2} (b c-a d) \left(-\left(\left(9 (a d+b (c+2 d x))\,\text{AppellF1}\left[2, m, -m, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right) \middle/ \left(3 (a d+b (c+2 d x))\,\text{AppellF1}\left[2, m, -m, 3, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right] - (b c-a d)\, m \left(\text{AppellF1}\left[3, m, 1-m, 4, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right] + \text{AppellF1}\left[3, 1+m, -m, 4, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right)\right) - \left(4 (b c-a d)\,\text{AppellF1}\left[3, m, -m, 4, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right) \middle/ \left(4 (a d+b (c+2 d x))\,\text{AppellF1}\left[3, m, -m, 4, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right] - (b c-a d)\, m \left(\text{AppellF1}\left[4, m, 1-m, 5, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right] + \text{AppellF1}\left[4, 1+m, -m, 5, \frac{-b c+a d}{a d+b (c+2 d x)}, \frac{b c-a d}{b c+a d+2 b d x}\right]\right)\right)\right)\right)$$

Problem 3145: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{-m-n} (e+f x)^{n+p}\, dx$$

Optimal (type 6, 139 leaves, 3 steps):

$$\frac{1}{b (1+m)} (a+b x)^{1+m} (c+d x)^{-m-n} \left(\frac{b (c+d x)}{b c-a d}\right)^{m+n} (e+f x)^{n+p} \left(\frac{b (e+f x)}{b e-a f}\right)^{-n-p} \text{AppellF1}\left[1+m, m+n, -n-p, 2+m, -\frac{d (a+b x)}{b c-a d}, -\frac{f (a+b x)}{b e-a f}\right]$$

Result (type 6, 323 leaves):

$$\left((b c-a d) (b e-a f) (2+m) (a+b x)^{1+m} (c+d x)^{-m-n} (e+f x)^{n+p} \text{AppellF1}\left[1+m, m+n, -n-p, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right) \Big/ \left(b (1+m) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m, m+n, -n-p, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right] - (a+b x) \left(-(b c-a d) f (n+p) \text{AppellF1}\left[2+m, m+n, 1-n-p, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right] + d (b e-a f) (m+n) \text{AppellF1}\left[2+m, 1+m+n, -n-p, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3146: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{-m-n} (e+f x)^{1+n} \, dx$$

Optimal (type 6, 139 leaves, 3 steps):

$$\frac{1}{b^2 (1+m)} (b e-a f) (a+b x)^{1+m} (c+d x)^{-m-n} \left(\frac{b (c+d x)}{b c-a d}\right)^{m+n} (e+f x)^n \left(\frac{b (e+f x)}{b e-a f}\right)^{-n} \text{AppellF1}\left[1+m, m+n, -1-n, 2+m, -\frac{d (a+b x)}{b c-a d}, -\frac{f (a+b x)}{b e-a f}\right]$$

Result (type 6, 312 leaves):

$$\left((b c-a d) (b e-a f) (2+m) (a+b x)^{1+m} (c+d x)^{-m-n} (e+f x)^{1+n} \text{AppellF1}\left[1+m, m+n, -1-n, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right) \Big/ \left(b (1+m) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m, m+n, -1-n, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right] - (a+b x) \left(-(b c-a d) f (1+n) \text{AppellF1}\left[2+m, m+n, -n, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right] + d (b e-a f) (m+n) \text{AppellF1}\left[2+m, 1+m+n, -1-n, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3147: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{-m-n} (e+f x)^n \, dx$$

Optimal (type 6, 129 leaves, 3 steps):

$$\frac{1}{b\,(1+m)}(a+b\,x)^{1+m}\,(c+d\,x)^{-m-n}\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{m+n}(e+f\,x)^{n}\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-n}\text{AppellF1}\left[1+m,\,m+n,\,-n,\,2+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d},\,-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]$$

Result (type 6, 303 leaves):

$$\left((b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m-n}\,(e+f\,x)^{n}\,\text{AppellF1}\left[1+m,\,m+n,\,-n,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\Big/ \left(b\,(1+m)\,\left((b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,\text{AppellF1}\left[1+m,\,m+n,\,-n,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]-(a+b\,x)\,\left((-b\,c+a\,d)\,f\,n\,\text{AppellF1}\left[2+m,\,m+n,\,1-n,\,3+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+d\,(b\,e-a\,f)\,(m+n)\,\text{AppellF1}\left[2+m,\,1+m+n,\,-n,\,3+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\right)\right)$$

Problem 3148: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^{m}\,(c+d\,x)^{-m-n}\,(e+f\,x)^{-1+n}\,dx$$

Optimal (type 6, 138 leaves, 3 steps):

$$\frac{1}{(b\,e-a\,f)\,(1+m)}(a+b\,x)^{1+m}\,(c+d\,x)^{-m-n}\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{m+n}(e+f\,x)^{n}\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-n}\text{AppellF1}\left[1+m,\,m+n,\,1-n,\,2+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d},\,-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]$$

Result (type 6, 315 leaves):

$$-\left(\left((b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m-n}\,(e+f\,x)^{-1+n}\,\text{AppellF1}\left[1+m,\,m+n,\,1-n,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\Big/ \left(b\,(1+m)\,\left(-(b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,\text{AppellF1}\left[1+m,\,m+n,\,1-n,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+(a+b\,x)\,\left(-(b\,c-a\,d)\,f\,(-1+n)\,\text{AppellF1}\left[2+m,\,m+n,\,2-n,\,3+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+d\,(b\,e-a\,f)\,(m+n)\,\text{AppellF1}\left[2+m,\,1+m+n,\,1-n,\,3+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\right)\right)\right)$$

Problem 3150: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^{m}\,(c+d\,x)^{-m-n}\,(e+f\,x)^{-3+n}\,dx$$

Optimal (type 5, 237 leaves, 2 steps):

$$-\frac{f (a+b x)^{1+m} (c+d x)^{1-m-n} (e+f x)^{-2+n}}{(b e-a f) (d e-c f) (2-n)}-\left((a d f (1+m)-b (d e (2-n)-c f (1-m-n))) (a+b x)^{1+m} (c+d x)^{-m-n} \left(\frac{(b e-a f) (c+d x)}{(b c-a d) (e+f x)}\right)^{m+n} (e+f x)^{-1+n} \text{Hypergeometric2F1}\left[1+m, m+n, 2+m, -\frac{(d e-c f) (a+b x)}{(b c-a d) (e+f x)}\right]\right) \Big/ \left((b e-a f)^2 (d e-c f) (1+m) (2-n)\right)$$

Result (type 5, 5197 leaves):

$$\Bigg((a+b x)^{1+2 m} (c+d x)^{-2 m-2 n} \left(\frac{-b c-b d x}{-b c+a d}\right)^{m+n} (e+f x)^{-6+2 n} \left(\frac{-b e-b f x}{-b e+a f}\right)^{3-n} \left(1-\frac{d (a+b x)}{-b c+a d}\right)^{-m-n} \left(1-\frac{f (a+b x)}{-b e+a f}\right)^{-2+n} \text{Gamma}[2+m] \Bigg(\frac{2 \text{Hypergeometric2F1}\left[1, m+n, 3+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{m \text{Hypergeometric2F1}\left[1, m+n, 3+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f (a+b x) \text{Hypergeometric2F1}\left[1, m+n, 3+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) \text{Gamma}[3+m]}+\frac{(d e-c f) (a+b x) \text{Gamma}[1+m+n] \text{Hypergeometric2F1}\left[2, 1+m+n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x) \text{Gamma}[4+m] \text{Gamma}[m+n]}-\frac{f (-d e+c f) (a+b x)^2 \text{Gamma}[1+m+n] \text{Hypergeometric2F1}\left[2, 1+m+n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x) \text{Gamma}[4+m] \text{Gamma}[m+n]}\Bigg)\Bigg) \Big/$$

$$\Bigg(b (1+m) \Bigg(-\frac{1}{(-b e+a f) (1+m)} f (-2+n) (a+b x)^{1+m} (c+d x)^{-m-n} \left(\frac{-b c-b d x}{-b c+a d}\right)^{m+n} (e+f x)^{-3+n} \left(\frac{-b e-b f x}{-b e+a f}\right)^{3-n} \left(1-\frac{d (a+b x)}{-b c+a d}\right)^{-m-n} \left(1-\frac{f (a+b x)}{-b e+a f}\right)^{-3+n} \text{Gamma}[2+m] \Bigg(\frac{2 \text{Hypergeometric2F1}\left[1, m+n, 3+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{m \text{Hypergeometric2F1}\left[1, m+n, 3+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f (a+b x) \text{Hypergeometric2F1}\left[1, m+n, 3+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) \text{Gamma}[3+m]}+\frac{(d e-c f) (a+b x) \text{Gamma}[1+m+n] \text{Hypergeometric2F1}\left[2, 1+m+n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x) \text{Gamma}[4+m] \text{Gamma}[m+n]}-$$

$$\left.\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2,1+m+n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}\right)-$$

$$\frac{1}{(-b\,c+a\,d)\,(1+m)}\,d\,(-m-n)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m-n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{m+n}(e+f\,x)^{-3+n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3-n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-1-m-n}$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2+n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2,1+m+n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}-$$

$$\left.\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2,1+m+n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}\right)-$$

$$\frac{1}{(-b\,e+a\,f)\,(1+m)}\,f\,(3-n)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m-n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{m+n}(e+f\,x)^{-3+n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{2-n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-m-n}$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2+n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2,1+m+n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}-$$

$$\left.\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2,1+m+n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}\right)+$$

$$\frac{1}{b\,(1+m)}\,f\,(-3+n)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m-n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{m+n}(e+f\,x)^{-4+n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3-n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-m-n}$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2+n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f(a+b x)\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)(a+b x)\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2,1+m+n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}-$$

$$\left.\frac{f(-d e+c f)(a+b x)^2\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2,1+m+n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)^2(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}\right)-$$

$$\frac{1}{(-b c+a d)(1+m)}d\,(m+n)\,(a+b x)^{1+m}(c+d x)^{-m-n}\left(\frac{-b c-b d x}{-b c+a d}\right)^{-1+m+n}(e+f x)^{-3+n}\left(\frac{-b e-b f x}{-b e+a f}\right)^{3-n}\left(1-\frac{d(a+b x)}{-b c+a d}\right)^{-m-n}$$

$$\left(1-\frac{f(a+b x)}{-b e+a f}\right)^{-2+n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f(a+b x)\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)(a+b x)\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2,1+m+n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}-$$

$$\left.\frac{f(-d e+c f)(a+b x)^2\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2,1+m+n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)^2(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}\right)+$$

$$\frac{1}{b(1+m)}d\,(-m-n)\,(a+b x)^{1+m}(c+d x)^{-1-m-n}\left(\frac{-b c-b d x}{-b c+a d}\right)^{m+n}(e+f x)^{-3+n}\left(\frac{-b e-b f x}{-b e+a f}\right)^{3-n}\left(1-\frac{d(a+b x)}{-b c+a d}\right)^{-m-n}$$

$$\left(1-\frac{f(a+b x)}{-b e+a f}\right)^{-2+n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f(a+b x)\,\text{Hypergeometric2F1}\left[1,m+n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)(a+b x)\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2,1+m+n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}-$$

$$\left.\frac{f(-d e+c f)(a+b x)^2\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2,1+m+n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)^2(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}\right)+$$

$$(a+b x)^m (c+d x)^{-m-n} \left(\frac{-b c-b d x}{-b c+a d}\right)^{m+n} (e+f x)^{-3+n} \left(\frac{-b e-b f x}{-b e+a f}\right)^{3-n} \left(1-\frac{d (a+b x)}{-b c+a d}\right)^{-m-n} \left(1-\frac{f (a+b x)}{-b e+a f}\right)^{-2+n}$$

$$\text{Gamma}[2+m] \left(\frac{2\,\text{Hypergeometric2F1}\left[1, m+n, 3+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1, m+n, 3+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f (a+b x)\,\text{Hypergeometric2F1}\left[1, m+n, 3+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d e-c f) (a+b x)\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2, 1+m+n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}-$$

$$\left.\frac{f (-d e+c f) (a+b x)^2\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2, 1+m+n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}\right)+$$

$$\frac{1}{b (1+m)} (a+b x)^{1+m} (c+d x)^{-m-n} \left(\frac{-b c-b d x}{-b c+a d}\right)^{m+n} (e+f x)^{-3+n} \left(\frac{-b e-b f x}{-b e+a f}\right)^{3-n} \left(1-\frac{d (a+b x)}{-b c+a d}\right)^{-m-n}$$

$$\left(1-\frac{f (a+b x)}{-b e+a f}\right)^{-2+n} \text{Gamma}[2+m] \left(\frac{b f\,\text{Hypergeometric2F1}\left[1, m+n, 3+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)\,\text{Gamma}[3+m]}+\right.$$

$$\frac{2 (m+n) \left(-\frac{d (d e-c f) (a+b x)}{(b e-a f) (c+d x)^2}+\frac{b (d e-c f)}{(b e-a f) (c+d x)}\right) \text{Hypergeometric2F1}\left[2, 1+m+n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(3+m)\,\text{Gamma}[3+m]}+$$

$$\frac{m (m+n) \left(-\frac{d (d e-c f) (a+b x)}{(b e-a f) (c+d x)^2}+\frac{b (d e-c f)}{(b e-a f) (c+d x)}\right) \text{Hypergeometric2F1}\left[2, 1+m+n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(3+m)\,\text{Gamma}[3+m]}+$$

$$\left(f (m+n) (a+b x) \left(-\frac{d (d e-c f) (a+b x)}{(b e-a f) (c+d x)^2}+\frac{b (d e-c f)}{(b e-a f) (c+d x)}\right) \text{Hypergeometric2F1}\left[2, 1+m+n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]\right) \Big/$$

$$((b e-a f) (3+m)\,\text{Gamma}[3+m]) - \frac{d (d e-c f) (a+b x)\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2, 1+m+n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)^2\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}+$$

$$\frac{d f (-d e+c f) (a+b x)^2\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2, 1+m+n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)^2\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}+$$

$$\frac{b (d e-c f)\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2, 1+m+n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]}-$$

$$\left(2 b f (-d e+c f) (a+b x)\,\text{Gamma}[1+m+n]\,\text{Hypergeometric2F1}\left[2, 1+m+n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]\right) \Big/ \left((b e-a f)^2 (c+d x)\right.$$

$$\text{Gamma}[4+m]\,\text{Gamma}[m+n]\Big)+\Bigg(2\,(d\,e-c\,f)\,(1+m+n)\,(a+b\,x)\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\text{Gamma}[1+m+n]$$

$$\text{Hypergeometric2F1}\left[3,\,2+m+n,\,5+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\Bigg)\Big/\Big((b\,e-a\,f)\,(4+m)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]\Big)-$$

$$\Bigg(2\,f\,(-d\,e+c\,f)\,(1+m+n)\,(a+b\,x)^2\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\text{Gamma}[1+m+n]$$

$$\text{Hypergeometric2F1}\left[3,\,2+m+n,\,5+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\Bigg)\Big/\Big((b\,e-a\,f)^2\,(4+m)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[m+n]\Big)\Bigg)\Bigg)\Bigg)$$

Problem 3151: Attempted integration timed out after 120 seconds.

$$\int (a+b\,x)^m\,(c+d\,x)^{-m-n}\,(e+f\,x)^{-4+n}\,dx$$

Optimal (type 5, 428 leaves, 4 steps):

$$-\frac{f\,(a+b\,x)^{1+m}\,(c+d\,x)^{1-m-n}\,(e+f\,x)^{-3+n}}{(b\,e-a\,f)\,(d\,e-c\,f)\,(3-n)}+\frac{f\,(a\,d\,f\,(2+m)-b\,(d\,e\,(4-n)-c\,f\,(2-m-n)))\,(a+b\,x)^{1+m}\,(c+d\,x)^{1-m-n}\,(e+f\,x)^{-2+n}}{(b\,e-a\,f)^2\,(d\,e-c\,f)^2\,(2-n)\,(3-n)}+$$

$$\Bigg(\Big(a^2\,d^2\,f^2\,(2+3\,m+m^2)-2\,a\,b\,d\,f\,(1+m)\,(d\,e\,(3-n)-c\,f\,(1-m-n))-$$

$$b^2\,\big(2\,c\,d\,e\,f\,(3-n)\,(1-m-n)-d^2\,e^2\,(6-5\,n+n^2)-c^2\,f^2\,(2+m^2-m\,(3-2\,n)-3\,n+n^2)\big)\Big)\,(a+b\,x)^{1+m}\,(c+d\,x)^{-m-n}\left(\frac{(b\,e-a\,f)\,(c+d\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right)^{m+n}$$

$$(e+f\,x)^{-1+n}\,\text{Hypergeometric2F1}\left[1+m,\,m+n,\,2+m,\,-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right]\Bigg)\Big/\Big((b\,e-a\,f)^3\,(d\,e-c\,f)^2\,(1+m)\,(2-n)\,(3-n)\Big)$$

Result (type 1, 1 leaves):

???

Problem 3152: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b\,x)^m\,(c+d\,x)^n\left(\frac{b\,c\,f+a\,d\,f+a\,d\,f\,m+b\,c\,f\,n}{b\,d\,(2+m+n)}+f\,x\right)^{-3-m-n}\,dx$$

Optimal (type 3, 88 leaves, 1 step):

$$\frac{b\,d\,(2+m+n)\,(a+b\,x)^{1+m}\,(c+d\,x)^{1+n}\left(\frac{f\,(a\,d\,(1+m)+b\,c\,(1+n))}{b\,d\,(2+m+n)}+f\,x\right)^{-2-m-n}}{(b\,c-a\,d)^2\,f\,(1+m)\,(1+n)}$$

Result (type 5, 5681 leaves):

$$\left((a+b\,x)^{1+2\,m}\,(c+d\,x)^{2\,n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}\left(-\frac{-b\,c-a\,d-a\,d\,m-b\,c\,n-2\,b\,d\,x-b\,d\,m\,x-b\,d\,n\,x}{(b\,c-a\,d)\,(1+n)}\right)^{3+m+n}\right.$$
$$(b\,c+a\,d+a\,d\,m+b\,c\,n+2\,b\,d\,x+b\,d\,m\,x+b\,d\,n\,x)^{-3-m-n}\left(\frac{f\,(a\,d\,(1+m)+b\,c\,(1+n)+b\,d\,(2+m+n)\,x)}{b\,d\,(2+m+n)}\right)^{-3-m-n}$$
$$\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{n}\left(1+\frac{d\,(2+m+n)\,(a+b\,x)}{(b\,c-a\,d)\,(1+n)}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$
$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{d\,(2+m+n)\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{(b\,c-a\,d)\,(1+n)\,\text{Gamma}[3+m]}-$$
$$\frac{d\,(1+m)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{b\,(1+n)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$
$$\left.\left.\frac{d^2\,(1+m)\,(2+m+n)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{b\,(b\,c-a\,d)\,(1+n)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)\right)\Big/$$

$$\left(b\,(1+m)\left(\frac{1}{(b\,c-a\,d)\,(1+m)\,(1+n)}d\,(-2-m-n)\,(2+m+n)\,(a+b\,x)^{1+m}\,(c+d\,x)^{n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}\right.\right.$$
$$\left(-\frac{-b\,c-a\,d-a\,d\,m-b\,c\,n-2\,b\,d\,x-b\,d\,m\,x-b\,d\,n\,x}{(b\,c-a\,d)\,(1+n)}\right)^{3+m+n}(b\,c+a\,d+a\,d\,m+b\,c\,n+2\,b\,d\,x+b\,d\,m\,x+b\,d\,n\,x)^{-3-m-n}$$
$$\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{n}\left(1+\frac{d\,(2+m+n)\,(a+b\,x)}{(b\,c-a\,d)\,(1+n)}\right)^{-3-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$
$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{d\,(2+m+n)\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{(b\,c-a\,d)\,(1+n)\,\text{Gamma}[3+m]}-$$
$$\frac{d\,(1+m)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{b\,(1+n)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$
$$\left.\frac{d^2\,(1+m)\,(2+m+n)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{b\,(b\,c-a\,d)\,(1+n)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)-$$

$$\frac{1}{(-b c+a d)\,(1+m)} d\, n\, (a+b x)^{1+m}\, (c+d x)^{n} \left(\frac{-b c-b d x}{-b c+a d}\right)^{-n} \left(-\frac{-b c-a d-a d m-b c n-2 b d x-b d m x-b d n x}{(b c-a d)\,(1+n)}\right)^{3+m+n}$$

$$(b c+a d+a d m+b c n+2 b d x+b d m x+b d n x)^{-3-m-n} \left(1-\frac{d\,(a+b x)}{-b c+a d}\right)^{-1+n} \left(1+\frac{d\,(2+m+n)\,(a+b x)}{(b c-a d)\,(1+n)}\right)^{-2-m-n} \text{Gamma}[2+m]$$

$$\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b x)}{b\,(1+n)\,(c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b x)}{b\,(1+n)\,(c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{d\,(2+m+n)\,(a+b x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b x)}{b\,(1+n)\,(c+d x)}\right]}{(b c-a d)\,(1+n)\,\text{Gamma}[3+m]}-$$

$$\frac{d\,(1+m)\,(a+b x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b x)}{b\,(1+n)\,(c+d x)}\right]}{b\,(1+n)\,(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{d^2\,(1+m)\,(2+m+n)\,(a+b x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b x)}{b\,(1+n)\,(c+d x)}\right]}{b\,(b c-a d)\,(1+n)^2\,(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$\frac{1}{b\,(1+m)} (-3-m-n)\,(2 b d+b d m+b d n)\,(a+b x)^{1+m}\,(c+d x)^{n} \left(\frac{-b c-b d x}{-b c+a d}\right)^{-n} \left(-\frac{-b c-a d-a d m-b c n-2 b d x-b d m x-b d n x}{(b c-a d)\,(1+n)}\right)^{3+m+n}$$

$$(b c+a d+a d m+b c n+2 b d x+b d m x+b d n x)^{-4-m-n} \left(1-\frac{d\,(a+b x)}{-b c+a d}\right)^{n} \left(1+\frac{d\,(2+m+n)\,(a+b x)}{(b c-a d)\,(1+n)}\right)^{-2-m-n} \text{Gamma}[2+m]$$

$$\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b x)}{b\,(1+n)\,(c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b x)}{b\,(1+n)\,(c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{d\,(2+m+n)\,(a+b x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b x)}{b\,(1+n)\,(c+d x)}\right]}{(b c-a d)\,(1+n)\,\text{Gamma}[3+m]}-$$

$$\frac{d\,(1+m)\,(a+b x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b x)}{b\,(1+n)\,(c+d x)}\right]}{b\,(1+n)\,(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{d^2\,(1+m)\,(2+m+n)\,(a+b x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b x)}{b\,(1+n)\,(c+d x)}\right]}{b\,(b c-a d)\,(1+n)^2\,(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)-$$

$$\frac{1}{b\,(b c-a d)\,(1+m)\,(1+n)} (3+m+n)\,(-2 b d-b d m-b d n)\,(a+b x)^{1+m}\,(c+d x)^{n} \left(\frac{-b c-b d x}{-b c+a d}\right)^{-n}$$

$$\left(-\frac{-b c-a d-a d m-b c n-2 b d x-b d m x-b d n x}{(b c-a d)\,(1+n)}\right)^{2+m+n} (b c+a d+a d m+b c n+2 b d x+b d m x+b d n x)^{-3-m-n}$$

$$\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^n\left(1+\frac{d\,(2+m+n)\,(a+b\,x)}{(b\,c-a\,d)\,(1+n)}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{d\,(2+m+n)\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{(b\,c-a\,d)\,(1+n)\,\text{Gamma}[3+m]}-$$

$$\frac{d\,(1+m)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{b\,(1+n)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{d^2\,(1+m)\,(2+m+n)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{b\,(b\,c-a\,d)\,(1+n)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$\frac{1}{(-b\,c+a\,d)\,(1+m)}\,d\,n\,(a+b\,x)^{1+m}\,(c+d\,x)^n\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-1-n}\left(-\frac{-b\,c-a\,d-a\,d\,m-b\,c\,n-2\,b\,d\,x-b\,d\,m\,x-b\,d\,n\,x}{(b\,c-a\,d)\,(1+n)}\right)^{3+m+n}$$

$$(b\,c+a\,d+a\,d\,m+b\,c\,n+2\,b\,d\,x+b\,d\,m\,x+b\,d\,n\,x)^{-3-m-n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^n\left(1+\frac{d\,(2+m+n)\,(a+b\,x)}{(b\,c-a\,d)\,(1+n)}\right)^{-2-m-n}\text{Gamma}[2+m]$$

$$\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{d\,(2+m+n)\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{(b\,c-a\,d)\,(1+n)\,\text{Gamma}[3+m]}-$$

$$\frac{d\,(1+m)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{b\,(1+n)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{d^2\,(1+m)\,(2+m+n)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{b\,(b\,c-a\,d)\,(1+n)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$\frac{1}{b\,(1+m)}\,d\,n\,(a+b\,x)^{1+m}\,(c+d\,x)^{-1+n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}\left(-\frac{-b\,c-a\,d-a\,d\,m-b\,c\,n-2\,b\,d\,x-b\,d\,m\,x-b\,d\,n\,x}{(b\,c-a\,d)\,(1+n)}\right)^{3+m+n}$$

$$(b\,c+a\,d+a\,d\,m+b\,c\,n+2\,b\,d\,x+b\,d\,m\,x+b\,d\,n\,x)^{-3-m-n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^n\left(1+\frac{d\,(2+m+n)\,(a+b\,x)}{(b\,c-a\,d)\,(1+n)}\right)^{-2-m-n}\text{Gamma}[2+m]$$

$$\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{d\,(2+m+n)\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{(b\,c-a\,d)\,(1+n)\,\text{Gamma}[3+m]}-$$

$$\frac{d\,(1+m)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{b\,(1+n)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{d^2\,(1+m)\,(2+m+n)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{b\,(b\,c-a\,d)\,(1+n)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$(a+b\,x)^m\,(c+d\,x)^n\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}\left(-\frac{-b\,c-a\,d-a\,d\,m-b\,c\,n-2\,b\,d\,x-b\,d\,m\,x-b\,d\,n\,x}{(b\,c-a\,d)\,(1+n)}\right)^{3+m+n}$$

$$(b\,c+a\,d+a\,d\,m+b\,c\,n+2\,b\,d\,x+b\,d\,m\,x+b\,d\,n\,x)^{-3-m-n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^n\left(1+\frac{d\,(2+m+n)\,(a+b\,x)}{(b\,c-a\,d)\,(1+n)}\right)^{-2-m-n}\text{Gamma}[2+m]$$

$$\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{d\,(2+m+n)\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{(b\,c-a\,d)\,(1+n)\,\text{Gamma}[3+m]}-$$

$$\frac{d\,(1+m)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{b\,(1+n)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{d^2\,(1+m)\,(2+m+n)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{b\,(b\,c-a\,d)\,(1+n)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$\frac{1}{b\,(1+m)}\,(a+b\,x)^{1+m}\,(c+d\,x)^n\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}\left(-\frac{-b\,c-a\,d-a\,d\,m-b\,c\,n-2\,b\,d\,x-b\,d\,m\,x-b\,d\,n\,x}{(b\,c-a\,d)\,(1+n)}\right)^{3+m+n}$$

$$(b\,c+a\,d+a\,d\,m+b\,c\,n+2\,b\,d\,x+b\,d\,m\,x+b\,d\,n\,x)^{-3-m-n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^n\left(1+\frac{d\,(2+m+n)\,(a+b\,x)}{(b\,c-a\,d)\,(1+n)}\right)^{-2-m-n}$$

$$\text{Gamma}[2+m]\left(\frac{b\,d\,(2+m+n)\,\text{Hypergeometric2F1}\left[1,-n,3+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{(b\,c-a\,d)\,(1+n)\,\text{Gamma}[3+m]}-\right.$$

$$\frac{2\,n\left(\frac{d^2\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)^2}-\frac{d\,(1+m)}{(1+n)\,(c+d\,x)}\right)\text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d\,(1+m)\,(a+b\,x)}{b\,(1+n)\,(c+d\,x)}\right]}{(3+m)\,\text{Gamma}[3+m]}-$$

$$\frac{m\, n \left(\frac{d^2 (1+m) (a+b x)}{b (1+n) (c+d x)^2}-\frac{d (1+m)}{(1+n) (c+d x)}\right) \text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d (1+m) (a+b x)}{b (1+n) (c+d x)}\right]}{(3+m)\, \text{Gamma}[3+m]}-$$

$$\left(d\, n\, (2+m+n) (a+b x) \left(\frac{d^2 (1+m) (a+b x)}{b (1+n) (c+d x)^2}-\frac{d (1+m)}{(1+n) (c+d x)}\right) \text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d (1+m) (a+b x)}{b (1+n) (c+d x)}\right]\right) \Big/$$

$$\Bigg(\big((b c-a d) (3+m) (1+n)\, \text{Gamma}[3+m]\big)+\frac{d^2 (1+m) (a+b x)\, \text{Gamma}[1-n]\, \text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d (1+m) (a+b x)}{b (1+n) (c+d x)}\right]}{b (1+n) (c+d x)^2\, \text{Gamma}[4+m]\, \text{Gamma}[-n]}+$$

$$\frac{d^3 (1+m) (2+m+n) (a+b x)^2\, \text{Gamma}[1-n]\, \text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d (1+m) (a+b x)}{b (1+n) (c+d x)}\right]}{b (b c-a d) (1+n)^2 (c+d x)^2\, \text{Gamma}[4+m]\, \text{Gamma}[-n]}-$$

$$\frac{d (1+m)\, \text{Gamma}[1-n]\, \text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d (1+m) (a+b x)}{b (1+n) (c+d x)}\right]}{(1+n) (c+d x)\, \text{Gamma}[4+m]\, \text{Gamma}[-n]}-$$

$$\frac{2 d^2 (1+m) (2+m+n) (a+b x)\, \text{Gamma}[1-n]\, \text{Hypergeometric2F1}\left[2,1-n,4+m,-\frac{d (1+m) (a+b x)}{b (1+n) (c+d x)}\right]}{(b c-a d) (1+n)^2 (c+d x)\, \text{Gamma}[4+m]\, \text{Gamma}[-n]}-$$

$$\left(2 d (1+m) (1-n) (a+b x) \left(\frac{d^2 (1+m) (a+b x)}{b (1+n) (c+d x)^2}-\frac{d (1+m)}{(1+n) (c+d x)}\right) \text{Gamma}[1-n]\right.$$
$$\left.\text{Hypergeometric2F1}\left[3,2-n,5+m,-\frac{d (1+m) (a+b x)}{b (1+n) (c+d x)}\right]\right) \Big/ \left(b (4+m) (1+n) (c+d x)\, \text{Gamma}[4+m]\, \text{Gamma}[-n]\right)-$$

$$\left(2 d^2 (1+m) (1-n) (2+m+n) (a+b x)^2 \left(\frac{d^2 (1+m) (a+b x)}{b (1+n) (c+d x)^2}-\frac{d (1+m)}{(1+n) (c+d x)}\right) \text{Gamma}[1-n]\right.$$
$$\left.\text{Hypergeometric2F1}\left[3,2-n,5+m,-\frac{d (1+m) (a+b x)}{b (1+n) (c+d x)}\right]\right) \Big/ \left(b (b c-a d) (4+m) (1+n)^2 (c+d x)\, \text{Gamma}[4+m]\, \text{Gamma}[-n]\right)\Bigg)\Bigg)\Bigg)$$

Problem 3153: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{-1-\frac{d (b e-a f) (1+m)}{b (d e-c f)}} (e+f x)^{-1+\frac{(b c-a d) f (1+m)}{b (d e-c f)}}\, dx$$

Optimal (type 3, 101 leaves, 1 step):

$$\frac{b (a+b x)^{1+m} (c+d x)^{-\frac{d (b e-a f) (1+m)}{b (d e-c f)}} (e+f x)^{\frac{(b c-a d) f (1+m)}{b (d e-c f)}}}{(b c-a d) (b e-a f) (1+m)}$$

Result (type 6, 1616 leaves):

$$\frac{1}{1+m}(a+b x)^{1+m}(c+d x)^{-\frac{d (b e-a f)(1+m)}{b (d e-c f)}}(e+f x)^{\frac{(b c-a d) f (1+m)}{b (d e-c f)}}$$

$$\Bigg(\Bigg(f\, \text{AppellF1}\Big[1+m, \frac{d (b e-a f)(1+m)}{b (d e-c f)}, 1+\frac{(b c-a d) f (1+m)}{b (-d e+c f)}, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\Big]\Bigg) \Bigg/ \Bigg((-d e+c f)$$

$$\Bigg(\frac{1}{1+m} f \left(1+\frac{(b c-a d) f (1+m)}{b (-d e+c f)}\right)(a+b x)\, \text{AppellF1}\Big[1+m, \frac{d (b e-a f)(1+m)}{b (d e-c f)}, 1+\frac{(b c-a d) f (1+m)}{b (-d e+c f)}, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\Big]+$$

$$\frac{1}{b (d e-c f)(1+m)} f (-b d e-a d f (1+m)+b c f (2+m))(a+b x)\, \text{AppellF1}\Big[1+m, \frac{d (b e-a f)(1+m)}{b (d e-c f)}, 1+\frac{(b c-a d) f (1+m)}{b (-d e+c f)}, 2+m,$$

$$\frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\Big]+b (e+f x)\, \text{AppellF1}\Big[1+m, \frac{d (b e-a f)(1+m)}{b (d e-c f)}, 1+\frac{(b c-a d) f (1+m)}{b (-d e+c f)}, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\Big]+$$

$$\Bigg((a+b x)(e+f x)\Bigg(f (b d e+a d f (1+m)-b c f (2+m))\, \text{AppellF1}\Big[2+m, \frac{d (b e-a f)(1+m)}{b (d e-c f)}, 2+\frac{(b c-a d) f (1+m)}{b (-d e+c f)},$$

$$3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\Big]+\frac{1}{b c-a d} d^2 (b e-a f)^2 (1+m)\, \text{AppellF1}\Big[2+m, 1+\frac{d (b e-a f)(1+m)}{b (d e-c f)},$$

$$1+\frac{(b c-a d) f (1+m)}{b (-d e+c f)}, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\Big]\Bigg)\Bigg) \Bigg/ ((b e-a f)(-d e+c f)(2+m))\Bigg)\Bigg)+$$

$$\Bigg(d\, \text{AppellF1}\Big[1+m, 1+\frac{d (b e-a f)(1+m)}{b (d e-c f)}, \frac{(b c-a d) f (1+m)}{b (-d e+c f)}, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\Big]\Bigg) \Bigg/ \Bigg((d e-c f)$$

$$\Bigg(\frac{1}{1+m} d \left(1+\frac{d (b e-a f)(1+m)}{b (d e-c f)}\right)(a+b x)\, \text{AppellF1}\Big[1+m, 1+\frac{d (b e-a f)(1+m)}{b (d e-c f)}, \frac{(b c-a d) f (1+m)}{b (-d e+c f)}, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\Big]-$$

$$\frac{1}{b (d e-c f)(1+m)} d (-b c f-a d f (1+m)+b d e (2+m))(a+b x)\, \text{AppellF1}\Big[1+m, 1+\frac{d (b e-a f)(1+m)}{b (d e-c f)}, \frac{(b c-a d) f (1+m)}{b (-d e+c f)}, 2+m,$$

$$\frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\Big]+b (c+d x)\, \text{AppellF1}\Big[1+m, 1+\frac{d (b e-a f)(1+m)}{b (d e-c f)}, \frac{(b c-a d) f (1+m)}{b (-d e+c f)}, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\Big]+$$

$$\Bigg((a+b x)(c+d x)\Bigg(\frac{1}{b e-a f}(b c-a d)^2 f^2 (1+m)\, \text{AppellF1}\Big[2+m, 1+\frac{d (b e-a f)(1+m)}{b (d e-c f)}, 1+\frac{(b c-a d) f (1+m)}{b (-d e+c f)},$$

$$3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\Big]-d (-b c f-a d f (1+m)+b d e (2+m))\, \text{AppellF1}\Big[2+m, 2+\frac{d (b e-a f)(1+m)}{b (d e-c f)},$$

$$\frac{(b c-a d) f (1+m)}{b (-d e+c f)}, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\Big]\Bigg)\Bigg) \Bigg/ ((b c-a d)(d e-c f)(2+m))\Bigg)\Bigg)\Bigg)$$

Problem 3154: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^n (e+f x)^{-m-n} \, dx$$

Optimal (type 6, 129 leaves, 3 steps):

$$\frac{1}{b (1+m)} (a+b x)^{1+m} (c+d x)^n \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} (e+f x)^{-m-n} \left(\frac{b (e+f x)}{b e-a f}\right)^{m+n} \text{AppellF1}\left[1+m,-n,m+n,2+m,-\frac{d (a+b x)}{b c-a d},-\frac{f (a+b x)}{b e-a f}\right]$$

Result (type 6, 303 leaves):

$$\left((b c-a d) (b e-a f) (2+m) (a+b x)^{1+m} (c+d x)^n (e+f x)^{-m-n} \text{AppellF1}\left[1+m,-n,m+n,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right) \Big/ \left(b (1+m) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m,-n,m+n,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]-(a+b x) \left(d (-b e+a f) n \text{AppellF1}\left[2+m,1-n,m+n,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]+(b c-a d) f (m+n) \text{AppellF1}\left[2+m,-n,1+m+n,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3155: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^n (e+f x)^{-1-m-n} \, dx$$

Optimal (type 6, 137 leaves, 3 steps):

$$\frac{1}{(b e-a f) (1+m)} (a+b x)^{1+m} (c+d x)^n \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} (e+f x)^{-m-n} \left(\frac{b (e+f x)}{b e-a f}\right)^{m+n} \text{AppellF1}\left[1+m,-n,1+m+n,2+m,-\frac{d (a+b x)}{b c-a d},-\frac{f (a+b x)}{b e-a f}\right]$$

Result (type 6, 308 leaves):

$$\left((b c-a d) (b e-a f) (2+m) (a+b x)^{1+m} (c+d x)^n (e+f x)^{-1-m-n} \text{AppellF1}\left[1+m,-n,1+m+n,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right) \Big/ \left(b (1+m) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m,-n,1+m+n,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]-(a+b x) \left(d (-b e+a f) n \text{AppellF1}\left[2+m,1-n,1+m+n,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]+(b c-a d) f (1+m+n) \text{AppellF1}\left[2+m,-n,2+m+n,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3157: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^n (e+f x)^{-3-m-n} \, dx$$

Optimal (type 5, 227 leaves, 2 steps):

$$-\frac{f (a+b x)^{1+m} (c+d x)^{1+n} (e+f x)^{-2-m-n}}{(b e-a f) (d e-c f) (2+m+n)}-\left((a d f (1+m)+b (c f (1+n)-d e (2+m+n))) (a+b x)^{1+m} (c+d x)^n \left(\frac{(b e-a f) (c+d x)}{(b c-a d) (e+f x)}\right)^{-n} (e+f x)^{-1-m-n} \text{Hypergeometric2F1}\left[1+m,-n,2+m,-\frac{(d e-c f) (a+b x)}{(b c-a d) (e+f x)}\right]\right) \Big/ \left((b e-a f)^2 (d e-c f) (1+m) (2+m+n)\right)$$

Result (type 5, 5212 leaves):

$$\left((a+b x)^{1+2 m} (c+d x)^{2 n} \left(\frac{-b c-b d x}{-b c+a d}\right)^{-n} (e+f x)^{-6-2 m-2 n} \left(\frac{-b e-b f x}{-b e+a f}\right)^{3+m+n} \left(1-\frac{d (a+b x)}{-b c+a d}\right)^n \left(1-\frac{f (a+b x)}{-b e+a f}\right)^{-2-m-n} \text{Gamma}[2+m] \left(\frac{2 \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{m \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f (a+b x) \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) \text{Gamma}[3+m]}+\frac{(d e-c f) (a+b x) \text{Gamma}[1-n] \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x) \text{Gamma}[4+m] \text{Gamma}[-n]}-\frac{f (-d e+c f) (a+b x)^2 \text{Gamma}[1-n] \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x) \text{Gamma}[4+m] \text{Gamma}[-n]}\right)\right) \Big/$$

$$\left(b\,(1+m)\left(-\frac{1}{(-b\,e+a\,f)\,(1+m)}\,f\,(-2-m-n)\,(a+b\,x)^{1+m}\,(c+d\,x)^{n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-3-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\right.\right.$$

$$\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{n}\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-3-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^{2}\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^{2}\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)-$$

$$\frac{1}{(-b\,c+a\,d)\,(1+m)}\,d\,n\,(a+b\,x)^{1+m}\,(c+d\,x)^{n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-3-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-1+n}$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^{2}\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^{2}\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)-$$

$$\frac{1}{(-b\,e+a\,f)\,(1+m)}\,f\,(3+m+n)\,(a+b\,x)^{1+m}\,(c+d\,x)^{n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-3-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{2+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{n}$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)\ (a+b x)\ \text{Gamma}[1-n]\ \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)\ (c+d x)\ \text{Gamma}[4+m]\ \text{Gamma}[-n]}-$$

$$\left.\frac{f\ (-d e+c f)\ (a+b x)^2\ \text{Gamma}[1-n]\ \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)^2\ (c+d x)\ \text{Gamma}[4+m]\ \text{Gamma}[-n]}\right)+$$

$$\frac{1}{b\ (1+m)} f\ (-3-m-n)\ (a+b x)^{1+m}\ (c+d x)^n \left(\frac{-b c-b d x}{-b c+a d}\right)^{-n} (e+f x)^{-4-m-n} \left(\frac{-b e-b f x}{-b e+a f}\right)^{3+m+n} \left(1-\frac{d\ (a+b x)}{-b c+a d}\right)^n$$

$$\left(1-\frac{f\ (a+b x)}{-b e+a f}\right)^{-2-m-n} \text{Gamma}[2+m] \left(\frac{2\ \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\ \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f\ (a+b x)\ \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)\ \text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)\ (a+b x)\ \text{Gamma}[1-n]\ \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)\ (c+d x)\ \text{Gamma}[4+m]\ \text{Gamma}[-n]}-$$

$$\left.\frac{f\ (-d e+c f)\ (a+b x)^2\ \text{Gamma}[1-n]\ \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)^2\ (c+d x)\ \text{Gamma}[4+m]\ \text{Gamma}[-n]}\right)+$$

$$\frac{1}{(-b c+a d)\ (1+m)} d n\ (a+b x)^{1+m}\ (c+d x)^n \left(\frac{-b c-b d x}{-b c+a d}\right)^{-1-n} (e+f x)^{-3-m-n} \left(\frac{-b e-b f x}{-b e+a f}\right)^{3+m+n} \left(1-\frac{d\ (a+b x)}{-b c+a d}\right)^n$$

$$\left(1-\frac{f\ (a+b x)}{-b e+a f}\right)^{-2-m-n} \text{Gamma}[2+m] \left(\frac{2\ \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\ \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f\ (a+b x)\ \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)\ \text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)\ (a+b x)\ \text{Gamma}[1-n]\ \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)\ (c+d x)\ \text{Gamma}[4+m]\ \text{Gamma}[-n]}-$$

$$\left.\frac{f\ (-d e+c f)\ (a+b x)^2\ \text{Gamma}[1-n]\ \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)^2\ (c+d x)\ \text{Gamma}[4+m]\ \text{Gamma}[-n]}\right)+$$

$$\frac{1}{b\ (1+m)} d n\ (a+b x)^{1+m}\ (c+d x)^{-1+n} \left(\frac{-b c-b d x}{-b c+a d}\right)^{-n} (e+f x)^{-3-m-n} \left(\frac{-b e-b f x}{-b e+a f}\right)^{3+m+n} \left(1-\frac{d\ (a+b x)}{-b c+a d}\right)^n$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$(a+b\,x)^m\,(c+d\,x)^n\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-3-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^n\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}$$

$$\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$\frac{1}{b\,(1+m)}\,(a+b\,x)^{1+m}\,(c+d\,x)^n\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-3-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^n\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}$$

$$\text{Gamma}[2+m]\left(\frac{b\,f\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}-\right.$$

$$\frac{2\,n\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(3+m)\,\text{Gamma}[3+m]}-$$

$$\frac{m\,n\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(3+m)\,\text{Gamma}[3+m]}-$$

$$\frac{f\,n\,(a+b\,x)\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(3+m)\,\text{Gamma}[3+m]}-\frac{d\,(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)^2\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}+\frac{d\,f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)^2\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}+\frac{b\,(d\,e-c\,f)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-\frac{2\,b\,f\,(-d\,e+c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}+\left(2\,(d\,e-c\,f)\,(1-n)\,(a+b\,x)\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[3,2-n,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\right)\Big/\left((b\,e-a\,f)\,(4+m)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]\right)-\left(2\,f\,(-d\,e+c\,f)\,(1-n)\,(a+b\,x)^2\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^2}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[3,2-n,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\right)\Big/\left((b\,e-a\,f)^2\,(4+m)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]\right)\Bigg)\Bigg)\Bigg)$$

Problem 3158: Attempted integration timed out after 120 seconds.

$$\int (a+b\,x)^m\,(c+d\,x)^n\,(e+f\,x)^{-4-m-n}\,dx$$

Optimal (type 5, 402 leaves, 4 steps):

$$-\frac{f\,(a+b\,x)^{1+m}\,(c+d\,x)^{1+n}\,(e+f\,x)^{-3-m-n}}{(b\,e-a\,f)\,(d\,e-c\,f)\,(3+m+n)}+\frac{f\,(a\,d\,f\,(2+m)+b\,(c\,f\,(2+n)-d\,e\,(4+m+n)))\,(a+b\,x)^{1+m}\,(c+d\,x)^{1+n}\,(e+f\,x)^{-2-m-n}}{(b\,e-a\,f)^2\,(d\,e-c\,f)^2\,(2+m+n)\,(3+m+n)}+\left(\left(a^2\,d^2\,f^2\,(2+3\,m+m^2)+2\,a\,b\,d\,f\,(1+m)\,(c\,f\,(1+n)-d\,e\,(3+m+n))-b^2\,(2\,c\,d\,e\,f\,(1+n)\,(3+m+n)-c^2\,f^2\,(2+3\,n+n^2)-d^2\,e^2\,(6+m^2+5\,n+n^2+m\,(5+2\,n)))\right)(a+b\,x)^{1+m}\,(c+d\,x)^n\left(\frac{(b\,e-a\,f)\,(c+d\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right)^{-n}(e+f\,x)^{-1-m-n}\,\text{Hypergeometric2F1}\left[1+m,-n,2+m,-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right]\right)\Big/\left((b\,e-a\,f)^3\,(d\,e-c\,f)^2\,(1+m)\,(2+m+n)\,(3+m+n)\right)$$

Result (type 1, 1 leaves):

???

Problem 3159: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^n (e+f x)^p \, dx$$

Optimal (type 6, 123 leaves, 3 steps):

$$\frac{1}{b (1+m)} (a+b x)^{1+m} (c+d x)^n \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} (e+f x)^p \left(\frac{b (e+f x)}{b e-a f}\right)^{-p} \text{AppellF1}\left[1+m,-n,-p,2+m,-\frac{d (a+b x)}{b c-a d},-\frac{f (a+b x)}{b e-a f}\right]$$

Result (type 6, 296 leaves):

$$\left((b c-a d) (b e-a f) (2+m) (a+b x)^{1+m} (c+d x)^n (e+f x)^p \text{AppellF1}\left[1+m,-n,-p,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right) \Big/ \left(b (1+m) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m,-n,-p,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]-(a+b x) \left(d (-b e+a f) n \, \text{AppellF1}\left[2+m,1-n,-p,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]+(-b c+a d) f p \, \text{AppellF1}\left[2+m,-n,1-p,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3160: Result unnecessarily involves higher level functions.

$$\int (a+b x)^m (c+d x)^n (e+f x)^2 \, dx$$

Optimal (type 5, 259 leaves, 4 steps):

$$\frac{f (b d e (4+m+n)-f (b c (2+m)+a d (2+n))) (a+b x)^{1+m} (c+d x)^{1+n}}{b^2 d^2 (2+m+n) (3+m+n)}+\frac{f (a+b x)^{1+m} (c+d x)^{1+n} (e+f x)}{b d (3+m+n)}+\Big((f (b c (1+m)+a d (1+n)) (b d e (4+m+n)-f (b c (2+m)+a d (2+n)))+b d (2+m+n) (a f (c f+d e (1+n))+b e (c f (1+m)-d e (3+m+n)))) (a+b x)^{1+m} (c+d x)^{1+n} \text{Hypergeometric2F1}\left[1,2+m+n,2+n,\frac{b (c+d x)}{b c-a d}\right]\Big) \Big/ \left(b^2 d^2 (b c-a d) (1+n) (2+m+n) (3+m+n)\right)$$

Result (type 6, 330 leaves):

$$\frac{1}{3}(a+b x)^m (c+d x)^n \left(\left(9 a c e f x^2 \text{AppellF1}\left[2,-m,-n,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(3 a c \text{AppellF1}\left[2,-m,-n,3,-\frac{b x}{a},-\frac{d x}{c}\right]+b c m x \text{AppellF1}\left[3,1-m,-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]+a d n x \text{AppellF1}\left[3,-m,1-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)+\left(4 a c f^2 x^3 \text{AppellF1}\left[3,-m,-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(4 a c \text{AppellF1}\left[3,-m,-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]+b c m x \text{AppellF1}\left[4,1-m,-n,5,-\frac{b x}{a},-\frac{d x}{c}\right]+a d n x \text{AppellF1}\left[4,-m,1-n,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)+\frac{3 e^2 \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} (c+d x) \text{Hypergeometric2F1}\left[-m,1+n,2+n,\frac{b (c+d x)}{b c-a d}\right]}{d (1+n)}\right)$$

Problem 3161: Result unnecessarily involves higher level functions.

$$\int (a+b x)^m (c+d x)^n (e+f x) \, dx$$

Optimal (type 5, 131 leaves, 3 steps):

$$\frac{f (a+b x)^{1+m} (c+d x)^{1+n}}{b d (2+m+n)}-\left((b d e (2+m+n)-f (b c (1+m)+a d (1+n))) (a+b x)^{1+m} (c+d x)^{1+n} \text{Hypergeometric2F1}\left[1,2+m+n,2+n,\frac{b (c+d x)}{b c-a d}\right]\right)\Big/\left(b d (b c-a d) (1+n) (2+m+n)\right)$$

Result (type 6, 202 leaves):

$$(a+b x)^m (c+d x)^n \left(\left(3 a c f x^2 \text{AppellF1}\left[2,-m,-n,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(6 a c \text{AppellF1}\left[2,-m,-n,3,-\frac{b x}{a},-\frac{d x}{c}\right]+2 b c m x \text{AppellF1}\left[3,1-m,-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]+2 a d n x \text{AppellF1}\left[3,-m,1-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)+\frac{e \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} (c+d x) \text{Hypergeometric2F1}\left[-m,1+n,2+n,\frac{b (c+d x)}{b c-a d}\right]}{d (1+n)}\right)$$

Problem 3163: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^n}{e+f x} \, dx$$

Optimal (type 6, 100 leaves, 2 steps):

$$\frac{(a+b x)^{1+m} (c+d x)^n \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} \text{AppellF1}\left[1+m,-n,1,2+m,-\frac{d (a+b x)}{b c-a d},-\frac{f (a+b x)}{b e-a f}\right]}{(b e-a f) (1+m)}$$

Result (type 6, 298 leaves):

$$-\left(\left((b c-a d) (b e-a f)^2 (2+m) (a+b x)^{1+m} (c+d x)^n \text{AppellF1}\left[1+m,-n,1,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\Big/\left(b (-b e+a f) (1+m) (e+f x) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m,-n,1,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]-(a+b x) \left(d (-b e+a f) n \text{AppellF1}\left[2+m,1-n,1,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]+(b c-a d) f \text{AppellF1}\left[2+m,-n,2,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)\right)$$

Problem 3164: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^n}{(e+f x)^2} \, dx$$

Optimal (type 6, 101 leaves, 2 steps):

$$\frac{b (a+b x)^{1+m} (c+d x)^n \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} \text{AppellF1}\left[1+m,-n,2,2+m,-\frac{d (a+b x)}{b c-a d},-\frac{f (a+b x)}{b e-a f}\right]}{(b e-a f)^2 (1+m)}$$

Result (type 6, 286 leaves):

$$\left((b c-a d) (b e-a f) (2+m) (a+b x)^{1+m} (c+d x)^n \text{AppellF1}\left[1+m,-n,2,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\Big/\left(b (1+m) (e+f x)^2 \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m,-n,2,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]-(a+b x) \left(d (-b e+a f) n \text{AppellF1}\left[2+m,1-n,2,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]+2 (b c-a d) f \text{AppellF1}\left[2+m,-n,3,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 3165: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x)^n}{(e+f x)^3} \, dx$$

Optimal (type 6, 103 leaves, 2 steps):

$$\frac{b^2 (a+b x)^{1+m} (c+d x)^n \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} \text{AppellF1}\left[1+m,-n,3,2+m,-\frac{d (a+b x)}{b c-a d},-\frac{f (a+b x)}{b e-a f}\right]}{(b e-a f)^3 (1+m)}$$

Result (type 6, 299 leaves) :

$$-\left(\left((b c-a d) (b e-a f)^4 (2+m) (a+b x)^{1+m} (c+d x)^n \text{AppellF1}\left[1+m,-n,3,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\Big/\left(b (-b e+a f)^3 (1+m) (e+f x)^3 \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m,-n,3,2+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]-(a+b x) \left(d (-b e+a f) n \text{AppellF1}\left[2+m,1-n,3,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]+3 (b c-a d) f \text{AppellF1}\left[2+m,-n,4,3+m,\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)\right)$$

Problem 3170: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{4/3}}{\sqrt{c+d x} (e+f x)} \, dx$$

Optimal (type 6, 100 leaves, 2 steps) :

$$\frac{3 (a+b x)^{7/3} \sqrt{\frac{b (c+d x)}{b c-a d}} \text{AppellF1}\left[\frac{7}{3},\frac{1}{2},1,\frac{10}{3},-\frac{d (a+b x)}{b c-a d},-\frac{f (a+b x)}{b e-a f}\right]}{7 (b e-a f) \sqrt{c+d x}}$$

Result (type 6, 921 leaves) :

$$\frac{1}{35\,d^2\,(a+b\,x)^{2/3}}$$

$$6\,b\,\sqrt{c+d\,x}\,\Bigg(\frac{7\,d\,(a+b\,x)}{f}+\Bigg((c+d\,x)\,\Bigg(-26\,(b\,c-a\,d)\,(3\,b\,d\,e+2\,b\,c\,f-5\,a\,d\,f)\,\text{AppellF1}\Big[\frac{7}{6},\frac{2}{3},1,\frac{13}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]\,\Big(b\,(-3\,d\,e+3\,c\,f)$$
$$\text{AppellF1}\Big[\frac{7}{6},\frac{2}{3},2,\frac{13}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+2\,(b\,c-a\,d)\,f\,\text{AppellF1}\Big[\frac{7}{6},\frac{5}{3},1,\frac{13}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]\Big)-$$
$$7\,b\,(c+d\,x)\,\text{AppellF1}\Big[\frac{1}{6},\frac{2}{3},1,\frac{7}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]\,\Big(13\,f\,\big(5\,a^2\,d^2\,f+a\,b\,d\,(-3\,d\,e+42\,c\,f+49\,d\,f\,x)-b^2\,\big(12\,c^2\,f+$$
$$35\,d^2\,e\,x+2\,c\,d\,(16\,e+7\,f\,x)\big)\big)\,\text{AppellF1}\Big[\frac{7}{6},\frac{2}{3},1,\frac{13}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+14\,(5\,b\,d\,e+2\,b\,c\,f-7\,a\,d\,f)\,\Big(3\,b\,(d\,e-c\,f)$$
$$\text{AppellF1}\Big[\frac{13}{6},\frac{2}{3},2,\frac{19}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+2\,(-b\,c+a\,d)\,f\,\text{AppellF1}\Big[\frac{13}{6},\frac{5}{3},1,\frac{19}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]\Big)\Big)\Bigg)\Bigg)\Bigg/$$
$$\Bigg(d\,(e+f\,x)\,\Bigg(7\,b\,f\,(c+d\,x)\,\text{AppellF1}\Big[\frac{1}{6},\frac{2}{3},1,\frac{7}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+b\,(-6\,d\,e+6\,c\,f)\,\text{AppellF1}\Big[\frac{7}{6},\frac{2}{3},2,\frac{13}{6},$$
$$\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+4\,(b\,c-a\,d)\,f\,\text{AppellF1}\Big[\frac{7}{6},\frac{5}{3},1,\frac{13}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]\Bigg)$$
$$\Bigg(13\,b\,f\,(c+d\,x)\,\text{AppellF1}\Big[\frac{7}{6},\frac{2}{3},1,\frac{13}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+b\,(-6\,d\,e+6\,c\,f)\,\text{AppellF1}\Big[\frac{13}{6},\frac{2}{3},2,\frac{19}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+$$
$$4\,(b\,c-a\,d)\,f\,\text{AppellF1}\Big[\frac{13}{6},\frac{5}{3},1,\frac{19}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]\Bigg)\Bigg)$$

Problem 3171: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d\,x)^{2/5}\,(e+f\,x)^{3/5}}{\sqrt{a+b\,x}}\,dx$$

Optimal (type 6, 123 leaves, 3 steps):

$$\frac{2\,\sqrt{a+b\,x}\,(c+d\,x)^{2/5}\,(e+f\,x)^{3/5}\,\text{AppellF1}\Big[\frac{1}{2},-\frac{2}{5},-\frac{3}{5},\frac{3}{2},-\frac{d\,(a+b\,x)}{b\,c-a\,d},-\frac{f\,(a+b\,x)}{b\,e-a\,f}\Big]}{b\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{2/5}\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{3/5}}$$

Result (type 6, 661 leaves):

$$\frac{1}{45 b^3 (c+d x)^{3/5} (e+f x)^{2/5}} 2 \sqrt{a+b x} \Bigg(15 b^2 (c+d x) (e+f x) - 2 (a+b x) \Bigg(\Bigg(9 \left(25 a^2 d^2 f^2 - 10 a b d f (3 d e + 2 c f) + b^2 (3 d^2 e^2 + 24 c d e f - 2 c^2 f^2)\right) \text{AppellF1}\left[\frac{1}{2}, \frac{3}{5}, \frac{2}{5}, \frac{3}{2}, \frac{-b c + a d}{d (a+b x)}, \frac{-b e + a f}{f (a+b x)}\right]\Bigg) \Big/ \Bigg(15 d f (a+b x) \text{AppellF1}\left[\frac{1}{2}, \frac{3}{5}, \frac{2}{5}, \frac{3}{2}, \frac{-b c + a d}{d (a+b x)}, \frac{-b e + a f}{f (a+b x)}\right] + (-4 b d e + 4 a d f) \text{AppellF1}\left[\frac{3}{2}, \frac{3}{5}, \frac{7}{5}, \frac{5}{2}, \frac{-b c + a d}{d (a+b x)}, \frac{-b e + a f}{f (a+b x)}\right] + 6 (-b c + a d) f \text{AppellF1}\left[\frac{3}{2}, \frac{8}{5}, \frac{2}{5}, \frac{5}{2}, \frac{-b c + a d}{d (a+b x)}, \frac{-b e + a f}{f (a+b x)}\right]\Bigg) + \frac{1}{(a+b x)^2} (3 b d e + 2 b c f - 5 a d f) \Bigg(-\frac{3 b^2 (c+d x) (e+f x)}{d f} + \Bigg(25 (b c - a d) (b e - a f) (a+b x) \text{AppellF1}\left[\frac{3}{2}, \frac{3}{5}, \frac{2}{5}, \frac{5}{2}, \frac{-b c + a d}{d (a+b x)}, \frac{-b e + a f}{f (a+b x)}\right]\Bigg) \Big/ \Bigg(25 d f (a+b x) \text{AppellF1}\left[\frac{3}{2}, \frac{3}{5}, \frac{2}{5}, \frac{5}{2}, \frac{-b c + a d}{d (a+b x)}, \frac{-b e + a f}{f (a+b x)}\right] + (-4 b d e + 4 a d f) \text{AppellF1}\left[\frac{5}{2}, \frac{3}{5}, \frac{7}{5}, \frac{7}{2}, \frac{-b c + a d}{d (a+b x)}, \frac{-b e + a f}{f (a+b x)}\right] + 6 (-b c + a d) f \text{AppellF1}\left[\frac{5}{2}, \frac{8}{5}, \frac{2}{5}, \frac{7}{2}, \frac{-b c + a d}{d (a+b x)}, \frac{-b e + a f}{f (a+b x)}\right]\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 3172: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+b x} (e+f x)^n}{\sqrt{c+d x}} \, dx$$

Optimal (type 6, 123 leaves, 3 steps):

$$\frac{2 (a+b x)^{3/2} \sqrt{\frac{b (c+d x)}{b c-a d}} (e+f x)^n \left(\frac{b (e+f x)}{b e-a f}\right)^{-n} \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}, -n, \frac{5}{2}, -\frac{d (a+b x)}{b c-a d}, -\frac{f (a+b x)}{b e-a f}\right]}{3 b \sqrt{c+d x}}$$

Result (type 6, 289 leaves):

$$\Bigg(10 (b c - a d) (b e - a f) (a+b x)^{3/2} (e+f x)^n \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}, -n, \frac{5}{2}, \frac{d (a+b x)}{-b c + a d}, \frac{f (a+b x)}{-b e + a f}\right]\Bigg) \Big/ \Bigg(3 b \sqrt{c+d x} \Bigg(5 (b c - a d) (b e - a f) \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}, -n, \frac{5}{2}, \frac{d (a+b x)}{-b c + a d}, \frac{f (a+b x)}{-b e + a f}\right] - (a+b x) \Bigg(2 (-b c + a d) f n \text{AppellF1}\left[\frac{5}{2}, \frac{1}{2}, 1-n, \frac{7}{2}, \frac{d (a+b x)}{-b c + a d}, \frac{f (a+b x)}{-b e + a f}\right] + d (b e - a f) \text{AppellF1}\left[\frac{5}{2}, \frac{3}{2}, -n, \frac{7}{2}, \frac{d (a+b x)}{-b c + a d}, \frac{f (a+b x)}{-b e + a f}\right]\Bigg)\Bigg)\Bigg)$$

Problem 3173: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{c+d\,x}\,\left(e+f\,x\right)^n}{\sqrt{a+b\,x}}\,dx$$

Optimal (type 6, 121 leaves, 3 steps):

$$\frac{2\,\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\left(e+f\,x\right)^n\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-n}\,\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},-n,\frac{3}{2},-\frac{d\,(a+b\,x)}{b\,c-a\,d},-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]}{b\,\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}}$$

Result (type 6, 287 leaves):

$$\left(6\,\left(b\,c-a\,d\right)\,\left(b\,e-a\,f\right)\,\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\left(e+f\,x\right)^n\,\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},-n,\frac{3}{2},\frac{d\,\left(a+b\,x\right)}{-b\,c+a\,d},\frac{f\,\left(a+b\,x\right)}{-b\,e+a\,f}\right]\right)\Big/$$
$$\left(b\,\left(3\,\left(b\,c-a\,d\right)\,\left(b\,e-a\,f\right)\,\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},-n,\frac{3}{2},\frac{d\,\left(a+b\,x\right)}{-b\,c+a\,d},\frac{f\,\left(a+b\,x\right)}{-b\,e+a\,f}\right]-\left(a+b\,x\right)\right.\right.$$
$$\left.\left.\left(2\,\left(-b\,c+a\,d\right)\,f\,n\,\text{AppellF1}\left[\frac{3}{2},-\frac{1}{2},1-n,\frac{5}{2},\frac{d\,\left(a+b\,x\right)}{-b\,c+a\,d},\frac{f\,\left(a+b\,x\right)}{-b\,e+a\,f}\right]+d\,\left(-b\,e+a\,f\right)\,\text{AppellF1}\left[\frac{3}{2},\frac{1}{2},-n,\frac{5}{2},\frac{d\,\left(a+b\,x\right)}{-b\,c+a\,d},\frac{f\,\left(a+b\,x\right)}{-b\,e+a\,f}\right]\right)\right)\right)$$

Problem 3174: Result more than twice size of optimal antiderivative.

$$\int \frac{\left(e+f\,x\right)^n}{\sqrt{a+b\,x}\,\left(c+d\,x\right)^{3/2}}\,dx$$

Optimal (type 6, 128 leaves, 3 steps):

$$\frac{2\,\sqrt{a+b\,x}\,\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\left(e+f\,x\right)^n\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-n}\,\text{AppellF1}\left[\frac{1}{2},\frac{3}{2},-n,\frac{3}{2},-\frac{d\,(a+b\,x)}{b\,c-a\,d},-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]}{\left(b\,c-a\,d\right)\,\sqrt{c+d\,x}}$$

Result (type 6, 816 leaves):

$$
\begin{aligned}
&\frac{1}{3 (c+d x)^{3/2}} 2 (b e-a f) \sqrt{a+b x} (e+f x)^n \Bigg(\Bigg(9 b (c+d x)^2 \text{AppellF1}\Big[\frac{1}{2},-\frac{1}{2},-n,\frac{3}{2},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\Big]\Bigg) \Big/ \\
&\quad \Big((b c-a d) \Big(3 (b c-a d) (b e-a f) \text{AppellF1}\Big[\frac{1}{2},-\frac{1}{2},-n,\frac{3}{2},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\Big]-(a+b x) \Big(2 (-b c+a d) f n \\
&\qquad \text{AppellF1}\Big[\frac{3}{2},-\frac{1}{2},1-n,\frac{5}{2},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\Big]+d (-b e+a f) \text{AppellF1}\Big[\frac{3}{2},\frac{1}{2},-n,\frac{5}{2},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\Big]\Big)\Big)\Big)- \\
&\quad \Big(5 d (a+b x) (c+d x) \text{AppellF1}\Big[\frac{3}{2},\frac{1}{2},-n,\frac{5}{2},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\Big]\Big) \Big/ \Big((b c-a d) \\
&\qquad \Big(5 (b c-a d) (b e-a f) \text{AppellF1}\Big[\frac{3}{2},\frac{1}{2},-n,\frac{5}{2},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\Big]-(a+b x) \Big(2 (-b c+a d) f n \\
&\qquad \text{AppellF1}\Big[\frac{5}{2},\frac{1}{2},1-n,\frac{7}{2},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\Big]+d (b e-a f) \text{AppellF1}\Big[\frac{5}{2},\frac{3}{2},-n,\frac{7}{2},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\Big]\Big)\Big)\Big)- \\
&\quad \Big(5 d (a+b x) \text{AppellF1}\Big[\frac{3}{2},\frac{3}{2},-n,\frac{5}{2},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\Big]\Big) \Big/ \Big(b \Big(5 (b c-a d) (b e-a f) \text{AppellF1}\Big[\frac{3}{2},\frac{3}{2},-n,\frac{5}{2}, \\
&\qquad \frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\Big]-(a+b x) \Big(2 (-b c+a d) f n \text{AppellF1}\Big[\frac{5}{2},\frac{3}{2},1-n,\frac{7}{2},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\Big]+ \\
&\qquad 3 d (b e-a f) \text{AppellF1}\Big[\frac{5}{2},\frac{5}{2},-n,\frac{7}{2},\frac{d (a+b x)}{-b c+a d},\frac{f (a+b x)}{-b e+a f}\Big]\Big)\Big)\Big)\Bigg)
\end{aligned}
$$

Problem 3175: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^n}{(a+b x)^{3/2} \sqrt{c+d x}} \, dx$$

Optimal (type 6, 121 leaves, 3 steps):

$$-\frac{2 \sqrt{\frac{b (c+d x)}{b c-a d}} (e+f x)^n \left(\frac{b (e+f x)}{b e-a f}\right)^{-n} \text{AppellF1}\Big[-\frac{1}{2},\frac{1}{2},-n,\frac{1}{2},-\frac{d (a+b x)}{b c-a d},-\frac{f (a+b x)}{b e-a f}\Big]}{b \sqrt{a+b x} \sqrt{c+d x}}$$

Result (type 6, 825 leaves):

$$\frac{1}{3(bc-ad)\sqrt{a+bx}\sqrt{c+dx}}2(be-af)(e+fx)^n\left(\left(3(bc-ad)^2(c+dx)\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-n,\frac{1}{2},\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]\right)\Big/\right.$$
$$\left((-bc+ad)\left((bc-ad)(be-af)\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-n,\frac{1}{2},\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]-(a+bx)\left(2(-bc+ad)fn\right.\right.\right.$$
$$\left.\left.\left.\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},1-n,\frac{3}{2},\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]+d(-be+af)\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},-n,\frac{3}{2},\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]\right)\right)\right)-$$
$$\left(9d(a+bx)(c+dx)\,\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},-n,\frac{3}{2},\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]\right)\Big/\left(3(bc-ad)(be-af)\right.$$
$$\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},-n,\frac{3}{2},\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]-(a+bx)\left(2(-bc+ad)fn\,\text{AppellF1}\left[\frac{3}{2},-\frac{1}{2},1-n,\frac{5}{2},\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]+\right.$$
$$\left.\left.d(-be+af)\,\text{AppellF1}\left[\frac{3}{2},\frac{1}{2},-n,\frac{5}{2},\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]\right)\right)+\left(5d^2(a+bx)^2\,\text{AppellF1}\left[\frac{3}{2},\frac{1}{2},-n,\frac{5}{2},\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]\right)\Big/$$
$$\left(b\left(5(bc-ad)(be-af)\,\text{AppellF1}\left[\frac{3}{2},\frac{1}{2},-n,\frac{5}{2},\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]-(a+bx)\left(2(-bc+ad)fn\right.\right.\right.$$
$$\left.\left.\left.\left.\text{AppellF1}\left[\frac{5}{2},\frac{1}{2},1-n,\frac{7}{2},\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]+d(be-af)\,\text{AppellF1}\left[\frac{5}{2},\frac{3}{2},-n,\frac{7}{2},\frac{d(a+bx)}{-bc+ad},\frac{f(a+bx)}{-be+af}\right]\right)\right)\right)\right)$$

Problem 3176: Result more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{a+bx}\,(c+dx)^{1/3}}{e+fx}\,dx$$

Optimal (type 6, 100 leaves, 2 steps):

$$\frac{2(a+bx)^{3/2}(c+dx)^{1/3}\,\text{AppellF1}\left[\frac{3}{2},-\frac{1}{3},1,\frac{5}{2},-\frac{d(a+bx)}{bc-ad},-\frac{f(a+bx)}{be-af}\right]}{3(be-af)\left(\frac{b(c+dx)}{bc-ad}\right)^{1/3}}$$

Result (type 6, 901 leaves):

$$\frac{1}{35\,(c+d\,x)^{2/3}}$$

$$6\,\sqrt{a+b\,x}\,\left(\frac{7\,(c+d\,x)}{f}-\left(d\,(a+b\,x)\,\left(78\,(b\,c-a\,d)\,(b\,e-a\,f)\,\text{AppellF1}\left[\frac{7}{6},\frac{2}{3},1,\frac{13}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\right.\right.\right.\left(3\,d\,(b\,e-a\,f)\,\text{AppellF1}\left[\frac{7}{6},\frac{2}{3},\right.\right.$$

$$\left.2,\frac{13}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+2\,(b\,c-a\,d)\,f\,\text{AppellF1}\left[\frac{7}{6},\frac{5}{3},1,\frac{13}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\Bigg)-7\,(a+b\,x)$$

$$\text{AppellF1}\left[\frac{1}{6},\frac{2}{3},1,\frac{7}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\Big(13\,d\,f\,\left(3\,b^2\,c\,e-3\,a\,d\,f\,(6\,a+7\,b\,x)+b\,(a\,(32\,d\,e-17\,c\,f)+7\,b\,(5\,d\,e-2\,c\,f)\,x)\right)$$

$$\text{AppellF1}\left[\frac{7}{6},\frac{2}{3},1,\frac{13}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]-14\,(5\,b\,d\,e-2\,b\,c\,f-3\,a\,d\,f)\,\Big(3\,d\,(b\,e-a\,f)$$

$$\left.\left.\left.\left.\text{AppellF1}\left[\frac{13}{6},\frac{2}{3},2,\frac{19}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+2\,(b\,c-a\,d)\,f\,\text{AppellF1}\left[\frac{13}{6},\frac{5}{3},1,\frac{19}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\right)\right)\right)\right)\Bigg/$$

$$\Bigg(b^2\,(e+f\,x)\,\Bigg(7\,d\,f\,(a+b\,x)\,\text{AppellF1}\left[\frac{1}{6},\frac{2}{3},1,\frac{7}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+(-6\,b\,d\,e+6\,a\,d\,f)\,\text{AppellF1}\left[\frac{7}{6},\frac{2}{3},2,\right.$$

$$\left.\frac{13}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+4\,(-b\,c+a\,d)\,f\,\text{AppellF1}\left[\frac{7}{6},\frac{5}{3},1,\frac{13}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\Bigg)$$

$$\Bigg(13\,d\,f\,(a+b\,x)\,\text{AppellF1}\left[\frac{7}{6},\frac{2}{3},1,\frac{13}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+(-6\,b\,d\,e+6\,a\,d\,f)\,\text{AppellF1}\left[\frac{13}{6},\frac{2}{3},2,\frac{19}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+$$

$$4\,(-b\,c+a\,d)\,f\,\text{AppellF1}\left[\frac{13}{6},\frac{5}{3},1,\frac{19}{6},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 3177: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,x)^{1/3}\,\sqrt{c+d\,x}}{e+f\,x}\,dx$$

Optimal (type 6, 100 leaves, 2 steps):

$$\frac{3\,(a+b\,x)^{4/3}\,\sqrt{c+d\,x}\,\text{AppellF1}\left[\frac{4}{3},-\frac{1}{2},1,\frac{7}{3},-\frac{d\,(a+b\,x)}{b\,c-a\,d},-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]}{4\,(b\,e-a\,f)\,\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}}$$

Result (type 6, 895 leaves):

$$\frac{1}{35\,(a+b\,x)^{2/3}}$$

$$6\sqrt{c+d\,x}\,\Bigg(\frac{7\,(a+b\,x)}{f}+\Bigg(b\,(c+d\,x)\,\Bigg(-78\,(b\,c-a\,d)\,(d\,e-c\,f)\,\text{AppellF1}\Big[\frac{7}{6},\frac{2}{3},1,\frac{13}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]\,\Big(b\,(-3\,d\,e+3\,c\,f)\,\text{AppellF1}\Big[\frac{7}{6},$$

$$\frac{2}{3},2,\frac{13}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+2\,(b\,c-a\,d)\,f\,\text{AppellF1}\Big[\frac{7}{6},\frac{5}{3},1,\frac{13}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]\Big)-7\,(c+d\,x)$$

$$\text{AppellF1}\Big[\frac{1}{6},\frac{2}{3},1,\frac{7}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]\,\Big(13\,b\,f\,\big(a\,d\,(-3\,d\,e+17\,c\,f+14\,d\,f\,x)+b\,(-32\,c\,d\,e+18\,c^2\,f-35\,d^2\,e\,x+21\,c\,d\,f\,x)\big)$$

$$\text{AppellF1}\Big[\frac{7}{6},\frac{2}{3},1,\frac{13}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+14\,(5\,b\,d\,e-3\,b\,c\,f-2\,a\,d\,f)\,\Big(3\,b\,(d\,e-c\,f)$$

$$\text{AppellF1}\Big[\frac{13}{6},\frac{2}{3},2,\frac{19}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+2\,(-b\,c+a\,d)\,f\,\text{AppellF1}\Big[\frac{13}{6},\frac{5}{3},1,\frac{19}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]\Big)\Big)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(d^2\,(e+f\,x)\,\Big(7\,b\,f\,(c+d\,x)\,\text{AppellF1}\Big[\frac{1}{6},\frac{2}{3},1,\frac{7}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+b\,(-6\,d\,e+6\,c\,f)\,\text{AppellF1}\Big[\frac{7}{6},\frac{2}{3},2,\frac{13}{6},$$

$$\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+4\,(b\,c-a\,d)\,f\,\text{AppellF1}\Big[\frac{7}{6},\frac{5}{3},1,\frac{13}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]\Big)$$

$$\Big(13\,b\,f\,(c+d\,x)\,\text{AppellF1}\Big[\frac{7}{6},\frac{2}{3},1,\frac{13}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+b\,(-6\,d\,e+6\,c\,f)\,\text{AppellF1}\Big[\frac{13}{6},\frac{2}{3},2,\frac{19}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]+$$

$$4\,(b\,c-a\,d)\,f\,\text{AppellF1}\Big[\frac{13}{6},\frac{5}{3},1,\frac{19}{6},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\Big]\Big)\Bigg)$$

Problem 3178: Result more than twice size of optimal antiderivative.

$$\int \sqrt{a+b\,x}\,(c+d\,x)^{1/3}\,(e+f\,x)^{1/4}\,dx$$

Optimal (type 6, 125 leaves, 3 steps):

$$\frac{2\,(a+b\,x)^{3/2}\,(c+d\,x)^{1/3}\,(e+f\,x)^{1/4}\,\text{AppellF1}\Big[\frac{3}{2},-\frac{1}{3},-\frac{1}{4},\frac{5}{2},-\frac{d\,(a+b\,x)}{b\,c-a\,d},-\frac{f\,(a+b\,x)}{b\,e-a\,f}\Big]}{3\,b\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{1/3}\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{1/4}}$$

Result (type 6, 1077 leaves):

$$\left(\frac{12\,(3\,b\,d\,e+4\,b\,c\,f+6\,a\,d\,f)}{325\,b\,d\,f}+\frac{12\,x}{25}\right)\sqrt{a+b\,x}\,\,(c+d\,x)^{1/3}\,(e+f\,x)^{1/4}-\frac{1}{82\,225\,b^3\,d\,f\left(c+\frac{(a+b\,x)\left(d-\frac{a\,d}{a+b\,x}\right)}{b}\right)^{2/3}\left(e+\frac{(a+b\,x)\left(f-\frac{a\,f}{a+b\,x}\right)}{b}\right)^{3/4}}$$

$$72\,(a+b\,x)^{3/2}\left(\left(1058\,\left(-21\,a^3\,d^3\,f^3+9\,a^2\,b\,d^2\,f^2\,(3\,d\,e+4\,c\,f)-a\,b^2\,d\,f\,\left(20\,d^2\,e^2+14\,c\,d\,e\,f+29\,c^2\,f^2\right)+b^3\,\left(5\,d^3\,e^3+5\,c\,d^2\,e^2\,f+2\,c^2\,d\,e\,f^2+9\,c^3\,f^3\right)\right)\right.\right.$$

$$\left.\text{AppellF1}\left[\frac{11}{12},\frac{2}{3},\frac{3}{4},\frac{23}{12},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\right)\Big/$$

$$\left((a+b\,x)\,\left(-23\,d\,f\,\text{AppellF1}\left[\frac{11}{12},\frac{2}{3},\frac{3}{4},\frac{23}{12},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+\frac{1}{a+b\,x}\left(9\,d\,(b\,e-a\,f)\right.\right.\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{23}{12},\frac{2}{3},\frac{7}{4},\frac{35}{12},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+8\,(b\,c-a\,d)\,f\,\text{AppellF1}\left[\frac{23}{12},\frac{5}{3},\frac{3}{4},\frac{35}{12},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\right)\right)\right)+$$

$$\left(11\,\left(7\,a^2\,d^2\,f^2-2\,a\,b\,d\,f\,(3\,d\,e+4\,c\,f)+b^2\,\left(5\,d^2\,e^2-4\,c\,d\,e\,f+6\,c^2\,f^2\right)\right)\left(35\,d\,f\left(\frac{b\,c\,\left(\frac{17\,b\,e}{a+b\,x}+f\left(23-\frac{17\,a}{a+b\,x}\right)\right)}{a+b\,x}+\right.\right.\right.$$

$$\left.\left.d\left(f\left(23+\frac{17\,a^2}{(a+b\,x)^2}-\frac{46\,a}{a+b\,x}\right)+\frac{b\,e\,\left(23-\frac{17\,a}{a+b\,x}\right)}{a+b\,x}\right)\right)\text{AppellF1}\left[\frac{23}{12},\frac{2}{3},\frac{3}{4},\frac{35}{12},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]-\frac{1}{a+b\,x}$$

$$23\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)\left(9\,d\,(b\,e-a\,f)\,\text{AppellF1}\left[\frac{35}{12},\frac{2}{3},\frac{7}{4},\frac{47}{12},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+\right.$$

$$\left.\left.\left.8\,(b\,c-a\,d)\,f\,\text{AppellF1}\left[\frac{35}{12},\frac{5}{3},\frac{3}{4},\frac{47}{12},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\right)\right)\right)\Big/$$

$$\left(d\,f\left(35\,d\,f\,\text{AppellF1}\left[\frac{23}{12},\frac{2}{3},\frac{3}{4},\frac{35}{12},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+\frac{1}{a+b\,x}\left((-9\,b\,d\,e+9\,a\,d\,f)\,\text{AppellF1}\left[\frac{35}{12},\frac{2}{3},\frac{7}{4},\frac{47}{12},\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\left.\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]+8\,(-b\,c+a\,d)\,f\,\text{AppellF1}\left[\frac{35}{12},\frac{5}{3},\frac{3}{4},\frac{47}{12},\frac{-b\,c+a\,d}{d\,(a+b\,x)},\frac{-b\,e+a\,f}{f\,(a+b\,x)}\right]\right)\right)\right)\right)$$

Problem 3179: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^{1/3}\,\sqrt{c+d\,x}\,\,(e+f\,x)^{1/4}\,dx$$

Optimal (type 6, 125 leaves, 3 steps):

$$\frac{3\,(a+b\,x)^{4/3}\,\sqrt{c+d\,x}\,\,(e+f\,x)^{1/4}\,\text{AppellF1}\left[\frac{4}{3},-\frac{1}{2},-\frac{1}{4},\frac{7}{3},-\frac{d\,(a+b\,x)}{b\,c-a\,d},-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]}{4\,b\,\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{1/4}}$$

Result (type 6, 1078 leaves):

$$\frac{1}{3575\,(a+b\,x)^{2/3}\,(e+f\,x)^{3/4}}$$
$$\sqrt{c+d\,x}\,\left(\frac{132\,(a+b\,x)\,(e+f\,x)\,(4\,a\,d\,f+b\,(3\,d\,e+6\,c\,f+13\,d\,f\,x))}{b\,d\,f}-\left(72\,(c+d\,x)\,\left(-23\,(b\,c-a\,d)\,(d\,e-c\,f)\,(3\,b\,d\,e-7\,b\,c\,f+4\,a\,d\,f)\right.\right.\right.$$
$$\text{AppellF1}\left[\frac{11}{12},\frac{2}{3},\frac{3}{4},\frac{23}{12},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]\left(9\,b\,(d\,e-c\,f)\,\text{AppellF1}\left[\frac{11}{12},\frac{2}{3},\frac{7}{4},\frac{23}{12},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]+\right.$$
$$\left.8\,(-b\,c+a\,d)\,f\,\text{AppellF1}\left[\frac{11}{12},\frac{5}{3},\frac{3}{4},\frac{23}{12},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]\right)-11\,(c+d\,x)\,\text{AppellF1}\left[-\frac{1}{12},\frac{2}{3},\frac{3}{4},\frac{11}{12},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]$$
$$\left(23\,b\,f\,\left(-2\,a^2\,d^2\,f\,(-2\,d\,e+35\,c\,f+33\,d\,f\,x)-b^2\,\left(7\,c^2\,f^2\,(12\,c+11\,d\,x)-2\,c\,d\,e\,f\,(38\,c+33\,d\,x)+d^2\,e^2\,(58\,c+55\,d\,x)\right)+a\right.\right.$$
$$\left.b\,d\,\left(99\,c^2\,f^2+d^2\,e\,(3\,e+44\,f\,x)+2\,c\,d\,f\,(15\,e+44\,f\,x)\right)\right)\text{AppellF1}\left[\frac{11}{12},\frac{2}{3},\frac{3}{4},\frac{23}{12},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]+$$
$$11\,\left(6\,a^2\,d^2\,f^2-4\,a\,b\,d\,f\,(d\,e+2\,c\,f)+b^2\,\left(5\,d^2\,e^2-6\,c\,d\,e\,f+7\,c^2\,f^2\right)\right)\left(9\,b\,(d\,e-c\,f)\,\text{AppellF1}\left[\frac{23}{12},\frac{2}{3},\frac{7}{4},\frac{35}{12},\right.\right.$$
$$\left.\left.\left.\left.\left.\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]+8\,(-b\,c+a\,d)\,f\,\text{AppellF1}\left[\frac{23}{12},\frac{5}{3},\frac{3}{4},\frac{35}{12},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]\right)\right)\right)\right)\Big/$$
$$\left(d^3\,\left(11\,b\,f\,(c+d\,x)\,\text{AppellF1}\left[-\frac{1}{12},\frac{2}{3},\frac{3}{4},\frac{11}{12},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]+b\,(-9\,d\,e+9\,c\,f)\,\text{AppellF1}\left[\frac{11}{12},\frac{2}{3},\frac{7}{4},\frac{23}{12},\right.\right.\right.$$
$$\left.\left.\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]+8\,(b\,c-a\,d)\,f\,\text{AppellF1}\left[\frac{11}{12},\frac{5}{3},\frac{3}{4},\frac{23}{12},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]\right)$$
$$\left(23\,b\,f\,(c+d\,x)\,\text{AppellF1}\left[\frac{11}{12},\frac{2}{3},\frac{3}{4},\frac{23}{12},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]+b\,(-9\,d\,e+9\,c\,f)\,\text{AppellF1}\left[\frac{23}{12},\frac{2}{3},\frac{7}{4},\frac{35}{12},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]+\right.$$
$$\left.\left.\left.8\,(b\,c-a\,d)\,f\,\text{AppellF1}\left[\frac{23}{12},\frac{5}{3},\frac{3}{4},\frac{35}{12},\frac{b\,c-a\,d}{b\,c+b\,d\,x},\frac{-d\,e+c\,f}{f\,(c+d\,x)}\right]\right)\right)\right)$$

Problem 3180: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^4\,(A+B\,x)\,(d+e\,x)^m\,dx$$

Optimal (type 3, 234 leaves, 2 steps):

$$-\frac{(b d-a e)^4 (B d-A e) (d+e x)^{1+m}}{e^6 (1+m)}+\frac{(b d-a e)^3 (5 b B d-4 A b e-a B e) (d+e x)^{2+m}}{e^6 (2+m)}-\frac{2 b (b d-a e)^2 (5 b B d-3 A b e-2 a B e) (d+e x)^{3+m}}{e^6 (3+m)}+\frac{2 b^2 (b d-a e) (5 b B d-2 A b e-3 a B e) (d+e x)^{4+m}}{e^6 (4+m)}-\frac{b^3 (5 b B d-A b e-4 a B e) (d+e x)^{5+m}}{e^6 (5+m)}+\frac{b^4 B (d+e x)^{6+m}}{e^6 (6+m)}$$

Result (type 3, 635 leaves):

$$\frac{1}{e^6 (1+m) (2+m) (3+m) (4+m) (5+m) (6+m)}(d+e x)^{1+m} \left(a^4 e^4 \left(360+342 m+119 m^2+18 m^3+m^4\right) (-B d+A e (2+m)+B e (1+m) x)+4 a^3 b e^3 \left(120+74 m+15 m^2+m^3\right) \left(A e (3+m) (-d+e (1+m) x)+B \left(2 d^2-2 d e (1+m) x+e^2 \left(2+3 m+m^2\right) x^2\right)\right)+6 a^2 b^2 e^2 \left(30+11 m+m^2\right) \left(A e (4+m) \left(2 d^2-2 d e (1+m) x+e^2 \left(2+3 m+m^2\right) x^2\right)+B \left(-6 d^3+6 d^2 e (1+m) x-3 d e^2 \left(2+3 m+m^2\right) x^2+e^3 \left(6+11 m+6 m^2+m^3\right) x^3\right)\right)+4 a b^3 e (6+m) \left(A e (5+m) \left(-6 d^3+6 d^2 e (1+m) x-3 d e^2 \left(2+3 m+m^2\right) x^2+e^3 \left(6+11 m+6 m^2+m^3\right) x^3\right)+B \left(24 d^4-24 d^3 e (1+m) x+12 d^2 e^2 \left(2+3 m+m^2\right) x^2-4 d e^3 \left(6+11 m+6 m^2+m^3\right) x^3+e^4 \left(24+50 m+35 m^2+10 m^3+m^4\right) x^4\right)\right)-b^4 \left(-A e (6+m) \left(24 d^4-24 d^3 e (1+m) x+12 d^2 e^2 \left(2+3 m+m^2\right) x^2-4 d e^3 \left(6+11 m+6 m^2+m^3\right) x^3+e^4 \left(24+50 m+35 m^2+10 m^3+m^4\right) x^4\right)+B \left(120 d^5-120 d^4 e (1+m) x+60 d^3 e^2 \left(2+3 m+m^2\right) x^2-20 d^2 e^3 \left(6+11 m+6 m^2+m^3\right) x^3+5 d e^4 \left(24+50 m+35 m^2+10 m^3+m^4\right) x^4-e^5 \left(120+274 m+225 m^2+85 m^3+15 m^4+m^5\right) x^5\right)\right)\right)$$

Problem 3181: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^3 (A+B x) (d+e x)^m \, dx$$

Optimal (type 3, 186 leaves, 2 steps):

$$\frac{(b d-a e)^3 (B d-A e) (d+e x)^{1+m}}{e^5 (1+m)}-\frac{(b d-a e)^2 (4 b B d-3 A b e-a B e) (d+e x)^{2+m}}{e^5 (2+m)}+\frac{3 b (b d-a e) (2 b B d-A b e-a B e) (d+e x)^{3+m}}{e^5 (3+m)}-\frac{b^2 (4 b B d-A b e-3 a B e) (d+e x)^{4+m}}{e^5 (4+m)}+\frac{b^3 B (d+e x)^{5+m}}{e^5 (5+m)}$$

Result (type 3, 391 leaves):

$$\frac{1}{e^5 (1+m) (2+m) (3+m) (4+m) (5+m)}(d+e x)^{1+m} \left(a^3 e^3 \left(60+47 m+12 m^2+m^3\right) (-B d+A e (2+m)+B e (1+m) x)+3 a^2 b e^2 \left(20+9 m+m^2\right) \left(A e (3+m) (-d+e (1+m) x)+B \left(2 d^2-2 d e (1+m) x+e^2 \left(2+3 m+m^2\right) x^2\right)\right)+3 a b^2 e (5+m) \left(A e (4+m) \left(2 d^2-2 d e (1+m) x+e^2 \left(2+3 m+m^2\right) x^2\right)+B \left(-6 d^3+6 d^2 e (1+m) x-3 d e^2 \left(2+3 m+m^2\right) x^2+e^3 \left(6+11 m+6 m^2+m^3\right) x^3\right)\right)+b^3 \left(A e (5+m) \left(-6 d^3+6 d^2 e (1+m) x-3 d e^2 \left(2+3 m+m^2\right) x^2+e^3 \left(6+11 m+6 m^2+m^3\right) x^3\right)+B \left(24 d^4-24 d^3 e (1+m) x+12 d^2 e^2 \left(2+3 m+m^2\right) x^2-4 d e^3 \left(6+11 m+6 m^2+m^3\right) x^3+e^4 \left(24+50 m+35 m^2+10 m^3+m^4\right) x^4\right)\right)\right)$$

Problem 3186: Unable to integrate problem.

$$\int \frac{(A+B x)\,(d+e x)^m}{(a+b x)^2}\,dx$$

Optimal (type 5, 112 leaves, 2 steps):

$$-\frac{(A b-a B)\,(d+e x)^{1+m}}{b\,(b d-a e)\,(a+b x)}+\frac{(a B e\,(1+m)-b\,(B d+A e m))\,(d+e x)^{1+m}\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{b\,(d+e x)}{b d-a e}\right]}{b\,(b d-a e)^2\,(1+m)}$$

Result (type 8, 22 leaves):

$$\int \frac{(A+B x)\,(d+e x)^m}{(a+b x)^2}\,dx$$

Problem 3193: Result more than twice size of optimal antiderivative.

$$\int \frac{(2+3 x)^m\,(3+5 x)^3}{1-2 x}\,dx$$

Optimal (type 5, 90 leaves, 3 steps):

$$-\frac{5135\,(2+3 x)^{1+m}}{216\,(1+m)}-\frac{725\,(2+3 x)^{2+m}}{108\,(2+m)}-\frac{125\,(2+3 x)^{3+m}}{54\,(3+m)}+\frac{1331\,(2+3 x)^{1+m}\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{2}{7}\,(2+3 x)\right]}{56\,(1+m)}$$

Result (type 5, 240 leaves):

$$\frac{1}{432}\,(2+3 x)^m\left(-\frac{32670\,(2+3 x)}{1+m}+\frac{2475\,\left(40+36 x-36 x^2-7^{2+m}\,(4+6 x)^{-m}-6 m\,\left(-2+x+6 x^2\right)\right)}{2+3 m+m^2}+\frac{1}{(1+m)\,(2+m)\,(3+m)}\right.$$
$$250\,(4+6 x)^{-m}\left(7^{3+m}-316\,(4+6 x)^m-162 x\,(4+6 x)^m+324 x^2\,(4+6 x)^m-216 x^3\,(4+6 x)^m-9 m^2\,(1-2 x)^2\,(2+3 x)\,(4+6 x)^m-\right.$$
$$\left.\left.3 m\,(4+6 x)^m\,\left(46-59 x-120 x^2+108 x^3\right)\right)-\frac{35937\,\left(\frac{4+6 x}{-3+6 x}\right)^{-m}\,\text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{7}{3-6 x}\right]}{m}\right)$$

Problem 3199: Unable to integrate problem.

$$\int \frac{(a+b x)^m}{(e+f x)^2}\,dx$$

Optimal (type 5, 52 leaves, 1 step):

$$\frac{b\,(a+b\,x)^{1+m}\,\text{Hypergeometric2F1}\left[2,\,1+m,\,2+m,\,-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]}{(b\,e-a\,f)^2\,(1+m)}$$

Result (type 8, 17 leaves):

$$\int\frac{(a+b\,x)^m}{(e+f\,x)^2}\,dx$$

Problem 3200: Unable to integrate problem.

$$\int\frac{(a+b\,x)^m}{(c+d\,x)\,(e+f\,x)^2}\,dx$$

Optimal (type 5, 187 leaves, 4 steps):

$$-\frac{f\,(a+b\,x)^{1+m}}{(b\,e-a\,f)\,(d\,e-c\,f)\,(e+f\,x)}+\frac{d^2\,(a+b\,x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]}{(b\,c-a\,d)\,(d\,e-c\,f)^2\,(1+m)}+$$
$$\frac{f\,(a\,d\,f-b\,(d\,e\,(1-m)+c\,f\,m))\,(a+b\,x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]}{(b\,e-a\,f)^2\,(d\,e-c\,f)^2\,(1+m)}$$

Result (type 8, 24 leaves):

$$\int\frac{(a+b\,x)^m}{(c+d\,x)\,(e+f\,x)^2}\,dx$$

Problem 3201: Unable to integrate problem.

$$\int\frac{(a+b\,x)^m}{(c+d\,x)^2\,(e+f\,x)^2}\,dx$$

Optimal (type 5, 281 leaves, 5 steps):

$$\frac{f\,(b\,d\,e+b\,c\,f-2\,a\,d\,f)\,(a+b\,x)^{1+m}}{(b\,c-a\,d)\,(b\,e-a\,f)\,(d\,e-c\,f)^2\,(e+f\,x)}+\frac{d\,(a+b\,x)^{1+m}}{(b\,c-a\,d)\,(d\,e-c\,f)\,(c+d\,x)\,(e+f\,x)}+$$
$$\frac{d^2\,(2\,a\,d\,f-b\,(c\,f\,(2-m)+d\,e\,m))\,(a+b\,x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]}{(b\,c-a\,d)^2\,(d\,e-c\,f)^3\,(1+m)}-$$
$$\frac{f^2\,(2\,a\,d\,f-b\,(d\,e\,(2-m)+c\,f\,m))\,(a+b\,x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]}{(b\,e-a\,f)^2\,(d\,e-c\,f)^3\,(1+m)}$$

Result (type 8, 24 leaves):

$$\int \frac{(a+b x)^m}{(c+d x)^2 (e+f x)^2} \, dx$$

Test results for the 159 problems in "1.1.1.4 (a+b x)^m (c+d x)^n (e+f x)^p (g+h x)^q.m"

Problem 33: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A+B x}{\sqrt{a+b x} \sqrt{c+\frac{b(-1+c) x}{a}} \sqrt{e+\frac{b(-1+e) x}{a}}} \, dx$$

Optimal (type 4, 145 leaves, 3 steps):

$$-\frac{2 a^{3/2} B \, \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-c} \sqrt{a+b x}}{\sqrt{a}}\right], \frac{1-e}{1-c}\right]}{b^2 \sqrt{1-c} (1-e)}+\frac{2 \sqrt{a} (a B e+A (b-b e)) \, \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-c} \sqrt{a+b x}}{\sqrt{a}}\right], \frac{1-e}{1-c}\right]}{b^2 \sqrt{1-c} (1-e)}$$

Result (type 4, 309 leaves):

$$-\left(\left(2\sqrt{\frac{a}{-1+c}}\,(a+b\,x)^{3/2}\left(-B\sqrt{\frac{a}{-1+c}}\left(-1+c+\frac{a}{a+b\,x}\right)\left(-1+e+\frac{a}{a+b\,x}\right)-\frac{i\,a\,B\,(-1+e)\sqrt{\frac{-1+c+\frac{a}{a+b\,x}}{-1+c}}\sqrt{\frac{-1+e+\frac{a}{a+b\,x}}{-1+e}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{-1+c}}}{\sqrt{a+b\,x}}\right],\frac{-1+c}{-1+e}\right]}{\sqrt{a+b\,x}}+\frac{i\,(a\,B\,c+A\,(b-b\,c))\,(-1+e)\sqrt{\frac{-1+c+\frac{a}{a+b\,x}}{-1+c}}\sqrt{\frac{-1+e+\frac{a}{a+b\,x}}{-1+e}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{-1+c}}}{\sqrt{a+b\,x}}\right],\frac{-1+c}{-1+e}\right]}{\sqrt{a+b\,x}}\right)\right)\Big/\left(a\,b^2\,(-1+e)\sqrt{c+\frac{b\,(-1+c)\,x}{a}}\sqrt{e+\frac{b\,(-1+e)\,x}{a}}\right)\right)$$

Problem 34: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{A+B\,x}{\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+\frac{b\,(-1+e)\,x}{a}}}\,dx$$

Optimal (type 4, 221 leaves, 5 steps):

$$-\frac{2\,a\,B\sqrt{-b\,c+a\,d}\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],-\frac{(b\,c-a\,d)\,(1-e)}{a\,d}\right]}{b^2\sqrt{d}\,(1-e)\sqrt{c+d\,x}}+\frac{2\sqrt{a}\,(a\,B\,e+A\,(b-b\,e))\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-e}\,\sqrt{a+b\,x}}{\sqrt{a}}\right],-\frac{a\,d}{(b\,c-a\,d)\,(1-e)}\right]}{b^2\,(1-e)^{3/2}\sqrt{c+d\,x}}$$

Result (type 4, 312 leaves):

$$-\left(\left(2\sqrt{\frac{a}{-1+e}}\,(a+b\,x)^{3/2}\left(-\frac{b\,B\sqrt{\frac{a}{-1+e}}\,(c+d\,x)\,(a\,e+b\,(-1+e)\,x)}{(a+b\,x)^2}-\frac{i\,a\,B\,d\sqrt{\frac{b\,(c+d\,x)}{d\,(a+b\,x)}}\sqrt{\frac{-1+e+\frac{a}{a+b\,x}}{-1+e}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{-1+e}}}{\sqrt{a+b\,x}}\right],\frac{(b\,c-a\,d)\,(-1+e)}{a\,d}\right]}{\sqrt{a+b\,x}}+\frac{i\,d\,(a\,B\,e+A\,(b-b\,e))\sqrt{\frac{b\,(c+d\,x)}{d\,(a+b\,x)}}\sqrt{\frac{-1+e+\frac{a}{a+b\,x}}{-1+e}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{-1+e}}}{\sqrt{a+b\,x}}\right],\frac{(b\,c-a\,d)\,(-1+e)}{a\,d}\right]}{\sqrt{a+b\,x}}\right)\right)\Big/\left(a\,b^2\,d\sqrt{c+d\,x}\sqrt{e+\frac{b\,(-1+e)\,x}{a}}\right)\right)$$

Problem 43: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{a+b\,x}\,dx$$

Optimal (type 4, 570 leaves, 12 steps):

$$\frac{2\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{3\,b}-\left(2\sqrt{-d\,e+c\,f}\,(3\,a\,d\,f\,h-b\,(d\,f\,g+d\,e\,h+c\,f\,h))\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{g+h\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]\right)\Big/\left(3\,b^2\,d\sqrt{f}\,h\sqrt{e+f\,x}\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\right)+\left(2\sqrt{-d\,e+c\,f}\,(3\,a^2\,d\,f\,h^2-3\,a\,b\,(d\,e+c\,f)\,h^2-b^2\,(d\,g\,(f\,g-e\,h)-c\,h\,(f\,g+2\,e\,h)))\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]\right)\Big/\left(3\,b^3\,d\sqrt{f}\,h\sqrt{e+f\,x}\,\sqrt{g+h\,x}\right)-\frac{1}{b^3\sqrt{f}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}2\,(b\,e-a\,f)\sqrt{-d\,e+c\,f}\,(b\,g-a\,h)\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\,\text{EllipticPi}\left[-\frac{b\,(d\,e-c\,f)}{(b\,c-a\,d)\,f},\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]$$

Result (type 4, 29 892 leaves): Display of huge result suppressed!

Problem 54: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{2-3x}}{\sqrt{-5+2x}\,\sqrt{1+4x}}\,dx$$

Optimal (type 4, 47 leaves, 2 steps):

$$\frac{\sqrt{\frac{11}{2}}\,\sqrt{5-2x}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1+4x}}{\sqrt{11}}\right],3\right]}{2\sqrt{-5+2x}}$$

Result (type 4, 111 leaves):

$$-\frac{\frac{2(-5+2x)(-2+3x)}{\sqrt{\frac{1}{2}+2x}}+\sqrt{11}\,\sqrt{\frac{-5+2x}{1+4x}}\,\sqrt{\frac{-2+3x}{1+4x}}\,(1+4x)\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{11}{3}}}{\sqrt{1+4x}}\right],3\right]}{2\sqrt{2-3x}\,\sqrt{-10+4x}}$$

Problem 58: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\sqrt{c+dx}}{(a+bx)\,\sqrt{e+fx}\,\sqrt{g+hx}}\,dx$$

Optimal (type 4, 293 leaves, 8 steps):

$$\frac{2\sqrt{-de+cf}\,\sqrt{\frac{d(e+fx)}{de-cf}}\,\sqrt{\frac{d(g+hx)}{dg-ch}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+dx}}{\sqrt{-de+cf}}\right],\frac{(de-cf)h}{f(dg-ch)}\right]}{b\sqrt{f}\,\sqrt{e+fx}\,\sqrt{g+hx}}-$$

$$\frac{2\sqrt{-de+cf}\,\sqrt{\frac{d(e+fx)}{de-cf}}\,\sqrt{\frac{d(g+hx)}{dg-ch}}\;\text{EllipticPi}\left[-\frac{b(de-cf)}{(bc-ad)f},\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+dx}}{\sqrt{-de+cf}}\right],\frac{(de-cf)h}{f(dg-ch)}\right]}{b\sqrt{f}\,\sqrt{e+fx}\,\sqrt{g+hx}}$$

Result (type 4, 202 leaves):

$$-\left(\left(2\,i\,\sqrt{c+d\,x}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\,\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{\frac{f\,(c+d\,x)}{d\,e-c\,f}}\right],\frac{d\,e\,h-c\,f\,h}{d\,f\,g-c\,f\,h}\right]-\text{EllipticPi}\left[\frac{b\,(-d\,e+c\,f)}{(b\,c-a\,d)\,f},\,i\,\text{ArcSinh}\left[\sqrt{\frac{f\,(c+d\,x)}{d\,e-c\,f}}\right],\frac{d\,e\,h-c\,f\,h}{d\,f\,g-c\,f\,h}\right]\right)\right)\Big/\left(b\,\sqrt{\frac{f\,(c+d\,x)}{d\,(e+f\,x)}}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}\right)\right)$$

Problem 59: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{(c+d\,x)^{3/2}}{(a+b\,x)\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 449 leaves, 11 steps):

$$\frac{2\,d\,\sqrt{-f\,g+e\,h}\,\sqrt{c+d\,x}\,\sqrt{\frac{f\,(g+h\,x)}{f\,g-e\,h}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{h}\,\sqrt{e+f\,x}}{\sqrt{-f\,g+e\,h}}\right],-\frac{d\,(f\,g-e\,h)}{(d\,e-c\,f)\,h}\right]}{b\,f\,\sqrt{h}\,\sqrt{-\frac{f\,(c+d\,x)}{d\,e-c\,f}}\,\sqrt{g+h\,x}}+$$

$$\frac{2\,(b\,c-a\,d)\,\sqrt{-d\,e+c\,f}\,\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]}{b^2\,\sqrt{f}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}-$$

$$\frac{2\,(b\,c-a\,d)\,\sqrt{-d\,e+c\,f}\,\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\,\text{EllipticPi}\left[-\frac{b\,(d\,e-c\,f)}{(b\,c-a\,d)\,f},\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]}{b^2\,\sqrt{f}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}$$

Result (type 4, 381 leaves):

$$-\frac{1}{b^2 f h \sqrt{g+h x}} 2 \sqrt{c+d x} \left(-\frac{b d f (g+h x)}{\sqrt{e+f x}}+\left(\mathrm{i} \sqrt{\frac{f (g+h x)}{h (e+f x)}} \left(-b d^2 (b e-a f) (-f g+e h) \text{EllipticE}\left[\mathrm{i} \text{ArcSinh}\left[\frac{\sqrt{-e+\frac{f g}{h}}}{\sqrt{e+f x}}\right], \frac{(d e-c f) h}{d (-f g+e h)}\right]+\right.\right.\right.$$

$$f \left(-b \left(a d^2 (-f g+e h)+b \left(d^2 e g-2 c d e h+c^2 f h\right)\right) \text{EllipticF}\left[\mathrm{i} \text{ArcSinh}\left[\frac{\sqrt{-e+\frac{f g}{h}}}{\sqrt{e+f x}}\right], \frac{(d e-c f) h}{d (-f g+e h)}\right]+\right.$$

$$\left.\left.\left.\left.(b c-a d)^2 f h \text{EllipticPi}\left[\frac{(b e-a f) h}{b (-f g+e h)}, \mathrm{i} \text{ArcSinh}\left[\frac{\sqrt{-e+\frac{f g}{h}}}{\sqrt{e+f x}}\right], \frac{(d e-c f) h}{d (-f g+e h)}\right]\right)\right)\right) \Big/ \left(d (-b e+a f) \sqrt{-e+\frac{f g}{h}} \sqrt{\frac{f (c+d x)}{d (e+f x)}}\right)\right)$$

Problem 68: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{c i+d i x}{\sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}} \, dx$$

Optimal (type 4, 137 leaves, 3 steps):

$$\frac{2 \sqrt{-f g+e h}\; i \sqrt{c+d x} \sqrt{\frac{f (g+h x)}{f g-e h}} \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{h} \sqrt{e+f x}}{\sqrt{-f g+e h}}\right], -\frac{d (f g-e h)}{(d e-c f) h}\right]}{f \sqrt{h} \sqrt{-\frac{f (c+d x)}{d e-c f}} \sqrt{g+h x}}$$

Result (type 4, 180 leaves):

$$-\left(\left(2 \mathrm{i}\; i \sqrt{c+d x} \sqrt{g+h x} \left(\text{EllipticE}\left[\mathrm{i} \text{ArcSinh}\left[\sqrt{\frac{f (c+d x)}{d e-c f}}\right], \frac{d e h-c f h}{d f g-c f h}\right]-\text{EllipticF}\left[\mathrm{i} \text{ArcSinh}\left[\sqrt{\frac{f (c+d x)}{d e-c f}}\right], \frac{d e h-c f h}{d f g-c f h}\right]\right)\right) \Big/\right.$$

$$\left.\left(h \sqrt{\frac{f (c+d x)}{d (e+f x)}} \sqrt{e+f x} \sqrt{\frac{d (g+h x)}{d g-c h}}\right)\right)$$

Problem 69: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{a+b x}{\sqrt{c+d x}\, \sqrt{e+f x}\, \sqrt{g+h x}}\, dx$$

Optimal (type 4, 284 leaves, 6 steps):

$$\frac{2 b \sqrt{-d e+c f} \sqrt{\frac{d (e+f x)}{d e-c f}} \sqrt{g+h x}\, \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right], \frac{(d e-c f) h}{f (d g-c h)}\right]}{d \sqrt{f}\, h \sqrt{e+f x} \sqrt{\frac{d (g+h x)}{d g-c h}}} - \frac{2 \sqrt{-d e+c f}\, (b g-a h) \sqrt{\frac{d (e+f x)}{d e-c f}} \sqrt{\frac{d (g+h x)}{d g-c h}}\, \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right], \frac{(d e-c f) h}{f (d g-c h)}\right]}{d \sqrt{f}\, h \sqrt{e+f x} \sqrt{g+h x}}$$

Result (type 4, 319 leaves):

$$-\left(\left(2 \left(-b d^2 \sqrt{-c+\frac{d e}{f}}\, (e+f x) (g+h x) - i b (d e-c f) h (c+d x)^{3/2} \sqrt{\frac{d (e+f x)}{f (c+d x)}} \sqrt{\frac{d (g+h x)}{h (c+d x)}}\, \text{EllipticE}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d e}{f}}}{\sqrt{c+d x}}\right], \frac{d f g-c f h}{d e h-c f h}\right] + i d (b e-a f) h (c+d x)^{3/2} \sqrt{\frac{d (e+f x)}{f (c+d x)}} \sqrt{\frac{d (g+h x)}{h (c+d x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d e}{f}}}{\sqrt{c+d x}}\right], \frac{d f g-c f h}{d e h-c f h}\right]\right)\right) \Big/ \left(d^2 \sqrt{-c+\frac{d e}{f}}\, f h \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}\right)\right)$$

Problem 70: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(a+b x) \sqrt{c+d x}\, \sqrt{e+f x}\, \sqrt{g+h x}}\, dx$$

Optimal (type 4, 165 leaves, 4 steps):

$$-\frac{2\sqrt{-de+cf}\,\sqrt{\frac{d(e+fx)}{de-cf}}\,\sqrt{\frac{d(g+hx)}{dg-ch}}\,\text{EllipticPi}\left[-\frac{b(de-cf)}{(bc-ad)f},\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+dx}}{\sqrt{-de+cf}}\right],\frac{(de-cf)h}{f(dg-ch)}\right]}{(bc-ad)\sqrt{f}\,\sqrt{e+fx}\,\sqrt{g+hx}}$$

Result (type 4, 225 leaves) :

$$\left(2\,i\,(c+dx)\sqrt{\frac{d(e+fx)}{f(c+dx)}}\,\sqrt{\frac{d(g+hx)}{h(c+dx)}}\right.$$

$$\left.\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{de}{f}}}{\sqrt{c+dx}}\right],\frac{dfg-cfh}{deh-cfh}\right]-\text{EllipticPi}\left[\frac{(bc-ad)f}{b(-de+cf)},i\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{de}{f}}}{\sqrt{c+dx}}\right],\frac{dfg-cfh}{deh-cfh}\right]\right)\right)\Big/$$

$$\left((-bc+ad)\sqrt{-c+\frac{de}{f}}\,\sqrt{e+fx}\,\sqrt{g+hx}\right)$$

Problem 71: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{(a+bx)(c+dx)^{3/2}\sqrt{e+fx}\,\sqrt{g+hx}}\,dx$$

Optimal (type 4, 393 leaves, 10 steps) :

$$\frac{2d^2\sqrt{e+fx}\,\sqrt{g+hx}}{(bc-ad)(de-cf)(dg-ch)\sqrt{c+dx}}-\frac{2d\sqrt{h}\,\sqrt{-fg+eh}\,\sqrt{c+dx}\,\sqrt{\frac{f(g+hx)}{fg-eh}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{h}\,\sqrt{e+fx}}{\sqrt{-fg+eh}}\right],-\frac{d(fg-eh)}{(de-cf)h}\right]}{(bc-ad)(de-cf)(dg-ch)\sqrt{-\frac{f(c+dx)}{de-cf}}\,\sqrt{g+hx}}-$$

$$\frac{2b\sqrt{-de+cf}\,\sqrt{\frac{d(e+fx)}{de-cf}}\,\sqrt{\frac{d(g+hx)}{dg-ch}}\,\text{EllipticPi}\left[-\frac{b(de-cf)}{(bc-ad)f},\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+dx}}{\sqrt{-de+cf}}\right],\frac{(de-cf)h}{f(dg-ch)}\right]}{(bc-ad)^2\sqrt{f}\,\sqrt{e+fx}\,\sqrt{g+hx}}$$

Result (type 4, 321 leaves) :

$$\left(2\,i\,(c+d\,x)\,\sqrt{\frac{d\,(e+f\,x)}{f\,(c+d\,x)}}\,\sqrt{\frac{d\,(g+h\,x)}{h\,(c+d\,x)}}\right.$$

$$\left((b\,c-a\,d)\,f\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d\,g}{h}}}{\sqrt{c+d\,x}}\right],\frac{d\,e\,h-c\,f\,h}{d\,f\,g-c\,f\,h}\right]+(b\,d\,e-2\,b\,c\,f+a\,d\,f)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d\,g}{h}}}{\sqrt{c+d\,x}}\right],\frac{d\,e\,h-c\,f\,h}{d\,f\,g-c\,f\,h}\right]+\right.$$

$$\left.\left.b\,(-d\,e+c\,f)\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},i\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d\,g}{h}}}{\sqrt{c+d\,x}}\right],\frac{d\,e\,h-c\,f\,h}{d\,f\,g-c\,f\,h}\right]\right)\right)\Big/\left((b\,c-a\,d)^2\,(-d\,e+c\,f)\,\sqrt{-c+\frac{d\,g}{h}}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}\right)$$

Problem 72: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,x)\,(c+d\,x)^{5/2}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 875 leaves, 18 steps):

$$\frac{2 d^2 \sqrt{e+f x} \sqrt{g+h x}}{3 (b c-a d) (d e-c f) (d g-c h) (c+d x)^{3/2}}+\frac{2 b d^2 \sqrt{e+f x} \sqrt{g+h x}}{(b c-a d)^2 (d e-c f) (d g-c h) \sqrt{c+d x}}-$$

$$\frac{4 d^2 (d f g+d e h-2 c f h) \sqrt{e+f x} \sqrt{g+h x}}{3 (b c-a d) (d e-c f)^2 (d g-c h)^2 \sqrt{c+d x}}+\frac{4 d \sqrt{f} (d f g+d e h-2 c f h) \sqrt{\frac{d (e+f x)}{d e-c f}} \sqrt{g+h x} \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f) h}{f (d g-c h)}\right]}{3 (b c-a d) (-d e+c f)^{3/2} (d g-c h)^2 \sqrt{e+f x} \sqrt{\frac{d (g+h x)}{d g-c h}}}-$$

$$\frac{2 b d \sqrt{h} \sqrt{-f g+e h} \sqrt{c+d x} \sqrt{\frac{f (g+h x)}{f g-e h}} \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{h} \sqrt{e+f x}}{\sqrt{-f g+e h}}\right],-\frac{d (f g-e h)}{(d e-c f) h}\right]}{(b c-a d)^2 (d e-c f) (d g-c h) \sqrt{-\frac{f (c+d x)}{d e-c f}} \sqrt{g+h x}}-$$

$$\frac{2 \sqrt{f} (2 d f g+d e h-3 c f h) \sqrt{\frac{d (e+f x)}{d e-c f}} \sqrt{\frac{d (g+h x)}{d g-c h}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f) h}{f (d g-c h)}\right]}{3 (b c-a d) (-d e+c f)^{3/2} (d g-c h) \sqrt{e+f x} \sqrt{g+h x}}-$$

$$\frac{2 b^2 \sqrt{-d e+c f} \sqrt{\frac{d (e+f x)}{d e-c f}} \sqrt{\frac{d (g+h x)}{d g-c h}} \text{EllipticPi}\left[-\frac{b (d e-c f)}{(b c-a d) f},\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f) h}{f (d g-c h)}\right]}{(b c-a d)^3 \sqrt{f} \sqrt{e+f x} \sqrt{g+h x}}$$

Result (type 4, 12 191 leaves) :

$$\sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x} \left(\frac{2 d^2}{3 (b c-a d) (-d e+c f) (-d g+c h) (c+d x)^2}+\frac{2 d^2 (3 b d^2 e g-5 b c d f g+2 a d^2 f g-5 b c d e h+2 a d^2 e h+7 b c^2 f h-4 a c d f h)}{3 (b c-a d)^2 (-d e+c f)^2 (-d g+c h)^2 (c+d x)}\right)+$$

$$\frac{1}{3 (-b c+a d)^2 (-d e+c f)^2 (-d g+c h)^2}$$

$$2 \left(\left((-3 b d^2 e g+5 b c d f g-2 a d^2 f g+5 b c d e h-2 a d^2 e h-7 b c^2 f h+4 a c d f h) (c+d x)^{3/2} \left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right) \left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)\right)\right/$$

$$\left(\sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\;\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}\right)+\Bigg((c+d x)\left(-b+\frac{b c}{c+d x}-\frac{a d}{c+d x}\right)\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}$$

$$\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}\;\sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}$$

$$\Bigg(\left((b c-a d)(-d e+c f)\,h\left(-b d^2 f g^2+b d^2 e g h+a d^2 f g h-3 b c d e h^2+2 a d^2 e h^2+3 b c^2 f h^2-3 a c d f h^2\right)\right)\Big/$$

$$\left(d(b g-a h)\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}\;\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}\right)+\frac{3 b d^3 e^2 g\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}-\frac{8 b c d^2 e f g\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}+$$

$$\frac{2 a d^3 e f g\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}+\frac{5 b c^2 d f^2 g\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}-\frac{2 a c d^2 f^2 g\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}-\frac{5 b c d^2 e^2 h\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}+$$

$$\frac{2 a d^3 e^2 h\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}+\frac{12 b c^2 d e f h\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}-\frac{6 a c d^2 e f h\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}-\frac{7 b c^3 f^2 h\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}+$$

$$\frac{4 a c^2 d f^2 h\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}-\frac{3 b^3(d e-c f)^2(d g-c h)^2\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{d(b g-a h)\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}\Bigg)\Bigg/\Bigg(\Bigg(3\,\mathrm{i}\,b d^2 e f g\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\;\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f (-d g+c h)}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f (-d g+c h)}\right]\right)\Bigg)\Bigg/$$

$$\left((b c-a d) (-d e+c f) \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)-\Bigg(5\,i\,b c d f^2 g \sqrt{1-\frac{-d e+c f}{f (c+d x)}}$$

$$\sqrt{1-\frac{-d g+c h}{h (c+d x)}} \left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f (-d g+c h)}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f (-d g+c h)}\right]\right)\Bigg)\Bigg/$$

$$\left((b c-a d) (-d e+c f) \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)+\Bigg(2\,i\,a d^2 f^2 g \sqrt{1-\frac{-d e+c f}{f (c+d x)}}$$

$$\sqrt{1-\frac{-d g+c h}{h (c+d x)}} \left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f (-d g+c h)}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f (-d g+c h)}\right]\right)\Bigg)\Bigg/$$

$$\left((b c-a d) (-d e+c f) \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)-\Bigg(5\,i\,b c d e f h \sqrt{1-\frac{-d e+c f}{f (c+d x)}}$$

$$\sqrt{1-\frac{-d g+c h}{h (c+d x)}} \left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f (-d g+c h)}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f (-d g+c h)}\right]\right)\Bigg)\Bigg/$$

$$\left((b c-a d)\,(-d e+c f)\,\sqrt{-\frac{-d g+c h}{h}}\,\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)+\left(2\,\mathbb{i}\,a\,d^2\,e\,f\,h\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\right.$$

$$\left.\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\,\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]\right)\right)\Big/$$

$$\left((b c-a d)\,(-d e+c f)\,\sqrt{-\frac{-d g+c h}{h}}\,\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)+\left(7\,\mathbb{i}\,b\,c^2\,f^2\,h\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\right.$$

$$\left.\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\,\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]\right)\right)\Big/$$

$$\left((b c-a d)\,(-d e+c f)\,\sqrt{-\frac{-d g+c h}{h}}\,\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)-\left(4\,\mathbb{i}\,a\,c\,d\,f^2\,h\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\right.$$

$$\left.\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\,\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]\right)\right)\Big/$$

$$\left((b c-a d)\,(-d e+c f)\,\sqrt{-\frac{-d g+c h}{h}}\,\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)-$$

$$\frac{3\,\mathrm{i}\,b^2 d^2 e g \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{(b c-a d)^2 \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+$$

$$\frac{5\,\mathrm{i}\,b^2 c d f g \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{(b c-a d)^2 \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}-$$

$$\frac{2\,\mathrm{i}\,a b d^2 f g \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{(b c-a d)^2 \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}-$$

$$\frac{2\,\mathrm{i}\,b d f g \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{(b c-a d) \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+$$

$$\frac{5\,\mathrm{i}\,b^2 c d e h \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{(b c-a d)^2 \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}-$$

$$\frac{2\,\mathrm{i}\,a b d^2 e h \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{(b c-a d)^2 \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}-$$

$$\frac{2\,i\,b\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{7\,i\,b^2\,c^2\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{4\,i\,a\,b\,c\,d\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{5\,i\,b\,c\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{i\,a\,d\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+\frac{1}{(b\,c-a\,d)^3}$$

$$3\,b^3\,d^2\,e\,g\left(\frac{i\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{\mathbb{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{(b c-a d)^3} 5 b^3 c\, d\, f\, g \left(\frac{\mathbb{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{\mathbb{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) +$$

$$\frac{1}{(b c-a d)^3} 2 a\, b^2 d^2 f\, g \left(\frac{\mathbb{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{\mathbb{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) +$$

$$\frac{1}{(b c-a d)^2} 2 b^2 d\, f\, g \left(\frac{\mathbb{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^3} 5 b^3 c d e h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^3} 2 a b^2 d^2 e h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} 2 b^2 d e h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^3} 7 b^3 c^2 f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^3} 4 a b^2 c d f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^2} 5 b^2 c f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} a b d f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right. -$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{b c-a d} b f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right. -$$

$$\left.\left.\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)\right)\right) \Bigg/$$

$$\left(\left(b f h+\frac{3 b d^2 e g}{(c+d x)^2}-\frac{5 b c d f g}{(c+d x)^2}+\frac{2 a d^2 f g}{(c+d x)^2}-\frac{5 b c d e h}{(c+d x)^2}+\frac{2 a d^2 e h}{(c+d x)^2}+\frac{7 b c^2 f h}{(c+d x)^2}-\frac{4 a c d f h}{(c+d x)^2}+\frac{2 b d f g}{c+d x}+\frac{2 b d e h}{c+d x}-\frac{5 b c f h}{c+d x}+\frac{a d f h}{c+d x}\right)\right.$$

$$\left.\left.\sqrt{e+\frac{(c+d\,x)\left(f-\frac{c\,f}{c+d\,x}\right)}{d}}\;\sqrt{g+\frac{(c+d\,x)\left(h-\frac{c\,h}{c+d\,x}\right)}{d}}\right)\right)$$

Problem 73: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,x)\,\sqrt{c+d\,x}\,\sqrt{1-f\,x}\,\sqrt{1+f\,x}}\,dx$$

Optimal (type 4, 74 leaves, 3 steps):

$$-\frac{2\sqrt{\frac{f\,(c+d\,x)}{d+c\,f}}\;\text{EllipticPi}\left[\frac{2\,b}{b+a\,f},\,\text{ArcSin}\left[\frac{\sqrt{1-f\,x}}{\sqrt{2}}\right],\,\frac{2\,d}{d+c\,f}\right]}{(b+a\,f)\,\sqrt{c+d\,x}}$$

Result (type 4, 203 leaves):

$$\left(2\,i\,(c+d\,x)\,\sqrt{\frac{d\,(-1+f\,x)}{f\,(c+d\,x)}}\;\sqrt{\frac{d+d\,f\,x}{c\,f+d\,f\,x}}\right.$$

$$\left.\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{d+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\,\frac{-d+c\,f}{d+c\,f}\right]-\text{EllipticPi}\left[\frac{b\,c\,f-a\,d\,f}{b\,d+b\,c\,f},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{d+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\,\frac{-d+c\,f}{d+c\,f}\right]\right)\right)\Big/$$

$$\left((-b\,c+a\,d)\,\sqrt{-\frac{d+c\,f}{f}}\;\sqrt{1-f^2\,x^2}\right)$$

Problem 74: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,x)\,\sqrt{c+d\,x}\,\sqrt{1-f^2\,x^2}}\,dx$$

Optimal (type 4, 74 leaves, 4 steps):

$$-\frac{2\sqrt{\frac{f\,(c+d\,x)}{d+c\,f}}\;\text{EllipticPi}\left[\frac{2\,b}{b+a\,f},\,\text{ArcSin}\left[\frac{\sqrt{1-f\,x}}{\sqrt{2}}\right],\,\frac{2\,d}{d+c\,f}\right]}{(b+a\,f)\,\sqrt{c+d\,x}}$$

Result (type 4, 203 leaves):

$$\left(2\,i\,(c+d\,x)\,\sqrt{\frac{d\,(-1+f\,x)}{f\,(c+d\,x)}}\,\sqrt{\frac{d+d\,f\,x}{c\,f+d\,f\,x}}\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{d+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\,\frac{-d+c\,f}{d+c\,f}\right]-\text{EllipticPi}\left[\frac{b\,c\,f-a\,d\,f}{b\,d+b\,c\,f},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{d+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\,\frac{-d+c\,f}{d+c\,f}\right]\right)\right)\Big/\left((-b\,c+a\,d)\,\sqrt{-\frac{d+c\,f}{f}}\,\sqrt{1-f^2\,x^2}\right)$$

Problem 75: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,x)\,\sqrt{c+d\,x}\,\sqrt{1-f^2\,x}\,\sqrt{1+f^2\,x}}\,dx$$

Optimal (type 4, 86 leaves, 3 steps):

$$-\frac{2\sqrt{\frac{f^2\,(c+d\,x)}{d+c\,f^2}}\;\text{EllipticPi}\left[\frac{2\,b}{b+a\,f^2},\,\text{ArcSin}\left[\frac{\sqrt{1-f^2\,x}}{\sqrt{2}}\right],\,\frac{2\,d}{d+c\,f^2}\right]}{(b+a\,f^2)\,\sqrt{c+d\,x}}$$

Result (type 4, 218 leaves):

$$\left(2\,i\,(c+d\,x)\,\sqrt{\frac{d\,(-1+f^2\,x)}{f^2\,(c+d\,x)}}\,\sqrt{\frac{d\,(1+f^2\,x)}{f^2\,(c+d\,x)}}\right.$$

$$\left.\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-c-\frac{d}{f^2}}}{\sqrt{c+d\,x}}\right],\frac{-d+c\,f^2}{d+c\,f^2}\right]-\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,f^2}{b\,(d+c\,f^2)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-c-\frac{d}{f^2}}}{\sqrt{c+d\,x}}\right],\frac{-d+c\,f^2}{d+c\,f^2}\right]\right)\right)\Big/$$

$$\left((-b\,c+a\,d)\,\sqrt{-c-\frac{d}{f^2}}\,\sqrt{1-f^4\,x^2}\right)$$

Problem 76: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,x)\,\sqrt{c+d\,x}\,\sqrt{1-f^4\,x^2}}\,dx$$

Optimal (type 4, 86 leaves, 4 steps):

$$-\frac{2\,\sqrt{\frac{f^2\,(c+d\,x)}{d+c\,f^2}}\,\text{EllipticPi}\left[\frac{2\,b}{b+a\,f^2},\,\text{ArcSin}\left[\frac{\sqrt{1-f^2\,x}}{\sqrt{2}}\right],\,\frac{2\,d}{d+c\,f^2}\right]}{(b+a\,f^2)\,\sqrt{c+d\,x}}$$

Result (type 4, 218 leaves):

$$\left(2\,i\,(c+d\,x)\,\sqrt{\frac{d\,(-1+f^2\,x)}{f^2\,(c+d\,x)}}\,\sqrt{\frac{d\,(1+f^2\,x)}{f^2\,(c+d\,x)}}\right.$$

$$\left.\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-c-\frac{d}{f^2}}}{\sqrt{c+d\,x}}\right],\,\frac{-d+c\,f^2}{d+c\,f^2}\right]-\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,f^2}{b\,(d+c\,f^2)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-c-\frac{d}{f^2}}}{\sqrt{c+d\,x}}\right],\,\frac{-d+c\,f^2}{d+c\,f^2}\right]\right)\right)\Big/$$

$$\left((-b\,c+a\,d)\,\sqrt{-c-\frac{d}{f^2}}\,\sqrt{1-f^4\,x^2}\right)$$

Problem 97: Result more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{2-3\,x}}{\sqrt{-5+2\,x}\,\sqrt{1+4\,x}\,(7+5\,x)^{3/2}}\,dx$$

Optimal (type 4, 60 leaves, 5 steps):

$$\frac{2\,\sqrt{\frac{11}{39}}\,\sqrt{5-2\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{39}{22}}\,\sqrt{1+4\,x}}{\sqrt{7+5\,x}}\right],\,\frac{62}{39}\right]}{23\,\sqrt{-5+2\,x}}$$

Result (type 4, 237 leaves):

$$\left(\sqrt{-5+2\,x}\,\sqrt{1+4\,x}\right.$$

$$\left(-1922\,\sqrt{\frac{7+5\,x}{-2+3\,x}}\,(-5-18\,x+8\,x^2)+62\,\sqrt{682}\,\sqrt{\frac{-5-18\,x+8\,x^2}{(2-3\,x)^2}}\,(-14+11\,x+15\,x^2)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{31}{39}}\,\sqrt{\frac{-5+2\,x}{-2+3\,x}}\right],\,\frac{39}{62}\right]-\right.$$

$$\left.\left.23\,\sqrt{682}\,\sqrt{\frac{-5-18\,x+8\,x^2}{(2-3\,x)^2}}\,(-14+11\,x+15\,x^2)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{31}{39}}\,\sqrt{\frac{-5+2\,x}{-2+3\,x}}\right],\,\frac{39}{62}\right]\right)\right)\Big/$$

$$\left(27\,807\,\sqrt{2-3\,x}\,\sqrt{7+5\,x}\,\sqrt{\frac{7+5\,x}{-2+3\,x}}\,(-5-18\,x+8\,x^2)\right)$$

Problem 99: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+b x}\,\sqrt{c+d x}}{\sqrt{e+f x}\,\sqrt{g+h x}}\,dx$$

Optimal (type 4, 721 leaves, 7 steps):

$$\frac{\sqrt{a+b x}\,\sqrt{c+d x}\,\sqrt{g+h x}}{h\sqrt{e+f x}}-\frac{\sqrt{d g-c h}\,\sqrt{f g-e h}\,\sqrt{a+b x}\,\sqrt{\frac{(d e-c f)(g+h x)}{(d g-c h)(e+f x)}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f g-e h}\,\sqrt{c+d x}}{\sqrt{d g-c h}\,\sqrt{e+f x}}\right],\frac{(b e-a f)(d g-c h)}{(b c-a d)(f g-e h)}\right]}{f h\sqrt{-\frac{(d e-c f)(a+b x)}{(b c-a d)(e+f x)}}\,\sqrt{g+h x}}+$$

$$\left((d e-c f)(b f g+b e h-2 a f h)\sqrt{\frac{(b e-a f)(c+d x)}{(d e-c f)(a+b x)}}\,\sqrt{g+h x}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b g-a h}\,\sqrt{e+f x}}{\sqrt{f g-e h}\,\sqrt{a+b x}}\right],-\frac{(b c-a d)(f g-e h)}{(d e-c f)(b g-a h)}\right]\right)\Bigg/$$

$$\left(f^2 h\sqrt{b g-a h}\,\sqrt{f g-e h}\,\sqrt{c+d x}\,\sqrt{-\frac{(b e-a f)(g+h x)}{(f g-e h)(a+b x)}}\right)+$$

$$\left(\sqrt{b g-a h}\,(a d f h-b(d f g+d e h-c f h))\sqrt{\frac{(f g-e h)(a+b x)}{(b g-a h)(e+f x)}}\,\sqrt{\frac{(f g-e h)(c+d x)}{(d g-c h)(e+f x)}}\,(e+f x)\right.$$

$$\left.\text{EllipticPi}\left[\frac{f(b g-a h)}{(b e-a f)h},\text{ArcSin}\left[\frac{\sqrt{b e-a f}\,\sqrt{g+h x}}{\sqrt{b g-a h}\,\sqrt{e+f x}}\right],\frac{(d e-c f)(b g-a h)}{(b e-a f)(d g-c h)}\right]\right)\Bigg/\left(f^2\sqrt{b e-a f}\,h^2\sqrt{a+b x}\,\sqrt{c+d x}\right)$$

Result (type 4, 6667 leaves):

$$-\frac{1}{f}2\left(-\frac{\sqrt{e+f x}\left(h+\frac{f g}{e+f x}-\frac{e h}{e+f x}\right)\sqrt{a+\frac{(e+f x)\left(b-\frac{b e}{e+f x}\right)}{f}}\,\sqrt{c+\frac{(e+f x)\left(d-\frac{d e}{e+f x}\right)}{f}}}{2 h\sqrt{g+\frac{(e+f x)\left(h-\frac{e h}{e+f x}\right)}{f}}}+\right.$$

$$\frac{1}{2 h^2\sqrt{e+f x}\left(b-\frac{b e}{e+f x}+\frac{a f}{e+f x}\right)\left(d-\frac{d e}{e+f x}+\frac{c f}{e+f x}\right)\sqrt{g+\frac{(e+f x)\left(h-\frac{e h}{e+f x}\right)}{f}}}f(b g-a h)(f g-e h)$$

$$\sqrt{\left(b-\frac{b e}{e+f x}+\frac{a f}{e+f x}\right)\left(d-\frac{d e}{e+f x}+\frac{c f}{e+f x}\right)\left(h+\frac{f g}{e+f x}-\frac{e h}{e+f x}\right)}\,\sqrt{a+\frac{(e+f x)\left(b-\frac{b e}{e+f x}\right)}{f}}\,\sqrt{c+\frac{(e+f x)\left(d-\frac{d e}{e+f x}\right)}{f}}$$

$$\left(\left(d\sqrt{\frac{-\frac{b}{b e-a f}+\frac{1}{e+f x}}{-\frac{b}{b e-a f}+\frac{h}{-f g+e h}}}\sqrt{\frac{-\frac{d}{d e-c f}+\frac{1}{e+f x}}{-\frac{d}{d e-c f}+\frac{h}{-f g+e h}}}\left(-\frac{h}{-f g+e h}+\frac{1}{e+f x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\right.\right.\right.$$

$$\left.\left.\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]\right)\Bigg/\left(\sqrt{\frac{-\frac{h}{-f g+e h}+\frac{1}{e+f x}}{\frac{d}{d e-c f}-\frac{h}{-f g+e h}}}\sqrt{\left(b+\frac{-b e+a f}{e+f x}\right)\left(d+\frac{-d e+c f}{e+f x}\right)\left(h+\frac{f g-e h}{e+f x}\right)}\right)-$$

$$\left(d e\sqrt{-\frac{(b e-a f)(-f g+e h)\left(-\frac{b}{b e-a f}+\frac{1}{e+f x}\right)}{-b f g+a f h}}\left(-\frac{d}{d e-c f}+\frac{1}{e+f x}\right)\sqrt{\frac{-\frac{h}{-f g+e h}+\frac{1}{e+f x}}{\frac{d}{d e-c f}-\frac{h}{-f g+e h}}}\right.$$

$$\left(\frac{(-b f g+a f h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]}{(b e-a f)(-f g+e h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]}{b e-a f}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{d}{d e-c f}+\frac{1}{e+f x}}{-\frac{d}{d e-c f}+\frac{h}{-f g+e h}}}\sqrt{\left(b+\frac{-b e+a f}{e+f x}\right)\left(d+\frac{-d e+c f}{e+f x}\right)\left(h+\frac{f g-e h}{e+f x}\right)}\right)+\left(c f\sqrt{-\frac{(b e-a f)(-f g+e h)\left(-\frac{b}{b e-a f}+\frac{1}{e+f x}\right)}{-b f g+a f h}}\right.$$

$$\left(-\frac{d}{d e-c f}+\frac{1}{e+f x}\right)\sqrt{\frac{-\frac{h}{-f g+e h}+\frac{1}{e+f x}}{\frac{d}{d e-c f}-\frac{h}{-f g+e h}}}\left(\frac{(-b f g+a f h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]}{(b e-a f)(-f g+e h)}-\right.$$

$$\frac{b\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\Big],\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\Big]}{b e-a f}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\frac{-\frac{d}{d e-c f}+\frac{1}{e+f x}}{-\frac{d}{d e-c f}+\frac{h}{-f g+e h}}}\sqrt{\left(b+\frac{-b e+a f}{e+f x}\right)\left(d+\frac{-d e+c f}{e+f x}\right)\left(h+\frac{f g-e h}{e+f x}\right)}\Bigg)\Bigg)-$$

$$\frac{1}{2 d h\sqrt{e+f x}\left(b-\frac{b e}{e+f x}+\frac{a f}{e+f x}\right)\left(d-\frac{d e}{e+f x}+\frac{c f}{e+f x}\right)\sqrt{g+\frac{(e+f x)\left(h-\frac{e h}{e+f x}\right)}{f}}}(b c-a d) f(-d e+c f)$$

$$\sqrt{\left(b-\frac{b e}{e+f x}+\frac{a f}{e+f x}\right)\left(d-\frac{d e}{e+f x}+\frac{c f}{e+f x}\right)\left(h+\frac{f g}{e+f x}-\frac{e h}{e+f x}\right)}$$

$$\sqrt{a+\frac{(e+f x)\left(b-\frac{b e}{e+f x}\right)}{f}}\sqrt{c+\frac{(e+f x)\left(d-\frac{d e}{e+f x}\right)}{f}}$$

$$\Bigg(\Bigg(h\sqrt{\frac{-\frac{b}{b e-a f}+\frac{1}{e+f x}}{-\frac{b}{b e-a f}+\frac{h}{-f g+e h}}}\sqrt{\frac{-\frac{d}{d e-c f}+\frac{1}{e+f x}}{-\frac{d}{d e-c f}+\frac{h}{-f g+e h}}}\left(-\frac{h}{-f g+e h}+\frac{1}{e+f x}\right)$$

$$\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\Big],\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\Big]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\frac{-\frac{h}{-f g+e h}+\frac{1}{e+f x}}{\frac{d}{d e-c f}-\frac{h}{-f g+e h}}}\sqrt{\left(b+\frac{-b e+a f}{e+f x}\right)\left(d+\frac{-d e+c f}{e+f x}\right)\left(h+\frac{f g-e h}{e+f x}\right)}\Bigg)+\Bigg(f g\sqrt{-\frac{(b e-a f)(-f g+e h)\left(-\frac{b}{b e-a f}+\frac{1}{e+f x}\right)}{-b f g+a f h}}$$

$$\left(-\frac{d}{d e-c f}+\frac{1}{e+f x}\right)\sqrt{\frac{-\frac{h}{-f g+e h}+\frac{1}{e+f x}}{\frac{d}{d e-c f}-\frac{h}{-f g+e h}}}\left(\frac{(-b f g+a f h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f\,(-d g+c h)}}\right],\frac{(b e-a f)\,(-d g+c h)}{(d e-c f)\,(-b g+a h)}\right]}{(b e-a f)\,(-f g+e h)}-\right.$$

$$\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f\,(-d g+c h)}}\right],\frac{(b e-a f)\,(-d g+c h)}{(d e-c f)\,(-b g+a h)}\right]}{b e-a f}\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{d}{d e-c f}+\frac{1}{e+f x}}{-\frac{d}{d e-c f}+\frac{h}{-f g+e h}}}\sqrt{\left(b+\frac{-b e+a f}{e+f x}\right)\left(d+\frac{-d e+c f}{e+f x}\right)\left(h+\frac{f g-e h}{e+f x}\right)}\right)-\left(e h\sqrt{-\frac{(b e-a f)\,(-f g+e h)\left(-\frac{b}{b e-a f}+\frac{1}{e+f x}\right)}{-b f g+a f h}}\right.$$

$$\left(-\frac{d}{d e-c f}+\frac{1}{e+f x}\right)\sqrt{\frac{-\frac{h}{-f g+e h}+\frac{1}{e+f x}}{\frac{d}{d e-c f}-\frac{h}{-f g+e h}}}\left(\frac{(-b f g+a f h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f\,(-d g+c h)}}\right],\frac{(b e-a f)\,(-d g+c h)}{(d e-c f)\,(-b g+a h)}\right]}{(b e-a f)\,(-f g+e h)}-\right.$$

$$\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f\,(-d g+c h)}}\right],\frac{(b e-a f)\,(-d g+c h)}{(d e-c f)\,(-b g+a h)}\right]}{b e-a f}\right)\Bigg/$$

$$\left.\left(\sqrt{\frac{-\frac{d}{d e-c f}+\frac{1}{e+f x}}{-\frac{d}{d e-c f}+\frac{h}{-f g+e h}}}\sqrt{\left(b+\frac{-b e+a f}{e+f x}\right)\left(d+\frac{-d e+c f}{e+f x}\right)\left(h+\frac{f g-e h}{e+f x}\right)}\right)\right)-$$

$$\frac{1}{2 d h^2\sqrt{e+f x}\left(b-\frac{b e}{e+f x}+\frac{a f}{e+f x}\right)\left(d-\frac{d e}{e+f x}+\frac{c f}{e+f x}\right)\sqrt{g+\frac{(e+f x)\left(h-\frac{e h}{e+f x}\right)}{f}}}(b d f g+b d e h-b c f h-a d f h)$$

$$\sqrt{\left(b-\frac{b e}{e+f x}+\frac{a f}{e+f x}\right)\left(d-\frac{d e}{e+f x}+\frac{c f}{e+f x}\right)\left(h+\frac{f g}{e+f x}-\frac{e h}{e+f x}\right)}$$

$$\sqrt{a+\frac{(e+f x)\left(b-\frac{b e}{e+f x}\right)}{f}}\ \sqrt{c+\frac{(e+f x)\left(d-\frac{d e}{e+f x}\right)}{f}}$$

$$\left(\left(d f g\sqrt{\frac{-\frac{b}{b e-a f}+\frac{1}{e+f x}}{-\frac{b}{b e-a f}+\frac{h}{-f g+e h}}}\ \sqrt{\frac{-\frac{d}{d e-c f}+\frac{1}{e+f x}}{-\frac{d}{d e-c f}+\frac{h}{-f g+e h}}}\left(-\frac{h}{-f g+e h}+\frac{1}{e+f x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\right.\right.\right.$$

$$\left.\left.\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-f g+e h}+\frac{1}{e+f x}}{\frac{d}{d e-c f}-\frac{h}{-f g+e h}}}\ \sqrt{\left(b+\frac{-b e+a f}{e+f x}\right)\left(d+\frac{-d e+c f}{e+f x}\right)\left(h+\frac{f g-e h}{e+f x}\right)}\right)-$$

$$\left(2 d e h\sqrt{\frac{-\frac{b}{b e-a f}+\frac{1}{e+f x}}{-\frac{b}{b e-a f}+\frac{h}{-f g+e h}}}\ \sqrt{\frac{-\frac{d}{d e-c f}+\frac{1}{e+f x}}{-\frac{d}{d e-c f}+\frac{h}{-f g+e h}}}\left(-\frac{h}{-f g+e h}+\frac{1}{e+f x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\right.\right.$$

$$\left.\left.\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-f g+e h}+\frac{1}{e+f x}}{\frac{d}{d e-c f}-\frac{h}{-f g+e h}}}\ \sqrt{\left(b+\frac{-b e+a f}{e+f x}\right)\left(d+\frac{-d e+c f}{e+f x}\right)\left(h+\frac{f g-e h}{e+f x}\right)}\right)+\left(c f h\sqrt{\frac{-\frac{b}{b e-a f}+\frac{1}{e+f x}}{-\frac{b}{b e-a f}+\frac{h}{-f g+e h}}}\right.$$

$$\left.\sqrt{\frac{-\frac{d}{d e-c f}+\frac{1}{e+f x}}{-\frac{d}{d e-c f}+\frac{h}{-f g+e h}}}\left(-\frac{h}{-f g+e h}+\frac{1}{e+f x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-f g+e h}+\frac{1}{e+f x}}{\frac{d}{d e-c f}-\frac{h}{-f g+e h}}}\ \sqrt{\left(b+\frac{-b e+a f}{e+f x}\right)\left(d+\frac{-d e+c f}{e+f x}\right)\left(h+\frac{f g-e h}{e+f x}\right)}\right)-\left(d e f g\sqrt{-\frac{(b e-a f)(-f g+e h)\left(-\frac{b}{b e-a f}+\frac{1}{e+f x}\right)}{-b f g+a f h}}\right.$$

$$\left(-\frac{d}{d e-c f}+\frac{1}{e+f x}\right)\sqrt{\frac{-\frac{h}{-f g+e h}+\frac{1}{e+f x}}{\frac{d}{d e-c f}-\frac{h}{-f g+e h}}}\left(\frac{(-b f g+a f h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]}{(b e-a f)(-f g+e h)}-\right.$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]}{b e-a f}\Bigg)\Bigg)\Big/$$

$$\Bigg(\sqrt{\frac{-\frac{d}{d e-c f}+\frac{1}{e+f x}}{-\frac{d}{d e-c f}+\frac{h}{-f g+e h}}}\sqrt{\left(b+\frac{-b e+a f}{e+f x}\right)\left(d+\frac{-d e+c f}{e+f x}\right)\left(h+\frac{f g-e h}{e+f x}\right)}\Bigg)+\Bigg(c f^2 g\sqrt{-\frac{(b e-a f)(-f g+e h)\left(-\frac{b}{b e-a f}+\frac{1}{e+f x}\right)}{-b f g+a f h}}$$

$$\left(-\frac{d}{d e-c f}+\frac{1}{e+f x}\right)\sqrt{\frac{-\frac{h}{-f g+e h}+\frac{1}{e+f x}}{\frac{d}{d e-c f}-\frac{h}{-f g+e h}}}\Bigg(\frac{(-b f g+a f h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]}{(b e-a f)(-f g+e h)}-$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]}{b e-a f}\Bigg)\Bigg)\Big/$$

$$\Bigg(\sqrt{\frac{-\frac{d}{d e-c f}+\frac{1}{e+f x}}{-\frac{d}{d e-c f}+\frac{h}{-f g+e h}}}\sqrt{\left(b+\frac{-b e+a f}{e+f x}\right)\left(d+\frac{-d e+c f}{e+f x}\right)\left(h+\frac{f g-e h}{e+f x}\right)}\Bigg)+\Bigg(d e^2 h\sqrt{-\frac{(b e-a f)(-f g+e h)\left(-\frac{b}{b e-a f}+\frac{1}{e+f x}\right)}{-b f g+a f h}}$$

$$\left(-\frac{d}{d e-c f}+\frac{1}{e+f x}\right)\sqrt{\frac{-\frac{h}{-f g+e h}+\frac{1}{e+f x}}{\frac{d}{d e-c f}-\frac{h}{-f g+e h}}}\Bigg(\frac{(-b f g+a f h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]}{(b e-a f)(-f g+e h)}-$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(-h-\frac{f g}{e+f x}+\frac{e h}{e+f x}\right)}{f(-d g+c h)}}\right],\frac{(b e-a f)(-d g+c h)}{(d e-c f)(-b g+a h)}\right]}{b e-a f}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{d}{de-cf}+\frac{1}{e+fx}}{-\frac{d}{de-cf}+\frac{h}{-fg+eh}}}\sqrt{\left(b+\frac{-be+af}{e+fx}\right)\left(d+\frac{-de+cf}{e+fx}\right)\left(h+\frac{fg-eh}{e+fx}\right)}\right)-\left(cefh\sqrt{-\frac{(be-af)\,(-fg+eh)\left(-\frac{b}{be-af}+\frac{1}{e+fx}\right)}{-bfg+afh}}\right.$$

$$\left(-\frac{d}{de-cf}+\frac{1}{e+fx}\right)\sqrt{\frac{-\frac{h}{-fg+eh}+\frac{1}{e+fx}}{\frac{d}{de-cf}-\frac{h}{-fg+eh}}}\left(\frac{(-bfg+afh)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(de-cf)\left(-h-\frac{fg}{e+fx}+\frac{eh}{e+fx}\right)}{f\,(-dg+ch)}}\right],\frac{(be-af)\,(-dg+ch)}{(de-cf)\,(-bg+ah)}\right]}{(be-af)\,(-fg+eh)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(de-cf)\left(-h-\frac{fg}{e+fx}+\frac{eh}{e+fx}\right)}{f\,(-dg+ch)}}\right],\frac{(be-af)\,(-dg+ch)}{(de-cf)\,(-bg+ah)}\right]}{be-af}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{d}{de-cf}+\frac{1}{e+fx}}{-\frac{d}{de-cf}+\frac{h}{-fg+eh}}}\sqrt{\left(b+\frac{-be+af}{e+fx}\right)\left(d+\frac{-de+cf}{e+fx}\right)\left(h+\frac{fg-eh}{e+fx}\right)}\right)-$$

$$\left(d\,(-fg+eh)\left(-\frac{d}{de-cf}+\frac{h}{-fg+eh}\right)\sqrt{\frac{-\frac{b}{be-af}+\frac{1}{e+fx}}{-\frac{b}{be-af}+\frac{h}{-fg+eh}}}\sqrt{-\frac{\left(-\frac{d}{de-cf}+\frac{1}{e+fx}\right)\left(-\frac{h}{-fg+eh}+\frac{1}{e+fx}\right)}{\left(-\frac{d}{de-cf}+\frac{h}{-fg+eh}\right)^2}}\,\text{EllipticPi}\left[-\frac{-dfg+cfh}{(de-cf)\,h},\right.\right.$$

$$\left.\left.\left.\text{ArcSin}\left[\sqrt{\frac{(de-cf)\left(-h-\frac{fg}{e+fx}+\frac{eh}{e+fx}\right)}{f\,(-dg+ch)}}\right],\frac{(be-af)\,(-dg+ch)}{(de-cf)\,(-bg+ah)}\right]\right)\Big/\left(\sqrt{\left(b+\frac{-be+af}{e+fx}\right)\left(d+\frac{-de+cf}{e+fx}\right)\left(h+\frac{fg-eh}{e+fx}\right)}\right)\right)$$

Problem 107: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+bx)^{3/2}}{\sqrt{c+dx}\,\sqrt{e+fx}\,\sqrt{g+hx}}\,dx$$

Optimal (type 4, 968 leaves, 10 steps) :

$$\frac{b\sqrt{a+bx}\,\sqrt{c+dx}\,\sqrt{g+hx}}{dh\sqrt{e+fx}}-\frac{b\sqrt{dg-ch}\,\sqrt{fg-eh}\,\sqrt{a+bx}\,\sqrt{\frac{(de-cf)(g+hx)}{(dg-ch)(e+fx)}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{fg-eh}\,\sqrt{c+dx}}{\sqrt{dg-ch}\,\sqrt{e+fx}}\right],\frac{(be-af)(dg-ch)}{(bc-ad)(fg-eh)}\right]}{dfh\sqrt{-\frac{(de-cf)(a+bx)}{(bc-ad)(e+fx)}}\,\sqrt{g+hx}}+$$

$$\left(b(de-cf)(bfg+beh-2afh)\sqrt{\frac{(be-af)(c+dx)}{(de-cf)(a+bx)}}\,\sqrt{g+hx}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{bg-ah}\,\sqrt{e+fx}}{\sqrt{fg-eh}\,\sqrt{a+bx}}\right],-\frac{(bc-ad)(fg-eh)}{(de-cf)(bg-ah)}\right]\right)\Big/$$

$$\left(df^2h\sqrt{bg-ah}\,\sqrt{fg-eh}\,\sqrt{c+dx}\,\sqrt{-\frac{(be-af)(g+hx)}{(fg-eh)(a+bx)}}\right)+$$

$$\left(b\sqrt{bg-ah}\,(adfh-b(dfg+deh-cfh))\sqrt{\frac{(fg-eh)(a+bx)}{(bg-ah)(e+fx)}}\,\sqrt{\frac{(fg-eh)(c+dx)}{(dg-ch)(e+fx)}}\,(e+fx)\right.$$

$$\left.\text{EllipticPi}\left[\frac{f(bg-ah)}{(be-af)h},\text{ArcSin}\left[\frac{\sqrt{be-af}\,\sqrt{g+hx}}{\sqrt{bg-ah}\,\sqrt{e+fx}}\right],\frac{(de-cf)(bg-ah)}{(be-af)(dg-ch)}\right]\right)\Big/\left(df^2\sqrt{be-af}\,h^2\sqrt{a+bx}\,\sqrt{c+dx}\right)-$$

$$\frac{1}{dh\sqrt{c+dx}\,\sqrt{e+fx}}2\sqrt{bc-ad}\,\sqrt{-dg+ch}\,(a+bx)\sqrt{\frac{(bg-ah)(c+dx)}{(dg-ch)(a+bx)}}\,\sqrt{\frac{(bg-ah)(e+fx)}{(fg-eh)(a+bx)}}$$

$$\text{EllipticPi}\left[-\frac{b(dg-ch)}{(bc-ad)h},\text{ArcSin}\left[\frac{\sqrt{bc-ad}\,\sqrt{g+hx}}{\sqrt{-dg+ch}\,\sqrt{a+bx}}\right],\frac{(be-af)(dg-ch)}{(bc-ad)(fg-eh)}\right]$$

Result (type 4, 6638 leaves):

$$-\frac{1}{d^2}2\left(-\frac{b(c+dx)^{3/2}\left(f+\frac{de}{c+dx}-\frac{cf}{c+dx}\right)\left(h+\frac{dg}{c+dx}-\frac{ch}{c+dx}\right)\sqrt{a+\frac{(c+dx)\left(b-\frac{bc}{c+dx}\right)}{d}}}{2fh\sqrt{e+\frac{(c+dx)\left(f-\frac{cf}{c+dx}\right)}{d}}\,\sqrt{g+\frac{(c+dx)\left(h-\frac{ch}{c+dx}\right)}{d}}}+\right.$$

$$\left(d(bg-ah)(dg-ch)(bfg+beh-2afh)\sqrt{c+dx}\,\sqrt{\left(b-\frac{bc}{c+dx}+\frac{ad}{c+dx}\right)\left(f+\frac{de}{c+dx}-\frac{cf}{c+dx}\right)\left(h+\frac{dg}{c+dx}-\frac{ch}{c+dx}\right)}\right.$$

$$\sqrt{a+\frac{(c+d x)\left(b-\frac{b c}{c+d x}\right)}{d}}\left(\left(d e\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\right.\right.$$

$$\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(c f\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\right.$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(f\sqrt{\frac{-\frac{b}{b c-a d}+\frac{1}{c+d x}}{-\frac{b}{b c-a d}+\frac{h}{-d g+c h}}}\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\right.$$

$$\left(-\frac{h}{-d g+c h}+\frac{1}{c+d x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d e+c f) \left(-h-\frac{d g}{c+d x}+\frac{c h}{c+d x}\right)}{d (-f g+e h)}}\right], \frac{(b c-a d) (-f g+e h)}{(-d e+c f) (-b g+a h)}\right]\Bigg) \Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}} \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right) \left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}\right)\Bigg)\Bigg) \Bigg/$$

$$\left(2 f h^2 (f g-e h) \left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right) \sqrt{e+\frac{(c+d x) \left(f-\frac{c f}{c+d x}\right)}{d}} \sqrt{g+\frac{(c+d x) \left(h-\frac{c h}{c+d x}\right)}{d}}\right) -$$

$$\Bigg(d (b e-a f) (d e-c f) (b f g+b e h-2 a f h) \sqrt{c+d x} \sqrt{\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right) \left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right) \left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}$$

$$\sqrt{a+\frac{(c+d x) \left(b-\frac{b c}{c+d x}\right)}{d}} \Bigg(\Bigg(d g \sqrt{-\frac{(b c-a d) (-d g+c h) \left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}} \left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)$$

$$\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}} \Bigg(\frac{(-b d g+a d h) \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f) \left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d (-f g+e h)}}\right], \frac{(b c-a d) (-f g+e h)}{(-d e+c f) (-b g+a h)}\right]}{(b c-a d) (-d g+c h)} -$$

$$\frac{b \,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f) \left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d (-f g+e h)}}\right], \frac{(b c-a d) (-f g+e h)}{(-d e+c f) (-b g+a h)}\right]}{b c-a d}\Bigg)\Bigg) \Bigg/$$

$$\Bigg(\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\ \sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\Bigg)-\Bigg(c\,h\,\sqrt{-\frac{(b\,c-a\,d)\,(-d\,g+c\,h)\left(-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}\right)}{-b\,d\,g+a\,d\,h}}$$

$$\left(-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}\right)\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\ \Bigg(\frac{(-b\,d\,g+a\,d\,h)\ \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d\,e-c\,f)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]}{(b\,c-a\,d)\,(-d\,g+c\,h)}-$$

$$\frac{b\ \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d\,e-c\,f)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]}{b\,c-a\,d}\Bigg)\Bigg)\Big/$$

$$\Bigg(\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\ \sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\Bigg)+\Bigg(h\,\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\ \sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}$$

$$\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)\ \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d\,e+c\,f)\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]\Bigg)\Big/$$

$$\Bigg(\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\ \sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\Bigg)\Bigg)\Bigg)\Big/$$

$$\left(2\,f^2\,h\,(f\,g-e\,h)\left(b-\frac{b\,c}{c+d\,x}+\frac{a\,d}{c+d\,x}\right)\sqrt{e+\frac{(c+d\,x)\left(f-\frac{c\,f}{c+d\,x}\right)}{d}}\ \sqrt{g+\frac{(c+d\,x)\left(h-\frac{c\,h}{c+d\,x}\right)}{d}}\right)-$$

$$\frac{1}{2\,f^2\,h^2\left(b-\frac{b\,c}{c+d\,x}+\frac{a\,d}{c+d\,x}\right)\sqrt{e+\frac{(c+d\,x)\left(f-\frac{c\,f}{c+d\,x}\right)}{d}}\ \sqrt{g+\frac{(c+d\,x)\left(h-\frac{c\,h}{c+d\,x}\right)}{d}}}$$

$$b\,(b\,d\,f\,g+b\,d\,e\,h+b\,c\,f\,h-3\,a\,d\,f\,h)\,\sqrt{c+d\,x}$$

$$\sqrt{\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}$$

$$\sqrt{a+\frac{(c+d x)\left(b-\frac{b c}{c+d x}\right)}{d}}$$

$$\Bigg(\Bigg(d^2 e g\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}$$

$$\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(c d f g\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\ \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(c\, d\, e\, h\sqrt{-\frac{(b c-a d)\,(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\right.$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\ \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\ \frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{(b c-a d)\,(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\ \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\ \frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\ \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(c^2 f\, h\sqrt{-\frac{(b c-a d)\,(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\right.$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\ \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\ \frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{(b c-a d)\,(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\ \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\ \frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\ \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(d\, f\, g\sqrt{\frac{-\frac{b}{b c-a d}+\frac{1}{c+d x}}{-\frac{b}{b c-a d}+\frac{h}{-d g+c h}}}\ \sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\right.$$

$$\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{(-d\,e+c\,f)\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\Big],\ \frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\Big]\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\ \sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)+$$

$$\Bigg(d\,e\,h\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\ \sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{(-d\,e+c\,f)\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\Big],$$

$$\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\Big]\Bigg)\Bigg/\left(\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\ \sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-$$

$$\Bigg(2\,c\,f\,h\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\ \sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{(-d\,e+c\,f)\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\Big],$$

$$\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\Big]\Bigg)\Bigg/\left(\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\ \sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-$$

$$\Bigg(f\,(-d\,g+c\,h)\left(-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}\right)\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\ \sqrt{-\frac{\left(-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}\right)\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)}{\left(-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}\right)^2}}\ \text{EllipticPi}\Big[-\frac{-d\,f\,g+d\,e\,h}{(-d\,e+c\,f)\,h},$$

$$\text{ArcSin}\Big[\sqrt{\frac{(-d\,e+c\,f)\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\Big],\ \frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\Big]\Bigg)\Bigg/\left(\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)\Bigg)\Bigg)$$

Problem 108: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+b\,x}}{\sqrt{c+d\,x}\ \sqrt{e+f\,x}\ \sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 228 leaves, 2 steps):

$$\left(2\sqrt{-d g+c h}\,(a+b x)\sqrt{\frac{(b g-a h)(c+d x)}{(d g-c h)(a+b x)}}\sqrt{\frac{(b g-a h)(e+f x)}{(f g-e h)(a+b x)}}\right.$$
$$\left.\text{EllipticPi}\left[-\frac{b(d g-c h)}{(b c-a d) h},\text{ArcSin}\left[\frac{\sqrt{b c-a d}\,\sqrt{g+h x}}{\sqrt{-d g+c h}\,\sqrt{a+b x}}\right],\frac{(b e-a f)(d g-c h)}{(b c-a d)(f g-e h)}\right]\right)\Big/\left(\sqrt{b c-a d}\,h\sqrt{c+d x}\,\sqrt{e+f x}\right)$$

Result (type 4, 584 leaves):

$$-\left(\left(2\sqrt{\frac{(d g-c h)(a+b x)}{(b g-a h)(c+d x)}}\,(c+d x)^{3/2}\left(\frac{a d\sqrt{\frac{(d g-c h)(e+f x)}{(f g-e h)(c+d x)}}\,(g+h x)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d e+c f)(g+h x)}{(f g-e h)(c+d x)}}\right],\frac{(b c-a d)(-f g+e h)}{(d e-c f)(b g-a h)}\right]}{(d g-c h)(c+d x)\sqrt{\frac{(-d e+c f)(g+h x)}{(f g-e h)(c+d x)}}}+\right.\right.\right.$$
$$\frac{b c\sqrt{\frac{(d g-c h)(e+f x)}{(f g-e h)(c+d x)}}\,(g+h x)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d e+c f)(g+h x)}{(f g-e h)(c+d x)}}\right],\frac{(b c-a d)(-f g+e h)}{(d e-c f)(b g-a h)}\right]}{(-d g+c h)(c+d x)\sqrt{\frac{(-d e+c f)(g+h x)}{(f g-e h)(c+d x)}}}+$$
$$\frac{1}{(d e-c f) h}b(f g-e h)\sqrt{-\frac{(d e-c f)(d g-c h)(e+f x)(g+h x)}{(f g-e h)^2(c+d x)^2}}$$
$$\left.\left.\left.\text{EllipticPi}\left[\frac{d(-f g+e h)}{(d e-c f) h},\text{ArcSin}\left[\sqrt{\frac{(-d e+c f)(g+h x)}{(f g-e h)(c+d x)}}\right],\frac{(b c-a d)(-f g+e h)}{(d e-c f)(b g-a h)}\right]\right)\right)\Big/\left(d\sqrt{a+b x}\,\sqrt{e+f x}\,\sqrt{g+h x}\right)\right)$$

Problem 110: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b x)^{3/2}\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}\,dx$$

Optimal (type 4, 429 leaves, 5 steps):

$$-\frac{2\,b\,\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}\,\sqrt{-\frac{(b\,e-a\,f)\,(g+h\,x)}{(f\,g-e\,h)\,(a+b\,x)}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{b\,g-a\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{a+b\,x}}\right],-\frac{(b\,c-a\,d)\,(f\,g-e\,h)}{(d\,e-c\,f)\,(b\,g-a\,h)}\right]}{(b\,c-a\,d)\,(b\,e-a\,f)\,\sqrt{b\,g-a\,h}\,\sqrt{\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}}\,\sqrt{g+h\,x}}-$$

$$\frac{2\,d\,\sqrt{\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}}\,\sqrt{g+h\,x}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b\,g-a\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{a+b\,x}}\right],-\frac{(b\,c-a\,d)\,(f\,g-e\,h)}{(d\,e-c\,f)\,(b\,g-a\,h)}\right]}{(b\,c-a\,d)\,\sqrt{b\,g-a\,h}\,\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}\,\sqrt{-\frac{(b\,e-a\,f)\,(g+h\,x)}{(f\,g-e\,h)\,(a+b\,x)}}}$$

Result (type 4, 3247 leaves) :

$$-\frac{2\,b^2\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{(b\,c-a\,d)\,(b\,e-a\,f)\,(b\,g-a\,h)\,\sqrt{a+b\,x}}-\frac{1}{d\,(b\,c-a\,d)\,(b\,e-a\,f)\,(b\,g-a\,h)}$$

$$2\left(-\frac{b\,(c+d\,x)^{3/2}\left(f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}\right)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)\sqrt{a+\frac{(c+d\,x)\left(b-\frac{b\,c}{c+d\,x}\right)}{d}}}{\sqrt{e+\frac{(c+d\,x)\left(f-\frac{c\,f}{c+d\,x}\right)}{d}}\,\sqrt{g+\frac{(c+d\,x)\left(h-\frac{c\,h}{c+d\,x}\right)}{d}}}+\frac{1}{(f\,g-e\,h)\left(b-\frac{b\,c}{c+d\,x}+\frac{a\,d}{c+d\,x}\right)\sqrt{e+\frac{(c+d\,x)\left(f-\frac{c\,f}{c+d\,x}\right)}{d}}\,\sqrt{g+\frac{(c+d\,x)\left(h-\frac{c\,h}{c+d\,x}\right)}{d}}}\right.$$

$$(b\,c-a\,d)\,f\,(b\,g-a\,h)\,(-d\,g+c\,h)\,\sqrt{c+d\,x}\,\sqrt{\left(b-\frac{b\,c}{c+d\,x}+\frac{a\,d}{c+d\,x}\right)\left(f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}\right)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}$$

$$\sqrt{a+\frac{(c+d\,x)\left(b-\frac{b\,c}{c+d\,x}\right)}{d}}\left(\left(d\,e\,\sqrt{-\frac{(b\,c-a\,d)\,(-d\,g+c\,h)\left(-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}\right)}{-b\,d\,g+a\,d\,h}}\left(-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}\right)\right.\right.$$

$$\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\left(\frac{(-b\,d\,g+a\,d\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d\,e-c\,f)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]}{(b\,c-a\,d)\,(-d\,g+c\,h)}-\right.$$

$$\left.\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d\,e-c\,f)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]}{b\,c-a\,d}\right)\right)\right/$$

$$\left(\sqrt{\frac{-\frac{f}{-de+cf}+\frac{1}{c+dx}}{-\frac{f}{-de+cf}+\frac{h}{-dg+ch}}}\sqrt{\left(b+\frac{-bc+ad}{c+dx}\right)\left(f+\frac{de-cf}{c+dx}\right)\left(h+\frac{dg-ch}{c+dx}\right)}\right)-\Bigg(cf\sqrt{-\frac{(bc-ad)\,(-dg+ch)\left(-\frac{b}{bc-ad}+\frac{1}{c+dx}\right)}{-bdg+adh}}$$

$$\left(-\frac{f}{-de+cf}+\frac{1}{c+dx}\right)\sqrt{\frac{-\frac{h}{-dg+ch}+\frac{1}{c+dx}}{\frac{f}{-de+cf}-\frac{h}{-dg+ch}}}\Bigg(\frac{(-bdg+adh)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(de-cf)\left(h+\frac{dg}{c+dx}-\frac{ch}{c+dx}\right)}{d\,(-fg+eh)}}\right],\frac{(bc-ad)\,(-fg+eh)}{(-de+cf)\,(-bg+ah)}\right]}{(bc-ad)\,(-dg+ch)}-$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(de-cf)\left(h+\frac{dg}{c+dx}-\frac{ch}{c+dx}\right)}{d\,(-fg+eh)}}\right],\frac{(bc-ad)\,(-fg+eh)}{(-de+cf)\,(-bg+ah)}\right]}{bc-ad}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-de+cf}+\frac{1}{c+dx}}{-\frac{f}{-de+cf}+\frac{h}{-dg+ch}}}\sqrt{\left(b+\frac{-bc+ad}{c+dx}\right)\left(f+\frac{de-cf}{c+dx}\right)\left(h+\frac{dg-ch}{c+dx}\right)}\right)+\Bigg(f\sqrt{\frac{-\frac{b}{bc-ad}+\frac{1}{c+dx}}{-\frac{b}{bc-ad}+\frac{h}{-dg+ch}}}\sqrt{\frac{-\frac{f}{-de+cf}+\frac{1}{c+dx}}{-\frac{f}{-de+cf}+\frac{h}{-dg+ch}}}$$

$$\left(-\frac{h}{-dg+ch}+\frac{1}{c+dx}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-de+cf)\left(-h-\frac{dg}{c+dx}+\frac{ch}{c+dx}\right)}{d\,(-fg+eh)}}\right],\frac{(bc-ad)\,(-fg+eh)}{(-de+cf)\,(-bg+ah)}\right]\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-dg+ch}+\frac{1}{c+dx}}{\frac{f}{-de+cf}-\frac{h}{-dg+ch}}}\sqrt{\left(b+\frac{-bc+ad}{c+dx}\right)\left(f+\frac{de-cf}{c+dx}\right)\left(h+\frac{dg-ch}{c+dx}\right)}\right)\Bigg)-$$

$$\frac{1}{(fg-eh)\left(b-\frac{bc}{c+dx}+\frac{ad}{c+dx}\right)\sqrt{e+\frac{(c+dx)\left(f-\frac{cf}{c+dx}\right)}{d}}\sqrt{g+\frac{(c+dx)\left(h-\frac{ch}{c+dx}\right)}{d}}}(bc-ad)\,(be-af)\,(-de+cf)\,h\sqrt{c+dx}$$

$$\sqrt{\left(b-\frac{bc}{c+dx}+\frac{ad}{c+dx}\right)\left(f+\frac{de}{c+dx}-\frac{cf}{c+dx}\right)\left(h+\frac{dg}{c+dx}-\frac{ch}{c+dx}\right)}\sqrt{a+\frac{(c+dx)\left(b-\frac{bc}{c+dx}\right)}{d}}$$

$$\left(\left(d\,g\,\sqrt{-\frac{(b\,c-a\,d)\,(-d\,g+c\,h)\,\left(-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}\right)}{-b\,d\,g+a\,d\,h}}\,\left(-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}\right)\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\right.\right.$$

$$\left(\frac{(-b\,d\,g+a\,d\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d\,e-c\,f)\,\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]}{(b\,c-a\,d)\,(-d\,g+c\,h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d\,e-c\,f)\,\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]}{b\,c-a\,d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\,\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\left(c\,h\,\sqrt{-\frac{(b\,c-a\,d)\,(-d\,g+c\,h)\,\left(-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}\right)}{-b\,d\,g+a\,d\,h}}\right.$$

$$\left(-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}\right)\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\left(\frac{(-b\,d\,g+a\,d\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d\,e-c\,f)\,\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]}{(b\,c-a\,d)\,(-d\,g+c\,h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d\,e-c\,f)\,\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]}{b\,c-a\,d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\,\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)+\left(h\,\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\,\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\right.$$

$$\left(-\frac{h}{-d g+c h}+\frac{1}{c+d x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d e+c f)\left(-h-\frac{d g}{c+d x}+\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right], \frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]\right] \Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}} \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)\Bigg)\Bigg)$$

Problem 111: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(a+b x)^{3/2} (c+d x)^{3/2} \sqrt{e+f x} \sqrt{g+h x}} \, dx$$

Optimal (type 4, 786 leaves, ? steps):

$$-\frac{2 d^3 \sqrt{a+b x} \sqrt{e+f x} \sqrt{g+h x}}{(b c-a d)^2 (d e-c f)(d g-c h) \sqrt{c+d x}}-\frac{2 b^3 \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{(b c-a d)^2 (b e-a f)(b g-a h) \sqrt{a+b x}}+$$

$$\frac{2 b \left(a^2 d^2 f h-a b d^2 (f g+e h)+b^2 \left(2 d^2 e g+c^2 f h-c d (f g+e h)\right)\right) \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{(b c-a d)^2 (b e-a f)(d e-c f)(b g-a h)(d g-c h) \sqrt{a+b x}}-$$

$$\left(2 \sqrt{f g-e h} \left(a^2 d^2 f h-a b d^2 (f g+e h)+b^2 \left(2 d^2 e g+c^2 f h-c d (f g+e h)\right)\right)\right.$$

$$\left.\sqrt{c+d x} \sqrt{-\frac{(b e-a f)(g+h x)}{(f g-e h)(a+b x)}} \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{b g-a h} \sqrt{e+f x}}{\sqrt{f g-e h} \sqrt{a+b x}}\right], -\frac{(b c-a d)(f g-e h)}{(d e-c f)(b g-a h)}\right]\right) \Big/$$

$$\left((b c-a d)^2 (b e-a f)(d e-c f) \sqrt{b g-a h} (d g-c h) \sqrt{\frac{(b e-a f)(c+d x)}{(d e-c f)(a+b x)}} \sqrt{g+h x}\right)-$$

$$\frac{4 b d \sqrt{\frac{(b e-a f)(c+d x)}{(d e-c f)(a+b x)}} \sqrt{g+h x} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b g-a h} \sqrt{e+f x}}{\sqrt{f g-e h} \sqrt{a+b x}}\right], -\frac{(b c-a d)(f g-e h)}{(d e-c f)(b g-a h)}\right]}{(b c-a d)^2 \sqrt{b g-a h} \sqrt{f g-e h} \sqrt{c+d x} \sqrt{-\frac{(b e-a f)(g+h x)}{(f g-e h)(a+b x)}}}$$

Result (type 4, 7061 leaves) :

$$\sqrt{a+b x}\,\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}$$

$$\left(\frac{1}{\left(c-\frac{a d}{b}\right)(a+b x)}\left(-\frac{2 b^3 c d^2 e g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}-\frac{2 a b^2 d^3 e g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+\right.\right.$$

$$\frac{2 b^3 c^2 d f g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+\frac{2 a^2 b d^3 f g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+$$

$$\frac{2 b^3 c^2 d e h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+\frac{2 a^2 b d^3 e h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}-$$

$$\frac{2 b^3 c^3 f h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}-\frac{2 a^3 d^3 f h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}-$$

$$\frac{1}{b} a\left(-\frac{4 b^3 d^3 e g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+\right.$$

$$\frac{2 b^3 c d^2 f g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+\frac{2 a b^2 d^3 f g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+$$

$$\frac{2 b^3 c d^2 e h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+\frac{2 a b^2 d^3 e h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}-$$

$$\left.\left.\frac{2 b^3 c^2 d f h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}-\frac{2 a^2 b d^3 f h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}\right)\right)+$$

$$\frac{1}{\left(a-\frac{b c}{d}\right)(c+d x)}\left(-\frac{2 b^3 c d^2 e g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}-\frac{2 a b^2 d^3 e g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+\right.$$

$$\frac{2 b^3 c^2 d f g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+\frac{2 a^2 b d^3 f g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+$$

$$\frac{2 b^3 c^2 d e h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+\frac{2 a^2 b d^3 e h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}-$$

$$\frac{2 b^3 c^3 f h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}-\frac{2 a^3 d^3 f h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}-\frac{1}{d}$$

$$c\left(-\frac{4 b^3 d^3 e g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+\frac{2 b^3 c d^2 f g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+\right.$$

$$\frac{2 a b^2 d^3 f g}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+\frac{2 b^3 c d^2 e h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}+$$

$$\frac{2 a b^2 d^3 e h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}-\frac{2 b^3 c^2 d f h}{(b c-a d)^2 (b e-a f)(-d e+c f)(b g-a h)(-d g+c h)}-$$

$$\left.\left.\left.\frac{2 a^2 b d^3 f h}{(b c-a d)^2 (b e-a f) (-d e+c f) (b g-a h) (-d g+c h)}\right)\right)\right)-\frac{1}{b^2 (-b c+a d)^2 (-b e+a f) (-d e+c f) (-b g+a h) (-d g+c h)}$$

$$2\left(\left(\left(-2 b^2 d^2 e g+b^2 c d f g+a b d^2 f g+b^2 c d e h+a b d^2 e h-b^2 c^2 f h-a^2 d^2 f h\right) (a+b x)^{5/2} \left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right) \left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\right.\right.$$

$$\left.\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)\right)\Big/\left(\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}\right)+$$

$$\frac{1}{\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}}(b c-a d) (b e-a f) (b g-a h) (a+b x)^{3/2}$$

$$\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}\left(\left(2 b^2 d^2 e g\sqrt{\frac{(b c-a d) (b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right],\frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right]}{(b c-a d) (b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right],\frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(b^2 c d f g\sqrt{\frac{(b c-a d) (b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(a b d^2 f g\sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(b^2 c d e h\sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{-b\,c+a\,d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)-\left(a\,b\,d^2\,e\,h\sqrt{\frac{(b\,c-a\,d)\,(b\,g-a\,h)\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}\right.$$

$$\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\left(-\frac{(b\,d\,g-b\,c\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,(b\,g-a\,h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{-b\,c+a\,d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+\left(b^2\,c^2\,f\,h\sqrt{\frac{(b\,c-a\,d)\,(b\,g-a\,h)\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}\right.$$

$$\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\left(-\frac{(b\,d\,g-b\,c\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,(b\,g-a\,h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{-b\,c+a\,d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a^2 d^2 f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left.\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(b d^2 f g\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(b d^2 e h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(b c d f h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right],\frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(a d^2 f h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right],\frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right]\Bigg/$$

$$\left.\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right)\right)\right)$$

Problem 112: Result unnecessarily involves higher level functions.

$$\int \frac{x^4 (e+f x)^n}{(a+b x) (c+d x)} \, dx$$

Optimal (type 5, 319 leaves, 8 steps):

$$\frac{e^2 (e+f x)^{1+n}}{b d f^3 (1+n)}+\frac{(b c+a d) e (e+f x)^{1+n}}{b^2 d^2 f^2 (1+n)}+\frac{\left(b^2 c^2+a b c d+a^2 d^2\right) (e+f x)^{1+n}}{b^3 d^3 f (1+n)}-\frac{2 e (e+f x)^{2+n}}{b d f^3 (2+n)}-\frac{(b c+a d) (e+f x)^{2+n}}{b^2 d^2 f^2 (2+n)}+\frac{(e+f x)^{3+n}}{b d f^3 (3+n)}-$$

$$\frac{a^4 (e+f x)^{1+n} \text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{b (e+f x)}{b e-a f}\right]}{b^3 (b c-a d) (b e-a f) (1+n)}+\frac{c^4 (e+f x)^{1+n} \text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{d (e+f x)}{d e-c f}\right]}{d^3 (b c-a d) (d e-c f) (1+n)}$$

Result (type 6, 262 leaves):

$$\frac{6}{5} e x^5 (e+f x)^n \left(\left(a b \text{AppellF1}\left[5,-n,1,6,-\frac{f x}{e},-\frac{b x}{a}\right]\right)\Big/\left((b c-a d) (a+b x)\right.\right.$$

$$\left.\left(6 a e \text{AppellF1}\left[5,-n,1,6,-\frac{f x}{e},-\frac{b x}{a}\right]+a f n x \text{AppellF1}\left[6,1-n,1,7,-\frac{f x}{e},-\frac{b x}{a}\right]-b e x \text{AppellF1}\left[6,-n,2,7,-\frac{f x}{e},-\frac{b x}{a}\right]\right)\right)+$$

$$\left(c d \text{AppellF1}\left[5,-n,1,6,-\frac{f x}{e},-\frac{d x}{c}\right]\right)\Big/\left((-b c+a d) (c+d x)\right.$$

$$\left.\left.\left(6 c e \text{AppellF1}\left[5,-n,1,6,-\frac{f x}{e},-\frac{d x}{c}\right]+c f n x \text{AppellF1}\left[6,1-n,1,7,-\frac{f x}{e},-\frac{d x}{c}\right]-d e x \text{AppellF1}\left[6,-n,2,7,-\frac{f x}{e},-\frac{d x}{c}\right]\right)\right)\right)$$

Problem 113: Result unnecessarily involves higher level functions.

$$\int \frac{x^3 (e+f x)^n}{(a+b x) (c+d x)} \, dx$$

Optimal (type 5, 216 leaves, 6 steps):

$$-\frac{e (e+f x)^{1+n}}{b d f^2 (1+n)}-\frac{(b c+a d) (e+f x)^{1+n}}{b^2 d^2 f (1+n)}+\frac{(e+f x)^{2+n}}{b d f^2 (2+n)}+\frac{a^3 (e+f x)^{1+n} \text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{b (e+f x)}{b e-a f}\right]}{b^2 (b c-a d) (b e-a f) (1+n)}-\frac{c^3 (e+f x)^{1+n} \text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{d (e+f x)}{d e-c f}\right]}{d^2 (b c-a d) (d e-c f) (1+n)}$$

Result (type 6, 262 leaves):

$$\frac{5}{4} e x^4 (e+f x)^n \left(\left(a b \text{AppellF1}\left[4,-n,1,5,-\frac{f x}{e},-\frac{b x}{a}\right]\right) \Big/ \left((b c-a d) (a+b x) \left(5 a e \text{AppellF1}\left[4,-n,1,5,-\frac{f x}{e},-\frac{b x}{a}\right]+a f n x \text{AppellF1}\left[5,1-n,1,6,-\frac{f x}{e},-\frac{b x}{a}\right]-b e x \text{AppellF1}\left[5,-n,2,6,-\frac{f x}{e},-\frac{b x}{a}\right]\right)\right)+\left(c d \text{AppellF1}\left[4,-n,1,5,-\frac{f x}{e},-\frac{d x}{c}\right]\right) \Big/ \left((-b c+a d) (c+d x) \left(5 c e \text{AppellF1}\left[4,-n,1,5,-\frac{f x}{e},-\frac{d x}{c}\right]+c f n x \text{AppellF1}\left[5,1-n,1,6,-\frac{f x}{e},-\frac{d x}{c}\right]-d e x \text{AppellF1}\left[5,-n,2,6,-\frac{f x}{e},-\frac{d x}{c}\right]\right)\right)\right)$$

Problem 120: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m (c+d x) (e+f x)}{g+h x} \, dx$$

Optimal (type 5, 134 leaves, 2 steps):

$$-\frac{(a+b x)^{1+m} (a d f h+b (d f g-d e h-c f h) (2+m)-b d f h (1+m) x)}{b^2 h^2 (1+m) (2+m)}+\frac{(d g-c h) (f g-e h) (a+b x)^{1+m} \text{Hypergeometric2F1}\left[1,1+m,2+m,-\frac{h (a+b x)}{b g-a h}\right]}{h^2 (b g-a h) (1+m)}$$

Result (type 6, 317 leaves):

$$\frac{1}{6}(a+bx)^m\left(\left(9a(de+cf)gx^2\,\text{AppellF1}\left[2,-m,1,3,-\frac{bx}{a},-\frac{hx}{g}\right]\right)\Big/\left((g+hx)\left(3ag\,\text{AppellF1}\left[2,-m,1,3,-\frac{bx}{a},-\frac{hx}{g}\right]+bgmx\,\text{AppellF1}\left[3,1-m,1,4,-\frac{bx}{a},-\frac{hx}{g}\right]-ahx\,\text{AppellF1}\left[3,-m,2,4,-\frac{bx}{a},-\frac{hx}{g}\right]\right)\right)+\left(8adfgx^3\,\text{AppellF1}\left[3,-m,1,4,-\frac{bx}{a},-\frac{hx}{g}\right]\right)\Big/\left((g+hx)\left(4ag\,\text{AppellF1}\left[3,-m,1,4,-\frac{bx}{a},-\frac{hx}{g}\right]+bgmx\,\text{AppellF1}\left[4,1-m,1,5,-\frac{bx}{a},-\frac{hx}{g}\right]-ahx\,\text{AppellF1}\left[4,-m,2,5,-\frac{bx}{a},-\frac{hx}{g}\right]\right)\right)+\frac{6ce\left(\frac{h(a+bx)}{b(g+hx)}\right)^{-m}\text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{bg-ah}{bg+bhx}\right]}{hm}\right)$$

Problem 121: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(a+bx)^m\,(c+dx)}{(e+fx)\,(g+hx)}\,dx$$

Optimal (type 5, 140 leaves, 3 steps):

$$-\frac{(de-cf)\,(a+bx)^{1+m}\,\text{Hypergeometric2F1}\left[1,1+m,2+m,-\frac{f(a+bx)}{be-af}\right]}{(be-af)\,(fg-eh)\,(1+m)}+\frac{(dg-ch)\,(a+bx)^{1+m}\,\text{Hypergeometric2F1}\left[1,1+m,2+m,-\frac{h(a+bx)}{bg-ah}\right]}{(bg-ah)\,(fg-eh)\,(1+m)}$$

Result (type 6, 390 leaves):

$$\frac{1}{2}(a+bx)^m\left(3adx^2\left(\left(ef\,\text{AppellF1}\left[2,-m,1,3,-\frac{bx}{a},-\frac{fx}{e}\right]\right)\Big/\left((fg-eh)(e+fx)\left(3ae\,\text{AppellF1}\left[2,-m,1,3,-\frac{bx}{a},-\frac{fx}{e}\right]+bemx\,\text{AppellF1}\left[3,1-m,1,4,-\frac{bx}{a},-\frac{fx}{e}\right]-afx\,\text{AppellF1}\left[3,-m,2,4,-\frac{bx}{a},-\frac{fx}{e}\right]\right)\right)+\left(gh\,\text{AppellF1}\left[2,-m,1,3,-\frac{bx}{a},-\frac{hx}{g}\right]\right)\Big/\left((-fg+eh)(g+hx)\left(3ag\,\text{AppellF1}\left[2,-m,1,3,-\frac{bx}{a},-\frac{hx}{g}\right]+bgmx\,\text{AppellF1}\left[3,1-m,1,4,-\frac{bx}{a},-\frac{hx}{g}\right]-ahx\,\text{AppellF1}\left[3,-m,2,4,-\frac{bx}{a},-\frac{hx}{g}\right]\right)\right)\right)+\frac{1}{fgm-ehm}\left(2c\left(\frac{f(a+bx)}{b(e+fx)}\right)^{-m}\text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{be-af}{be+bfx}\right]-2c\left(\frac{h(a+bx)}{b(g+hx)}\right)^{-m}\text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{bg-ah}{bg+bhx}\right]\right)\right)$$

Problem 123: Result more than twice size of optimal antiderivative.

$$\int \frac{x^m (e+f x)^n}{(a+b x) (c+d x)} \, dx$$

Optimal (type 6, 140 leaves, 6 steps):

$$\frac{b x^{1+m} (e+f x)^n \left(1+\frac{f x}{e}\right)^{-n} \text{AppellF1}\left[1+m,-n,1,2+m,-\frac{f x}{e},-\frac{b x}{a}\right]}{a (b c-a d) (1+m)}-\frac{d x^{1+m} (e+f x)^n \left(1+\frac{f x}{e}\right)^{-n} \text{AppellF1}\left[1+m,-n,1,2+m,-\frac{f x}{e},-\frac{d x}{c}\right]}{c (b c-a d) (1+m)}$$

Result (type 6, 309 leaves):

$$\frac{1}{1+m} e (2+m) x^{1+m} (e+f x)^n \left(-\left(\left(a b \text{AppellF1}\left[1+m,-n,1,2+m,-\frac{f x}{e},-\frac{b x}{a}\right]\right)\Big/\left((-b c+a d) (a+b x) \left(a e (2+m) \text{AppellF1}\left[1+m,-n,1,2+m,-\frac{f x}{e},-\frac{b x}{a}\right]+x \left(a f n \text{AppellF1}\left[2+m,1-n,1,3+m,-\frac{f x}{e},-\frac{b x}{a}\right]-b e \text{AppellF1}\left[2+m,-n,2,3+m,-\frac{f x}{e},-\frac{b x}{a}\right]\right)\right)\right)\right)-\left(c d \text{AppellF1}\left[1+m,-n,1,2+m,-\frac{f x}{e},-\frac{d x}{c}\right]\right)\Big/\left((b c-a d) (c+d x) \left(c e (2+m) \text{AppellF1}\left[1+m,-n,1,2+m,-\frac{f x}{e},-\frac{d x}{c}\right]+x \left(c f n \text{AppellF1}\left[2+m,1-n,1,3+m,-\frac{f x}{e},-\frac{d x}{c}\right]-d e \text{AppellF1}\left[2+m,-n,2,3+m,-\frac{f x}{e},-\frac{d x}{c}\right]\right)\right)\right)\right)$$

Problem 124: Result unnecessarily involves higher level functions.

$$\int (a+b x)^m (c+d x)^n (e+f x) (g+h x) \, dx$$

Optimal (type 5, 266 leaves, 3 steps):

$$-\frac{(a+b x)^{1+m} (c+d x)^{1+n} (b c f h (2+m)+a d f h (2+n)-b d (f g+e h) (3+m+n)-b d f h (2+m+n) x)}{b^2 d^2 (2+m+n) (3+m+n)}+\left(\left(a^2 d^2 f h (1+n) (2+n)+a b d (1+n) (2 c f h (1+m)-d (f g+e h) (3+m+n))+b^2 \left(c^2 f h (1+m) (2+m)-c d (f g+e h) (1+m) (3+m+n)+d^2 e g (2+m+n) (3+m+n)\right)\right) (a+b x)^{1+m} (c+d x)^n \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} \text{Hypergeometric2F1}\left[1+m,-n,2+m,-\frac{d (a+b x)}{b c-a d}\right]\right)\Big/\left(b^3 d^2 (1+m) (2+m+n) (3+m+n)\right)$$

Result (type 6, 335 leaves):

$$\frac{1}{3}(a+bx)^m(c+dx)^n\left(\left(9ac(fg+eh)x^2\,\text{AppellF1}\left[2,-m,-n,3,-\frac{bx}{a},-\frac{dx}{c}\right]\right)\Big/\left(2\left(3ac\,\text{AppellF1}\left[2,-m,-n,3,-\frac{bx}{a},-\frac{dx}{c}\right]+bcmx\,\text{AppellF1}\left[3,1-m,-n,4,-\frac{bx}{a},-\frac{dx}{c}\right]+adnx\,\text{AppellF1}\left[3,-m,1-n,4,-\frac{bx}{a},-\frac{dx}{c}\right]\right)\right)+\left(4acfhx^3\,\text{AppellF1}\left[3,-m,-n,4,-\frac{bx}{a},-\frac{dx}{c}\right]\right)\Big/\left(4ac\,\text{AppellF1}\left[3,-m,-n,4,-\frac{bx}{a},-\frac{dx}{c}\right]+bcmx\,\text{AppellF1}\left[4,1-m,-n,5,-\frac{bx}{a},-\frac{dx}{c}\right]+adnx\,\text{AppellF1}\left[4,-m,1-n,5,-\frac{bx}{a},-\frac{dx}{c}\right]\right)+\frac{3eg\left(\frac{d(a+bx)}{-bc+ad}\right)^{-m}(c+dx)\,\text{Hypergeometric2F1}\left[-m,1+n,2+n,\frac{b(c+dx)}{bc-ad}\right]}{d(1+n)}\right)$$

Problem 125: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int(a+bx)^m(c+dx)^{1-m}(e+fx)(g+hx)\,dx$$

Optimal (type 5, 245 leaves, 3 steps):

$$\frac{(a+bx)^{1+m}(c+dx)^{2-m}(4bd(fg+eh)-adfh(3-m)-bcfh(2+m)+3bdfhx)}{12b^2d^2}+\frac{1}{12b^4d^2(1+m)}(bc-ad)\left(a^2d^2fh\left(6-5m+m^2\right)-2abd(2-m)(2d(fg+eh)-cfh(1+m))+b^2\left(12d^2eg-4cd(fg+eh)(1+m)+c^2fh\left(2+3m+m^2\right)\right)\right)(a+bx)^{1+m}(c+dx)^{-m}\left(\frac{b(c+dx)}{bc-ad}\right)^m\text{Hypergeometric2F1}\left[-1+m,1+m,2+m,-\frac{d(a+bx)}{bc-ad}\right]$$

Result (type 6, 1043 leaves):

$$\left(3\,a\,c\,d\,e\,g\,x^2\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(6\,a\,c\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+2\,m\,x\left(b\,c\,\text{AppellF1}\left[3,1-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-a\,d\,\text{AppellF1}\left[3,-m,1+m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)+$$
$$\left(3\,a\,c^2\,f\,g\,x^2\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(6\,a\,c\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+2\,m\,x\left(b\,c\,\text{AppellF1}\left[3,1-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-a\,d\,\text{AppellF1}\left[3,-m,1+m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)+$$
$$\left(3\,a\,c^2\,e\,h\,x^2\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(6\,a\,c\,\text{AppellF1}\left[2,-m,m,3,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+2\,m\,x\left(b\,c\,\text{AppellF1}\left[3,1-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-a\,d\,\text{AppellF1}\left[3,-m,1+m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\right)+$$
$$\left(4\,a\,c\,d\,f\,g\,x^3\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(12\,a\,c\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+3\,b\,c\,m\,x\,\text{AppellF1}\left[4,1-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-3\,a\,d\,m\,x\,\text{AppellF1}\left[4,-m,1+m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)+$$
$$\left(4\,a\,c\,d\,e\,h\,x^3\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(12\,a\,c\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+3\,b\,c\,m\,x\,\text{AppellF1}\left[4,1-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-3\,a\,d\,m\,x\,\text{AppellF1}\left[4,-m,1+m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)+$$
$$\left(4\,a\,c^2\,f\,h\,x^3\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(12\,a\,c\,\text{AppellF1}\left[3,-m,m,4,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+3\,b\,c\,m\,x\,\text{AppellF1}\left[4,1-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-3\,a\,d\,m\,x\,\text{AppellF1}\left[4,-m,1+m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)+$$
$$\left(5\,a\,c\,d\,f\,h\,x^4\,(a+b\,x)^m\,(c+d\,x)^{-m}\,\text{AppellF1}\left[4,-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)\Big/$$
$$\left(20\,a\,c\,\text{AppellF1}\left[4,-m,m,5,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]+4\,b\,c\,m\,x\,\text{AppellF1}\left[5,1-m,m,6,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]-4\,a\,d\,m\,x\,\text{AppellF1}\left[5,-m,1+m,6,-\frac{b\,x}{a},-\frac{d\,x}{c}\right]\right)-$$
$$\frac{c\,e\,g\,(c+d\,x)^{1-m}\left(a-\frac{b\,c}{d}+\frac{b\,(c+d\,x)}{d}\right)^m\left(1+\frac{b\,(c+d\,x)}{\left(a-\frac{b\,c}{d}\right)d}\right)^{-m}\text{Hypergeometric2F1}\left[1-m,-m,2-m,-\frac{b\,(c+d\,x)}{\left(a-\frac{b\,c}{d}\right)d}\right]}{d\,(-1+m)}$$

Problem 126: Result unnecessarily involves higher level functions.

$$\int (a+b\,x)^m\,(c+d\,x)^{-m}\,(e+f\,x)\,(g+h\,x)\,dx$$

Optimal (type 5, 235 leaves, 3 steps) :

$$\frac{(a+b x)^{1+m} (c+d x)^{1-m} (3 b d (f g+e h)-a d f h (2-m)-b c f h (2+m)+2 b d f h x)}{6 b^2 d^2}+\frac{1}{6 b^3 d^2 (1+m)}$$
$$\left(a^2 d^2 f h \left(2-3 m+m^2\right)-a b d (1-m) (3 d (f g+e h)-2 c f h (1+m))+b^2 \left(6 d^2 e g-3 c d (f g+e h) (1+m)+c^2 f h \left(2+3 m+m^2\right)\right)\right)$$
$$(a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[m, 1+m, 2+m, -\frac{d (a+b x)}{b c-a d}\right]$$

Result (type 6, 324 leaves):

$$(a+b x)^m (c+d x)^{-m} \left(\left(3 a c (f g+e h) x^2 \text{AppellF1}\left[2, -m, m, 3, -\frac{b x}{a}, -\frac{d x}{c}\right]\right) \Big/\right.$$
$$\left(6 a c \text{AppellF1}\left[2, -m, m, 3, -\frac{b x}{a}, -\frac{d x}{c}\right]+2 m x \left(b c \text{AppellF1}\left[3, 1-m, m, 4, -\frac{b x}{a}, -\frac{d x}{c}\right]-a d \text{AppellF1}\left[3, -m, 1+m, 4, -\frac{b x}{a}, -\frac{d x}{c}\right]\right)\right)+$$
$$\left(4 a c f h x^3 \text{AppellF1}\left[3, -m, m, 4, -\frac{b x}{a}, -\frac{d x}{c}\right]\right) \Big/$$
$$\left(12 a c \text{AppellF1}\left[3, -m, m, 4, -\frac{b x}{a}, -\frac{d x}{c}\right]+3 b c m x \text{AppellF1}\left[4, 1-m, m, 5, -\frac{b x}{a}, -\frac{d x}{c}\right]-3 a d m x \text{AppellF1}\left[4, -m, 1+m, 5, -\frac{b x}{a}, -\frac{d x}{c}\right]\right)-$$
$$\left.\frac{e g \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} (c+d x) \text{Hypergeometric2F1}\left[1-m, -m, 2-m, \frac{b (c+d x)}{b c-a d}\right]}{d (-1+m)}\right)$$

Problem 127: Result unnecessarily involves higher level functions.

$$\int (a+b x)^m (c+d x)^{-1-m} (e+f x) (g+h x) \, dx$$

Optimal (type 5, 261 leaves, 3 steps):

$$\frac{(a+b x)^{1+m} (c+d x)^{-m} \left(2 b d^2 e g+b c^2 f h (2+m)-c d (2 b (f g+e h)+a f h m)+d (b c-a d) f h m x\right)}{2 b d^2 (b c-a d) m}-$$
$$\left(\left(b^2 c^2 f h (1+m) (2+m)-2 b c d (1+m) (b f g+b e h+a f h m)+d^2 \left(2 b^2 e g+2 a b (f g+e h) m-a^2 f h (1-m) m\right)\right)\right.$$
$$\left.(a+b x)^{1+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[m, 1+m, 2+m, -\frac{d (a+b x)}{b c-a d}\right]\right) \Big/ \left(2 b^2 d^2 (b c-a d) m (1+m)\right)$$

Result (type 6, 346 leaves):

$$\frac{1}{6} (a+b x)^m (c+d x)^{-m} \left(\left(9 a c (f g+e h) x^2 \text{AppellF1}\left[2,-m,1+m,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right) \Big/ \left((c+d x) \left(3 a c \text{AppellF1}\left[2,-m,1+m,3,-\frac{b x}{a},-\frac{d x}{c}\right]+b c m x \text{AppellF1}\left[3,1-m,1+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]-a d (1+m) x \text{AppellF1}\left[3,-m,2+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\right)+\left(8 a c f h x^3 \text{AppellF1}\left[3,-m,1+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right) \Big/ \left((c+d x) \left(4 a c \text{AppellF1}\left[3,-m,1+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]+b c m x \text{AppellF1}\left[4,1-m,1+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]-a d (1+m) x \text{AppellF1}\left[4,-m,2+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\right)-\frac{6 e g \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} \text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{b (c+d x)}{b c-a d}\right]}{d m}\right)$$

Problem 128: Result unnecessarily involves higher level functions.

$$\int (a+b x)^m (c+d x)^{-2-m} (e+f x) (g+h x) \, dx$$

Optimal (type 5, 203 leaves, 3 steps):

$$\frac{1}{b d^2 (b c-a d) (1+m)} (a+b x)^{1+m} (c+d x)^{-1-m} \left(b d^2 e g+b c^2 f h (2+m)-c d (b (f g+e h)+a f h (1+m))+d (b c-a d) f h (1+m) x\right)-\frac{1}{b d^3 m} (a d f h m+b (d (f g+e h)-c f h (2+m))) (a+b x)^m \left(-\frac{d (a+b x)}{b c-a d}\right)^{-m} (c+d x)^{-m} \text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{b (c+d x)}{b c-a d}\right]$$

Result (type 6, 303 leaves):

$$\frac{1}{6} (a+b x)^m (c+d x)^{-2-m} \left(\frac{6 e g (a+b x) (c+d x)}{(b c-a d) (1+m)}-\left(9 a c (f g+e h) x^2 \text{AppellF1}\left[2,-m,2+m,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right) \Big/ \left(-3 a c \text{AppellF1}\left[2,-m,2+m,3,-\frac{b x}{a},-\frac{d x}{c}\right]-b c m x \text{AppellF1}\left[3,1-m,2+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]+a d (2+m) x \text{AppellF1}\left[3,-m,3+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)-\left(8 a c f h x^3 \text{AppellF1}\left[3,-m,2+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right) \Big/ \left(-4 a c \text{AppellF1}\left[3,-m,2+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]-b c m x \text{AppellF1}\left[4,1-m,2+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]+a d (2+m) x \text{AppellF1}\left[4,-m,3+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\right)$$

Problem 129: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b x)^m (c+d x)^{-3-m} (e+f x) (g+h x) \, dx$$

Optimal (type 5, 246 leaves, 3 steps):

$$-\left(\left((a+b x)^{1+m} (c+d x)^{-2-m} \left(a^2 b c f h m-a^3 d f h (1+m)-b^3 c e g (2+m)+a b^2 (c (f g+e h)+d e g (1+m))-b \left(a^2 d f h (3+2 m)+b^2 (d e g+c (f g+e h)) (1+m)\right)-a b (2 c f h (1+m)+d (f g+e h) (2+m))) x\right)\right)\Big/\left(b^2 (b c-a d)^2 (1+m) (2+m)\right)\right)+\frac{f h (a+b x)^{3+m} (c+d x)^{-m} \left(\frac{b (c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[3+m,3+m,4+m,-\frac{d (a+b x)}{b c-a d}\right]}{(b c-a d)^3 (3+m)}$$

Result (type 6, 633 leaves):

$$\frac{1}{3} (a+b x)^m (c+d x)^{-3-m} \left(\left(3 f g \left(\frac{c (a+b x)}{a (c+d x)}\right)^{-m} (c+d x) \left(b^2 c^2 (1+m) x^2 \left(\frac{c (a+b x)}{a (c+d x)}\right)^m-a b c x \left(\frac{c (a+b x)}{a (c+d x)}\right)^m (-c m+d (2+m) x)+a^2 \left(d^2 x^2-c^2 \left(-1+\left(\frac{c (a+b x)}{a (c+d x)}\right)^m\right)-c d x \left(-2+2 \left(\frac{c (a+b x)}{a (c+d x)}\right)^m+m \left(\frac{c (a+b x)}{a (c+d x)}\right)^m\right)\right)\right)\right)\Big/\left(c (b c-a d)^2 (1+m) (2+m)\right)+\left(3 e h \left(\frac{c (a+b x)}{a (c+d x)}\right)^{-m} (c+d x) \left(b^2 c^2 (1+m) x^2 \left(\frac{c (a+b x)}{a (c+d x)}\right)^m-a b c x \left(\frac{c (a+b x)}{a (c+d x)}\right)^m (-c m+d (2+m) x)+a^2 \left(d^2 x^2-c^2 \left(-1+\left(\frac{c (a+b x)}{a (c+d x)}\right)^m\right)-c d x \left(-2+2 \left(\frac{c (a+b x)}{a (c+d x)}\right)^m+m \left(\frac{c (a+b x)}{a (c+d x)}\right)^m\right)\right)\right)\right)\Big/\left(c (b c-a d)^2 (1+m) (2+m)\right)-\left(4 a c f h x^3 \text{AppellF1}\left[3,-m,3+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(-4 a c \text{AppellF1}\left[3,-m,3+m,4,-\frac{b x}{a},-\frac{d x}{c}\right]-b c m x \text{AppellF1}\left[4,1-m,3+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]+a d (3+m) x \text{AppellF1}\left[4,-m,4+m,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)-\frac{3 e g \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} (c+d x) \text{Hypergeometric2F1}\left[-2-m,-m,-1-m,\frac{b (c+d x)}{b c-a d}\right]}{d (2+m)}\right)$$

Problem 132: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b x)^3 (c+d x)^{-4-m} (e+f x)^m (g+h x) \, dx$$

Optimal (type 5, 815 leaves, 10 steps):

$$\frac{1}{d^4 f^2 (d e - c f) (3+m)} (b c - a d)^2 \left(a d f + b \left(c f (2+m) - d e (3+m)\right)\right) \left(c f h (4+m) - d \left(f g + e h (3+m)\right)\right) (c+d x)^{-3-m} (e+f x)^{1+m} - \frac{b (b c - a d) \left(c f h (4+m) - d \left(f g + e h (3+m)\right)\right) (a+b x) (c+d x)^{-3-m} (e+f x)^{1+m}}{d^3 f^2} + \frac{h (a+b x)^3 (c+d x)^{-3-m} (e+f x)^{1+m}}{d f} - \frac{(b c - a d)^2 \left(3 a d f h - b \left(c f h (4+m) - d (f g + e h m)\right)\right) (c+d x)^{-2-m} (e+f x)^{1+m}}{d^4 f (d e - c f) (2+m)} + \left((b c - a d) \left(c f h (4+m) - d \left(f g + e h (3+m)\right)\right) \left(2 a^2 d^2 f^2 + 2 a b d f \left(c f (1+m) - d e (3+m)\right) + b^2 \left(c^2 f^2 (2+3 m+m^2) - 2 c d e f (3+4 m+m^2) + d^2 e^2 (6+5 m+m^2)\right)\right) (c+d x)^{-2-m} (e+f x)^{1+m}\right) \Big/ \left(d^4 f^2 (d e - c f)^2 (2+m) (3+m)\right) - \left((b c - a d) \left(a d f - b \left(2 d e (2+m) - c f (3+2 m)\right)\right) \left(3 a d f h - b \left(c f h (4+m) - d (f g + e h m)\right)\right) (c+d x)^{-1-m} (e+f x)^{1+m}\right) \Big/ \left(d^4 f (d e - c f)^2 (1+m) (2+m)\right) - \left((b c - a d) \left(c f h (4+m) - d \left(f g + e h (3+m)\right)\right) \left(2 a^2 d^2 f^2 + 2 a b d f \left(c f (1+m) - d e (3+m)\right) + b^2 \left(c^2 f^2 (2+3 m+m^2) - 2 c d e f (3+4 m+m^2) + d^2 e^2 (6+5 m+m^2)\right)\right) (c+d x)^{-1-m} (e+f x)^{1+m}\right) \Big/ \left(d^4 f (d e - c f)^3 (1+m) (2+m) (3+m)\right) - \frac{1}{d^5 f m} b^2 \left(3 a d f h - b \left(c f h (4+m) - d (f g + e h m)\right)\right) (c+d x)^{-m} (e+f x)^m \left(\frac{d (e+f x)}{d e - c f}\right)^{-m} \text{Hypergeometric2F1}\left[-m, -m, 1-m, -\frac{f (c+d x)}{d e - c f}\right]$$

Result (type 6, 10 997 leaves):

$$\left(3 a b^2 g (c+d x)^{-3-m} (e+f x)^m \left(-2 d^3 e^3 x^3 \left(\frac{e (c+d x)}{c (e+f x)}\right)^m + c d^2 e^2 x^2 \left(f (6+5 m+m^2) x + e \left(6+5 m+m^2 - 6 \left(\frac{e (c+d x)}{c (e+f x)}\right)^m\right)\right) + c^3 \left(-2 e^2 f m x + e f^2 m (1+m) x^2 + f^3 (2+3 m+m^2) x^3 - 2 e^3 \left(-1 + \left(\frac{e (c+d x)}{c (e+f x)}\right)^m\right)\right) - 2 c^2 d e x \left(e f m (3+m) x + f^2 (3+4 m+m^2) x^2 + e^2 \left(-3 - m + 3 \left(\frac{e (c+d x)}{c (e+f x)}\right)^m\right)\right)\right)\right) \Big/ \left(c (-d e + c f)^3 (1+m) (2+m) (3+m)\right) + \left(3 a^2 b h (c+d x)^{-3-m} (e+f x)^m \left(-2 d^3 e^3 x^3 \left(\frac{e (c+d x)}{c (e+f x)}\right)^m + c d^2 e^2 x^2 \left(f (6+5 m+m^2) x + e \left(6+5 m+m^2 - 6 \left(\frac{e (c+d x)}{c (e+f x)}\right)^m\right)\right) + c^3 \left(-2 e^2 f m x + e f^2 m (1+m) x^2 + f^3 (2+3 m+m^2) x^3 - 2 e^3 \left(-1 + \left(\frac{e (c+d x)}{c (e+f x)}\right)^m\right)\right) - 2 c^2 d e x \left(e f m (3+m) x + f^2 (3+4 m+m^2) x^2 + e^2 \left(-3 - m + 3 \left(\frac{e (c+d x)}{c (e+f x)}\right)^m\right)\right)\right)\right) \Big/ \left(c (-d e + c f)^3 (1+m) (2+m) (3+m)\right) + \left(5 b^3 c e g x^4 (c+d x)^{-4-m} (e+f x)^m \text{AppellF1}\left[4, 4+m, -m, 5, -\frac{d x}{c}, -\frac{f x}{e}\right]\right) \Big/ \left(4 \left(5 c e \text{AppellF1}\left[4, 4+m, -m, 5, -\frac{d x}{c}, -\frac{f x}{e}\right] + \right.\right.$$

$$c\,f\,m\,x\,\text{AppellF1}\Big[5,\,4+m,\,1-m,\,6,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\Big]-d\,e\,(4+m)\,x\,\text{AppellF1}\Big[5,\,5+m,\,-m,\,6,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\Big]\Big)\Big)\Big)+$$

$$\Big(15\,a\,b^2\,c\,e\,h\,x^4\,(c+d\,x)^{-4-m}\,(e+f\,x)^m\,\text{AppellF1}\Big[4,\,4+m,\,-m,\,5,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\Big]\Big)\Big/\Big(4\,\Big(5\,c\,e\,\text{AppellF1}\Big[4,\,4+m,\,-m,\,5,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\Big]+$$

$$c\,f\,m\,x\,\text{AppellF1}\Big[5,\,4+m,\,1-m,\,6,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\Big]-d\,e\,(4+m)\,x\,\text{AppellF1}\Big[5,\,5+m,\,-m,\,6,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\Big]\Big)\Big)\Big)+$$

$$\Big(6\,b^3\,c\,e\,h\,x^5\,(c+d\,x)^{-4-m}\,(e+f\,x)^m\,\text{AppellF1}\Big[5,\,4+m,\,-m,\,6,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\Big]\Big)\Big/\Big(5\,\Big(6\,c\,e\,\text{AppellF1}\Big[5,\,4+m,\,-m,\,6,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\Big]+$$

$$c\,f\,m\,x\,\text{AppellF1}\Big[6,\,4+m,\,1-m,\,7,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\Big]-d\,e\,(4+m)\,x\,\text{AppellF1}\Big[6,\,5+m,\,-m,\,7,\,-\frac{d\,x}{c},\,-\frac{f\,x}{e}\Big]\Big)\Big)\Big)+$$

$$\Big(3\,a^2\,b\,e\,g\,x^2\,(c+d\,x)^{-3-m}\,\Big(\frac{c+d\,x}{c}\Big)^{4+m}\,\Big(1+\frac{d\,x}{c}\Big)^{-4-m}\,(e+f\,x)^{-1+m}\,\Big(\frac{e+f\,x}{e}\Big)^{-m}\,\Big(1+\frac{f\,x}{e}\Big)^{1+m}\,\Big(c\,(4+m)\,(3\,e+f\,x)$$

$$\Big(-2\,d^3\,e^3\,x^3+c^3\,\Big(-2\,e^2\,f\,m\,x\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+e\,f^2\,m\,(1+m)\,x^2\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+f^3\,(2+3\,m+m^2)\,x^3\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+2\,e^3\,\Big(-1+\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\Big)\Big)-$$

$$2\,c^2\,d\,e\,x\,\Big(e\,f\,m\,(3+m)\,x\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+f^2\,(3+4\,m+m^2)\,x^2\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m-e^2\,\Big(-3+3\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+m\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\Big)\Big)+$$

$$c\,d^2\,e^2\,x^2\,\Big(f\,(6+5\,m+m^2)\,x\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+e\,\Big(-6+6\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+5\,m\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+m^2\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\Big)\Big)\Big)\,\text{Gamma}[4+m]-$$

$$\Big(2\,d^4\,e^4\,(1+m)\,x^4-2\,c\,d^3\,e^3\,x^3\,(-3\,e\,m+f\,(4+m)\,x)+c^4\,\Big(e^2\,f^2\,(-5+m)\,m\,x^2\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+2\,e\,f^3\,m\,(1+m)\,x^3\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+$$

$$f^4\,(2+3\,m+m^2)\,x^4\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+6\,e^4\,\Big(-1+\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\Big)-2\,e^3\,f\,x\,\Big(4+m-4\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+2\,m\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\Big)\Big)-$$

$$2\,c^3\,d\,e\,x\,\Big(2\,e\,f^2\,m\,(4+m)\,x^2\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+f^3\,(4+5\,m+m^2)\,x^3\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+e^2\,f\,(4+m)\,x\,\Big(3-3\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+m\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\Big)-$$

$$e^3\,\Big(-8+m+8\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+2\,m\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\Big)\Big)+c^2\,d^2\,e^2\,x^2\,\Big(f^2\,(12+7\,m+m^2)\,x^2\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+2\,e\,f\,(4+m)\,x\,\Big(-3+3$$

$$\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+m\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\Big)+e^2\,\Big(m^2\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m+12\,\Big(-1+\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\Big)+m\,\Big(6+7\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\Big)\Big)\Big)\Big)\,\text{Gamma}[5+m]\Big)\Big)\Big/$$

$$\Big(c\,\Big(24\,c^4\,e^4\,\text{Gamma}[4+m]+6\,c^4\,e^4\,m\,\text{Gamma}[4+m]+96\,c^3\,d\,e^4\,x\,\text{Gamma}[4+m]+24\,c^3\,d\,e^4\,m\,x\,\text{Gamma}[4+m]+144\,c^2\,d^2\,e^4\,x^2\,\text{Gamma}[4+m]+$$

$$36\,c^2\,d^2\,e^4\,m\,x^2\,\text{Gamma}[4+m]+96\,c\,d^3\,e^4\,x^3\,\text{Gamma}[4+m]+24\,c\,d^3\,e^4\,m\,x^3\,\text{Gamma}[4+m]+24\,d^4\,e^4\,x^4\,\text{Gamma}[4+m]+$$

$$6\,d^4\,e^4\,m\,x^4\,\text{Gamma}[4+m]-24\,c^4\,e^4\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\,\text{Gamma}[4+m]-6\,c^4\,e^4\,m\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\,\text{Gamma}[4+m]-$$

$$96\,c^3\,d\,e^4\,x\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\,\text{Gamma}[4+m]-48\,c^3\,d\,e^4\,m\,x\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\,\text{Gamma}[4+m]+24\,c^4\,e^3\,f\,m\,x\,\Big(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\Big)^m\,\text{Gamma}[4+m]-$$

$6 c^3 d e^4 m^2 x \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 6 c^4 e^3 f m^2 x \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 144 c^2 d^2 e^4 x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] -$

$120 c^2 d^2 e^4 m x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 96 c^3 d e^3 f m x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 12 c^4 e^2 f^2 m x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] -$

$33 c^2 d^2 e^4 m^2 x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 48 c^3 d e^3 f m^2 x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 15 c^4 e^2 f^2 m^2 x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] -$

$3 c^2 d^2 e^4 m^3 x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 6 c^3 d e^3 f m^3 x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 3 c^4 e^2 f^2 m^3 x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] -$

$144 c d^3 e^4 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 144 c^2 d^2 e^3 f x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 144 c^3 d e^2 f^2 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] +$

$48 c^4 e f^3 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 228 c d^3 e^4 m x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 444 c^2 d^2 e^3 f m x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] -$

$348 c^3 d e^2 f^2 m x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 108 c^4 e f^3 m x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 132 c d^3 e^4 m^2 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] +$

$330 c^2 d^2 e^3 f m^2 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 282 c^3 d e^2 f^2 m^2 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] +$

$84 c^4 e f^3 m^2 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 33 c d^3 e^4 m^3 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 93 c^2 d^2 e^3 f m^3 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] -$

$87 c^3 d e^2 f^2 m^3 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 27 c^4 e f^3 m^3 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 3 c d^3 e^4 m^4 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] +$

$9 c^2 d^2 e^3 f m^4 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 9 c^3 d e^2 f^2 m^4 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 3 c^4 e f^3 m^4 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] -$

$96 c d^3 e^3 f x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 144 c^2 d^2 e^2 f^2 x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 96 c^3 d e f^3 x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] +$

$24 c^4 f^4 x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 128 c d^3 e^3 f m x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 264 c^2 d^2 e^2 f^2 m x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] -$

$192 c^3 d e f^3 m x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 50 c^4 f^4 m x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 62 c d^3 e^3 f m^2 x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] +$

$153 c^2 d^2 e^2 f^2 m^2 x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 126 c^3 d e f^3 m^2 x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 35 c^4 f^4 m^2 x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] -$

$13 c d^3 e^3 f m^3 x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] + 36 c^2 d^2 e^2 f^2 m^3 x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] - 33 c^3 d e f^3 m^3 x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m \text{Gamma}[4+m] +$

$$10\,c^4 f^4 m^3 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m] - c\,d^3 e^3 f\,m^4 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m] + 3\,c^2 d^2 e^2 f^2 m^4 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m] -$$

$$3\,c^3 d\,e\,f^3 m^4 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m] + c^4 f^4 m^4 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m] - 6\,c^4 e^4\,\text{Gamma}[5+m] - 24\,c^3 d\,e^4 x\,\text{Gamma}[5+m] -$$

$$36\,c^2 d^2 e^4 x^2\,\text{Gamma}[5+m] - 24\,c\,d^3 e^4 x^3\,\text{Gamma}[5+m] - 6\,d^4 e^4 x^4\,\text{Gamma}[5+m] + 6\,c^4 e^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] +$$

$$24\,c^3 d\,e^4 x \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + 6\,c^3 d\,e^4 m\,x \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] - 6\,c^4 e^3 f\,m\,x \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] +$$

$$36\,c^2 d^2 e^4 x^2 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + 21\,c^2 d^2 e^4 m\,x^2 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] - 24\,c^3 d\,e^3 f\,m\,x^2 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] +$$

$$3\,c^4 e^2 f^2 m\,x^2 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + 3\,c^2 d^2 e^4 m^2 x^2 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] - 6\,c^3 d\,e^3 f\,m^2 x^2 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] +$$

$$3\,c^4 e^2 f^2 m^2 x^2 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + 24\,c\,d^3 e^4 x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + 26\,c\,d^3 e^4 m\,x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] -$$

$$36\,c^2 d^2 e^3 f\,m\,x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + 12\,c^3 d\,e^2 f^2 m\,x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] - 2\,c^4 e\,f^3 m\,x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] +$$

$$9\,c\,d^3 e^4 m^2 x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] - 21\,c^2 d^2 e^3 f\,m^2 x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + 15\,c^3 d\,e^2 f^2 m^2 x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] -$$

$$3\,c^4 e\,f^3 m^2 x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + c\,d^3 e^4 m^3 x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] - 3\,c^2 d^2 e^3 f\,m^3 x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] +$$

$$3\,c^3 d\,e^2 f^2 m^3 x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] - c^4 e\,f^3 m^3 x^3 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + 24\,c\,d^3 e^3 f\,x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] -$$

$$36\,c^2 d^2 e^2 f^2 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + 24\,c^3 d\,e\,f^3 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] - 6\,c^4 f^4 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] +$$

$$26\,c\,d^3 e^3 f\,m\,x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] - 57\,c^2 d^2 e^2 f^2 m\,x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + 42\,c^3 d\,e\,f^3 m\,x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] -$$

$$11\,c^4 f^4 m\,x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + 9\,c\,d^3 e^3 f\,m^2 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] - 24\,c^2 d^2 e^2 f^2 m^2 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] +$$

$$21\,c^3 d\,e\,f^3 m^2 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] - 6\,c^4 f^4 m^2 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + c\,d^3 e^3 f\,m^3 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] -$$

$$3\,c^2 d^2 e^2 f^2 m^3 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] + 3\,c^3 d\,e\,f^3 m^3 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m] - c^4 f^4 m^3 x^4 \left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m]\Bigg)\Bigg) +$$

$$\Big(a^3\,e\,h\,x^2\,(c+d\,x)^{-3-m}\left(\frac{c+d\,x}{c}\right)^{4+m}\left(1+\frac{d\,x}{c}\right)^{-4-m}(e+f\,x)^{-1+m}\left(\frac{e+f\,x}{e}\right)^{-m}\left(1+\frac{f\,x}{e}\right)^{1+m}\Big(c\,(4+m)\,(3\,e+f\,x)$$

$$\Big(-2\,d^3\,e^3\,x^3+c^3\Big(-2\,e^2\,f\,m\,x\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+e\,f^2\,m\,(1+m)\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+f^3\,(2+3\,m+m^2)\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+2\,e^3\Big(-1+\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\Big)\Big)\Big)-$$

$$2\,c^2\,d\,e\,x\Big(e\,f\,m\,(3+m)\,x\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+f^2\,(3+4\,m+m^2)\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m-e^2\Big(-3+3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+m\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\Big)\Big)+$$

$$c\,d^2\,e^2\,x^2\Big(f\,(6+5\,m+m^2)\,x\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+e\Big(-6+6\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+5\,m\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+m^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\Big)\Big)\Big)\,\text{Gamma}[4+m]-$$

$$\Big(2\,d^4\,e^4\,(1+m)\,x^4-2\,c\,d^3\,e^3\,x^3\,(-3\,e\,m+f\,(4+m)\,x)+c^4\Big(e^2\,f^2\,(-5+m)\,m\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+2\,e\,f^3\,m\,(1+m)\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+$$

$$f^4\,(2+3\,m+m^2)\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+6\,e^4\Big(-1+\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\Big)-2\,e^3\,f\,x\Big(4+m-4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+2\,m\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\Big)\Big)-$$

$$2\,c^3\,d\,e\,x\Big(2\,e\,f^2\,m\,(4+m)\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+f^3\,(4+5\,m+m^2)\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+e^2\,f\,(4+m)\,x\Big(3-3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+m\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\Big)-$$

$$e^3\Big(-8+m+8\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+2\,m\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\Big)\Big)+c^2\,d^2\,e^2\,x^2\Big(f^2\,(12+7\,m+m^2)\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+2\,e\,f\,(4+m)\,x\Big(-3+3$$

$$\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+m\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\Big)+e^2\Big(m^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m+12\Big(-1+\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\Big)+m\Big(6+7\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\Big)\Big)\Big)\Big)\,\text{Gamma}[5+m]\Big)\Big)\Big/$$

$$\Big(c\,\Big(24\,c^4\,e^4\,\text{Gamma}[4+m]+6\,c^4\,e^4\,m\,\text{Gamma}[4+m]+96\,c^3\,d\,e^4\,x\,\text{Gamma}[4+m]+24\,c^3\,d\,e^4\,m\,x\,\text{Gamma}[4+m]+144\,c^2\,d^2\,e^4\,x^2\,\text{Gamma}[4+m]+$$

$$36\,c^2\,d^2\,e^4\,m\,x^2\,\text{Gamma}[4+m]+96\,c\,d^3\,e^4\,x^3\,\text{Gamma}[4+m]+24\,c\,d^3\,e^4\,m\,x^3\,\text{Gamma}[4+m]+24\,d^4\,e^4\,x^4\,\text{Gamma}[4+m]+$$

$$6\,d^4\,e^4\,m\,x^4\,\text{Gamma}[4+m]-24\,c^4\,e^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]-6\,c^4\,e^4\,m\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]-$$

$$96\,c^3\,d\,e^4\,x\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]-48\,c^3\,d\,e^4\,m\,x\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]+24\,c^4\,e^3\,f\,m\,x\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]-$$

$$6\,c^3\,d\,e^4\,m^2\,x\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]+6\,c^4\,e^3\,f\,m^2\,x\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]-144\,c^2\,d^2\,e^4\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]-$$

$$120\,c^2\,d^2\,e^4\,m\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]+96\,c^3\,d\,e^3\,f\,m\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]-12\,c^4\,e^2\,f^2\,m\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]-$$

$$33\,c^2\,d^2\,e^4\,m^2\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]+48\,c^3\,d\,e^3\,f\,m^2\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]-15\,c^4\,e^2\,f^2\,m^2\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]-$$

$$3\,c^2\,d^2\,e^4\,m^3\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]+6\,c^3\,d\,e^3\,f\,m^3\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]-3\,c^4\,e^2\,f^2\,m^3\,x^2\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m\text{Gamma}[4+m]-$$

$$144\,c\,d^3\,e^4\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+144\,c^2\,d^2\,e^3\,f\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-144\,c^3\,d\,e^2\,f^2\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+$$

$$48\,c^4\,e\,f^3\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-228\,c\,d^3\,e^4\,m\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+444\,c^2\,d^2\,e^3\,f\,m\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-$$

$$348\,c^3\,d\,e^2\,f^2\,m\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+108\,c^4\,e\,f^3\,m\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-132\,c\,d^3\,e^4\,m^2\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+$$

$$330\,c^2\,d^2\,e^3\,f\,m^2\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-282\,c^3\,d\,e^2\,f^2\,m^2\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+$$

$$84\,c^4\,e\,f^3\,m^2\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-33\,c\,d^3\,e^4\,m^3\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+93\,c^2\,d^2\,e^3\,f\,m^3\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-$$

$$87\,c^3\,d\,e^2\,f^2\,m^3\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+27\,c^4\,e\,f^3\,m^3\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-3\,c\,d^3\,e^4\,m^4\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+$$

$$9\,c^2\,d^2\,e^3\,f\,m^4\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-9\,c^3\,d\,e^2\,f^2\,m^4\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+3\,c^4\,e\,f^3\,m^4\,x^3\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-$$

$$96\,c\,d^3\,e^3\,f\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+144\,c^2\,d^2\,e^2\,f^2\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-96\,c^3\,d\,e\,f^3\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+$$

$$24\,c^4\,f^4\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-128\,c\,d^3\,e^3\,f\,m\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+264\,c^2\,d^2\,e^2\,f^2\,m\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-$$

$$192\,c^3\,d\,e\,f^3\,m\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+50\,c^4\,f^4\,m\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-62\,c\,d^3\,e^3\,f\,m^2\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+$$

$$153\,c^2\,d^2\,e^2\,f^2\,m^2\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-126\,c^3\,d\,e\,f^3\,m^2\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+35\,c^4\,f^4\,m^2\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-$$

$$13\,c\,d^3\,e^3\,f\,m^3\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+36\,c^2\,d^2\,e^2\,f^2\,m^3\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-33\,c^3\,d\,e\,f^3\,m^3\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+$$

$$10\,c^4\,f^4\,m^3\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-c\,d^3\,e^3\,f\,m^4\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+3\,c^2\,d^2\,e^2\,f^2\,m^4\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-$$

$$3\,c^3\,d\,e\,f^3\,m^4\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]+c^4\,f^4\,m^4\,x^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[4+m]-6\,c^4\,e^4\,\text{Gamma}[5+m]-24\,c^3\,d\,e^4\,x\,\text{Gamma}[5+m]-$$

$$36\,c^2\,d^2\,e^4\,x^2\,\text{Gamma}[5+m]-24\,c\,d^3\,e^4\,x^3\,\text{Gamma}[5+m]-6\,d^4\,e^4\,x^4\,\text{Gamma}[5+m]+6\,c^4\,e^4\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m]+$$

$$24\,c^3\,d\,e^4\,x\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m]+6\,c^3\,d\,e^4\,m\,x\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m]-6\,c^4\,e^3\,f\,m\,x\left(\frac{c\,(e+f\,x)}{e\,(c+d\,x)}\right)^m \text{Gamma}[5+m]+$$

$$36\, c^2 d^2 e^4 x^2 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + 21\, c^2 d^2 e^4 m\, x^2 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] - 24\, c^3 d\, e^3 f\, m\, x^2 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] +$$
$$3\, c^4 e^2 f^2 m\, x^2 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + 3\, c^2 d^2 e^4 m^2 x^2 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] - 6\, c^3 d\, e^3 f\, m^2 x^2 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] +$$
$$3\, c^4 e^2 f^2 m^2 x^2 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + 24\, c\, d^3 e^4 x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + 26\, c\, d^3 e^4 m\, x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] -$$
$$36\, c^2 d^2 e^3 f\, m\, x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + 12\, c^3 d\, e^2 f^2 m\, x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] - 2\, c^4 e\, f^3 m\, x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] +$$
$$9\, c\, d^3 e^4 m^2 x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] - 21\, c^2 d^2 e^3 f\, m^2 x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + 15\, c^3 d\, e^2 f^2 m^2 x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] -$$
$$3\, c^4 e\, f^3 m^2 x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + c\, d^3 e^4 m^3 x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] - 3\, c^2 d^2 e^3 f\, m^3 x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] +$$
$$3\, c^3 d\, e^2 f^2 m^3 x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] - c^4 e\, f^3 m^3 x^3 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + 24\, c\, d^3 e^3 f\, x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] -$$
$$36\, c^2 d^2 e^2 f^2 x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + 24\, c^3 d\, e\, f^3 x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] - 6\, c^4 f^4 x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] +$$
$$26\, c\, d^3 e^3 f\, m\, x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] - 57\, c^2 d^2 e^2 f^2 m\, x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + 42\, c^3 d\, e\, f^3 m\, x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] -$$
$$11\, c^4 f^4 m\, x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + 9\, c\, d^3 e^3 f\, m^2 x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] - 24\, c^2 d^2 e^2 f^2 m^2 x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] +$$
$$21\, c^3 d\, e\, f^3 m^2 x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] - 6\, c^4 f^4 m^2 x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + c\, d^3 e^3 f\, m^3 x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] -$$
$$3\, c^2 d^2 e^2 f^2 m^3 x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] + 3\, c^3 d\, e\, f^3 m^3 x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m] - c^4 f^4 m^3 x^4 \left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m \text{Gamma}[5+m]\Bigg)\Bigg) +$$
$$\frac{a^3 f^3 g\,(e+f x)^{1+m} \left(c-\frac{d e}{f}+\frac{d\,(e+f x)}{f}\right)^{-m} \left(1+\frac{d\,(e+f x)}{\left(c-\frac{d e}{f}\right) f}\right)^m \text{Hypergeometric2F1}\left[1+m,\ 4+m,\ 2+m,\ -\frac{d\,(e+f x)}{\left(c-\frac{d e}{f}\right) f}\right]}{(-d\, e+c\, f)^4\,(1+m)}$$

Problem 133: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b x)^2\,(c+d x)^{-4-m}\,(e+f x)^m\,(g+h x)\,dx$$

Optimal (type 5, 572 leaves, 9 steps):

$$\frac{(b c-a d)\,(d g-c h)\,(a d f+b\,(c f\,(2+m)-d e\,(3+m)))\,(c+d x)^{-3-m}\,(e+f x)^{1+m}}{d^3 f\,(d e-c f)\,(3+m)}-$$

$$\frac{b\,(d g-c h)\,(a+b x)\,(c+d x)^{-3-m}\,(e+f x)^{1+m}}{d^2 f}-\frac{(b c-a d)^2 h\,(c+d x)^{-2-m}\,(e+f x)^{1+m}}{d^3\,(d e-c f)\,(2+m)}-$$

$$\left((d g-c h)\,\left(b^2\,(d e-c f)\,(2+m)\,(c f\,(1+m)-d e\,(3+m))-2 d f\,\left(b^2 c e+a^2 d f+a b\,(c f\,(1+m)-d e\,(3+m))\right)\right)\,(c+d x)^{-2-m}\,(e+f x)^{1+m}\right)\Big/$$

$$\left(d^3 f\,(d e-c f)^2\,(2+m)\,(3+m)\right)-\frac{(b c-a d)\,h\,(a d f-b\,(2 d e\,(2+m)-c f\,(3+2 m)))\,(c+d x)^{-1-m}\,(e+f x)^{1+m}}{d^3\,(d e-c f)^2\,(1+m)\,(2+m)}+$$

$$\left((d g-c h)\,\left(b^2\,(d e-c f)\,(2+m)\,(c f\,(1+m)-d e\,(3+m))-2 d f\,\left(b^2 c e+a^2 d f+a b\,(c f\,(1+m)-d e\,(3+m))\right)\right)\,(c+d x)^{-1-m}\,(e+f x)^{1+m}\right)\Big/$$

$$\left(d^3\,(d e-c f)^3\,(1+m)\,(2+m)\,(3+m)\right)-\frac{b^2 h\,(c+d x)^{-m}\,(e+f x)^m\,\left(\frac{d\,(e+f x)}{d e-c f}\right)^{-m}\,\text{Hypergeometric2F1}\left[-m,-m,1-m,-\frac{f\,(c+d x)}{d e-c f}\right]}{d^4 m}$$

Result (type 6, 5412 leaves):

$$\left(b^2 g\,(c+d x)^{-3-m}\,(e+f x)^m\,\left(-2 d^3 e^3 x^3\,\left(\frac{e\,(c+d x)}{c\,(e+f x)}\right)^m+c d^2 e^2 x^2\,\left(f\,(6+5 m+m^2)\,x+e\,\left(6+5 m+m^2-6\,\left(\frac{e\,(c+d x)}{c\,(e+f x)}\right)^m\right)\right)+\right.\right.$$

$$c^3\,\left(-2 e^2 f m x+e f^2 m\,(1+m)\,x^2+f^3\,(2+3 m+m^2)\,x^3-2 e^3\,\left(-1+\left(\frac{e\,(c+d x)}{c\,(e+f x)}\right)^m\right)\right)-$$

$$\left.\left.2 c^2 d e x\,\left(e f m\,(3+m)\,x+f^2\,(3+4 m+m^2)\,x^2+e^2\,\left(-3-m+3\,\left(\frac{e\,(c+d x)}{c\,(e+f x)}\right)^m\right)\right)\right)\right)\Big/\left(c\,(-d e+c f)^3\,(1+m)\,(2+m)\,(3+m)\right)+$$

$$\left(2 a b h\,(c+d x)^{-3-m}\,(e+f x)^m\,\left(-2 d^3 e^3 x^3\,\left(\frac{e\,(c+d x)}{c\,(e+f x)}\right)^m+c d^2 e^2 x^2\,\left(f\,(6+5 m+m^2)\,x+e\,\left(6+5 m+m^2-6\,\left(\frac{e\,(c+d x)}{c\,(e+f x)}\right)^m\right)\right)+\right.\right.$$

$$c^3\,\left(-2 e^2 f m x+e f^2 m\,(1+m)\,x^2+f^3\,(2+3 m+m^2)\,x^3-2 e^3\,\left(-1+\left(\frac{e\,(c+d x)}{c\,(e+f x)}\right)^m\right)\right)-$$

$$\left.\left.2 c^2 d e x\,\left(e f m\,(3+m)\,x+f^2\,(3+4 m+m^2)\,x^2+e^2\,\left(-3-m+3\,\left(\frac{e\,(c+d x)}{c\,(e+f x)}\right)^m\right)\right)\right)\right)\Big/$$

$$\left(c\,(-d e+c f)^3\,(1+m)\,(2+m)\,(3+m)\right)+\left(5 b^2 c e h x^4\,(c+d x)^{-4-m}\,(e+f x)^m\,\text{AppellF1}\left[4,4+m,-m,5,-\frac{d x}{c},-\frac{f x}{e}\right]\right)\Big/$$

$$\left(4\,\left(5 c e\,\text{AppellF1}\left[4,4+m,-m,5,-\frac{d x}{c},-\frac{f x}{e}\right]+c f m x\,\text{AppellF1}\left[5,4+m,1-m,6,-\frac{d x}{c},-\frac{f x}{e}\right]-\right.\right.$$

$$\left.\left.d e\,(4+m)\,x\,\text{AppellF1}\left[5,5+m,-m,6,-\frac{d x}{c},-\frac{f x}{e}\right]\right)\right)+\left(2 a b g x^2\,(c+d x)^{-3-m}\,(e+f x)^m\,\left(c\,(4+m)\,(3 e+f x)\right.\right.$$

$$\left(-2 d^3 e^3 x^3+c^3\,\left(-2 e^2 f m x\,\left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m+e f^2 m\,(1+m)\,x^2\,\left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m+f^3\,(2+3 m+m^2)\,x^3\,\left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m+2 e^3\,\left(-1+\left(\frac{c\,(e+f x)}{e\,(c+d x)}\right)^m\right)\right)-\right.$$

$$2 c^2 d e x \left(e f m (3+m) x \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + f^2 \left(3+4 m+m^2\right) x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m - e^2 \left(-3+3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + m \left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right)\right) +$$

$$c d^2 e^2 x^2 \left(f \left(6+5 m+m^2\right) x \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + e \left(-6+6 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 5 m \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + m^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right)\right)\Bigg) \text{Gamma}[4+m] -$$

$$\Bigg(2 d^4 e^4 (1+m) x^4 - 2 c d^3 e^3 x^3 (-3 e m + f (4+m) x) + c^4 \left(e^2 f^2 (-5+m) m x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 2 e f^3 m (1+m) x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m +\right.$$

$$f^4 \left(2+3 m+m^2\right) x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 6 e^4 \left(-1+\left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right) - 2 e^3 f x \left(4+m-4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 2 m \left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right)\Bigg) -$$

$$2 c^3 d e x \left(2 e f^2 m (4+m) x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + f^3 \left(4+5 m+m^2\right) x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + e^2 f (4+m) x \left(3-3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + m \left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right) -\right.$$

$$e^3 \left(-8+m+8 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 2 m \left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right)\Bigg) + c^2 d^2 e^2 x^2 \left(f^2 \left(12+7 m+m^2\right) x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 2 e f (4+m) x \left(-3+3\right.\right.$$

$$\left(\frac{c (e+f x)}{e (c+d x)}\right)^m + m \left(\frac{c (e+f x)}{e (c+d x)}\right)^m\Bigg) + e^2 \left(m^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 12 \left(-1+\left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right) + m \left(6+7 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right)\right)\Bigg)\Bigg) \text{Gamma}[5+m]\Bigg)\Bigg) \Big/$$

$$\Bigg(c \Bigg((4+m) \left(6 d^4 e^4 x^4 + c^4 \left(6 e^3 f m x \left(\frac{c (e+f x)}{e (c+d x)}\right)^m - 3 e^2 f^2 m (1+m) x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 3 e f^3 (1+m) (2+m)^2 x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m +\right.\right.$$

$$f^4 \left(6+11 m+6 m^2+m^3\right) x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m - 6 e^4 \left(-1+\left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right)\Bigg) - 3 c^3 d e x \left(-2 e^2 f m (4+m) x \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + e f^2 \left(12+26 m+17\right.\right.$$

$$\left.m^2+3 m^3\right) x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + f^3 \left(8+14 m+7 m^2+m^3\right) x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 2 e^3 \left(-4+4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + m \left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right)\Bigg) - c d^3 e^3 x^3$$

$$\left(f \left(24+26 m+9 m^2+m^3\right) x \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 3 e \left(-8+12 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 16 m \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 7 m^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + m^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right)\right) +$$

$$3 c^2 d^2 e^2 x^2 \left(e f \left(12+34 m+19 m^2+3 m^3\right) x \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + f^2 \left(12+19 m+8 m^2+m^3\right) x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m -\right.$$

$$e^2 \left(7 m \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + m^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 12 \left(-1+\left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right)\right)\Bigg)\Bigg) \text{Gamma}[4+m] +$$

$$\Bigg(-6 d^4 e^4 x^4 + c^4 \left(-6 e^3 f m x \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 3 e^2 f^2 m (1+m) x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m - e f^3 m \left(2+3 m+m^2\right) x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m -\right.$$

$$f^4 \left(6+11 m+6 m^2+m^3\right) x^4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 6 e^4 \left(-1+\left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right)\Bigg) + 3 c^3 d e x \left(-2 e^2 f m (4+m) x \left(\frac{c (e+f x)}{e (c+d x)}\right)^m +\right.$$

$$e f^2 m \left(4+5 m+m^2\right) x^2 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + f^3 \left(8+14 m+7 m^2+m^3\right) x^3 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + 2 e^3 \left(-4+4 \left(\frac{c (e+f x)}{e (c+d x)}\right)^m + m \left(\frac{c (e+f x)}{e (c+d x)}\right)^m\right)\Bigg) -$$

$$3\,c^2\,d^2\,e^2\,x^2\,\left(e\,f\,m\,\left(12+7\,m+m^2\right)\,x\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+f^2\,\left(12+19\,m+8\,m^2+m^3\right)\,x^2\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m-\right.$$

$$\left.e^2\,\left(7\,m\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+m^2\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+12\,\left(-1+\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)\right)\right)+c\,d^3\,e^3\,x^3\,\left(f\,\left(24+26\,m+9\,m^2+m^3\right)\,x\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+\right.$$

$$\left.\left.e\,\left(26\,m\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+9\,m^2\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+m^3\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+24\,\left(-1+\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)\right)\right)\,\text{Gamma}[5+m]\right)\right)+$$

$$\left(a^2\,h\,x^2\,\left(c+d\,x\right)^{-3-m}\,\left(e+f\,x\right)^m\,\left(c\,\left(4+m\right)\,\left(3\,e+f\,x\right)\,\left(-2\,d^3\,e^3\,x^3+c^3\,\left(-2\,e^2\,f\,m\,x\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+e\,f^2\,m\,\left(1+m\right)\,x^2\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+\right.\right.\right.\right.$$

$$\left.\left.f^3\,\left(2+3\,m+m^2\right)\,x^3\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+2\,e^3\,\left(-1+\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)\right)\right)-$$

$$2\,c^2\,d\,e\,x\,\left(e\,f\,m\,\left(3+m\right)\,x\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+f^2\,\left(3+4\,m+m^2\right)\,x^2\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m-e^2\,\left(-3+3\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+m\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)\right)+$$

$$\left.c\,d^2\,e^2\,x^2\,\left(f\,\left(6+5\,m+m^2\right)\,x\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+e\,\left(-6+6\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+5\,m\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+m^2\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)\right)\right)\,\text{Gamma}[4+m]-$$

$$\left(2\,d^4\,e^4\,\left(1+m\right)\,x^4-2\,c\,d^3\,e^3\,x^3\,\left(-3\,e\,m+f\,\left(4+m\right)\,x\right)+c^4\,\left(e^2\,f^2\,\left(-5+m\right)\,m\,x^2\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+2\,e\,f^3\,m\,\left(1+m\right)\,x^3\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+\right.\right.$$

$$\left.f^4\,\left(2+3\,m+m^2\right)\,x^4\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+6\,e^4\,\left(-1+\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)-2\,e^3\,f\,x\,\left(4+m-4\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+2\,m\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)\right)-$$

$$2\,c^3\,d\,e\,x\,\left(2\,e\,f^2\,m\,\left(4+m\right)\,x^2\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+f^3\,\left(4+5\,m+m^2\right)\,x^3\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+e^2\,f\,\left(4+m\right)\,x\,\left(3-3\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+m\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)-\right.$$

$$\left.e^3\,\left(-8+m+8\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+2\,m\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)\right)+$$

$$c^2\,d^2\,e^2\,x^2\,\left(f^2\,\left(12+7\,m+m^2\right)\,x^2\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+2\,e\,f\,\left(4+m\right)\,x\,\left(-3+3\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+m\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)+\right.$$

$$\left.\left.\left.e^2\,\left(m^2\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+12\,\left(-1+\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)+m\,\left(6+7\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)\right)\right)\right)\,\text{Gamma}[5+m]\right)\right)\Big/$$

$$\left(c\,\left(\left(4+m\right)\,\left(6\,d^4\,e^4\,x^4+c^4\,\left(6\,e^3\,f\,m\,x\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m-3\,e^2\,f^2\,m\,\left(1+m\right)\,x^2\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+3\,e\,f^3\,\left(1+m\right)\,\left(2+m\right)^2\,x^3\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+\right.\right.\right.\right.$$

$$\left.\left.f^4\,\left(6+11\,m+6\,m^2+m^3\right)\,x^4\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m-6\,e^4\,\left(-1+\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m\right)\right)\right)-$$

$$3\,c^3\,d\,e\,x\,\left(-2\,e^2\,f\,m\,\left(4+m\right)\,x\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+e\,f^2\,\left(12+26\,m+17\,m^2+3\,m^3\right)\,x^2\,\left(\frac{c\,\left(e+f\,x\right)}{e\,\left(c+d\,x\right)}\right)^m+\right.$$

$$f^3\left(8+14m+7m^2+m^3\right)x^3\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+2e^3\left(-4+4\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+m\left(\frac{c(e+fx)}{e(c+dx)}\right)^m\right)\Bigg)-c\,d^3e^3x^3$$

$$\left(f\left(24+26m+9m^2+m^3\right)x\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+3e\left(-8+12\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+16m\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+7m^2\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+m^3\left(\frac{c(e+fx)}{e(c+dx)}\right)^m\right)\right)+$$

$$3c^2d^2e^2x^2\left(e\,f\left(12+34m+19m^2+3m^3\right)x\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+f^2\left(12+19m+8m^2+m^3\right)x^2\left(\frac{c(e+fx)}{e(c+dx)}\right)^m-\right.$$

$$\left.e^2\left(7m\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+m^2\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+12\left(-1+\left(\frac{c(e+fx)}{e(c+dx)}\right)^m\right)\right)\right)\Bigg)\Bigg)\,\text{Gamma}[4+m]+$$

$$\left(-6d^4e^4x^4+c^4\left(-6e^3f\,m\,x\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+3e^2f^2m\,(1+m)\,x^2\left(\frac{c(e+fx)}{e(c+dx)}\right)^m-e\,f^3m\left(2+3m+m^2\right)x^3\left(\frac{c(e+fx)}{e(c+dx)}\right)^m-\right.\right.$$

$$f^4\left(6+11m+6m^2+m^3\right)x^4\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+6e^4\left(-1+\left(\frac{c(e+fx)}{e(c+dx)}\right)^m\right)\Bigg)+3c^3d\,e\,x\left(-2e^2f\,m\,(4+m)\,x\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+\right.$$

$$e\,f^2m\left(4+5m+m^2\right)x^2\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+f^3\left(8+14m+7m^2+m^3\right)x^3\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+2e^3\left(-4+4\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+m\left(\frac{c(e+fx)}{e(c+dx)}\right)^m\right)\Bigg)-$$

$$3c^2d^2e^2x^2\left(e\,f\,m\left(12+7m+m^2\right)x\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+f^2\left(12+19m+8m^2+m^3\right)x^2\left(\frac{c(e+fx)}{e(c+dx)}\right)^m-\right.$$

$$e^2\left(7m\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+m^2\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+12\left(-1+\left(\frac{c(e+fx)}{e(c+dx)}\right)^m\right)\right)\Bigg)+c\,d^3e^3x^3\left(f\left(24+26m+9m^2+m^3\right)x\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+\right.$$

$$e\left(26m\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+9m^2\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+m^3\left(\frac{c(e+fx)}{e(c+dx)}\right)^m+24\left(-1+\left(\frac{c(e+fx)}{e(c+dx)}\right)^m\right)\right)\Bigg)\Bigg)\,\text{Gamma}[5+m]\Bigg)\Bigg)+$$

$$\frac{a^2f^3g\,(e+fx)^{1+m}\left(c-\frac{d\,e}{f}+\frac{d\,(e+fx)}{f}\right)^{-m}\left(1+\frac{d\,(e+fx)}{\left(c-\frac{d\,e}{f}\right)f}\right)^m\text{Hypergeometric2F1}\left[1+m,\,4+m,\,2+m,\,-\frac{d\,(e+fx)}{\left(c-\frac{d\,e}{f}\right)f}\right]}{(-d\,e+c\,f)^4\,(1+m)}$$

Problem 136: Result more than twice size of optimal antiderivative.

$$\int\frac{(A+Bx)\,(c+dx)^n\,(e+fx)^p}{a+bx}\,dx$$

Optimal (type 6, 177 leaves, 5 steps):

$$-\frac{(A b-a B)(c+d x)^{1+n}(e+f x)^p\left(\frac{d(e+f x)}{d e-c f}\right)^{-p} \text{AppellF1}\left[1+n,1,-p,2+n,\frac{b(c+d x)}{b c-a d},-\frac{f(c+d x)}{d e-c f}\right]}{b(b c-a d)(1+n)}-\frac{B(c+d x)^{1+n}(e+f x)^{1+p} \text{Hypergeometric2F1}\left[1,2+n+p,2+p,\frac{d(e+f x)}{d e-c f}\right]}{b(d e-c f)(1+p)}$$

Result (type 6, 692 leaves) :

$$\frac{1}{b^2 f}(c+d x)^n(e+f x)^p\left(\left(A b d f^2(-1+n+p)(a+b x) \text{AppellF1}\left[-n-p,-n,-p,1-n-p,\frac{-b c+a d}{d(a+b x)},\frac{-b e+a f}{f(a+b x)}\right]\right)\Big/\left((n+p)\left(d f(-1+n+p)(a+b x) \text{AppellF1}\left[-n-p,-n,-p,1-n-p,\frac{-b c+a d}{d(a+b x)},\frac{-b e+a f}{f(a+b x)}\right]+(-b c+a d) f n \text{AppellF1}\left[1-n-p,1-n,-p,2-n-p,\frac{-b c+a d}{d(a+b x)},\frac{-b e+a f}{f(a+b x)}\right]+d(-b e+a f) p \text{AppellF1}\left[1-n-p,-n,1-p,2-n-p,\frac{-b c+a d}{d(a+b x)},\frac{-b e+a f}{f(a+b x)}\right]\right)\right)-\left(a B d f^2(-1+n+p)(a+b x) \text{AppellF1}\left[-n-p,-n,-p,1-n-p,\frac{-b c+a d}{d(a+b x)},\frac{-b e+a f}{f(a+b x)}\right]\right)\Big/\left((n+p)\left(d f(-1+n+p)(a+b x) \text{AppellF1}\left[-n-p,-n,-p,1-n-p,\frac{-b c+a d}{d(a+b x)},\frac{-b e+a f}{f(a+b x)}\right]+(-b c+a d) f n \text{AppellF1}\left[1-n-p,1-n,-p,2-n-p,\frac{-b c+a d}{d(a+b x)},\frac{-b e+a f}{f(a+b x)}\right]+d(-b e+a f) p \text{AppellF1}\left[1-n-p,-n,1-p,2-n-p,\frac{-b c+a d}{d(a+b x)},\frac{-b e+a f}{f(a+b x)}\right]\right)\right)+\frac{b B\left(\frac{f(c+d x)}{-d e+c f}\right)^{-n}(e+f x) \text{Hypergeometric2F1}\left[-n,1+p,2+p,\frac{d(e+f x)}{d e-c f}\right]}{1+p}\right)$$

Problem 137: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^m(A+B x)(c+d x)^{-m}}{e+f x}\,dx$$

Optimal (type 5, 233 leaves, 5 steps) :

$$-\frac{d(B e-A f)(a+b x)^{1+m}(c+d x)^{-m}}{(b c-a d) f^2 m}-\frac{(B e-A f)(a+b x)^m(c+d x)^{-m} \text{Hypergeometric2F1}\left[1,-m,1-m,\frac{(b e-a f)(c+d x)}{(d e-c f)(a+b x)}\right]}{f^2 m}-\frac{1}{b(b c-a d) f^2 m(1+m)}(a B d f m-b(B d e-A d f+B c f m))(a+b x)^{1+m}(c+d x)^{-m}\left(\frac{b(c+d x)}{b c-a d}\right)^m \text{Hypergeometric2F1}\left[m,1+m,2+m,-\frac{d(a+b x)}{b c-a d}\right]$$

Result (type 6, 627 leaves):

$$\left((a+b x)^m (c+d x)^{-m} \left(-B d (-b c+a d) e (b e-a f) (-1+m) (2+m) (a+b x) \text{AppellF1}\left[1+m, m, 1, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]+A d (-b c+a d) f (b e-a f) (-1+m) (2+m) (a+b x) \text{AppellF1}\left[1+m, m, 1, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]+b B (1+m) \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} (c+d x) (e+f x) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m, m, 1, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]+(a+b x) \left((-b c f+a d f) \text{AppellF1}\left[2+m, m, 2, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]+d (-b e+a f) m \text{AppellF1}\left[2+m, 1+m, 1, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right)\right) \text{Hypergeometric2F1}\left[1-m, -m, 2-m, \frac{b (c+d x)}{b c-a d}\right]\right)\right) \Big/ \left(b d f (1-m) (1+m) (e+f x) \left((b c-a d) (b e-a f) (2+m) \text{AppellF1}\left[1+m, m, 1, 2+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]+(a+b x) \left((-b c f+a d f) \text{AppellF1}\left[2+m, m, 2, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]+d (-b e+a f) m \text{AppellF1}\left[2+m, 1+m, 1, 3+m, \frac{d (a+b x)}{-b c+a d}, \frac{f (a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 138: Result more than twice size of optimal antiderivative.

$$\int \frac{(A+B x) (c+d x)^n (e+f x)^p}{\sqrt{a+b x}} \, dx$$

Optimal (type 6, 250 leaves, 7 steps):

$$\frac{1}{b^2} 2 (A b-a B) \sqrt{a+b x} (c+d x)^n \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} (e+f x)^p \left(\frac{b (e+f x)}{b e-a f}\right)^{-p} \text{AppellF1}\left[\frac{1}{2}, -n, -p, \frac{3}{2}, -\frac{d (a+b x)}{b c-a d}, -\frac{f (a+b x)}{b e-a f}\right]+\frac{2 B (a+b x)^{3/2} (c+d x)^n \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} (e+f x)^p \left(\frac{b (e+f x)}{b e-a f}\right)^{-p} \text{AppellF1}\left[\frac{3}{2}, -n, -p, \frac{5}{2}, -\frac{d (a+b x)}{b c-a d}, -\frac{f (a+b x)}{b e-a f}\right]}{3 b^2}$$

Result (type 6, 551 leaves):

$$\frac{1}{3 b^2} 2 (b c - a d) (b e - a f) \sqrt{a + b x} (c + d x)^n (e + f x)^p \left(\left(9 (A b - a B) \text{AppellF1}\left[\frac{1}{2}, -n, -p, \frac{3}{2}, \frac{d (a + b x)}{-b c + a d}, \frac{f (a + b x)}{-b e + a f}\right]\right) \middle/ \left(3 (b c - a d) (b e - a f) \text{AppellF1}\left[\frac{1}{2}, -n, -p, \frac{3}{2}, \frac{d (a + b x)}{-b c + a d}, \frac{f (a + b x)}{-b e + a f}\right] - 2 (a + b x) \left(d (-b e + a f) n \text{AppellF1}\left[\frac{3}{2}, 1 - n, -p, \frac{5}{2}, \frac{d (a + b x)}{-b c + a d}, \frac{f (a + b x)}{-b e + a f}\right] + (-b c + a d) f p \text{AppellF1}\left[\frac{3}{2}, -n, 1 - p, \frac{5}{2}, \frac{d (a + b x)}{-b c + a d}, \frac{f (a + b x)}{-b e + a f}\right]\right)\right) + \left(5 B (a + b x) \text{AppellF1}\left[\frac{3}{2}, -n, -p, \frac{5}{2}, \frac{d (a + b x)}{-b c + a d}, \frac{f (a + b x)}{-b e + a f}\right]\right) \middle/ \left(5 (b c - a d) (b e - a f) \text{AppellF1}\left[\frac{3}{2}, -n, -p, \frac{5}{2}, \frac{d (a + b x)}{-b c + a d}, \frac{f (a + b x)}{-b e + a f}\right] - 2 (a + b x) \left(d (-b e + a f) n \text{AppellF1}\left[\frac{5}{2}, 1 - n, -p, \frac{7}{2}, \frac{d (a + b x)}{-b c + a d}, \frac{f (a + b x)}{-b e + a f}\right] + (-b c + a d) f p \text{AppellF1}\left[\frac{5}{2}, -n, 1 - p, \frac{7}{2}, \frac{d (a + b x)}{-b c + a d}, \frac{f (a + b x)}{-b e + a f}\right]\right)\right)\right)$$

Problem 139: Unable to integrate problem.

$$\int (a + b x)^m (c + d x)^n (e + f x)^p (g + h x)^3 \, dx$$

Optimal (type 6, 530 leaves, 31 steps):

$$\frac{1}{b^4 (1 + m)} (b g - a h)^3 (a + b x)^{1+m} (c + d x)^n \left(\frac{b (c + d x)}{b c - a d}\right)^{-n} (e + f x)^p \left(\frac{b (e + f x)}{b e - a f}\right)^{-p} \text{AppellF1}\left[1 + m, -n, -p, 2 + m, -\frac{d (a + b x)}{b c - a d}, -\frac{f (a + b x)}{b e - a f}\right] + \frac{1}{b^4 (2 + m)} 3 h (b g - a h)^2 (a + b x)^{2+m} (c + d x)^n \left(\frac{b (c + d x)}{b c - a d}\right)^{-n} (e + f x)^p \left(\frac{b (e + f x)}{b e - a f}\right)^{-p} \text{AppellF1}\left[2 + m, -n, -p, 3 + m, -\frac{d (a + b x)}{b c - a d}, -\frac{f (a + b x)}{b e - a f}\right] + \frac{1}{b^4 (3 + m)} 3 h^2 (b g - a h) (a + b x)^{3+m} (c + d x)^n \left(\frac{b (c + d x)}{b c - a d}\right)^{-n} (e + f x)^p \left(\frac{b (e + f x)}{b e - a f}\right)^{-p} \text{AppellF1}\left[3 + m, -n, -p, 4 + m, -\frac{d (a + b x)}{b c - a d}, -\frac{f (a + b x)}{b e - a f}\right] + \frac{1}{b^4 (4 + m)} h^3 (a + b x)^{4+m} (c + d x)^n \left(\frac{b (c + d x)}{b c - a d}\right)^{-n} (e + f x)^p \left(\frac{b (e + f x)}{b e - a f}\right)^{-p} \text{AppellF1}\left[4 + m, -n, -p, 5 + m, -\frac{d (a + b x)}{b c - a d}, -\frac{f (a + b x)}{b e - a f}\right]$$

Result (type 8, 31 leaves):

$$\int (a + b x)^m (c + d x)^n (e + f x)^p (g + h x)^3 \, dx$$

Problem 140: Unable to integrate problem.

$$\int (a + b x)^m (c + d x)^n (e + f x)^p (g + h x)^2 \, dx$$

Optimal (type 6, 393 leaves, 15 steps):

$$\frac{1}{b^3\,(1+m)}(b\,g-a\,h)^2\,(a+b\,x)^{1+m}\,(c+d\,x)^n\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{-n}\,(e+f\,x)^p\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-p}\,\text{AppellF1}\left[1+m,\,-n,\,-p,\,2+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d},\,-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]+$$
$$\frac{1}{b^3\,(2+m)}2\,h\,(b\,g-a\,h)\,(a+b\,x)^{2+m}\,(c+d\,x)^n\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{-n}\,(e+f\,x)^p\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-p}\,\text{AppellF1}\left[2+m,\,-n,\,-p,\,3+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d},\,-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]+$$
$$\frac{1}{b^3\,(3+m)}h^2\,(a+b\,x)^{3+m}\,(c+d\,x)^n\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{-n}\,(e+f\,x)^p\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-p}\,\text{AppellF1}\left[3+m,\,-n,\,-p,\,4+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d},\,-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]$$

Result (type 8, 31 leaves):

$$\int (a+b\,x)^m\,(c+d\,x)^n\,(e+f\,x)^p\,(g+h\,x)^2\,dx$$

Problem 141: Unable to integrate problem.

$$\int (a+b\,x)^m\,(c+d\,x)^n\,(e+f\,x)^p\,(g+h\,x)\,dx$$

Optimal (type 6, 256 leaves, 7 steps):

$$\frac{1}{b^2\,(1+m)}(b\,g-a\,h)\,(a+b\,x)^{1+m}\,(c+d\,x)^n\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{-n}\,(e+f\,x)^p\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-p}\,\text{AppellF1}\left[1+m,\,-n,\,-p,\,2+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d},\,-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]+$$
$$\frac{1}{b^2\,(2+m)}h\,(a+b\,x)^{2+m}\,(c+d\,x)^n\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{-n}\,(e+f\,x)^p\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-p}\,\text{AppellF1}\left[2+m,\,-n,\,-p,\,3+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d},\,-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]$$

Result (type 8, 29 leaves):

$$\int (a+b\,x)^m\,(c+d\,x)^n\,(e+f\,x)^p\,(g+h\,x)\,dx$$

Problem 142: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^m\,(c+d\,x)^n\,(e+f\,x)^p\,dx$$

Optimal (type 6, 123 leaves, 3 steps):

$$\frac{1}{b\,(1+m)}(a+b\,x)^{1+m}\,(c+d\,x)^n\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{-n}\,(e+f\,x)^p\,\left(\frac{b\,(e+f\,x)}{b\,e-a\,f}\right)^{-p}\,\text{AppellF1}\left[1+m,\,-n,\,-p,\,2+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d},\,-\frac{f\,(a+b\,x)}{b\,e-a\,f}\right]$$

Result (type 6, 296 leaves):

$$\left((b c-a d)(b e-a f)(2+m)(a+b x)^{1+m}(c+d x)^n(e+f x)^p \text{AppellF1}\left[1+m,-n,-p,2+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]\right)\Big/$$
$$\left(b(1+m)\left((b c-a d)(b e-a f)(2+m)\text{AppellF1}\left[1+m,-n,-p,2+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]-(a+b x)\left(d(-b e+a f)n\right.\right.\right.$$
$$\left.\left.\left.\text{AppellF1}\left[2+m,1-n,-p,3+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]+(-b c+a d) f p \text{AppellF1}\left[2+m,-n,1-p,3+m,\frac{d(a+b x)}{-b c+a d},\frac{f(a+b x)}{-b e+a f}\right]\right)\right)\right)$$

Problem 144: Unable to integrate problem.

$$\int (a+b x)^m (A+B x)(c+d x)^n (e+f x)^{-m-n} \, dx$$

Optimal (type 6, 268 leaves, 7 steps):

$$\frac{1}{b^2(1+m)}(A b-a B)(a+b x)^{1+m}(c+d x)^n\left(\frac{b(c+d x)}{b c-a d}\right)^{-n}(e+f x)^{-m-n}\left(\frac{b(e+f x)}{b e-a f}\right)^{m+n}\text{AppellF1}\left[1+m,-n,m+n,2+m,-\frac{d(a+b x)}{b c-a d},-\frac{f(a+b x)}{b e-a f}\right]+$$
$$\frac{1}{b^2(2+m)}B(a+b x)^{2+m}(c+d x)^n\left(\frac{b(c+d x)}{b c-a d}\right)^{-n}(e+f x)^{-m-n}\left(\frac{b(e+f x)}{b e-a f}\right)^{m+n}\text{AppellF1}\left[2+m,-n,m+n,3+m,-\frac{d(a+b x)}{b c-a d},-\frac{f(a+b x)}{b e-a f}\right]$$

Result (type 8, 35 leaves):

$$\int (a+b x)^m (A+B x)(c+d x)^n (e+f x)^{-m-n} \, dx$$

Problem 145: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^m (A+B x)(c+d x)^n (e+f x)^{-1-m-n} \, dx$$

Optimal (type 6, 283 leaves, 7 steps):

$$\frac{1}{b f(1+m)}B(a+b x)^{1+m}(c+d x)^n\left(\frac{b(c+d x)}{b c-a d}\right)^{-n}(e+f x)^{-m-n}$$
$$\left(\frac{b(e+f x)}{b e-a f}\right)^{m+n}\text{AppellF1}\left[1+m,-n,m+n,2+m,-\frac{d(a+b x)}{b c-a d},-\frac{f(a+b x)}{b e-a f}\right]-\frac{1}{f(b e-a f)(1+m)}$$
$$(B e-A f)(a+b x)^{1+m}(c+d x)^n\left(\frac{b(c+d x)}{b c-a d}\right)^{-n}(e+f x)^{-m-n}\left(\frac{b(e+f x)}{b e-a f}\right)^{m+n}\text{AppellF1}\left[1+m,-n,1+m+n,2+m,-\frac{d(a+b x)}{b c-a d},-\frac{f(a+b x)}{b e-a f}\right]$$

Result (type 6, 576 leaves):

$$\frac{1}{b\,(1+m)}\,(b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,(a+b\,x)^{1+m}\,(c+d\,x)^{n}\,(e+f\,x)^{-m-n}\left(\left(B\,\text{AppellF1}\left[1+m,\,-n,\,m+n,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\Big/\right.$$
$$\left(f\left((b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,\text{AppellF1}\left[1+m,\,-n,\,m+n,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]-(a+b\,x)\left(d\,(-b\,e+a\,f)\,n\,\text{AppellF1}\left[2+m,\,1-n,\right.\right.\right.\right.$$
$$\left.\left.\left.\left.m+n,\,3+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+(b\,c-a\,d)\,f\,(m+n)\,\text{AppellF1}\left[2+m,\,-n,\,1+m+n,\,3+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\right)\right)+$$
$$\left(\left(A-\frac{B\,e}{f}\right)\text{AppellF1}\left[1+m,\,-n,\,1+m+n,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\Big/\left((e+f\,x)\right.$$
$$\left((b\,c-a\,d)\,(b\,e-a\,f)\,(2+m)\,\text{AppellF1}\left[1+m,\,-n,\,1+m+n,\,2+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]-(a+b\,x)\left(d\,(-b\,e+a\,f)\,n\,\text{AppellF1}\left[2+m,\,1-n,\right.\right.\right.$$
$$\left.\left.\left.\left.1+m+n,\,3+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]+(b\,c-a\,d)\,f\,(1+m+n)\,\text{AppellF1}\left[2+m,\,-n,\,2+m+n,\,3+m,\,\frac{d\,(a+b\,x)}{-b\,c+a\,d},\,\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right]\right)\right)\right)\right)$$

Problem 147: Result more than twice size of optimal antiderivative.

$$\int (a+b\,x)^{m}\,(A+B\,x)\,(c+d\,x)^{n}\,(e+f\,x)^{-3-m-n}\,dx$$

Optimal (type 5, 263 leaves, 3 steps):

$$\frac{(B\,e-A\,f)\,(a+b\,x)^{1+m}\,(c+d\,x)^{1+n}\,(e+f\,x)^{-2-m-n}}{(b\,e-a\,f)\,(d\,e-c\,f)\,(2+m+n)}-$$
$$\left(\left(b\,(B\,c\,e\,(1+m)+A\,(c\,f\,(1+n)-d\,e\,(2+m+n)))+a\,(A\,d\,f\,(1+m)+B\,(d\,e\,(1+n)-c\,f\,(2+m+n)))\right)(a+b\,x)^{1+m}\,(c+d\,x)^{n}\left(\frac{(b\,e-a\,f)\,(c+d\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right)^{-n}\right.$$
$$\left.(e+f\,x)^{-1-m-n}\,\text{Hypergeometric2F1}\left[1+m,\,-n,\,2+m,\,-\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right]\right)\Big/\left((b\,e-a\,f)^{2}\,(d\,e-c\,f)\,(1+m)\,(2+m+n)\right)$$

Result (type 5, 10 558 leaves):

$$\left(A\,(a+b\,x)^{1+2\,m}\,(c+d\,x)^{2\,n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-6-2\,m-2\,n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\right.$$
$$\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{n}\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,\,-n,\,3+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$
$$\frac{m\,\text{Hypergeometric2F1}\left[1,\,-n,\,3+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,\,-n,\,3+m,\,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)\ (a+b x)\ \text{Gamma}[1-n]\ \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)\ (c+d x)\ \text{Gamma}[4+m]\ \text{Gamma}[-n]}-$$

$$\left.\left.\frac{f\ (-d e+c f)\ (a+b x)^2\ \text{Gamma}[1-n]\ \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)^2\ (c+d x)\ \text{Gamma}[4+m]\ \text{Gamma}[-n]}\right)\right)\Big/$$

$$\left(b\ (1+m)\ \left(-\frac{1}{(-b e+a f)\ (1+m)} f\ (-2-m-n)\ (a+b x)^{1+m}\ (c+d x)^n \left(\frac{-b c-b d x}{-b c+a d}\right)^{-n} (e+f x)^{-3-m-n} \left(\frac{-b e-b f x}{-b e+a f}\right)^{3+m+n}\right.\right.$$

$$\left(1-\frac{d\ (a+b x)}{-b c+a d}\right)^n \left(1-\frac{f\ (a+b x)}{-b e+a f}\right)^{-3-m-n} \text{Gamma}[2+m] \left(\frac{2\ \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\ \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f\ (a+b x)\ \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)\ \text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)\ (a+b x)\ \text{Gamma}[1-n]\ \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)\ (c+d x)\ \text{Gamma}[4+m]\ \text{Gamma}[-n]}-$$

$$\left.\frac{f\ (-d e+c f)\ (a+b x)^2\ \text{Gamma}[1-n]\ \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)^2\ (c+d x)\ \text{Gamma}[4+m]\ \text{Gamma}[-n]}\right)-$$

$$\frac{1}{(-b c+a d)\ (1+m)} d\ n\ (a+b x)^{1+m}\ (c+d x)^n \left(\frac{-b c-b d x}{-b c+a d}\right)^{-n} (e+f x)^{-3-m-n} \left(\frac{-b e-b f x}{-b e+a f}\right)^{3+m+n} \left(1-\frac{d\ (a+b x)}{-b c+a d}\right)^{-1+n}$$

$$\left(1-\frac{f\ (a+b x)}{-b e+a f}\right)^{-2-m-n} \text{Gamma}[2+m] \left(\frac{2\ \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\ \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f\ (a+b x)\ \text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)\ \text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)\ (a+b x)\ \text{Gamma}[1-n]\ \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)\ (c+d x)\ \text{Gamma}[4+m]\ \text{Gamma}[-n]}-$$

$$\left.\frac{f\ (-d e+c f)\ (a+b x)^2\ \text{Gamma}[1-n]\ \text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)\ (a+b x)}{(b e-a f)\ (c+d x)}\right]}{(b e-a f)^2\ (c+d x)\ \text{Gamma}[4+m]\ \text{Gamma}[-n]}\right)-$$

$$\frac{1}{(-b e+a f)\ (1+m)} f\ (3+m+n)\ (a+b x)^{1+m}\ (c+d x)^n \left(\frac{-b c-b d x}{-b c+a d}\right)^{-n} (e+f x)^{-3-m-n} \left(\frac{-b e-b f x}{-b e+a f}\right)^{2+m+n} \left(1-\frac{d\ (a+b x)}{-b c+a d}\right)^n$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$\frac{1}{b\,(1+m)}f\,(-3-m-n)\,(a+b\,x)^{1+m}\,(c+d\,x)^n\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-4-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^n$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$\frac{1}{(-b\,c+a\,d)\,(1+m)}d\,n\,(a+b\,x)^{1+m}\,(c+d\,x)^n\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-1-n}(e+f\,x)^{-3-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^n$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\Bigg)+$$

$$\frac{1}{b\,(1+m)}\,d\,n\,(a+b\,x)^{1+m}\,(c+d\,x)^{-1+n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-3-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{n}$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\,\Bigg(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\Bigg)+$$

$$(a+b\,x)^m\,(c+d\,x)^n\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-3-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{n}\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}$$

$$\text{Gamma}[2+m]\,\Bigg(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\Bigg)+$$

$$\frac{1}{b\,(1+m)}\,(a+b\,x)^{1+m}\,(c+d\,x)^{n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-3-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{n}$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\,\Bigg(\frac{b\,f\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}-$$

$$\frac{2 n \left(-\frac{d (d e-c f) (a+b x)}{(b e-a f) (c+d x)^2}+\frac{b (d e-c f)}{(b e-a f) (c+d x)}\right) \text{Hypergeometric2F1}\left[2, 1-n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(3+m) \text{Gamma}[3+m]}-$$

$$\frac{m n \left(-\frac{d (d e-c f) (a+b x)}{(b e-a f) (c+d x)^2}+\frac{b (d e-c f)}{(b e-a f) (c+d x)}\right) \text{Hypergeometric2F1}\left[2, 1-n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(3+m) \text{Gamma}[3+m]}-$$

$$\left(f n (a+b x) \left(-\frac{d (d e-c f) (a+b x)}{(b e-a f) (c+d x)^2}+\frac{b (d e-c f)}{(b e-a f) (c+d x)}\right) \text{Hypergeometric2F1}\left[2, 1-n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]\right)\Big/$$

$$((b e-a f) (3+m) \text{Gamma}[3+m])-\frac{d (d e-c f) (a+b x) \text{Gamma}[1-n] \text{Hypergeometric2F1}\left[2, 1-n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x)^2 \text{Gamma}[4+m] \text{Gamma}[-n]}+$$

$$\frac{d f (-d e+c f) (a+b x)^2 \text{Gamma}[1-n] \text{Hypergeometric2F1}\left[2, 1-n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x)^2 \text{Gamma}[4+m] \text{Gamma}[-n]}+$$

$$\frac{b (d e-c f) \text{Gamma}[1-n] \text{Hypergeometric2F1}\left[2, 1-n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f) (c+d x) \text{Gamma}[4+m] \text{Gamma}[-n]}-$$

$$\frac{2 b f (-d e+c f) (a+b x) \text{Gamma}[1-n] \text{Hypergeometric2F1}\left[2, 1-n, 4+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]}{(b e-a f)^2 (c+d x) \text{Gamma}[4+m] \text{Gamma}[-n]}+$$

$$\left(2 (d e-c f) (1-n) (a+b x) \left(-\frac{d (d e-c f) (a+b x)}{(b e-a f) (c+d x)^2}+\frac{b (d e-c f)}{(b e-a f) (c+d x)}\right) \text{Gamma}[1-n]\right.$$

$$\left.\text{Hypergeometric2F1}\left[3, 2-n, 5+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]\right)\Big/((b e-a f) (4+m) (c+d x) \text{Gamma}[4+m] \text{Gamma}[-n])-$$

$$\left(2 f (-d e+c f) (1-n) (a+b x)^2 \left(-\frac{d (d e-c f) (a+b x)}{(b e-a f) (c+d x)^2}+\frac{b (d e-c f)}{(b e-a f) (c+d x)}\right) \text{Gamma}[1-n]\right.$$

$$\left.\left.\left.\left.\text{Hypergeometric2F1}\left[3, 2-n, 5+m, \frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}\right]\right)\Big/\left((b e-a f)^2 (4+m) (c+d x) \text{Gamma}[4+m] \text{Gamma}[-n]\right)\right)\right)\right)-$$

$$\left(B e (a+b x)^{1+2 m} (c+d x)^{2 n} \left(\frac{-b c-b d x}{-b c+a d}\right)^{-n} (e+f x)^{-6-2 m-2 n} \left(\frac{-b e-b f x}{-b e+a f}\right)^{3+m+n} \left(1-\frac{d (a+b x)}{-b c+a d}\right)^{n}\right.$$

$$\left(1-\frac{f (a+b x)}{-b e+a f}\right)^{-2-m-n}$$

$$\text{Gamma}[$$
$$2+m]$$

$$\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{f\,(a+b x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)\,(a+b x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)\,(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\left.\frac{f\,(-d e+c f)\,(a+b x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)^2\,(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)\right)\Big/$$

$$\left(b f\,(1+m)\left(-\frac{1}{(-b e+a f)\,(1+m)}f\,(-2-m-n)\,(a+b x)^{1+m}\,(c+d x)^n\left(\frac{-b c-b d x}{-b c+a d}\right)^{-n}(e+f x)^{-3-m-n}\left(\frac{-b e-b f x}{-b e+a f}\right)^{3+m+n}\right.\right.$$

$$\left(1-\frac{d\,(a+b x)}{-b c+a d}\right)^n\left(1-\frac{f\,(a+b x)}{-b e+a f}\right)^{-3-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)\,(a+b x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)\,(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f\,(-d e+c f)\,(a+b x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)^2\,(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)-$$

$$\frac{1}{(-b c+a d)\,(1+m)}d\,n\,(a+b x)^{1+m}\,(c+d x)^n\left(\frac{-b c-b d x}{-b c+a d}\right)^{-n}(e+f x)^{-3-m-n}\left(\frac{-b e-b f x}{-b e+a f}\right)^{3+m+n}\left(1-\frac{d\,(a+b x)}{-b c+a d}\right)^{-1+n}$$

$$\left(1-\frac{f\,(a+b x)}{-b e+a f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)\,(a+b x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)\,(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)-$$

$$\frac{1}{(-b\,e+a\,f)\,(1+m)}\,f\,(3+m+n)\,(a+b\,x)^{1+m}\,(c+d\,x)^n\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-3-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{2+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^n$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$\frac{1}{b\,(1+m)}\,f\,(-3-m-n)\,(a+b\,x)^{1+m}\,(c+d\,x)^n\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-4-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^n$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\frac{f\,(a+b\,x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f\,(-d\,e+c\,f)\,(a+b\,x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^2\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$\frac{1}{(-b\,c+a\,d)\,(1+m)}\,d\,n\,(a+b\,x)^{1+m}\,(c+d\,x)^n\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-1-n}(e+f\,x)^{-3-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^n$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f(a+b x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)(a+b x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f(-d e+c f)(a+b x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)^2(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$\frac{1}{b(1+m)}d\,n\,(a+b x)^{1+m}(c+d x)^{-1+n}\left(\frac{-b c-b d x}{-b c+a d}\right)^{-n}(e+f x)^{-3-m-n}\left(\frac{-b e-b f x}{-b e+a f}\right)^{3+m+n}\left(1-\frac{d(a+b x)}{-b c+a d}\right)^{n}$$

$$\left(1-\frac{f(a+b x)}{-b e+a f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f(a+b x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)(a+b x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f(-d e+c f)(a+b x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)^2(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$(a+b x)^{m}(c+d x)^{n}\left(\frac{-b c-b d x}{-b c+a d}\right)^{-n}(e+f x)^{-3-m-n}\left(\frac{-b e-b f x}{-b e+a f}\right)^{3+m+n}\left(1-\frac{d(a+b x)}{-b c+a d}\right)^{n}\left(1-\frac{f(a+b x)}{-b e+a f}\right)^{-2-m-n}$$

$$\text{Gamma}[2+m]\left(\frac{2\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\right.$$

$$\frac{m\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{\text{Gamma}[3+m]}+\frac{f(a+b x)\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)\,\text{Gamma}[3+m]}+$$

$$\frac{(d e-c f)(a+b x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\left.\frac{f(-d e+c f)(a+b x)^2\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}\right]}{(b e-a f)^2(c+d x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}\right)+$$

$$\frac{1}{b\,(1+m)}\,(a+b\,x)^{1+m}\,(c+d\,x)^{n}\left(\frac{-b\,c-b\,d\,x}{-b\,c+a\,d}\right)^{-n}(e+f\,x)^{-3-m-n}\left(\frac{-b\,e-b\,f\,x}{-b\,e+a\,f}\right)^{3+m+n}\left(1-\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{n}$$

$$\left(1-\frac{f\,(a+b\,x)}{-b\,e+a\,f}\right)^{-2-m-n}\text{Gamma}[2+m]\left(\frac{b\,f\,\text{Hypergeometric2F1}\left[1,-n,3+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,\text{Gamma}[3+m]}-\right.$$

$$\frac{2\,n\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^{2}}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(3+m)\,\text{Gamma}[3+m]}-$$

$$\frac{m\,n\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^{2}}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(3+m)\,\text{Gamma}[3+m]}-$$

$$\left(f\,n\,(a+b\,x)\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^{2}}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\right)\Big/$$

$$\left((b\,e-a\,f)\,(3+m)\,\text{Gamma}[3+m]\right)-\frac{d\,(d\,e-c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)^{2}\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}+$$

$$\frac{d\,f\,(-d\,e+c\,f)\,(a+b\,x)^{2}\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^{2}\,(c+d\,x)^{2}\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}+$$

$$\frac{b\,(d\,e-c\,f)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}-$$

$$\frac{2\,b\,f\,(-d\,e+c\,f)\,(a+b\,x)\,\text{Gamma}[1-n]\,\text{Hypergeometric2F1}\left[2,1-n,4+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]}{(b\,e-a\,f)^{2}\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]}+$$

$$\left(2\,(d\,e-c\,f)\,(1-n)\,(a+b\,x)\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^{2}}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\text{Gamma}[1-n]\right.$$

$$\left.\text{Hypergeometric2F1}\left[3,2-n,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\right)\Big/\left((b\,e-a\,f)\,(4+m)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]\right)-$$

$$\left(2\,f\,(-d\,e+c\,f)\,(1-n)\,(a+b\,x)^{2}\left(-\frac{d\,(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)^{2}}+\frac{b\,(d\,e-c\,f)}{(b\,e-a\,f)\,(c+d\,x)}\right)\text{Gamma}[1-n]\right.$$

$$\left.\left.\text{Hypergeometric2F1}\left[3,2-n,5+m,\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}\right]\right)\Big/\left((b\,e-a\,f)^{2}\,(4+m)\,(c+d\,x)\,\text{Gamma}[4+m]\,\text{Gamma}[-n]\right)\right)+$$

$$\frac{1}{f\,(b\,e-a\,f)\,(1+m)}B\,(a+b\,x)^{1+m}\,(c+d\,x)^{n}\left(\frac{(b\,e-a\,f)\,(c+d\,x)}{(b\,c-a\,d)\,(e+f\,x)}\right)^{-n}$$

$$(e+f x)^{-1-m-n} \text{Hypergeometric2F1}\left[1+m,-n,2+m,\frac{(-d e+c f)(a+b x)}{(b c-a d)(e+f x)}\right]$$

Problem 148: Attempted integration timed out after 120 seconds.

$$\int (a+b x)^m (A+B x) (c+d x)^n (e+f x)^{-4-m-n} \, dx$$

Optimal (type 5, 558 leaves, 4 steps):

$$\frac{(B e-A f) (a+b x)^{1+m} (c+d x)^{1+n} (e+f x)^{-3-m-n}}{(b e-a f) (d e-c f) (3+m+n)}+\Big(\big(a f (A d f (2+m)+B (d e (1+n)-c f (3+m+n)))+b (B e (d e+c f (1+m))+A f (c f (2+n)-d e (4+m+n)))\big) (a+b x)^{1+m} (c+d x)^{1+n} (e+f x)^{-2-m-n}\Big)\Big/\Big((b e-a f)^2 (d e-c f)^2 (2+m+n) (3+m+n)\Big)+\frac{1}{(b e-a f)^3 (d e-c f)^2 (1+m) (2+m+n) (3+m+n)}\Big(\big((2+m+n) (a b c d f (B e-A f)+b d e ((a B c f+A (b d e-b c f-a d f)) (3+m+n)-(B e-A f) (b c (1+m)+a d (1+n)))-(b c+a d) f ((a B c f+A (b d e-b c f-a d f)) (3+m+n)-(B e-A f) (b c (1+m)+a d (1+n))))-(b c (1+m)+a d (1+n)) (a f (A d f (2+m)+B (d e (1+n)-c f (3+m+n)))+b (B e (d e+c f (1+m))+A f (c f (2+n)-d e (4+m+n))))\big) (a+b x)^{1+m} (c+d x)^n \left(\frac{(b e-a f) (c+d x)}{(b c-a d) (e+f x)}\right)^{-n} (e+f x)^{-1-m-n} \text{Hypergeometric2F1}\left[1+m,-n,2+m,-\frac{(d e-c f) (a+b x)}{(b c-a d) (e+f x)}\right]\Big)$$

Result (type 1, 1 leaves):

???

Test results for the 34 problems in "1.1.1.5 P(x) (a+b x)^m (c+d x)^n.m"

Problem 25: Result more than twice size of optimal antiderivative.

$$\int (a+b x)^3 (c+d x)^n \left(A+B x+C x^2+D x^3\right) dx$$

Optimal (type 3, 455 leaves, 2 steps):

$$-\frac{(b c-a d)^3 \left(c^2 C d-B c d^2+A d^3-c^3 D\right) (c+d x)^{1+n}}{d^7 (1+n)}-\frac{(b c-a d)^2 \left(a d \left(2 c C d-B d^2-3 c^2 D\right)-b \left(5 c^2 C d-4 B c d^2+3 A d^3-6 c^3 D\right)\right) (c+d x)^{2+n}}{d^7 (2+n)}-$$
$$\frac{1}{d^7 (3+n)}(b c-a d) \left(a^2 d^2 (C d-3 c D)-a b d \left(8 c C d-3 B d^2-15 c^2 D\right)+b^2 \left(10 c^2 C d-6 B c d^2+3 A d^3-15 c^3 D\right)\right) (c+d x)^{3+n}+$$
$$\frac{1}{d^7 (4+n)}\left(a^3 d^3 D+3 a^2 b d^2 (C d-4 c D)-3 a b^2 d \left(4 c C d-B d^2-10 c^2 D\right)+b^3 \left(10 c^2 C d-4 B c d^2+A d^3-20 c^3 D\right)\right) (c+d x)^{4+n}+$$
$$\frac{b \left(3 a^2 d^2 D+3 a b d (C d-5 c D)-b^2 \left(5 c C d-B d^2-15 c^2 D\right)\right) (c+d x)^{5+n}}{d^7 (5+n)}+\frac{b^2 (b C d-6 b c D+3 a d D) (c+d x)^{6+n}}{d^7 (6+n)}+\frac{b^3 D (c+d x)^{7+n}}{d^7 (7+n)}$$

Result (type 3, 977 leaves):

$$\frac{1}{d^7 (1+n) (2+n) (3+n) (4+n) (5+n) (6+n) (7+n)}$$
$$(c+d x)^{1+n} \Big(a^3 d^3 \left(210+107 n+18 n^2+n^3\right) \Big(-6 c^3 D+2 c^2 d (C (4+n)+3 D (1+n) x)-c d^2 \left(B \left(12+7 n+n^2\right)+(1+n) x (2 C (4+n)+3 D (2+n) x)\right)+$$
$$d^3 \left(A \left(24+26 n+9 n^2+n^3\right)+(1+n) x \left(B \left(12+7 n+n^2\right)+(2+n) x (C (4+n)+D (3+n) x)\right)\right)\Big)+$$
$$3 a^2 b d^2 \left(42+13 n+n^2\right) \Big(24 c^4 D-6 c^3 d (C (5+n)+4 D (1+n) x)+2 c^2 d^2 \left(B \left(20+9 n+n^2\right)+3 (1+n) x (C (5+n)+2 D (2+n) x)\right)-$$
$$c d^3 \left(A \left(60+47 n+12 n^2+n^3\right)+(1+n) x \left(2 B \left(20+9 n+n^2\right)+(2+n) x (3 C (5+n)+4 D (3+n) x)\right)\right)+$$
$$d^4 (1+n) x \left(A \left(60+47 n+12 n^2+n^3\right)+(2+n) x \left(B \left(20+9 n+n^2\right)+(3+n) x (C (5+n)+D (4+n) x)\right)\right)\Big)+$$
$$3 a b^2 d (7+n) \Big(-120 c^5 D+24 c^4 d (C (6+n)+5 D (1+n) x)-6 c^3 d^2 \left(B \left(30+11 n+n^2\right)+2 (1+n) x (2 C (6+n)+5 D (2+n) x)\right)+$$
$$2 c^2 d^3 \left(A \left(120+74 n+15 n^2+n^3\right)+(1+n) x \left(3 B \left(30+11 n+n^2\right)+2 (2+n) x (3 C (6+n)+5 D (3+n) x)\right)\right)-$$
$$c d^4 (1+n) x \left(2 A \left(120+74 n+15 n^2+n^3\right)+(2+n) x \left(3 B \left(30+11 n+n^2\right)+(3+n) x (4 C (6+n)+5 D (4+n) x)\right)\right)+$$
$$d^5 \left(2+3 n+n^2\right) x^2 \left(A \left(120+74 n+15 n^2+n^3\right)+(3+n) x \left(B \left(30+11 n+n^2\right)+(4+n) x (C (6+n)+D (5+n) x)\right)\right)\Big)+$$
$$b^3 \Big(720 c^6 D-120 c^5 d (C (7+n)+6 D (1+n) x)+24 c^4 d^2 \left(B \left(42+13 n+n^2\right)+5 (1+n) x (C (7+n)+3 D (2+n) x)\right)-$$
$$6 c^3 d^3 \left(A \left(210+107 n+18 n^2+n^3\right)+2 (1+n) x \left(2 B \left(42+13 n+n^2\right)+5 (2+n) x (C (7+n)+2 D (3+n) x)\right)\right)+$$
$$2 c^2 d^4 (1+n) x \left(3 A \left(210+107 n+18 n^2+n^3\right)+(2+n) x \left(6 B \left(42+13 n+n^2\right)+5 (3+n) x (2 C (7+n)+3 D (4+n) x)\right)\right)-$$
$$c d^5 \left(2+3 n+n^2\right) x^2 \left(3 A \left(210+107 n+18 n^2+n^3\right)+(3+n) x \left(4 B \left(42+13 n+n^2\right)+(4+n) x (5 C (7+n)+6 D (5+n) x)\right)\right)+$$
$$d^6 \left(6+11 n+6 n^2+n^3\right) x^3 \left(A \left(210+107 n+18 n^2+n^3\right)+(4+n) x \left(B \left(42+13 n+n^2\right)+(5+n) x (C (7+n)+D (6+n) x)\right)\right)\Big)\Big)$$

Problem 29: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(c+d x)^n \left(A+B x+C x^2+D x^3\right)}{a+b x} \, dx$$

Optimal (type 5, 203 leaves, 3 steps):

$$\frac{\left(a^2 d^2 D-a b d (C d-c D)-b^2 \left(c C d-B d^2-c^2 D\right)\right) (c+d x)^{1+n}}{b^3 d^3 (1+n)}+\frac{(b C d-2 b c D-a d D) (c+d x)^{2+n}}{b^2 d^3 (2+n)}+$$
$$\frac{D (c+d x)^{3+n}}{b d^3 (3+n)}-\frac{\left(A b^3-a \left(b^2 B-a b C+a^2 D\right)\right) (c+d x)^{1+n} \text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{b (c+d x)}{b c-a d}\right]}{b^3 (b c-a d) (1+n)}$$

Result (type 6, 414 leaves):

$$\frac{1}{12}(c+dx)^n\left(\left(18\,a\,B\,c\,x^2\,\text{AppellF1}\left[2,-n,1,3,-\frac{dx}{c},-\frac{bx}{a}\right]\right)\Big/\left((a+bx)\left(3\,a\,c\,\text{AppellF1}\left[2,-n,1,3,-\frac{dx}{c},-\frac{bx}{a}\right]+a\,d\,n\,x\,\text{AppellF1}\left[3,1-n,1,4,-\frac{dx}{c},-\frac{bx}{a}\right]-b\,c\,x\,\text{AppellF1}\left[3,-n,2,4,-\frac{dx}{c},-\frac{bx}{a}\right]\right)\right)+\left(16\,a\,c\,C\,x^3\,\text{AppellF1}\left[3,-n,1,4,-\frac{dx}{c},-\frac{bx}{a}\right]\right)\Big/\left((a+bx)\left(4\,a\,c\,\text{AppellF1}\left[3,-n,1,4,-\frac{dx}{c},-\frac{bx}{a}\right]+a\,d\,n\,x\,\text{AppellF1}\left[4,1-n,1,5,-\frac{dx}{c},-\frac{bx}{a}\right]-b\,c\,x\,\text{AppellF1}\left[4,-n,2,5,-\frac{dx}{c},-\frac{bx}{a}\right]\right)\right)+\left(15\,a\,c\,D\,x^4\,\text{AppellF1}\left[4,-n,1,5,-\frac{dx}{c},-\frac{bx}{a}\right]\right)\Big/\left((a+bx)\left(5\,a\,c\,\text{AppellF1}\left[4,-n,1,5,-\frac{dx}{c},-\frac{bx}{a}\right]+a\,d\,n\,x\,\text{AppellF1}\left[5,1-n,1,6,-\frac{dx}{c},-\frac{bx}{a}\right]-b\,c\,x\,\text{AppellF1}\left[5,-n,2,6,-\frac{dx}{c},-\frac{bx}{a}\right]\right)\right)-\frac{12\,A\,(c+dx)\,\text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{b(c+dx)}{bc-ad}\right]}{(bc-ad)(1+n)}\right)$$

Problem 30: Unable to integrate problem.

$$\int\frac{(c+dx)^n\left(A+Bx+Cx^2+Dx^3\right)}{(a+bx)^2}\,dx$$

Optimal (type 5, 220 leaves, 4 steps):

$$\frac{(bCd-bcD-2adD)(c+dx)^{1+n}}{b^3d^2(1+n)}-\frac{\left(A-\frac{a(b^2B-abC+a^2D)}{b^3}\right)(c+dx)^{1+n}}{(bc-ad)(a+bx)}+\frac{D(c+dx)^{2+n}}{b^2d^2(2+n)}+\frac{1}{b^3(bc-ad)^2(1+n)}\left(a^3dD(3+n)-b^3(Bc+Adn)+ab^2(2cC+Bd(1+n))-a^2b(3cD+Cd(2+n))\right)(c+dx)^{1+n}\,\text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{b(c+dx)}{bc-ad}\right]$$

Result (type 8, 32 leaves):

$$\int\frac{(c+dx)^n\left(A+Bx+Cx^2+Dx^3\right)}{(a+bx)^2}\,dx$$

Problem 31: Unable to integrate problem.

$$\int\frac{(c+dx)^n\left(A+Bx+Cx^2+Dx^3\right)}{(a+bx)^3}\,dx$$

Optimal (type 5, 329 leaves, 4 steps):

$$\frac{D\,(c+d\,x)^{1+n}}{b^3\,d\,(1+n)}-\frac{\left(A\,b^3-a\,\left(b^2\,B-a\,b\,C+a^2\,D\right)\right)\,(c+d\,x)^{1+n}}{2\,b^3\,(b\,c-a\,d)\,(a+b\,x)^2}-$$
$$\frac{\left(b^3\,(2\,B\,c-A\,d\,(1-n))-a^3\,d\,D\,(5+n)-a\,b^2\,(4\,c\,C+B\,d\,(1+n))+a^2\,b\,(6\,c\,D+C\,d\,(3+n))\right)\,(c+d\,x)^{1+n}}{2\,b^3\,(b\,c-a\,d)^2\,(a+b\,x)}-\frac{1}{2\,b^3\,(b\,c-a\,d)^3\,(1+n)}$$
$$\left(b^3\,\left(2\,c^2\,C+2\,B\,c\,d\,n-A\,d^2\,(1-n)\,n\right)-a^3\,d^2\,D\,\left(6+5\,n+n^2\right)+a^2\,b\,d\,(2+n)\,(6\,c\,D+C\,d\,(1+n))-a\,b^2\,\left(6\,c^2\,D+4\,c\,C\,d\,(1+n)+B\,d^2\,n\,(1+n)\right)\right)$$
$$(c+d\,x)^{1+n}\,\text{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]$$

Result (type 8, 32 leaves):

$$\int\frac{(c+d\,x)^n\,\left(A+B\,x+C\,x^2+D\,x^3\right)}{(a+b\,x)^3}\,dx$$

Problem 32: Result unnecessarily involves higher level functions.

$$\int(a+b\,x)^m\,(A+B\,x)\,(c+d\,x)^n\,dx$$

Optimal (type 5, 141 leaves, 3 steps):

$$\frac{B\,(a+b\,x)^{1+m}\,(c+d\,x)^{1+n}}{b\,d\,(2+m+n)}+\frac{1}{b^2\,d\,(1+m)\,(2+m+n)}$$
$$(A\,b\,d\,(2+m+n)-B\,(b\,c\,(1+m)+a\,d\,(1+n)))\,(a+b\,x)^{1+m}\,(c+d\,x)^n\,\left(\frac{b\,(c+d\,x)}{b\,c-a\,d}\right)^{-n}\,\text{Hypergeometric2F1}\left[1+m,\,-n,\,2+m,\,-\frac{d\,(a+b\,x)}{b\,c-a\,d}\right]$$

Result (type 6, 202 leaves):

$$(a+b\,x)^m\,(c+d\,x)^n\,\left(\left(3\,a\,B\,c\,x^2\,\text{AppellF1}\left[2,\,-m,\,-n,\,3,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]\right)\Big/\right.$$
$$\left(6\,a\,c\,\text{AppellF1}\left[2,\,-m,\,-n,\,3,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]+2\,b\,c\,m\,x\,\text{AppellF1}\left[3,\,1-m,\,-n,\,4,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]+\right.$$
$$\left.\left.2\,a\,d\,n\,x\,\text{AppellF1}\left[3,\,-m,\,1-n,\,4,\,-\frac{b\,x}{a},\,-\frac{d\,x}{c}\right]\right)+\frac{A\,\left(\frac{d\,(a+b\,x)}{-b\,c+a\,d}\right)^{-m}\,(c+d\,x)\,\text{Hypergeometric2F1}\left[-m,\,1+n,\,2+n,\,\frac{b\,(c+d\,x)}{b\,c-a\,d}\right]}{d\,(1+n)}\right)$$

Problem 33: Result unnecessarily involves higher level functions.

$$\int(a+b\,x)^m\,(c+d\,x)^n\,\left(A+B\,x+C\,x^2\right)\,dx$$

Optimal (type 5, 268 leaves, 4 steps):

$$-\frac{(a C d (4+m+2 n)+b (c C (2+m)-B d (3+m+n))) (a+b x)^{1+m} (c+d x)^{1+n}}{b^2 d^2 (2+m+n) (3+m+n)}+\frac{C (a+b x)^{2+m} (c+d x)^{1+n}}{b^2 d (3+m+n)}-\left((d (2+m+n) (a b c C (2+m)+a^2 C d (1+n)-A b^2 d (3+m+n))-(b c (1+m)+a d (1+n)) (a C d (4+m+2 n)+b (c C (2+m)-B d (3+m+n))))\right.$$
$$\left.(a+b x)^{1+m} (c+d x)^n \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} \text{Hypergeometric2F1}\left[1+m,-n,2+m,-\frac{d (a+b x)}{b c-a d}\right]\right)\Big/\left(b^3 d^2 (1+m) (2+m+n) (3+m+n)\right)$$

Result (type 6, 327 leaves):

$$\frac{1}{3} (a+b x)^m (c+d x)^n$$
$$\left(\left(9 a B c x^2 \text{AppellF1}\left[2,-m,-n,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/\left(6 a c \text{AppellF1}\left[2,-m,-n,3,-\frac{b x}{a},-\frac{d x}{c}\right]+2 b c m x \text{AppellF1}\left[3,1-m,-n,\right.\right.\right.$$
$$\left.\left.4,-\frac{b x}{a},-\frac{d x}{c}\right]+2 a d n x \text{AppellF1}\left[3,-m,1-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)+\left(4 a c C x^3 \text{AppellF1}\left[3,-m,-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)\Big/$$
$$\left(4 a c \text{AppellF1}\left[3,-m,-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]+b c m x \text{AppellF1}\left[4,1-m,-n,5,-\frac{b x}{a},-\frac{d x}{c}\right]+a d n x \text{AppellF1}\left[4,-m,1-n,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)+$$
$$\left.\frac{3 A \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} (c+d x) \text{Hypergeometric2F1}\left[-m,1+n,2+n,\frac{b (c+d x)}{b c-a d}\right]}{d (1+n)}\right)$$

Problem 34: Result unnecessarily involves higher level functions.

$$\int (a+b x)^m (c+d x)^n \left(A+B x+C x^2+D x^3\right) dx$$

Optimal (type 5, 610 leaves, 5 steps):

$$\left(\left(a^2 d^2 D \left(m^2+m (8+3 n)+3 \left(6+5 n+n^2\right)\right)+b^2 \left(c^2 D \left(6+5 m+m^2\right)-c C d (2+m) (4+m+n)+B d^2 \left(12+m^2+7 n+n^2+m (7+2 n)\right)\right)+a b d \left(c D (2+m) (6+m+3 n)-C d \left(m^2+m (8+3 n)+2 \left(8+6 n+n^2\right)\right)\right)\right) (a+b x)^{1+m} (c+d x)^{1+n}\right) \Big/ \left(b^3 d^3 (2+m+n) (3+m+n) (4+m+n)\right)-\frac{(a d D (9+2 m+3 n)+b (c D (3+m)-C d (4+m+n))) (a+b x)^{2+m} (c+d x)^{1+n}}{b^3 d^2 (3+m+n) (4+m+n)}+\frac{D (a+b x)^{3+m} (c+d x)^{1+n}}{b^3 d (4+m+n)}+$$

$$\frac{1}{b^4 d^3 (1+m) (2+m+n) (3+m+n) (4+m+n)} \left(d (2+m+n) \left(a^3 d^2 D (1+n) (6+m+2 n)+a b^2 c (2+m) (c D (3+m)-C d (4+m+n))+A b^3 d^2 \left(12+m^2+7 n+n^2+m (7+2 n)\right)-a^2 b d (C d (1+n) (4+m+n)-c D (2+m) (6+m+3 n))\right)-(b c (1+m)+a d (1+n)) \left(a^2 d^2 D \left(m^2+m (8+3 n)+3 \left(6+5 n+n^2\right)\right)+b^2 \left(c^2 D \left(6+5 m+m^2\right)-c C d (2+m) (4+m+n)+B d^2 \left(12+m^2+7 n+n^2+m (7+2 n)\right)\right)+a b d \left(c D (2+m) (6+m+3 n)-C d \left(m^2+m (8+3 n)+2 \left(8+6 n+n^2\right)\right)\right)\right)\right) (a+b x)^{1+m} (c+d x)^n \left(\frac{b (c+d x)}{b c-a d}\right)^{-n} \text{Hypergeometric2F1}\left[1+m,-n,2+m,-\frac{d (a+b x)}{b c-a d}\right]$$

Result (type 6, 446 leaves) :

$$\frac{1}{12} (a+b x)^m (c+d x)^n \left(\left(18 a B c x^2 \text{AppellF1}\left[2,-m,-n,3,-\frac{b x}{a},-\frac{d x}{c}\right]\right) \Big/ \left(3 a c \text{AppellF1}\left[2,-m,-n,3,-\frac{b x}{a},-\frac{d x}{c}\right]+b c m x \text{AppellF1}\left[3,1-m,-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]+a d n x \text{AppellF1}\left[3,-m,1-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right)+\left(16 a c C x^3 \text{AppellF1}\left[3,-m,-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]\right) \Big/ \left(4 a c \text{AppellF1}\left[3,-m,-n,4,-\frac{b x}{a},-\frac{d x}{c}\right]+b c m x \text{AppellF1}\left[4,1-m,-n,5,-\frac{b x}{a},-\frac{d x}{c}\right]+a d n x \text{AppellF1}\left[4,-m,1-n,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right)+\left(15 a c D x^4 \text{AppellF1}\left[4,-m,-n,5,-\frac{b x}{a},-\frac{d x}{c}\right]\right) \Big/ \left(5 a c \text{AppellF1}\left[4,-m,-n,5,-\frac{b x}{a},-\frac{d x}{c}\right]+b c m x \text{AppellF1}\left[5,1-m,-n,6,-\frac{b x}{a},-\frac{d x}{c}\right]+a d n x \text{AppellF1}\left[5,-m,1-n,6,-\frac{b x}{a},-\frac{d x}{c}\right]\right)+\frac{12 A \left(\frac{d (a+b x)}{-b c+a d}\right)^{-m} (c+d x) \text{Hypergeometric2F1}\left[-m,1+n,2+n,\frac{b (c+d x)}{b c-a d}\right]}{d (1+n)}\right)$$

Test results for the 78 problems in "1.1.1.6 P(x) (a+b x)^m (c+d x)^n (e+f x)^p.m"

Problem 61: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \sqrt{a+b x} \sqrt{c+d x} \sqrt{e+f x} \left(A+B x+C x^2\right) dx$$

Optimal (type 4, 1182 leaves, 10 steps):

$$\frac{1}{315 b^3 d^3 f^3}2 \left(8 a^3 C d^3 f^3+3 a^2 b d^2 f^2 (C d e-c C f-4 B d f)-3 a b^2 d f^2 \left(\left(c^2 C-7 A d^2\right) f+B d (d e-2 c f)\right)-b^3 \left(C \left(16 d^3 e^3-3 c^2 d e f^2-8 c^3 f^3\right)+3 d f \left(7 A d f (2 d e-c f)-B \left(8 d^2 e^2-c d e f-4 c^2 f^2\right)\right)\right)\right) \sqrt{a+b x} \sqrt{c+d x} \sqrt{e+f x}-\frac{1}{105 b^2 d^2 f^3}2 \left(7 b d f (b c C e+a C d e+a c C f-3 A b d f)+(a d f-4 b (d e+c f)) (2 a C d f-b (3 B d f-2 C (d e+c f)))\right) \sqrt{a+b x} \sqrt{c+d x} (e+f x)^{3/2}-\frac{2 (2 a C d f-b (3 B d f-2 C (d e+c f))) \sqrt{a+b x} (c+d x)^{3/2} (e+f x)^{3/2}}{21 b d^2 f^2}+\frac{2 C (a+b x)^{3/2} (c+d x)^{3/2} (e+f x)^{3/2}}{9 b d f}-\frac{1}{315 b^4 d^{7/2} f^4 \sqrt{c+d x} \sqrt{\frac{b (e+f x)}{b e-a f}}}2 \sqrt{-b c+a d} \left(16 a^4 C d^4 f^4-8 a^3 b d^3 f^3 (C d e+c C f+3 B d f)+3 a^2 b^2 d^2 f^2 \left(d f (5 B d e+5 B c f+14 A d f)-2 C \left(d^2 e^2-c d e f+c^2 f^2\right)\right)-a b^3 d f \left(C \left(8 d^3 e^3-6 c d^2 e^2 f-6 c^2 d e f^2+8 c^3 f^3\right)+3 d f \left(14 A d f (d e+c f)-B \left(5 d^2 e^2-6 c d e f+5 c^2 f^2\right)\right)\right)+b^4 \left(2 C \left(8 d^4 e^4-4 c d^3 e^3 f-3 c^2 d^2 e^2 f^2-4 c^3 d e f^3+8 c^4 f^4\right)+3 d f \left(14 A d f \left(d^2 e^2-c d e f+c^2 f^2\right)-B \left(8 d^3 e^3-5 c d^2 e^2 f-5 c^2 d e f^2+8 c^3 f^3\right)\right)\right)\right) \sqrt{\frac{b (c+d x)}{b c-a d}} \sqrt{e+f x}\, \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d} \sqrt{a+b x}}{\sqrt{-b c+a d}}\right],\frac{(b c-a d) f}{d (b e-a f)}\right]-\frac{1}{315 b^4 d^{7/2} f^4 \sqrt{c+d x} \sqrt{e+f x}}2 \sqrt{-b c+a d} (b e-a f) (d e-c f) \left(8 a^3 C d^3 f^3+3 a^2 b d^2 f^2 (C d e-c C f-4 B d f)-3 a b^2 d f^2 \left(\left(c^2 C-7 A d^2\right) f+B d (d e-2 c f)\right)-b^3 \left(C \left(16 d^3 e^3-3 c^2 d e f^2-8 c^3 f^3\right)+3 d f \left(7 A d f (2 d e-c f)-B \left(8 d^2 e^2-c d e f-4 c^2 f^2\right)\right)\right)\right) \sqrt{\frac{b (c+d x)}{b c-a d}} \sqrt{\frac{b (e+f x)}{b e-a f}}\, \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d} \sqrt{a+b x}}{\sqrt{-b c+a d}}\right],\frac{(b c-a d) f}{d (b e-a f)}\right]$$

Result (type 4, 11 933 leaves):

$$\sqrt{a+b x} \sqrt{c+d x} \sqrt{e+f x} \left(\frac{1}{315 b^3 d^3 f^3}2 \left(8 b^3 C d^3 e^3-3 b^3 c C d^2 e^2 f-12 b^3 B d^3 e^2 f-3 a b^2 C d^3 e^2 f-3 b^3 c^2 C d e f^2+6 b^3 B c d^2 e f^2+2 a b^2 c C d^2 e f^2+21 A b^3 d^3 e f^2+6 a b^2 B d^3 e f^2-3 a^2 b C d^3 e f^2+8 b^3 c^3 C f^3-12 b^3 B c^2 d f^3-3 a b^2 c^2 C d f^3+21 A b^3 c d^2 f^3+6 a b^2 B c d^2 f^3-3 a^2 b c C d^2 f^3+21 a A b^2 d^3 f^3-12 a^2 b B d^3 f^3+8 a^3 C d^3 f^3\right)+\frac{1}{315 b^2 d^2 f^2}2 \left(-6 b^2 C d^2 e^2+2 b^2 c C d e f+9 b^2 B d^2 e f+2 a b C d^2 e f-6 b^2 c^2 C f^2+9 b^2 B c d f^2+2 a b c C d f^2+63 A b^2 d^2 f^2+9 a b B d^2 f^2-6 a^2 C d^2 f^2\right) x+\frac{2 (b C d e+b c C f+9 b B d f+a C d f) x^2}{63 b d f}+\frac{2 C x^3}{9}\right)-$$

$$\frac{1}{315\, b^5\, d^3\, f^3} 2 \left(\frac{1}{d\, f \sqrt{c + \frac{(a+b\,x)\left(d-\frac{a\,d}{a+b\,x}\right)}{b}} \sqrt{e + \frac{(a+b\,x)\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}} \right.$$

$$\left(16\, b^4\, C\, d^4\, e^4 - 8\, b^4\, c\, C\, d^3\, e^3\, f - 24\, b^4\, B\, d^4\, e^3\, f - 8\, a\, b^3\, C\, d^4\, e^3\, f - 6\, b^4\, c^2\, C\, d^2\, e^2\, f^2 + 15\, b^4\, B\, c\, d^3\, e^2\, f^2 + 6\, a\, b^3\, c\, C\, d^3\, e^2\, f^2 + 42\, A\, b^4\, d^4\, e^2\, f^2 + 15\, a\, b^3\, B\, d^4\, e^2\, f^2 - 6\, a^2\, b^2\, C\, d^4\, e^2\, f^2 - 8\, b^4\, c^3\, C\, d\, e\, f^3 + 15\, b^4\, B\, c^2\, d^2\, e\, f^3 + 6\, a\, b^3\, c^2\, C\, d^2\, e\, f^3 - 42\, A\, b^4\, c\, d^3\, e\, f^3 - 18\, a\, b^3\, B\, c\, d^3\, e\, f^3 + 6\, a^2\, b^2\, c\, C\, d^3\, e\, f^3 - 42\, a\, A\, b^3\, d^4\, e\, f^3 + 15\, a^2\, b^2\, B\, d^4\, e\, f^3 - 8\, a^3\, b\, C\, d^4\, e\, f^3 + 16\, b^4\, c^4\, C\, f^4 - 24\, b^4\, B\, c^3\, d\, f^4 - 8\, a\, b^3\, c^3\, C\, d\, f^4 + 42\, A\, b^4\, c^2\, d^2\, f^4 + 15\, a\, b^3\, B\, c^2\, d^2\, f^4 - 6\, a^2\, b^2\, c^2\, C\, d^2\, f^4 - 42\, a\, A\, b^3\, c\, d^3\, f^4 + 15\, a^2\, b^2\, B\, c\, d^3\, f^4 - 8\, a^3\, b\, c\, C\, d^3\, f^4 + 42\, a^2\, A\, b^2\, d^4\, f^4 - 24\, a^3\, b\, B\, d^4\, f^4 + 16\, a^4\, C\, d^4\, f^4\right)$$

$$(a+b\,x)^{3/2} \left(d + \frac{b\,c}{a+b\,x} - \frac{a\,d}{a+b\,x}\right) \left(f + \frac{b\,e}{a+b\,x} - \frac{a\,f}{a+b\,x}\right) - \frac{1}{d\, f \sqrt{c + \frac{(a+b\,x)\left(d-\frac{a\,d}{a+b\,x}\right)}{b}} \sqrt{e + \frac{(a+b\,x)\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}}$$

$$(-b\,c+a\,d)\,(-b\,e+a\,f)\,(a+b\,x) \sqrt{\left(d + \frac{b\,c}{a+b\,x} - \frac{a\,d}{a+b\,x}\right)\left(f + \frac{b\,e}{a+b\,x} - \frac{a\,f}{a+b\,x}\right)} \left(\left(16\, \mathbb{i}\, b^4\, C\, d^4\, e^4\, f \sqrt{1 - \frac{-b\,c+a\,d}{d\,(a+b\,x)}} \sqrt{1 - \frac{-b\,e+a\,f}{f\,(a+b\,x)}} \right.\right.$$

$$\left.\left. \left(\text{EllipticE}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right], \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right] - \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right], \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right] \right) \right) \right/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\, (-b\,e+a\,f) \sqrt{\left(d + \frac{b\,c-a\,d}{a+b\,x}\right)\left(f + \frac{b\,e-a\,f}{a+b\,x}\right)} \right) - \left(8\, \mathbb{i}\, b^4\, c\, C\, d^3\, e^3\, f^2 \sqrt{1 - \frac{-b\,c+a\,d}{d\,(a+b\,x)}} \sqrt{1 - \frac{-b\,e+a\,f}{f\,(a+b\,x)}} \right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right], \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right] - \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right], \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right] \right) \right) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\;(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(24\,i\,b^4 B d^4 e^3 f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\;\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\;(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(8\,i\,a\,b^3 C d^4 e^3 f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\;\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\;(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(6\,i\,b^4 c^2 C d^2 e^2 f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\;\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\;(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(15\,i\,b^4 B c\,d^3 e^2 f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\;\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(6\,i\,a\,b^3\,c\,C\,d^3\,e^2\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(42\,i\,A\,b^4\,d^4\,e^2\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(15\,i\,a\,b^3\,B\,d^4\,e^2\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(6\,i\,a^2 b^2 C d^4 e^2 f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(8\,i\,b^4 c^3 C d e f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(15\,i\,b^4 B c^2 d^2 e f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(6\,i\,a\,b^3 c^2 C d^2 e f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(42\,i\,A\,b^4\,c\,d^3\,e\,f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(18\,i\,a\,b^3\,B\,c\,d^3\,e\,f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(6\,i\,a^2\,b^2\,c\,C\,d^3\,e\,f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(42\,i\,a A b^3 d^4 e f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(15\,i\,a^2 b^2 B d^4 e f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(8\,i\,a^3 b C d^4 e f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(16\,i\,b^4 c^4 C f^5\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(24\,i\,b^4 B c^3 d f^5\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(8\,i\,a b^3 c^3 C d f^5\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(42\,i\,A b^4 c^2 d^2 f^5\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(15\,\mathbb{i}\,a\,b^3\,B\,c^2\,d^2\,f^5\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(6\,\mathbb{i}\,a^2\,b^2\,c^2\,C\,d^2\,f^5\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(42\,\mathbb{i}\,a\,A\,b^3\,c\,d^3\,f^5\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(15\,\mathbb{i}\,a^2\,b^2\,B\,c\,d^3\,f^5\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(8\,i\,a^3\,b\,c\,C\,d^3\,f^5\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(42\,i\,a^2\,A\,b^2\,d^4\,f^5\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(24\,i\,a^3\,b\,B\,d^4\,f^5\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(16\,\mathrm{i}\,a^4\,C\,d^4\,f^5\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-$$

$$\frac{8\,\mathrm{i}\,b^3\,C\,d^4\,e^3\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\;\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{3\,\mathrm{i}\,b^3\,c\,C\,d^3\,e^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\;\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{12\,\mathrm{i}\,b^3\,B\,d^4\,e^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\;\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{3\,\mathrm{i}\,a\,b^2\,C\,d^4\,e^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\;\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{3\, i\, b^3 c^2\, C\, d^2\, e\, f^3 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{6\, i\, b^3\, B\, c\, d^3\, e\, f^3 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{21\, i\, A\, b^3 d^4\, e\, f^3 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{3\, i\, a\, b^2\, B\, d^4\, e\, f^3 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{8\, i\, b^3 c^3\, C\, d\, f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{12\, i\, b^3\, B\, c^2 d^2 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{3\,i\,a\,b^2\,c^2\,C\,d^2\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{21\,i\,A\,b^3\,c\,d^3\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{3\,i\,a\,b^2\,B\,c\,d^3\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{42\,i\,a\,A\,b^2\,d^4\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{24\,i\,a^2\,b\,B\,d^4\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\left.\left.\frac{16\,i\,a^3\,C\,d^4\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 62: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{c+d x}\,\sqrt{e+f x}\,\left(A+B x+C x^2\right)}{\sqrt{a+b x}}\,dx$$

Optimal (type 4, 774 leaves, 9 steps):

$$-\frac{1}{105\,b^3\,d^2\,f^2}2\,\left(5\,b\,d\,f\,\left(3\,a\,C\,\left(d\,e+c\,f\right)+b\,\left(c\,C\,e-7\,A\,d\,f\right)\right)-\left(2\,b\,d\,e-b\,c\,f+4\,a\,d\,f\right)\,\left(6\,a\,C\,d\,f-b\,\left(7\,B\,d\,f-4\,C\,\left(d\,e+c\,f\right)\right)\right)\right)\,\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}-$$
$$\frac{2\,\left(6\,a\,C\,d\,f-b\,\left(7\,B\,d\,f-4\,C\,\left(d\,e+c\,f\right)\right)\right)\,\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\left(e+f\,x\right)^{3/2}}{35\,b^2\,d\,f^2}+\frac{2\,C\,\sqrt{a+b\,x}\,\left(c+d\,x\right)^{3/2}\,\left(e+f\,x\right)^{3/2}}{7\,b\,d\,f}-\frac{1}{105\,b^4\,d^{5/2}\,f^3\,\sqrt{c+d\,x}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}}$$
$$2\,\sqrt{-b\,c+a\,d}\,\left(3\,b\,d\,f\,\left(5\,b\,c\,f\,\left(3\,a\,C\,\left(d\,e+c\,f\right)+b\,\left(c\,C\,e-7\,A\,d\,f\right)\right)-\left(b\,c\,e+a\,d\,e+3\,a\,c\,f\right)\,\left(6\,a\,C\,d\,f-b\,\left(7\,B\,d\,f-4\,C\,\left(d\,e+c\,f\right)\right)\right)\right)+\right.$$
$$\left.2\,\left(\frac{b\,d\,e}{2}-\left(b\,c+a\,d\right)\,f\right)\,\left(5\,b\,d\,f\,\left(3\,a\,C\,\left(d\,e+c\,f\right)+b\,\left(c\,C\,e-7\,A\,d\,f\right)\right)-\left(2\,b\,d\,e-b\,c\,f+4\,a\,d\,f\right)\,\left(6\,a\,C\,d\,f-b\,\left(7\,B\,d\,f-4\,C\,\left(d\,e+c\,f\right)\right)\right)\right)\right)$$
$$\sqrt{\frac{b\,\left(c+d\,x\right)}{b\,c-a\,d}}\,\sqrt{e+f\,x}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{\left(b\,c-a\,d\right)\,f}{d\,\left(b\,e-a\,f\right)}\right]-\left(2\,\sqrt{-b\,c+a\,d}\,\left(b\,e-a\,f\right)\,\left(d\,e-c\,f\right)\right.$$
$$\left(24\,a^2\,C\,d^2\,f^2+a\,b\,d\,f\,\left(13\,C\,d\,e-5\,c\,C\,f-28\,B\,d\,f\right)-b^2\,\left(7\,d\,f\,\left(2\,B\,d\,e-B\,c\,f-5\,A\,d\,f\right)-C\,\left(8\,d^2\,e^2-c\,d\,e\,f-4\,c^2\,f^2\right)\right)\right)$$
$$\left.\sqrt{\frac{b\,\left(c+d\,x\right)}{b\,c-a\,d}}\,\sqrt{\frac{b\,\left(e+f\,x\right)}{b\,e-a\,f}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{\left(b\,c-a\,d\right)\,f}{d\,\left(b\,e-a\,f\right)}\right]\right)\Big/\left(105\,b^4\,d^{5/2}\,f^3\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\right)$$

Result (type 4, 7297 leaves):

$$\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\left(\frac{1}{105\,b^3\,d^2\,f^2}\right.$$
$$2\,\left(-4\,b^2\,C\,d^2\,e^2+2\,b^2\,c\,C\,d\,e\,f+7\,b^2\,B\,d^2\,e\,f-5\,a\,b\,C\,d^2\,e\,f-4\,b^2\,c^2\,C\,f^2+7\,b^2\,B\,c\,d\,f^2-5\,a\,b\,c\,C\,d\,f^2+35\,A\,b^2\,d^2\,f^2-28\,a\,b\,B\,d^2\,f^2+24\,a^2\,C\,d^2\,f^2\right)+$$
$$\left.\frac{2\,\left(b\,C\,d\,e+b\,c\,C\,f+7\,b\,B\,d\,f-6\,a\,C\,d\,f\right)\,x}{35\,b^2\,d\,f}+\frac{2\,C\,x^2}{7\,b}\right)-$$

$$\frac{1}{105\,b^5\,d^2\,f^2}2\,\left(\frac{1}{d\,f\,\sqrt{c+\frac{(a+b\,x)\,\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\,\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}}\left(-8\,b^3\,C\,d^3\,e^3+5\,b^3\,c\,C\,d^2\,e^2\,f+14\,b^3\,B\,d^3\,e^2\,f-9\,a\,b^2\,C\,d^3\,e^2\,f+\right.\right.$$
$$5\,b^3\,c^2\,C\,d\,e\,f^2-14\,b^3\,B\,c\,d^2\,e\,f^2+8\,a\,b^2\,c\,C\,d^2\,e\,f^2-35\,A\,b^3\,d^3\,e\,f^2+21\,a\,b^2\,B\,d^3\,e\,f^2-16\,a^2\,b\,C\,d^3\,e\,f^2-8\,b^3\,c^3\,C\,f^3+$$
$$\left.14\,b^3\,B\,c^2\,d\,f^3-9\,a\,b^2\,c^2\,C\,d\,f^3-35\,A\,b^3\,c\,d^2\,f^3+21\,a\,b^2\,B\,c\,d^2\,f^3-16\,a^2\,b\,c\,C\,d^2\,f^3+70\,a\,A\,b^2\,d^3\,f^3-56\,a^2\,b\,B\,d^3\,f^3+48\,a^3\,C\,d^3\,f^3\right)$$

$$(a+b x)^{3/2}\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)+\frac{1}{d f\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}}$$

$$(-b c+a d)(-b e+a f)(a+b x)\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)}\left(\left(8\,i\,b^3 C d^3 e^3 f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.\right.$$

$$\left.\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\right/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(5\,i\,b^3 c\, C d^2 e^2 f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left.\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\right/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(14\,i\,b^3 B d^3 e^2 f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left.\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\right/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(9\,i\,a\,b^2\,C\,d^3\,e^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(5\,i\,b^3\,c^2\,C\,d\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(14\,i\,b^3\,B\,c\,d^2\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(8\,i\,a\,b^2\,c\,C\,d^2\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(35\,i\,A\,b^3 d^3 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(21\,i\,a\,b^2 B\,d^3 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(16\,i\,a^2 b\,C\,d^3 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(8\,\mathbb{i}\,b^3 c^3 C f^4\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(14\,\mathbb{i}\,b^3 B c^2 d f^4\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(9\,\mathbb{i}\,a b^2 c^2 C d f^4\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(35\,\mathbb{i}\,A b^3 c d^2 f^4\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(21\,i\,a\,b^2 B\,c\,d^2 f^4\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(16\,i\,a^2 b\,c\,C\,d^2 f^4\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(70\,i\,a\,A\,b^2 d^3 f^4\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(56\,\mathrm{i}\,a^2\,b\,B\,d^3\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(48\,\mathrm{i}\,a^3\,C\,d^3\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-$$

$$\frac{4\,\mathrm{i}\,b^2\,C\,d^3\,e^2\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{2\,\mathrm{i}\,b^2\,c\,C\,d^2\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{7\,i\,b^2\,B\,d^3\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{8\,i\,a\,b\,C\,d^3\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{4\,i\,b^2\,c^2\,C\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{7\,i\,b^2\,B\,c\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{8\,i\,a\,b\,c\,C\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{70\,i\,A\,b^2\,d^3\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{56\,i\,a\,b\,B\,d^3\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\left.\left.\frac{48\,i\,a^2\,C\,d^3\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 63: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\left(A+B\,x+C\,x^2\right)}{(a+b\,x)^{3/2}}\,dx$$

Optimal (type 4, 706 leaves, 9 steps):

$$\frac{1}{15\,b^3\,d\,f\,(b\,e-a\,f)}2\,\left(24\,a^2\,C\,d\,f^2-a\,b\,f\,(7\,C\,d\,e+c\,C\,f+20\,B\,d\,f)+b^2\,(5\,d\,f\,(B\,e+3\,A\,f)-C\,e\,(2\,d\,e-c\,f))\right)\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}+$$

$$\frac{2\,\left(6\,a^2\,C\,d\,f+b^2\,(c\,C\,e+5\,A\,d\,f)-a\,b\,(C\,d\,e+c\,C\,f+5\,B\,d\,f)\right)\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,(e+f\,x)^{3/2}}{5\,b^2\,(b\,c-a\,d)\,f\,(b\,e-a\,f)}-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)(c+d\,x)^{3/2}\,(e+f\,x)^{3/2}}{b\,(b\,c-a\,d)\,(b\,e-a\,f)\,\sqrt{a+b\,x}}+$$

$$\left(2\,\sqrt{-b\,c+a\,d}\,\left(48\,a^2\,C\,d^2\,f^2-8\,a\,b\,d\,f\,(C\,d\,e+c\,C\,f+5\,B\,d\,f)+b^2\,\left(5\,d\,f\,(B\,d\,e+B\,c\,f+6\,A\,d\,f)-2\,C\,\left(d^2\,e^2-c\,d\,e\,f+c^2\,f^2\right)\right)\right)\right.$$

$$\left.\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{e+f\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]\right)\Big/\left(15\,b^4\,d^{3/2}\,f^2\,\sqrt{c+d\,x}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}\right)-$$

$$\left(2\,\sqrt{-b\,c+a\,d}\,(d\,e-c\,f)\,\left(24\,a^2\,C\,d\,f^2-a\,b\,f\,(7\,C\,d\,e+c\,C\,f+20\,B\,d\,f)+b^2\,(5\,d\,f\,(B\,e+3\,A\,f)-C\,e\,(2\,d\,e-c\,f))\right)\right.$$

$$\left.\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]\right)\Big/\left(15\,b^4\,d^{3/2}\,f^2\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\right)$$

Result (type 4, 9487 leaves) :

$$\sqrt{a+b x}\,\sqrt{c+d x}\,\sqrt{e+f x}\left(\frac{2\,(b C d e+b c C f+5 b B d f-9 a C d f)}{15 b^3 d f}+\frac{2 C x}{5 b^2}-\frac{2\,(A b^2-a b B+a^2 C)}{b^3\,(a+b x)}\right)+\frac{1}{15 b^5 d f}$$

$$2\left(\left(\left(-2 b^2 C d^2 e^2+2 b^2 c C d e f+5 b^2 B d^2 e f-8 a b C d^2 e f-2 b^2 c^2 C f^2+5 b^2 B c d f^2-8 a b c C d f^2+30 A b^2 d^2 f^2-40 a b B d^2 f^2+48 a^2 C d^2 f^2\right)\right.\right.$$

$$\left.\left.(a+b x)^{3/2}\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\right)\Big/\left(d f\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\,\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\right)+\right.$$

$$\frac{1}{d f\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\,\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}}\,(a+b x)\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)}\left(\left(2\,\mathrm{i}\,b^4 c C d^2 e^3 f\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\right.\right.$$

$$\left.\left.\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\right/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(2\,\mathrm{i}\,a b^3 C d^3 e^3 f\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\right/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(2\,\mathbb{i}\,b^4\,c^2\,C\,d\,e^2\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(5\,\mathbb{i}\,b^4\,B\,c\,d^2\,e^2\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(8\,\mathbb{i}\,a\,b^3\,c\,C\,d^2\,e^2\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(5\,\mathbb{i}\,a\,b^3\,B\,d^3\,e^2\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(6\,i\,a^2 b^2 C d^3 e^2 f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(2\,i\,b^4 c^3 C e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(5\,i\,b^4 B c^2 d e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(8\, i\, a\, b^3 c^2 C\, d\, e\, f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(30\, i\, A\, b^4 c\, d^2 e\, f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(50\, i\, a\, b^3 B\, c\, d^2 e\, f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(66\, i\, a^2 b^2 c\, C\, d^2 e\, f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(30\,\mathbb{i}\,a A b^3 d^3 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(45\,\mathbb{i}\,a^2 b^2 B d^3 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(56\,\mathbb{i}\,a^3 b C d^3 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(2\,\mathbb{i}\,a\,b^3\,c^3\,C\,f^4\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(5\,\mathbb{i}\,a\,b^3\,B\,c^2\,d\,f^4\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(6\,\mathbb{i}\,a^2\,b^2\,c^2\,C\,d\,f^4\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(30\,\mathbb{i}\,a\,A\,b^3\,c\,d^2\,f^4\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(45\,i\,a^2\,b^2\,B\,c\,d^2\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\Bigg(56\,i\,a^3\,b\,c\,C\,d^2\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(30\,i\,a^2\,A\,b^2\,d^3\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(40\,i\,a^3\,b\,B\,d^3\,f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\mathrm{EllipticE}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(48\,i\,a^4\,C\,d^3\,f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\mathrm{EllipticE}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-$$

$$\frac{i\,b^3\,c\,C\,d^2\,e^2\,f\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{i\,a\,b^2\,C\,d^3\,e^2\,f\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}-$$

$$\frac{\mathbb{i}\, b^3 c^2 C\, d\, e\, f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{10\, \mathbb{i}\, b^3 B\, c\, d^2 e\, f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{16\, \mathbb{i}\, a\, b^2 c\, C\, d^2 e\, f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{15\, \mathbb{i}\, A\, b^3 d^3 e\, f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{25\, \mathbb{i}\, a\, b^2 B\, d^3 e\, f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{32\, \mathbb{i}\, a^2 b\, C\, d^3 e\, f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{\mathbb{i}\, a\, b^2\, c^2\, C\, d\, f^3 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\;\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{15\,\mathbb{i}\, A\, b^3\, c\, d^2\, f^3 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\;\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{25\,\mathbb{i}\, a\, b^2\, B\, c\, d^2\, f^3 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\;\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{32\,\mathbb{i}\, a^2\, b\, c\, C\, d^2\, f^3 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\;\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{30\,\mathbb{i}\, a\, A\, b^2\, d^3\, f^3 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\;\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{40\,\mathbb{i}\, a^2\, b\, B\, d^3\, f^3 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\;\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\left.\frac{48\, i\, a^3\, C\, d^3\, f^3\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right], \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 64: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\left(A+B\,x+C\,x^2\right)}{(a+b\,x)^{5/2}}\,dx$$

Optimal (type 4, 687 leaves, 9 steps):

$$\frac{2\left(8\,a^2\,C\,d\,f+b^2\,(c\,C\,e+3\,B\,c\,f+A\,d\,f)-a\,b\,(C\,d\,e+7\,c\,C\,f+4\,B\,d\,f)\right)\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}{3\,b^3\,(b\,c-a\,d)\,(b\,e-a\,f)}-$$
$$\frac{2\,(b\,B-2\,a\,C)\,\sqrt{c+d\,x}\,(e+f\,x)^{3/2}}{b^2\,(b\,e-a\,f)\,\sqrt{a+b\,x}}-\frac{2\left(A\,b^2-a\,(b\,B-a\,C)\right)(c+d\,x)^{3/2}\,(e+f\,x)^{3/2}}{3\,b\,(b\,c-a\,d)\,(b\,e-a\,f)\,(a+b\,x)^{3/2}}+$$
$$\left(2\left(16\,a^3\,C\,d^2\,f^2-8\,a^2\,b\,d\,f\,(B\,d\,f+2\,C\,(d\,e+c\,f))-b^3\left(c^2\,C\,e\,f+A\,d^2\,e\,f+c\,d\,\left(C\,e^2+6\,B\,e\,f+A\,f^2\right)\right)+a\,b^2\right.\right.$$
$$\left.\left.\left(d\,f\,(7\,B\,d\,e+7\,B\,c\,f+2\,A\,d\,f)+C\left(d^2\,e^2+16\,c\,d\,e\,f+c^2\,f^2\right)\right)\right)\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{e+f\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]\right)\Big/$$
$$\left(3\,b^4\,\sqrt{d}\,\sqrt{-b\,c+a\,d}\,f\,(b\,e-a\,f)\,\sqrt{c+d\,x}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}\right)+\left(2\,(d\,e-c\,f)\left(8\,a^2\,C\,d\,f+b^2\,(c\,C\,e+3\,B\,c\,f+A\,d\,f)-a\,b\,(C\,d\,e+7\,c\,C\,f+4\,B\,d\,f)\right)\right.$$
$$\left.\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]\right)\Big/\left(3\,b^4\,\sqrt{d}\,\sqrt{-b\,c+a\,d}\,f\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\right)$$

Result (type 4, 5831 leaves):

$$\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\left(\frac{2\,C}{3\,b^3}-\frac{2\left(A\,b^2-a\,b\,B+a^2\,C\right)}{3\,b^3\,(a+b\,x)^2}-\right.$$
$$\left(2\left(3\,b^3\,B\,c\,e-6\,a\,b^2\,c\,C\,e+A\,b^3\,d\,e-4\,a\,b^2\,B\,d\,e+7\,a^2\,b\,C\,d\,e+A\,b^3\,c\,f-4\,a\,b^2\,B\,c\,f+7\,a^2\,b\,c\,C\,f-2\,a\,A\,b^2\,d\,f+5\,a^2\,b\,B\,d\,f-8\,a^3\,C\,d\,f\right)\right)\Big/$$

$$\left(3\,b^3\,(b\,c-a\,d)\,(b\,e-a\,f)\,(a+b\,x)\right)\Big)-\frac{1}{3\,b^5\,(b\,c-a\,d)\,(b\,e-a\,f)}$$

$$2\Bigg(\Big(\big(-b^3\,c\,C\,d\,e^2+a\,b^2\,C\,d^2\,e^2-b^3\,c^2\,C\,e\,f-6\,b^3\,B\,c\,d\,e\,f+16\,a\,b^2\,c\,C\,d\,e\,f-A\,b^3\,d^2\,e\,f+7\,a\,b^2\,B\,d^2\,e\,f-16\,a^2\,b\,C\,d^2\,e\,f+a\,b^2\,c^2\,C\,f^2-A\,b^3\,c\,d\,f^2+$$

$$7\,a\,b^2\,B\,c\,d\,f^2-16\,a^2\,b\,c\,C\,d\,f^2+2\,a\,A\,b^2\,d^2\,f^2-8\,a^2\,b\,B\,d^2\,f^2+16\,a^3\,C\,d^2\,f^2\big)\,(a+b\,x)^{3/2}\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)\Big)\Big/$$

$$\left(d\,f\,\sqrt{c+\frac{(a+b\,x)\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}\right)+\frac{1}{d\,f\,\sqrt{c+\frac{(a+b\,x)\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}}$$

$$(-b\,c+a\,d)\,(-b\,e+a\,f)\,(a+b\,x)\,\sqrt{\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)}\,\Bigg(\Bigg(\mathbb{i}\,b^3\,c\,C\,d\,e^2\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(\mathbb{i}\,a\,b^2\,C\,d^2\,e^2\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(i\, b^3 c^2 C e f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(6\, i\, b^3 B c d e f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(16\, i\, a b^2 c C d e f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(i\, A\, b^3 d^2 e f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(7\,i\,a b^2 B d^2 e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(16\,i\,a^2 b C d^2 e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(i\,a b^2 c^2 C f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(\mathrm{i}\,A b^3 c d f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(7\,\mathrm{i}\,a b^2 B c d f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(16\,\mathrm{i}\,a^2 b c C d f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(2\,\mathrm{i}\,a A b^2 d^2 f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(8\,i\,a^2 b B d^2 f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(16\,i\,a^3 C d^2 f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-$$

$$\frac{2\,i\,b^2 c\,C d e f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}-$$

$$\frac{3\,i\,b^2\,B\,d^2\,e\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\,\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{8\,i\,a\,b\,C\,d^2\,e\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\,\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{3\,i\,b^2\,B\,c\,d\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\,\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{8\,i\,a\,b\,c\,C\,d\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\,\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{2\,i\,A\,b^2\,d^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\,\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{8\,i\,a\,b\,B\,d^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\,\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\left.\left.\frac{16\,\mathrm{i}\,a^2\,C\,d^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\,\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 65: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\left(A+B\,x+C\,x^2\right)}{(a+b\,x)^{7/2}}\,dx$$

Optimal (type 4, 964 leaves, 9 steps):

$$\left(2\,\left(24\,a^3\,C\,d^2\,f-a^2\,b\,d\,(23\,C\,d\,e+41\,c\,C\,f+4\,B\,d\,f)-b^3\,\left(15\,c^2\,C\,e-2\,A\,d^2\,e+c\,d\,(5\,B\,e+A\,f)\right)+a\,b^2\,\left(15\,c^2\,C\,f+d^2\,(3\,B\,e-A\,f)+c\,(40\,C\,d\,e+6\,B\,d\,f)\right)\right)\right.$$
$$\left.\sqrt{c+d\,x}\,\sqrt{e+f\,x}\right)\Big/\left(15\,b^3\,(b\,c-a\,d)^2\,(b\,e-a\,f)\,\sqrt{a+b\,x}\right)+$$
$$\left(2\,\left(6\,a^3\,C\,d\,f+a\,b^2\,(10\,c\,C\,e+3\,B\,d\,e+3\,B\,c\,f-4\,A\,d\,f)-b^3\,(5\,B\,c\,e-2\,A\,(d\,e+c\,f))-a^2\,b\,(B\,d\,f+8\,C\,(d\,e+c\,f))\right)\,\sqrt{c+d\,x}\,(e+f\,x)^{3/2}\right)\Big/$$
$$\left(15\,b^2\,(b\,c-a\,d)\,(b\,e-a\,f)^2\,(a+b\,x)^{3/2}\right)-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,(c+d\,x)^{3/2}\,(e+f\,x)^{3/2}}{5\,b\,(b\,c-a\,d)\,(b\,e-a\,f)\,(a+b\,x)^{5/2}}+$$
$$\frac{1}{15\,b^4\,(-b\,c+a\,d)^{3/2}\,(b\,e-a\,f)^2\,\sqrt{c+d\,x}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}}\,2\,\sqrt{d}\,\left(48\,a^4\,C\,d^2\,f^2-8\,a^3\,b\,d\,f\,(B\,d\,f+11\,C\,(d\,e+c\,f))-\right.$$
$$b^4\,\left(2\,A\,d^2\,e^2-c\,d\,e\,(5\,B\,e+2\,A\,f)-c^2\,\left(30\,C\,e^2+5\,B\,e\,f-2\,A\,f^2\right)\right)-a\,b^3\,\left(d^2\,e\,(3\,B\,e-2\,A\,f)+c^2\,f\,(70\,C\,e+3\,B\,f)+2\,c\,d\,\left(35\,C\,e^2+11\,B\,e\,f-A\,f^2\right)\right)+$$
$$\left.a^2\,b^2\,\left(2\,C\,\left(19\,d^2\,e^2+81\,c\,d\,e\,f+19\,c^2\,f^2\right)-d\,f\,(2\,A\,d\,f-13\,B\,(d\,e+c\,f))\right)\right)$$
$$\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{e+f\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\,\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]+\left(2\,(d\,e-c\,f)\right.$$
$$\left(24\,a^3\,C\,d^2\,f-a^2\,b\,d\,(23\,C\,d\,e+41\,c\,C\,f+4\,B\,d\,f)-b^3\,\left(15\,c^2\,C\,e-2\,A\,d^2\,e+c\,d\,(5\,B\,e+A\,f)\right)+a\,b^2\,\left(15\,c^2\,C\,f+d^2\,(3\,B\,e-A\,f)+c\,(40\,C\,d\,e+6\,B\,d\,f)\right)\right)$$
$$\left.\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\,\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]\right)\Big/\left(15\,b^4\,\sqrt{d}\,(-b\,c+a\,d)^{3/2}\,(b\,e-a\,f)\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\right)$$

Result (type 4, 9529 leaves):

$$\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\left(-\frac{2\,\left(A\,b^2-a\,b\,B+a^2\,C\right)}{5\,b^3\,(a+b\,x)^3}-\right.$$
$$\left(2\,\left(5\,b^3\,B\,c\,e-10\,a\,b^2\,c\,C\,e+A\,b^3\,d\,e-6\,a\,b^2\,B\,d\,e+11\,a^2\,b\,C\,d\,e+A\,b^3\,c\,f-6\,a\,b^2\,B\,c\,f+11\,a^2\,b\,c\,C\,f-2\,a\,A\,b^2\,d\,f+7\,a^2\,b\,B\,d\,f-12\,a^3\,C\,d\,f\right)\right)\Big/$$

$$\left(15 b^3 (b c - a d) (b e - a f) (a + b x)^2\right) - \frac{1}{15 b^3 (b c - a d)^2 (b e - a f)^2 (a + b x)}$$

$$2 \big(15 b^4 c^2 C e^2 + 5 b^4 B c d e^2 - 40 a b^3 c C d e^2 - 2 A b^4 d^2 e^2 - 3 a b^3 B d^2 e^2 + 23 a^2 b^2 C d^2 e^2 + 5 b^4 B c^2 e f - 40 a b^3 c^2 C e f + 2 A b^4 c d e f - 22 a b^3 B c d e f + 102 a^2 b^2 c C d e f + 2 a A b^3 d^2 e f + 13 a^2 b^2 B d^2 e f - 58 a^3 b C d^2 e f - 2 A b^4 c^2 f^2 - 3 a b^3 B c^2 f^2 + 23 a^2 b^2 c^2 C f^2 + 2 a A b^3 c d f^2 + 13 a^2 b^2 B c d f^2 - 58 a^3 b c C d f^2 - 2 a^2 A b^2 d^2 f^2 - 8 a^3 b B d^2 f^2 + 33 a^4 C d^2 f^2\big) + \frac{1}{15 b^5 (b c - a d)^2 (b e - a f)^2}$$

$$2 \Bigg(\frac{1}{\sqrt{c + \frac{(a+b x) \left(d - \frac{a d}{a+b x}\right)}{b}} \sqrt{e + \frac{(a+b x) \left(f - \frac{a f}{a+b x}\right)}{b}}} \big(30 b^4 c^2 C e^2 + 5 b^4 B c d e^2 - 70 a b^3 c C d e^2 - 2 A b^4 d^2 e^2 - 3 a b^3 B d^2 e^2 + 38 a^2 b^2 C d^2 e^2 + 5 b^4 B c^2 e f - 70 a b^3 c^2 C e f + 2 A b^4 c d e f - 22 a b^3 B c d e f + 162 a^2 b^2 c C d e f + 2 a A b^3 d^2 e f + 13 a^2 b^2 B d^2 e f - 88 a^3 b C d^2 e f - 2 A b^4 c^2 f^2 - 3 a b^3 B c^2 f^2 + 38 a^2 b^2 c^2 C f^2 + 2 a A b^3 c d f^2 + 13 a^2 b^2 B c d f^2 - 88 a^3 b c C d f^2 - 2 a^2 A b^2 d^2 f^2 - 8 a^3 b B d^2 f^2 + 48 a^4 C d^2 f^2\big)$$

$$(a + b x)^{3/2} \left(d + \frac{b c}{a + b x} - \frac{a d}{a + b x}\right) \left(f + \frac{b e}{a + b x} - \frac{a f}{a + b x}\right) - \frac{1}{\sqrt{c + \frac{(a+b x) \left(d - \frac{a d}{a+b x}\right)}{b}} \sqrt{e + \frac{(a+b x) \left(f - \frac{a f}{a+b x}\right)}{b}}}$$

$$(b c - a d) (b e - a f) (a + b x) \sqrt{\left(d + \frac{b c}{a + b x} - \frac{a d}{a + b x}\right) \left(f + \frac{b e}{a + b x} - \frac{a f}{a + b x}\right)} \Bigg(\Bigg(30 \, i \, b^4 c^2 C e^2 f \sqrt{1 - \frac{-b c + a d}{d (a + b x)}} \sqrt{1 - \frac{-b e + a f}{f (a + b x)}}$$

$$\left(\text{EllipticE}\left[i \, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a + b x}}\right], \frac{d (-b e + a f)}{(-b c + a d) f}\right] - \text{EllipticF}\left[i \, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a + b x}}\right], \frac{d (-b e + a f)}{(-b c + a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c + a d}{d}} (-b e + a f) \sqrt{\left(d + \frac{b c - a d}{a + b x}\right) \left(f + \frac{b e - a f}{a + b x}\right)}\right) + \Bigg(5 \, i \, b^4 B c d e^2 f \sqrt{1 - \frac{-b c + a d}{d (a + b x)}} \sqrt{1 - \frac{-b e + a f}{f (a + b x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\ \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\ \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\ (-b\,e+a\,f)\ \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(70\,\mathbb{i}\,a\,b^3\,c\,C\,d\,e^2\,f\ \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\ \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\ \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\ \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\ (-b\,e+a\,f)\ \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(2\,\mathbb{i}\,A\,b^4\,d^2\,e^2\,f\ \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\ \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\ \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\ \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\ (-b\,e+a\,f)\ \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(3\,\mathbb{i}\,a\,b^3\,B\,d^2\,e^2\,f\ \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\ \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\ \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\ \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\left(-b e+a f\right)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(38\, i\, a^2 b^2 C d^2 e^2 f\sqrt{1-\frac{-b c+a d}{d\left(a+b x\right)}}\sqrt{1-\frac{-b e+a f}{f\left(a+b x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\left(-b e+a f\right)}{\left(-b c+a d\right)f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\left(-b e+a f\right)}{\left(-b c+a d\right)f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\left(-b e+a f\right)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(5\, i\, b^4 B c^2 e f^2\sqrt{1-\frac{-b c+a d}{d\left(a+b x\right)}}\sqrt{1-\frac{-b e+a f}{f\left(a+b x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\left(-b e+a f\right)}{\left(-b c+a d\right)f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\left(-b e+a f\right)}{\left(-b c+a d\right)f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\left(-b e+a f\right)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(70\, i\, a b^3 c^2 C e f^2\sqrt{1-\frac{-b c+a d}{d\left(a+b x\right)}}\sqrt{1-\frac{-b e+a f}{f\left(a+b x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\left(-b e+a f\right)}{\left(-b c+a d\right)f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\left(-b e+a f\right)}{\left(-b c+a d\right)f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\left(-b e+a f\right)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(2\, i\, A b^4 c d e f^2\sqrt{1-\frac{-b c+a d}{d\left(a+b x\right)}}\sqrt{1-\frac{-b e+a f}{f\left(a+b x\right)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(22\,i\,a\,b^3\,B\,c\,d\,e\,f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(162\,i\,a^2\,b^2\,c\,C\,d\,e\,f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(2\,i\,a\,A\,b^3\,d^2\,e\,f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(13\,\mathrm{i}\,a^2 b^2 B d^2 e f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(88\,\mathrm{i}\,a^3 b C d^2 e f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(2\,\mathrm{i}\,A b^4 c^2 f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(3\,\mathrm{i}\,a b^3 B c^2 f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(38\,i\,a^2 b^2 c^2 C f^3\,\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(2\,i\,a A b^3 c d f^3\,\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(13\,i\,a^2 b^2 B c d f^3\,\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(88\,\mathbb{i}\,a^3\,b\,c\,C\,d\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(2\,\mathbb{i}\,a^2\,A\,b^2\,d^2\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(8\,\mathbb{i}\,a^3\,b\,B\,d^2\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(48\,\mathbb{i}\,a^4\,C\,d^2\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-$$

$$\frac{15\,\text{i}\,b^3 c\,C\,d\,e^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{15\,\text{i}\,a\,b^2\,C\,d^2\,e^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}-$$

$$\frac{15\,\text{i}\,b^3 c^2\,C\,e\,f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}-$$

$$\frac{10\,\text{i}\,b^3\,B\,c\,d\,e\,f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{80\,\text{i}\,a\,b^2 c\,C\,d\,e\,f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{\mathrm{i}\, A\, b^3\, d^2\, e\, f\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right], \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}} +$$

$$\frac{9\,\mathrm{i}\, a\, b^2\, B\, d^2\, e\, f\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right], \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}} -$$

$$\frac{64\,\mathrm{i}\, a^2\, b\, C\, d^2\, e\, f\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right], \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}} +$$

$$\frac{15\,\mathrm{i}\, a\, b^2\, c^2\, C\, f^2\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right], \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}} +$$

$$\frac{\mathrm{i}\, A\, b^3\, c\, d\, f^2\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right], \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}} +$$

$$\frac{9\,\mathrm{i}\, a\, b^2\, B\, c\, d\, f^2\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right], \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}} -$$

$$\frac{64\,i\,a^2\,b\,c\,C\,d\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{2\,i\,a\,A\,b^2\,d^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{8\,i\,a^2\,b\,B\,d^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\left.\left.\frac{48\,i\,a^3\,C\,d^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 66: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\left(A+B\,x+C\,x^2\right)}{(a+b\,x)^{9/2}}\,dx$$

Optimal (type 4, 1716 leaves, 10 steps):

$$-\frac{1}{105\,b^3\,(b\,c-a\,d)^2\,(b\,e-a\,f)^2\,(a+b\,x)^{3/2}}$$
$$2\,\left(24\,a^4\,C\,d^2\,f^2-a^3\,b\,d\,f\,(61\,C\,d\,e+43\,c\,C\,f-4\,B\,d\,f)-3\,a\,b^3\,\left(d^2\,e\,(B\,e-3\,A\,f)+2\,c^2\,f\,(7\,C\,e-B\,f)+c\,d\,\left(28\,C\,e^2-5\,B\,e\,f+5\,A\,f^2\right)\right)-\right.$$
$$\left.b^4\,\left(4\,A\,d^2\,e^2-c\,d\,e\,(7\,B\,e-A\,f)-c^2\,\left(35\,C\,e^2-14\,B\,e\,f+8\,A\,f^2\right)\right)-3\,a^2\,b^2\,\left(d\,f\,(3\,B\,d\,e+2\,B\,c\,f-A\,d\,f)-C\,\left(15\,d^2\,e^2+37\,c\,d\,e\,f+5\,c^2\,f^2\right)\right)\right)$$
$$\sqrt{c+d\,x}\,\sqrt{e+f\,x}+\frac{1}{105\,b^3\,(b\,c-a\,d)^3\,(b\,e-a\,f)^3\,\sqrt{a+b\,x}}2\,\left(48\,a^5\,C\,d^3\,f^3+8\,a^4\,b\,d^2\,f^2\,(B\,d\,f-16\,C\,(d\,e+c\,f))-\right.$$
$$b^5\,\left(8\,A\,d^3\,e^3-c\,d^2\,e^2\,(14\,B\,e+5\,A\,f)+c^2\,d\,e\,\left(35\,C\,e^2+14\,B\,e\,f-5\,A\,f^2\right)+c^3\,f\,\left(35\,C\,e^2-14\,B\,e\,f+8\,A\,f^2\right)\right)-$$
$$a\,b^4\,\left(d^3\,e^2\,(6\,B\,e-19\,A\,f)-6\,c^3\,f^2\,(7\,C\,e-B\,f)-c^2\,d\,f\,\left(238\,C\,e^2-19\,f\,(B\,e-A\,f)\right)-c\,d^2\,e\,\left(42\,C\,e^2-f\,(19\,B\,e+20\,A\,f)\right)\right)+$$
$$a^3\,b^2\,d\,f\,\left(C\,\left(103\,d^2\,e^2+344\,c\,d\,e\,f+103\,c^2\,f^2\right)+d\,f\,(6\,A\,d\,f-19\,B\,(d\,e+c\,f))\right)-$$
$$\left.3\,a^2\,b^3\,\left(C\,\left(5\,d^3\,e^3+94\,c\,d^2\,e^2\,f+94\,c^2\,d\,e\,f^2+5\,c^3\,f^3\right)+d\,f\,\left(3\,A\,d\,f\,(d\,e+c\,f)-B\,\left(3\,d^2\,e^2+16\,c\,d\,e\,f+3\,c^2\,f^2\right)\right)\right)\right)\sqrt{c+d\,x}\,\sqrt{e+f\,x}+$$
$$\left(2\,\left(6\,a^3\,C\,d\,f+a\,b^2\,(14\,c\,C\,e+3\,B\,d\,e+3\,B\,c\,f-8\,A\,d\,f)-b^3\,(7\,B\,c\,e-4\,A\,(d\,e+c\,f))+a^2\,b\,(B\,d\,f-10\,C\,(d\,e+c\,f))\right)\sqrt{c+d\,x}\,(e+f\,x)^{3/2}\right)\Big/$$
$$\left(35\,b^2\,(b\,c-a\,d)\,(b\,e-a\,f)^2\,(a+b\,x)^{5/2}\right)-$$
$$\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,(c+d\,x)^{3/2}\,(e+f\,x)^{3/2}}{7\,b\,(b\,c-a\,d)\,(b\,e-a\,f)\,(a+b\,x)^{7/2}}+$$
$$\frac{1}{105\,b^4\,(-b\,c+a\,d)^{5/2}\,(b\,e-a\,f)^3\,\sqrt{c+d\,x}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}}$$
$$2\,\sqrt{d}\,\left(48\,a^5\,C\,d^3\,f^3+8\,a^4\,b\,d^2\,f^2\,(B\,d\,f-16\,C\,(d\,e+c\,f))-\right.$$
$$b^5\,\left(8\,A\,d^3\,e^3-c\,d^2\,e^2\,(14\,B\,e+5\,A\,f)+c^2\,d\,e\,\left(35\,C\,e^2+14\,B\,e\,f-5\,A\,f^2\right)+c^3\,f\,\left(35\,C\,e^2-14\,B\,e\,f+8\,A\,f^2\right)\right)-$$
$$a\,b^4\,\left(d^3\,e^2\,(6\,B\,e-19\,A\,f)-6\,c^3\,f^2\,(7\,C\,e-B\,f)-c^2\,d\,f\,\left(238\,C\,e^2-19\,f\,(B\,e-A\,f)\right)-c\,d^2\,e\,\left(42\,C\,e^2-f\,(19\,B\,e+20\,A\,f)\right)\right)+$$
$$a^3\,b^2\,d\,f\,\left(C\,\left(103\,d^2\,e^2+344\,c\,d\,e\,f+103\,c^2\,f^2\right)+d\,f\,(6\,A\,d\,f-19\,B\,(d\,e+c\,f))\right)-$$
$$\left.3\,a^2\,b^3\,\left(C\,\left(5\,d^3\,e^3+94\,c\,d^2\,e^2\,f+94\,c^2\,d\,e\,f^2+5\,c^3\,f^3\right)+d\,f\,\left(3\,A\,d\,f\,(d\,e+c\,f)-B\,\left(3\,d^2\,e^2+16\,c\,d\,e\,f+3\,c^2\,f^2\right)\right)\right)\right)$$
$$\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{e+f\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]+\frac{1}{105\,b^4\,(-b\,c+a\,d)^{5/2}\,(b\,e-a\,f)^2\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}$$
$$2\,\sqrt{d}\,(d\,e-c\,f)\,\left(24\,a^4\,C\,d^2\,f^2-a^3\,b\,d\,f\,(43\,C\,d\,e+61\,c\,C\,f-4\,B\,d\,f)+b^4\,\left(8\,A\,d^2\,e^2-c\,d\,e\,(14\,B\,e+A\,f)+c^2\,\left(35\,C\,e^2+7\,B\,e\,f-4\,A\,f^2\right)\right)+3\,a\,b^3\right.$$
$$\left.\left(d^2\,e\,(2\,B\,e-5\,A\,f)-c^2\,f\,(28\,C\,e+B\,f)-c\,d\,\left(14\,C\,e^2-5\,B\,e\,f-3\,A\,f^2\right)\right)-3\,a^2\,b^2\,\left(d\,f\,(2\,B\,d\,e+3\,B\,c\,f-A\,d\,f)-C\,\left(5\,d^2\,e^2+37\,c\,d\,e\,f+15\,c^2\,f^2\right)\right)\right)$$
$$\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]$$

Result (type 4, 15 719 leaves) :

$$\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\left(-\frac{2\,\left(A\,b^2-a\,b\,B+a^2\,C\right)}{7\,b^3\,(a+b\,x)^4}-\right.$$
$$\left(2\,\left(7\,b^3\,B\,c\,e-14\,a\,b^2\,c\,C\,e+A\,b^3\,d\,e-8\,a\,b^2\,B\,d\,e+15\,a^2\,b\,C\,d\,e+A\,b^3\,c\,f-8\,a\,b^2\,B\,c\,f+15\,a^2\,b\,c\,C\,f-2\,a\,A\,b^2\,d\,f+9\,a^2\,b\,B\,d\,f-16\,a^3\,C\,d\,f\right)\right)\Big/$$

$$\left(35 b^3 (b c-a d) (b e-a f) (a+b x)^3\right)-\frac{1}{105 b^3 (b c-a d)^2 (b e-a f)^2 (a+b x)^2}$$

$$2 \left(35 b^4 c^2 C e^2+7 b^4 B c d e^2-84 a b^3 c C d e^2-4 A b^4 d^2 e^2-3 a b^3 B d^2 e^2+45 a^2 b^2 C d^2 e^2+7 b^4 B c^2 e f-84 a b^3 c^2 C e f+2 A b^4 c d e f-30 a b^3 B c d e f+198 a^2 b^2 c C d e f+6 a A b^3 d^2 e f+15 a^2 b^2 B d^2 e f-106 a^3 b C d^2 e f-4 A b^4 c^2 f^2-3 a b^3 B c^2 f^2+45 a^2 b^2 c^2 C f^2+6 a A b^3 c d f^2+15 a^2 b^2 B c d f^2-106 a^3 b c C d f^2-6 a^2 A b^2 d^2 f^2-8 a^3 b B d^2 f^2+57 a^4 C d^2 f^2\right)-\frac{1}{105 b^3 (b c-a d)^3 (b e-a f)^3 (a+b x)}$$

$$2 \left(35 b^5 c^2 C d e^3-14 b^5 B c d^2 e^3-42 a b^4 c C d^2 e^3+8 A b^5 d^3 e^3+6 a b^4 B d^3 e^3+15 a^2 b^3 C d^3 e^3+35 b^5 c^3 C e^2 f+14 b^5 B c^2 d e^2 f-238 a b^4 c^2 C d e^2 f-5 A b^5 c d^2 e^2 f+19 a b^4 B c d^2 e^2 f+282 a^2 b^3 c C d^2 e^2 f-19 a A b^4 d^3 e^2 f-9 a^2 b^3 B d^3 e^2 f-103 a^3 b^2 C d^3 e^2 f-14 b^5 B c^3 e f^2-42 a b^4 c^3 C e f^2-5 A b^5 c^2 d e f^2+19 a b^4 B c^2 d e f^2+282 a^2 b^3 c^2 C d e f^2+20 a A b^4 c d^2 e f^2-48 a^2 b^3 B c d^2 e f^2-344 a^3 b^2 c C d^2 e f^2+9 a^2 A b^3 d^3 e f^2+19 a^3 b^2 B d^3 e f^2+128 a^4 b C d^3 e f^2+8 A b^5 c^3 f^3+6 a b^4 B c^3 f^3+15 a^2 b^3 c^3 C f^3-19 a A b^4 c^2 d f^3-9 a^2 b^3 B c^2 d f^3-103 a^3 b^2 c^2 C d f^3+9 a^2 A b^3 c d^2 f^3+19 a^3 b^2 B c d^2 f^3+128 a^4 b c C d^2 f^3-6 a^3 A b^2 d^3 f^3-8 a^4 b B d^3 f^3-48 a^5 C d^3 f^3\right)\Bigg)-$$

$$\frac{1}{105 b^5 (b c-a d)^3 (b e-a f)^3}\, 2 d f \left(\frac{1}{d f \sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}} \sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}}\right.$$

$$\left(-35 b^5 c^2 C d e^3+14 b^5 B c d^2 e^3+42 a b^4 c C d^2 e^3-8 A b^5 d^3 e^3-6 a b^4 B d^3 e^3-15 a^2 b^3 C d^3 e^3-35 b^5 c^3 C e^2 f-14 b^5 B c^2 d e^2 f+238 a b^4 c^2 C d e^2 f+5 A b^5 c d^2 e^2 f-19 a b^4 B c d^2 e^2 f-282 a^2 b^3 c C d^2 e^2 f+19 a A b^4 d^3 e^2 f+9 a^2 b^3 B d^3 e^2 f+103 a^3 b^2 C d^3 e^2 f+14 b^5 B c^3 e f^2+42 a b^4 c^3 C e f^2+5 A b^5 c^2 d e f^2-19 a b^4 B c^2 d e f^2-282 a^2 b^3 c^2 C d e f^2-20 a A b^4 c d^2 e f^2+48 a^2 b^3 B c d^2 e f^2+344 a^3 b^2 c C d^2 e f^2-9 a^2 A b^3 d^3 e f^2-19 a^3 b^2 B d^3 e f^2-128 a^4 b C d^3 e f^2-8 A b^5 c^3 f^3-6 a b^4 B c^3 f^3-15 a^2 b^3 c^3 C f^3+19 a A b^4 c^2 d f^3+9 a^2 b^3 B c^2 d f^3+103 a^3 b^2 c^2 C d f^3-9 a^2 A b^3 c d^2 f^3-19 a^3 b^2 B c d^2 f^3-128 a^4 b c C d^2 f^3+6 a^3 A b^2 d^3 f^3+8 a^4 b B d^3 f^3+48 a^5 C d^3 f^3\right)$$

$$(a+b x)^{3/2} \left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right) \left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)+\frac{1}{d f \sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}} \sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}}$$

$$(-b c+a d) (-b e+a f) (a+b x) \sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right) \left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)} \left(\left(35\, i\, b^5 c^2 C d e^3 f \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.\right.$$

$$\left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(14\,\mathrm{i}\,b^5\,B\,c\,d^2\,e^3\,f\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(42\,\mathrm{i}\,a\,b^4\,c\,C\,d^2\,e^3\,f\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(8\,\mathrm{i}\,A\,b^5\,d^3\,e^3\,f\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(6\,\mathrm{i}\,a\,b^4\,B\,d^3\,e^3\,f\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(15\,\mathrm{i}\,a^2 b^3 C d^3 e^3 f\ \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(35\,\mathrm{i}\,b^5 c^3 C e^2 f^2\ \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(14\,\mathrm{i}\,b^5 B c^2 d e^2 f^2\ \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(238\, i\, a\, b^4 c^2 C\, d\, e^2 f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(5\, i\, A\, b^5 c\, d^2 e^2 f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(19\, i\, a\, b^4 B\, c\, d^2 e^2 f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(282\, i\, a^2 b^3 c\, C\, d^2 e^2 f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(19\,i\,a A b^4 d^3 e^2 f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(9\,i\,a^2 b^3 B d^3 e^2 f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(103\,i\,a^3 b^2 C d^3 e^2 f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(14\,\mathrm{i}\,b^5\,B\,c^3\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(42\,\mathrm{i}\,a\,b^4\,c^3\,C\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(5\,\mathrm{i}\,A\,b^5\,c^2\,d\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(19\,\mathrm{i}\,a\,b^4\,B\,c^2\,d\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\Bigg(282\,i\,a^2\,b^3\,c^2\,C\,d\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\Bigg(20\,i\,a\,A\,b^4\,c\,d^2\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(48\,i\,a^2\,b^3\,B\,c\,d^2\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(344\,i\,a^3\,b^2\,c\,C\,d^2\,e\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(9\,i\,a^2\,A\,b^3\,d^3\,e\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(19\,i\,a^3\,b^2\,B\,d^3\,e\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(128\,i\,a^4\,b\,C\,d^3\,e\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\Bigg(8\,i\,A\,b^5\,c^3\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\Bigg(6\,i\,a\,b^4\,B\,c^3\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\Bigg(15\,i\,a^2\,b^3\,c^3\,C\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(19\,\mathrm{i}\,a\,A\,b^4\,c^2\,d\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(9\,\mathrm{i}\,a^2\,b^3\,B\,c^2\,d\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(103\,\mathrm{i}\,a^3\,b^2\,c^2\,C\,d\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(9\,\mathrm{i}\,a^2\,A\,b^3\,c\,d^2\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(19\,i\,a^3 b^2 B c d^2 f^4\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(128\,i\,a^4 b c C d^2 f^4\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(6\,i\,a^3 A b^2 d^3 f^4\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(8\ \mathrm{i}\ a^4 b B d^3 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d (-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d (-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(48\ \mathrm{i}\ a^5 C d^3 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d (-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d (-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-$$

$$\frac{70\ \mathrm{i}\ b^4 c^2 C d e^2 f \sqrt{1-\frac{-b c+a d}{d (a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\ \text{EllipticF}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{7\ \mathrm{i}\ b^4 B c d^2 e^2 f \sqrt{1-\frac{-b c+a d}{d (a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\ \text{EllipticF}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{126\, i\, a\, b^3\, c\, C\, d^2\, e^2\, f\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\, \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{4\, i\, A\, b^4\, d^3\, e^2\, f\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\, \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{3\, i\, a\, b^3\, B\, d^3\, e^2\, f\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\, \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{60\, i\, a^2\, b^2\, C\, d^3\, e^2\, f\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\, \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{7\, i\, b^4\, B\, c^2\, d\, e\, f^2\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\, \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{126\, i\, a\, b^3\, c^2\, C\, d\, e\, f^2\, \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\, \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\, \frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\, \sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{2\, i\, A\, b^4\, c\, d^2\, e\, f^2 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}} \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\ \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}} -$$

$$\frac{30\, i\, a\, b^3\, B\, c\, d^2\, e\, f^2 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}} \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\ \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}} -$$

$$\frac{222\, i\, a^2\, b^2\, c\, C\, d^2\, e\, f^2 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}} \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\ \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}} +$$

$$\frac{6\, i\, a\, A\, b^3\, d^3\, e\, f^2 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}} \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\ \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}} +$$

$$\frac{15\, i\, a^2\, b^2\, B\, d^3\, e\, f^2 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}} \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\ \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}} +$$

$$\frac{104\, i\, a^3\, b\, C\, d^3\, e\, f^2 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}} \sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\ \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}} -$$

$$\frac{4\,\mathrm{i}\,A\,b^4\,c^2\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{3\,\mathrm{i}\,a\,b^3\,B\,c^2\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{60\,\mathrm{i}\,a^2\,b^2\,c^2\,C\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{6\,\mathrm{i}\,a\,A\,b^3\,c\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{15\,\mathrm{i}\,a^2\,b^2\,B\,c\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{104\,\mathrm{i}\,a^3\,b\,c\,C\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{6\,i\,a^2 A\,b^2 d^3 f^3 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{8\,i\,a^3 b\,B\,d^3 f^3 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\left.\left.\frac{48\,i\,a^4 C\,d^3 f^3 \sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 67: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,x)^{3/2}\,\sqrt{c+d\,x}\,\left(A+B\,x+C\,x^2\right)}{\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 1235 leaves, 10 steps) :

$$-\frac{1}{945\, b^2 d^3 f^4} 2 \left(5\, b\, d\, f\, \left(7\, a\, d\, f\, \left(5\, b\, c\, C\, e + 3\, a\, C\, d\, e + a\, c\, C\, f - 9\, A\, b\, d\, f\right) - \left(3\, b\, c\, e + 3\, a\, d\, e + a\, c\, f\right) \left(4\, a\, C\, d\, f + b\, \left(8\, C\, d\, e + 6\, c\, C\, f - 9\, B\, d\, f\right)\right)\right) + 2 \left(\frac{a\, d\, f}{2} - b\, \left(2\, d\, e + c\, f\right)\right) \left(7\, b\, d\, f\, \left(5\, b\, c\, C\, e + 3\, a\, C\, d\, e + a\, c\, C\, f - 9\, A\, b\, d\, f\right) - \left(6\, b\, d\, e + 4\, b\, c\, f - 3\, a\, d\, f\right) \left(4\, a\, C\, d\, f + b\, \left(8\, C\, d\, e + 6\, c\, C\, f - 9\, B\, d\, f\right)\right)\right)\right) \sqrt{a + b\, x}\, \sqrt{c + d\, x}\, \sqrt{e + f\, x} - \frac{1}{315\, b\, d^3 f^3} 2 \left(7\, b\, d\, f\, \left(5\, b\, c\, C\, e + 3\, a\, C\, d\, e + a\, c\, C\, f - 9\, A\, b\, d\, f\right) - \left(6\, b\, d\, e + 4\, b\, c\, f - 3\, a\, d\, f\right) \left(4\, a\, C\, d\, f + b\, \left(8\, C\, d\, e + 6\, c\, C\, f - 9\, B\, d\, f\right)\right)\right) \sqrt{a + b\, x}\, \left(c + d\, x\right)^{3/2} \sqrt{e + f\, x} - \frac{2 \left(4\, a\, C\, d\, f + b\, \left(8\, C\, d\, e + 6\, c\, C\, f - 9\, B\, d\, f\right)\right) \left(a + b\, x\right)^{3/2} \left(c + d\, x\right)^{3/2} \sqrt{e + f\, x}}{63\, b\, d^2 f^2} + \frac{2\, C\, \left(a + b\, x\right)^{5/2} \left(c + d\, x\right)^{3/2} \sqrt{e + f\, x}}{9\, b\, d\, f} +$$

$$\frac{1}{315\, b^3 d^{7/2} f^5 \sqrt{c + d\, x}\, \sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}} 2 \sqrt{-b\, c + a\, d}\, \left(8\, a^4 C\, d^4 f^4 + a^3 b\, d^3 f^3 \left(11\, C\, d\, e - 7\, c\, C\, f - 18\, B\, d\, f\right) - 3\, a^2 b^2 d^2 f^2 \left(3\, d\, f\, \left(4\, B\, d\, e - 3\, B\, c\, f - 7\, A\, d\, f\right) - C\, \left(9\, d^2 e^2 - 5\, c\, d\, e\, f - 3\, c^2 f^2\right)\right) - a\, b^3 d\, f\, \left(2\, C\, \left(92\, d^3 e^3 - 33\, c\, d^2 e^2 f - 18\, c^2 d\, e\, f^2 - 16\, c^3 f^3\right) + 3\, d\, f\, \left(7\, A\, d\, f\, \left(13\, d\, e - 7\, c\, f\right) - B\, \left(72\, d^2 e^2 - 29\, c\, d\, e\, f - 19\, c^2 f^2\right)\right)\right) + b^4 \left(C\, \left(128\, d^4 e^4 - 40\, c\, d^3 e^3 f - 21\, c^2 d^2 e^2 f^2 - 16\, c^3 d\, e\, f^3 - 16\, c^4 f^4\right) + 3\, d\, f\, \left(7\, A\, d\, f\, \left(8\, d^2 e^2 - 3\, c\, d\, e\, f - 2\, c^2 f^2\right) - B\, \left(48\, d^3 e^3 - 16\, c\, d^2 e^2 f - 9\, c^2 d\, e\, f^2 - 8\, c^3 f^3\right)\right)\right)\right) \sqrt{\frac{b\, \left(c + d\, x\right)}{b\, c - a\, d}}\, \sqrt{e + f\, x}$$

$$\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\, \sqrt{a + b\, x}}{\sqrt{-b\, c + a\, d}}\right], \frac{\left(b\, c - a\, d\right) f}{d\, \left(b\, e - a\, f\right)}\right] + \frac{1}{315\, b^3 d^{7/2} f^5 \sqrt{c + d\, x}\, \sqrt{e + f\, x}} 2 \sqrt{-b\, c + a\, d}\, \left(b\, e - a\, f\right) \left(d\, e - c\, f\right) \left(4\, a^3 C\, d^3 f^3 + 3\, a^2 b\, d^2 f^2 \left(3\, C\, d\, e - c\, C\, f - 3\, B\, d\, f\right) - 3\, a\, b^2 d\, f\, \left(3\, d\, f\, \left(16\, B\, d\, e + 3\, B\, c\, f - 21\, A\, d\, f\right) - 5\, C\, \left(8\, d^2 e^2 + 2\, c\, d\, e\, f + c^2 f^2\right)\right) - b^3 \left(C\, \left(128\, d^3 e^3 + 24\, c\, d^2 e^2 f + 15\, c^2 d\, e\, f^2 + 8\, c^3 f^3\right) + 3\, d\, f\, \left(7\, A\, d\, f\, \left(8\, d\, e + c\, f\right) - 4\, B\, \left(12\, d^2 e^2 + 2\, c\, d\, e\, f + c^2 f^2\right)\right)\right)\right) \sqrt{\frac{b\, \left(c + d\, x\right)}{b\, c - a\, d}}\, \sqrt{\frac{b\, \left(e + f\, x\right)}{b\, e - a\, f}}\, \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\, \sqrt{a + b\, x}}{\sqrt{-b\, c + a\, d}}\right], \frac{\left(b\, c - a\, d\right) f}{d\, \left(b\, e - a\, f\right)}\right]$$

Result (type 4, 12483 leaves):

$$\sqrt{a + b\, x}\, \sqrt{c + d\, x}\, \sqrt{e + f\, x} \left(-\frac{1}{315\, b^2 d^3 f^4} 2 \left(64\, b^3 C\, d^3 e^3 - 12\, b^3 c\, C\, d^2 e^2 f - 72\, b^3 B\, d^3 e^2 f - 84\, a\, b^2 C\, d^3 e^2 f - 9\, b^3 c^2 C\, d\, e\, f^2 + 15\, b^3 B\, c\, d^2 e\, f^2 + 19\, a\, b^2 c\, C\, d^2 e\, f^2 + 84\, A\, b^3 d^3 e\, f^2 + 99\, a\, b^2 B\, d^3 e\, f^2 + 6\, a^2 b\, C\, d^3 e\, f^2 - 8\, b^3 c^3 C\, f^3 + 12\, b^3 B\, c^2 d\, f^3 + 15\, a\, b^2 c^2 C\, d\, f^3 - 21\, A\, b^3 c\, d^2 f^3 - 27\, a\, b^2 B\, c\, d^2 f^3 - 3\, a^2 b\, c\, C\, d^2 f^3 - 126\, a\, A\, b^2 d^3 f^3 - 9\, a^2 b\, B\, d^3 f^3 + 4\, a^3 C\, d^3 f^3\right) + \frac{1}{315\, b\, d^2 f^3} 2 \left(48\, b^2 C\, d^2 e^2 - 7\, b^2 c\, C\, d\, e\, f - 54\, b^2 B\, d^2 e\, f - 61\, a\, b\, C\, d^2 e\, f - 6\, b^2 c^2 C\, f^2 + 9\, b^2 B\, c\, d\, f^2 + 11\, a\, b\, c\, C\, d\, f^2 + 63\, A\, b^2 d^2 f^2 + 72\, a\, b\, B\, d^2 f^2 + 3\, a^2 C\, d^2 f^2\right) x +\right.$$

$$\frac{2\left(-8\,b\,C\,d\,e+b\,c\,C\,f+9\,b\,B\,d\,f+10\,a\,C\,d\,f\right)x^2}{63\,d\,f^2}+\frac{2\,b\,C\,x^3}{9\,f}\Bigg)+$$

$$\frac{1}{315\,b^4\,d^3\,f^4}\,2\left(\frac{1}{d\,f\,\sqrt{c+\frac{(a+b\,x)\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}}\right.$$

$$\Big(128\,b^4\,C\,d^4\,e^4-40\,b^4\,c\,C\,d^3\,e^3\,f-144\,b^4\,B\,d^4\,e^3\,f-184\,a\,b^3\,C\,d^4\,e^3\,f-21\,b^4\,c^2\,C\,d^2\,e^2\,f^2+48\,b^4\,B\,c\,d^3\,e^2\,f^2+66\,a\,b^3\,c\,C\,d^3\,e^2\,f^2+168\,A\,b^4\,d^4\,e^2\,f^2+$$
$$216\,a\,b^3\,B\,d^4\,e^2\,f^2+27\,a^2\,b^2\,C\,d^4\,e^2\,f^2-16\,b^4\,c^3\,C\,d\,e\,f^3+27\,b^4\,B\,c^2\,d^2\,e\,f^3+36\,a\,b^3\,c^2\,C\,d^2\,e\,f^3-63\,A\,b^4\,c\,d^3\,e\,f^3-87\,a\,b^3\,B\,c\,d^3\,e\,f^3-$$
$$15\,a^2\,b^2\,c\,C\,d^3\,e\,f^3-273\,a\,A\,b^3\,d^4\,e\,f^3-36\,a^2\,b^2\,B\,d^4\,e\,f^3+11\,a^3\,b\,C\,d^4\,e\,f^3-16\,b^4\,c^4\,C\,f^4+24\,b^4\,B\,c^3\,d\,f^4+32\,a\,b^3\,c^3\,C\,d\,f^4-42\,A\,b^4\,c^2\,d^2\,f^4-$$
$$57\,a\,b^3\,B\,c^2\,d^2\,f^4-9\,a^2\,b^2\,c^2\,C\,d^2\,f^4+147\,a\,A\,b^3\,c\,d^3\,f^4+27\,a^2\,b^2\,B\,c\,d^3\,f^4-7\,a^3\,b\,c\,C\,d^3\,f^4+63\,a^2\,A\,b^2\,d^4\,f^4-18\,a^3\,b\,B\,d^4\,f^4+8\,a^4\,C\,d^4\,f^4\Big)$$

$$(a+b\,x)^{3/2}\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)-\frac{1}{d\,f\,\sqrt{c+\frac{(a+b\,x)\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}}$$

$$(-b\,c+a\,d)\,(-b\,e+a\,f)\,(a+b\,x)\,\sqrt{\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)}\left(\left(128\,\mathrm{i}\,b^4\,C\,d^4\,e^4\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.\right.$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(40\,\mathrm{i}\,b^4\,c\,C\,d^3\,e^3\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(144\, i\, b^4 B\, d^4 e^3 f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(184\, i\, a\, b^3 C\, d^4 e^3 f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(21\, i\, b^4 c^2 C\, d^2 e^2 f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(48\, i\, b^4 B\, c\, d^3 e^2 f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(66\,i\,a\,b^3\,c\,C\,d^3\,e^2\,f^3\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(168\,i\,A\,b^4\,d^4\,e^2\,f^3\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(216\,i\,a\,b^3\,B\,d^4\,e^2\,f^3\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(27\,\mathrm{i}\,a^2 b^2 C d^4 e^2 f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(16\,\mathrm{i}\,b^4 c^3 C d e f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(27\,\mathrm{i}\,b^4 B c^2 d^2 e f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(36\,\mathrm{i}\,a b^3 c^2 C d^2 e f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(63\,i\,A\,b^4\,c\,d^3\,e\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(87\,i\,a\,b^3\,B\,c\,d^3\,e\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(15\,i\,a^2\,b^2\,c\,C\,d^3\,e\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(273\,\mathrm{i}\,a\,A\,b^3\,d^4\,e\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(36\,\mathrm{i}\,a^2\,b^2\,B\,d^4\,e\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(11\,\mathrm{i}\,a^3\,b\,C\,d^4\,e\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(16\,\mathrm{i}\,b^4\,c^4\,C\,f^5\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\Bigg(24\,i\,b^4\,B\,c^3\,d\,f^5\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\Bigg(32\,i\,a\,b^3\,c^3\,C\,d\,f^5\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(42\,i\,A\,b^4\,c^2\,d^2\,f^5\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(57\ \mathbb{i}\ a\, b^3 B\, c^2 d^2 f^5 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}} \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]-\text{EllipticF}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(9\ \mathbb{i}\ a^2 b^2 c^2 C\, d^2 f^5 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}} \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]-\text{EllipticF}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(147\ \mathbb{i}\ a\, A\, b^3 c\, d^3 f^5 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}} \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]-\text{EllipticF}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(27\ \mathbb{i}\ a^2 b^2 B\, c\, d^3 f^5 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}} \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(7\,i\,a^3\,b\,c\,C\,d^3\,f^5\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(63\,i\,a^2\,A\,b^2\,d^4\,f^5\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(18\,i\,a^3\,b\,B\,d^4\,f^5\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(8\,i\,a^4\,C\,d^4\,f^5\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-$$

$$\frac{64\,i\,b^3\,C\,d^4\,e^3\,f\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{12\,i\,b^3\,c\,C\,d^3\,e^2\,f^2\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{72\,i\,b^3\,B\,d^4\,e^2\,f^2\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{36\,i\,a\,b^2\,C\,d^4\,e^2\,f^2\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{9\,\mathrm{i}\,b^3\,c^2\,C\,d^2\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\Big],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\Big]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{15\,\mathrm{i}\,b^3\,B\,c\,d^3\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\Big],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\Big]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{12\,\mathrm{i}\,a\,b^2\,c\,C\,d^3\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\Big],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\Big]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{84\,\mathrm{i}\,A\,b^3\,d^4\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\Big],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\Big]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{45\,\mathrm{i}\,a\,b^2\,B\,d^4\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\Big],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\Big]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{15\,\mathrm{i}\,a^2\,b\,C\,d^4\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\Big],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\Big]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{8\, i\, b^3 c^3 C\, d\, f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{12\, i\, b^3 B\, c^2 d^2 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{9\, i\, a\, b^2 c^2 C\, d^2 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{21\, i\, A\, b^3 c\, d^3 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{18\, i\, a\, b^2 B\, c\, d^3 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{3\, i\, a^2 b\, c\, C\, d^3 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{63\,\mathrm{i}\,a\,A\,b^2\,d^4\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{18\,\mathrm{i}\,a^2\,b\,B\,d^4\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\left.\left.\frac{8\,\mathrm{i}\,a^3\,C\,d^4\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 68: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\left(A+B\,x+C\,x^2\right)}{\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 766 leaves, 9 steps) :

$$-\frac{1}{105\,b^2\,d^2\,f^3}\,2\,\left(5\,b\,d\,f\,\left(3\,b\,c\,C\,e+3\,a\,C\,d\,e+a\,c\,C\,f-7\,A\,b\,d\,f\right)+\left(a\,d\,f-2\,b\,\left(2\,d\,e+c\,f\right)\right)\,\left(4\,a\,C\,d\,f+b\,\left(6\,C\,d\,e+4\,c\,C\,f-7\,B\,d\,f\right)\right)\right)\,\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}-\frac{2\,\left(4\,a\,C\,d\,f+b\,\left(6\,C\,d\,e+4\,c\,C\,f-7\,B\,d\,f\right)\right)\,\sqrt{a+b\,x}\,\left(c+d\,x\right)^{3/2}\,\sqrt{e+f\,x}}{35\,b\,d^2\,f^2}+\frac{2\,C\,\left(a+b\,x\right)^{3/2}\,\left(c+d\,x\right)^{3/2}\,\sqrt{e+f\,x}}{7\,b\,d\,f}-\frac{1}{105\,b^3\,d^{5/2}\,f^4\,\sqrt{c+d\,x}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}}$$

$$2\,\sqrt{-b\,c+a\,d}\,\left(3\,b\,d\,f\,\left(5\,a\,d\,f\,\left(3\,b\,c\,C\,e+3\,a\,C\,d\,e+a\,c\,C\,f-7\,A\,b\,d\,f\right)-\left(b\,c\,e+3\,a\,d\,e+a\,c\,f\right)\,\left(4\,a\,C\,d\,f+b\,\left(6\,C\,d\,e+4\,c\,C\,f-7\,B\,d\,f\right)\right)\right)+2\,\left(\frac{b\,c\,f}{2}-d\,\left(b\,e+a\,f\right)\right)\,\left(5\,b\,d\,f\,\left(3\,b\,c\,C\,e+3\,a\,C\,d\,e+a\,c\,C\,f-7\,A\,b\,d\,f\right)+\left(a\,d\,f-2\,b\,\left(2\,d\,e+c\,f\right)\right)\,\left(4\,a\,C\,d\,f+b\,\left(6\,C\,d\,e+4\,c\,C\,f-7\,B\,d\,f\right)\right)\right)\right)\,\sqrt{\frac{b\,\left(c+d\,x\right)}{b\,c-a\,d}}\,\sqrt{e+f\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{\left(b\,c-a\,d\right)\,f}{d\,\left(b\,e-a\,f\right)}\right]+\left(2\,\sqrt{-b\,c+a\,d}\,\left(b\,e-a\,f\right)\,\left(d\,e-c\,f\right)\,\left(4\,a^2\,C\,d^2\,f^2+a\,b\,d\,f\,\left(8\,C\,d\,e-2\,c\,C\,f-7\,B\,d\,f\right)-b^2\,\left(7\,d\,f\,\left(8\,B\,d\,e+B\,c\,f-10\,A\,d\,f\right)-4\,C\,\left(12\,d^2\,e^2+2\,c\,d\,e\,f+c^2\,f^2\right)\right)\right)\,\sqrt{\frac{b\,\left(c+d\,x\right)}{b\,c-a\,d}}\,\sqrt{\frac{b\,\left(e+f\,x\right)}{b\,e-a\,f}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{\left(b\,c-a\,d\right)\,f}{d\,\left(b\,e-a\,f\right)}\right]\right)\Big/\left(105\,b^3\,d^{5/2}\,f^4\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\right)$$

Result (type 4, 7297 leaves):

$$\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\left(\frac{1}{105\,b^2\,d^2\,f^3}\,2\,\left(24\,b^2\,C\,d^2\,e^2-5\,b^2\,c\,C\,d\,e\,f-28\,b^2\,B\,d^2\,e\,f-5\,a\,b\,C\,d^2\,e\,f-4\,b^2\,c^2\,C\,f^2+7\,b^2\,B\,c\,d\,f^2+2\,a\,b\,c\,C\,d\,f^2+35\,A\,b^2\,d^2\,f^2+7\,a\,b\,B\,d^2\,f^2-4\,a^2\,C\,d^2\,f^2\right)+\frac{2\,\left(-6\,b\,C\,d\,e+b\,c\,C\,f+7\,b\,B\,d\,f+a\,C\,d\,f\right)\,x}{35\,b\,d\,f^2}+\frac{2\,C\,x^2}{7\,f}\right)+$$

$$\frac{1}{105\,b^4\,d^2\,f^3}\,2\,\left(\frac{1}{d\,f\,\sqrt{c+\frac{(a+b\,x)\,\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\,\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}}\left(-48\,b^3\,C\,d^3\,e^3+16\,b^3\,c\,C\,d^2\,e^2\,f+56\,b^3\,B\,d^3\,e^2\,f+16\,a\,b^2\,C\,d^3\,e^2\,f+9\,b^3\,c^2\,C\,d\,e\,f^2-21\,b^3\,B\,c\,d^2\,e\,f^2-8\,a\,b^2\,c\,C\,d^2\,e\,f^2-70\,A\,b^3\,d^3\,e\,f^2-21\,a\,b^2\,B\,d^3\,e\,f^2+9\,a^2\,b\,C\,d^3\,e\,f^2+8\,b^3\,c^3\,C\,f^3-14\,b^3\,B\,c^2\,d\,f^3-5\,a\,b^2\,c^2\,C\,d\,f^3+35\,A\,b^3\,c\,d^2\,f^3+14\,a\,b^2\,B\,c\,d^2\,f^3-5\,a^2\,b\,c\,C\,d^2\,f^3+35\,a\,A\,b^2\,d^3\,f^3-14\,a^2\,b\,B\,d^3\,f^3+8\,a^3\,C\,d^3\,f^3\right)\left(a+b\,x\right)^{3/2}\,\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\,\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)+\frac{1}{d\,f\,\sqrt{c+\frac{(a+b\,x)\,\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\,\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}}\right.$$

$$(-b c+a d)\,(-b e+a f)\,(a+b x)\,\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)}\Bigg/\Bigg(\Bigg(48\,\mathrm{i}\,b^3\,C\,d^3\,e^3\,f\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(16\,\mathrm{i}\,b^3\,c\,C\,d^2\,e^2\,f^2\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(56\,\mathrm{i}\,b^3\,B\,d^3\,e^2\,f^2\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(16\,\mathrm{i}\,a\,b^2\,C\,d^3\,e^2\,f^2\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(9\,i\,b^3 c^2 C d e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(21\,i\,b^3 B c d^2 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(8\,i\,a b^2 c C d^2 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(70\,\mathrm{i}\,A\,b^3 d^3 e\,f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(21\,\mathrm{i}\,a\,b^2 B\,d^3 e\,f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(9\,\mathrm{i}\,a^2 b\,C\,d^3 e\,f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(8\,\mathrm{i}\,b^3 c^3 C\,f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(14\,i\,b^3 B c^2 d f^4\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(5\,i\,a b^2 c^2 C d f^4\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(35\,i\,A b^3 c d^2 f^4\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(14\, i\, a b^2 B c d^2 f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(5\, i\, a^2 b c C d^2 f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(35\, i\, a A b^2 d^3 f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(14\, i\, a^2 b B d^3 f^4\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(8\,i\,a^3 C d^3 f^4\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-$$

$$\frac{24\,i\,b^2 C d^3 e^2 f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{5\,i\,b^2 c\,C d^2 e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{28\,i\,b^2 B d^3 e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}-$$

$$\frac{13\,i\,a\,b\,C\,d^3\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{4\,i\,b^2\,c^2\,C\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{7\,i\,b^2\,B\,c\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{i\,a\,b\,c\,C\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{35\,i\,A\,b^2\,d^3\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{14\,i\,a\,b\,B\,d^3\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\left.\left.\frac{8\,i\,a^2\,C\,d^3\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 69: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{c+d\,x}\,\left(A+B\,x+C\,x^2\right)}{\sqrt{a+b\,x}\,\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 527 leaves, 8 steps):

$$-\frac{2\,\left(4\,a\,C\,d\,f+b\,\left(4\,C\,d\,e+2\,c\,C\,f-5\,B\,d\,f\right)\right)\,\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}{15\,b^2\,d\,f^2}+\frac{2\,C\,\sqrt{a+b\,x}\,\left(c+d\,x\right)^{3/2}\,\sqrt{e+f\,x}}{5\,b\,d\,f}-$$

$$\left(2\,\sqrt{-b\,c+a\,d}\,\left(3\,b\,d\,f\,\left(b\,c\,C\,e+3\,a\,C\,d\,e+a\,c\,C\,f-5\,A\,b\,d\,f\right)-\left(2\,b\,d\,e-b\,c\,f+2\,a\,d\,f\right)\,\left(4\,a\,C\,d\,f+b\,\left(4\,C\,d\,e+2\,c\,C\,f-5\,B\,d\,f\right)\right)\right)\right.$$

$$\left.\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{e+f\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]\right)\Bigg/\left(15\,b^3\,d^{3/2}\,f^3\,\sqrt{c+d\,x}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}\right)-$$

$$\left(2\,\sqrt{-b\,c+a\,d}\,\left(d\,e-c\,f\right)\,\left(4\,a^2\,C\,d\,f^2+a\,b\,f\,\left(3\,C\,d\,e-c\,C\,f-5\,B\,d\,f\right)-b^2\,\left(5\,d\,f\,\left(2\,B\,e-3\,A\,f\right)-C\,e\,\left(8\,d\,e+c\,f\right)\right)\right)\right.$$

$$\left.\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]\right)\Bigg/\left(15\,b^3\,d^{3/2}\,f^3\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\right)$$

Result (type 4, 5393 leaves):

$$\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\left(\frac{2\,\left(-4\,b\,C\,d\,e+b\,c\,C\,f+5\,b\,B\,d\,f-4\,a\,C\,d\,f\right)}{15\,b^2\,d\,f^2}+\frac{2\,C\,x}{5\,b\,f}\right)\sqrt{e+f\,x}+\frac{1}{15\,b^4\,d\,f^2}$$

$$2\left(\left(\left(8 b^2 C d^2 e^2-3 b^2 c C d e f-10 b^2 B d^2 e f+7 a b C d^2 e f-2 b^2 c^2 C f^2+5 b^2 B c d f^2-3 a b c C d f^2+15 A b^2 d^2 f^2-10 a b B d^2 f^2+8 a^2 C d^2 f^2\right)\right.\right.$$

$$\left.\left.(a+b x)^{3/2}\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\right)\Big/\right.$$

$$\left(d f\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\right)+\frac{1}{d f\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}}$$

$$(-b c+a d)(a+b x)\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)}\left(\left(8\, i\, b^3 C d^2 e^3 f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.\right.$$

$$\left.\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/\right.$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(3\, i\, b^3 c C d e^2 f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left.\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/\right.$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(10\,\mathbb{i}\,b^3 B d^2 e^2 f^2 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(\mathbb{i}\,a\,b^2 C d^2 e^2 f^2 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(2\,\mathbb{i}\,b^3 c^2 C e f^3 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(5\,\mathbb{i}\,b^3 B c d e f^3 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(15\,i\,A\,b^3 d^2 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(i\,a^2 b\,C\,d^2 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(2\,i\,a\,b^2 c^2 C f^4\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right) - \left(5 i a b^2 B c d f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right] - \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right) + \left(3 i a^2 b c C d f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right] - \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right) - \left(15 i a A b^2 d^2 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right] - \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right) + \left(10 i a^2 b B d^2 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\bigg)\bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(8\,i\,a^3 C d^2 f^4\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-$$

$$\frac{4\,i\,b^2 C d^2 e^2 f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{i\,b^2 c\,C d e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{5\,i\,b^2 B d^2 e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}-$$

$$\frac{3\,i\,a\,b\,C\,d^2\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{i\,a\,b\,c\,C\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{15\,i\,A\,b^2\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{10\,i\,a\,b\,B\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\left.\left.\frac{8\,i\,a^2\,C\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 70: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{c+d\,x}\,\left(A+B\,x+C\,x^2\right)}{(a+b\,x)^{3/2}\,\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 540 leaves, 8 steps):

$$\frac{2\left(4a^2CdF+b^2(cCe+3Adf)-ab(Cde+cCf+3Bdf)\right)\sqrt{a+bx}\sqrt{c+dx}\sqrt{e+fx}}{3b^2(bc-ad)f(be-af)}-\frac{2\left(Ab^2-a(bB-aC)\right)(c+dx)^{3/2}\sqrt{e+fx}}{b(bc-ad)(be-af)\sqrt{a+bx}}+$$

$$\left(2\sqrt{-bc+ad}\left(8a^2Cdf^2-abf(3Cde+cCf+6Bdf)+b^2(3df(Be+Af)-Ce(2de-cf))\right)\sqrt{\frac{b(c+dx)}{bc-ad}}\right.$$

$$\left.\sqrt{e+fx}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{-bc+ad}}\right],\frac{(bc-ad)f}{d(be-af)}\right]\right)\Big/\left(3b^3\sqrt{d}\,f^2(be-af)\sqrt{c+dx}\sqrt{\frac{b(e+fx)}{be-af}}\right)+$$

$$\left(2\sqrt{-bc+ad}\,(de-cf)(2bCe-3bBf+4aCf)\sqrt{\frac{b(c+dx)}{bc-ad}}\sqrt{\frac{b(e+fx)}{be-af}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\sqrt{a+bx}}{\sqrt{-bc+ad}}\right],\frac{(bc-ad)f}{d(be-af)}\right]\right)\Big/$$

$$\left(3b^3\sqrt{d}\,f^2\sqrt{c+dx}\sqrt{e+fx}\right)$$

Result (type 4, 5168 leaves):

$$\sqrt{a+bx}\sqrt{c+dx}\sqrt{e+fx}\left(\frac{2C}{3b^2f}-\frac{2\left(Ab^2-abB+a^2C\right)}{b^2(be-af)(a+bx)}\right)+$$

$$\frac{1}{3b^4f(be-af)}2\left(\left(\left(-2b^2Cde^2+b^2cCef+3b^2Bdef-3abCdef-abcCf^2+3Ab^2df^2-6abBdf^2+8a^2Cdf^2\right)\right.\right.$$

$$\left.(a+bx)^{3/2}\left(d+\frac{bc}{a+bx}-\frac{ad}{a+bx}\right)\left(f+\frac{be}{a+bx}-\frac{af}{a+bx}\right)\right)\Big/\left(df\sqrt{c+\frac{(a+bx)\left(d-\frac{ad}{a+bx}\right)}{b}}\sqrt{e+\frac{(a+bx)\left(f-\frac{af}{a+bx}\right)}{b}}\right)+$$

$$\frac{1}{df\sqrt{c+\frac{(a+bx)\left(d-\frac{ad}{a+bx}\right)}{b}}\sqrt{e+\frac{(a+bx)\left(f-\frac{af}{a+bx}\right)}{b}}}(-be+af)(a+bx)\sqrt{\left(d+\frac{bc}{a+bx}-\frac{ad}{a+bx}\right)\left(f+\frac{be}{a+bx}-\frac{af}{a+bx}\right)}$$

$$-\left(\left(\left(2\,\mathrm{i}\,b^3\,c\,C\,d\,e^2\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\right.\right.\right.\right.$$

$$\left.\left.\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+$$

$$\left(2\,\mathrm{i}\,a\,b^2\,C\,d^2\,e^2\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\right.\right.$$

$$\left.\left.\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(\mathrm{i}\,b^3\,c^2\,C\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(3\,\mathrm{i}\,b^3\,B\,c\,d\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(4\,\mathbb{i}\,a b^2 c\, C d e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(3\,\mathbb{i}\,a b^2 B d^2 e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(3\,\mathbb{i}\,a^2 b\, C d^2 e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(\mathrm{i}\, a b^2 c^2 C f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(3\,\mathrm{i}\, A b^3 c d f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(6\,\mathrm{i}\, a b^2 B c d f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(9\,\mathrm{i}\, a^2 b c C d f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(3\,i\,a\,A\,b^2\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(6\,i\,a^2\,b\,B\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(8\,i\,a^3\,C\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\right.$$

$$\left(-b e+a f\right) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}\Bigg) + \frac{i b^2 c C d e f \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}} \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{i a b C d^2 e f \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}} \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{3 i b^2 B c d f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}} \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{5 i a b c C d f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}} \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{3 i A b^2 d^2 f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}} \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{6 i a b B d^2 f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}} \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\left.\left.\frac{8\,i\,a^2\,C\,d^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 71: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{c+d\,x}\,\left(A+B\,x+C\,x^2\right)}{(a+b\,x)^{5/2}\,\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 597 leaves, 8 steps):

$$-\frac{2\left(4\,a^2\,C\,f+b^2\,(3\,B\,e-2\,A\,f)-a\,b\,(6\,C\,e+B\,f)\right)\sqrt{c+d\,x}\,\sqrt{e+f\,x}}{3\,b^2\,(b\,e-a\,f)^2\,\sqrt{a+b\,x}}-\frac{2\left(A\,b^2-a\,(b\,B-a\,C)\right)(c+d\,x)^{3/2}\,\sqrt{e+f\,x}}{3\,b\,(b\,c-a\,d)\,(b\,e-a\,f)\,(a+b\,x)^{3/2}}+$$

$$\left(2\,\sqrt{d}\,\left(8\,a^3\,C\,d\,f^2-a^2\,b\,f\,(13\,C\,d\,e+7\,c\,C\,f+2\,B\,d\,f)+a\,b^2\,\left(3\,C\,e\,(d\,e+4\,c\,f)+f\,(4\,B\,d\,e+B\,c\,f-A\,d\,f)\right)-b^3\,\left(A\,d\,e\,f+c\,\left(3\,C\,e^2+3\,B\,e\,f-2\,A\,f^2\right)\right)\right)\right.$$

$$\left.\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{e+f\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]\right)\Bigg/\left(3\,b^3\,\sqrt{-b\,c+a\,d}\,f\,(b\,e-a\,f)^2\,\sqrt{c+d\,x}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}\right)+$$

$$\left(2\,(d\,e-c\,f)\,\left(4\,a^2\,C\,d\,f+b^2\,(3\,c\,C\,e+A\,d\,f)-a\,b\,(B\,d\,f+3\,C\,(d\,e+c\,f))\right)\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]\right)\Bigg/\left(3\,b^3\,\sqrt{d}\,\sqrt{-b\,c+a\,d}\,f\,(b\,e-a\,f)\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\right)$$

Result (type 4, 5074 leaves):

$$\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\left(-\frac{2\left(A\,b^2-a\,b\,B+a^2\,C\right)}{3\,b^2\,(b\,e-a\,f)\,(a+b\,x)^2}-\right.$$

$$\left(2\,\left(3\,b^3\,B\,c\,e-6\,a\,b^2\,c\,C\,e+A\,b^3\,d\,e-4\,a\,b^2\,B\,d\,e+7\,a^2\,b\,C\,d\,e-2\,A\,b^3\,c\,f-a\,b^2\,B\,c\,f+4\,a^2\,b\,c\,C\,f+a\,A\,b^2\,d\,f+2\,a^2\,b\,B\,d\,f-5\,a^3\,C\,d\,f\right)\right)\Big/$$

$$\left.\left(3\,b^2\,(b\,c-a\,d)\,(b\,e-a\,f)^2\,(a+b\,x)\right)\right)-\frac{1}{3\,b^4\,(b\,c-a\,d)\,(b\,e-a\,f)^2}$$

$$2\left(\left(\left(-3 b^3 c C e^2+3 a b^2 C d e^2-3 b^3 B c e f+12 a b^2 c C e f-A b^3 d e f+4 a b^2 B d e f-13 a^2 b C d e f+2 A b^3 c f^2+a b^2 B c f^2-\right.\right.\right.$$

$$\left.\left.7 a^2 b c C f^2-a A b^2 d f^2-2 a^2 b B d f^2+8 a^3 C d f^2\right)(a+b x)^{3/2}\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\right)\Big/$$

$$\left(f\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\right)-\frac{1}{f\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}}$$

$$(b c-a d)(-b e+a f)(a+b x)\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)}\left(\left(3 i b^3 c C e^2 f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.\right.$$

$$\left.\left.\left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(3 i a b^2 C d e^2 f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left.\left.\left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(3\,\mathrm{i}\,b^3\,B\,c\,e\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(12\,\mathrm{i}\,a\,b^2\,c\,C\,e\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(\mathrm{i}\,A\,b^3\,d\,e\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\;(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(4\,\mathrm{i}\,a\,b^2\,B\,d\,e\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(13\,i\,a^2 b C d e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(2\,i\,A b^3 c f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(i\,a b^2 B c f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(7\,\mathbb{i}\,a^2\,b\,c\,C\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(\mathbb{i}\,a\,A\,b^2\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(2\,\mathbb{i}\,a^2\,b\,B\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(8\,\mathbb{i}\,a^3\,C\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/\left(\sqrt{-\frac{-b c+a d}{d}}\right.$$

$$\left.(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\frac{3\,i\,b^2 c\,C\,e\,f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}-$$

$$\frac{3\,i\,b^2 B\,d\,e\,f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{9\,i\,a\,b\,C\,d\,e\,f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{3\,i\,a\,b\,c\,C\,f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{i\,A\,b^2 d\,f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{2\,i\,a\,b\,B\,d\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\left.\left.\frac{8\,i\,a^2\,C\,d\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 72: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{c+d\,x}\,\left(A+B\,x+C\,x^2\right)}{(a+b\,x)^{7/2}\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 1034 leaves, 9 steps) :

$$\left(2\left(4 a^3 C d f-b^3 (5 B c e-2 A d e-4 A c f)+a b^2 (10 c C e+3 B d e+B c f-6 A d f)-a^2 b (8 C d e+6 c C f-B d f)\right)\sqrt{c+d x}\,\sqrt{e+f x}\right)\Big/$$

$$\left(15 b^2 (b c-a d)(b e-a f)^2 (a+b x)^{3/2}\right)-\frac{1}{15 b^2 (b c-a d)^2 (b e-a f)^3 \sqrt{a+b x}}$$

$$2\left(8 a^4 C d^2 f^2-a^3 b d f (23 C d e+13 c C f-2 B d f)-b^4\left(2 A d^2 e^2-c d e (5 B e-3 A f)-c^2\left(15 C e^2-10 B e f+8 A f^2\right)\right)-a^2 b^2\right.$$
$$\left.\left(d f (7 B d e+2 B c f-3 A d f)-C\left(23 d^2 e^2+37 c d e f+3 c^2 f^2\right)\right)-a b^3\left(d^2 e (3 B e-7 A f)+2 c^2 f (5 C e-B f)+c d\left(40 C e^2-13 f (B e-A f)\right)\right)\right)$$

$$\sqrt{c+d x}\,\sqrt{e+f x}-\frac{2\left(A b^2-a (b B-a C)\right)(c+d x)^{3/2}\sqrt{e+f x}}{5 b (b c-a d)(b e-a f)(a+b x)^{5/2}}+\frac{1}{15 b^3 (-b c+a d)^{3/2} (b e-a f)^3 \sqrt{c+d x}\,\sqrt{\frac{b (e+f x)}{b e-a f}}}$$

$$2\sqrt{d}\left(8 a^4 C d^2 f^2-a^3 b d f (23 C d e+13 c C f-2 B d f)-b^4\left(2 A d^2 e^2-c d e (5 B e-3 A f)-c^2\left(15 C e^2-10 B e f+8 A f^2\right)\right)-a^2 b^2\right.$$
$$\left.\left(d f (7 B d e+2 B c f-3 A d f)-C\left(23 d^2 e^2+37 c d e f+3 c^2 f^2\right)\right)-a b^3\left(d^2 e (3 B e-7 A f)+2 c^2 f (5 C e-B f)+c d\left(40 C e^2-13 f (B e-A f)\right)\right)\right)$$

$$\sqrt{\frac{b (c+d x)}{b c-a d}}\,\sqrt{e+f x}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b x}}{\sqrt{-b c+a d}}\right],\frac{(b c-a d) f}{d (b e-a f)}\right]+$$

$$\left(2\sqrt{d}\,(d e-c f)\left(4 a^3 C d f-b^3 (5 B c e-2 A d e-4 A c f)+a b^2 (10 c C e+3 B d e+B c f-6 A d f)-a^2 b (8 C d e+6 c C f-B d f)\right)\right.$$

$$\left.\sqrt{\frac{b (c+d x)}{b c-a d}}\,\sqrt{\frac{b (e+f x)}{b e-a f}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b x}}{\sqrt{-b c+a d}}\right],\frac{(b c-a d) f}{d (b e-a f)}\right]\right)\Big/\left(15 b^3 (-b c+a d)^{3/2} (b e-a f)^2 \sqrt{c+d x}\,\sqrt{e+f x}\right)$$

Result (type 4, 9186 leaves) :

$$\sqrt{a+b x}\,\sqrt{c+d x}\,\sqrt{e+f x}\left(-\frac{2\left(A b^2-a b B+a^2 C\right)}{5 b^2 (b e-a f)(a+b x)^3}-\right.$$

$$\left(2\left(5 b^3 B c e-10 a b^2 c C e+A b^3 d e-6 a b^2 B d e+11 a^2 b C d e-4 A b^3 c f-a b^2 B c f+6 a^2 b c C f+3 a A b^2 d f+2 a^2 b B d f-7 a^3 C d f\right)\right)\Big/$$

$$\left(15 b^2 (b c-a d)(b e-a f)^2 (a+b x)^2\right)-\frac{1}{15 b^2 (b c-a d)^2 (b e-a f)^3 (a+b x)}$$

$$2\left(15 b^4 c^2 C e^2+5 b^4 B c d e^2-40 a b^3 c C d e^2-2 A b^4 d^2 e^2-3 a b^3 B d^2 e^2+23 a^2 b^2 C d^2 e^2-10 b^4 B c^2 e f-10 a b^3 c^2 C e f-3 A b^4 c d e f+\right.$$
$$13 a b^3 B c d e f+37 a^2 b^2 c C d e f+7 a A b^3 d^2 e f-7 a^2 b^2 B d^2 e f-23 a^3 b C d^2 e f+8 A b^4 c^2 f^2+2 a b^3 B c^2 f^2+3 a^2 b^2 c^2 C f^2-$$
$$\left.13 a A b^3 c d f^2-2 a^2 b^2 B c d f^2-13 a^3 b c C d f^2+3 a^2 A b^2 d^2 f^2+2 a^3 b B d^2 f^2+8 a^4 C d^2 f^2\right)+\frac{1}{15 b^4 (b c-a d)^2 (b e-a f)^3}$$

$$2 d \left(\frac{1}{d \sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}} \sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}} \left(15 b^4 c^2 C e^2+5 b^4 B c d e^2-40 a b^3 c C d e^2-2 A b^4 d^2 e^2-3 a b^3 B d^2 e^2+23 a^2 b^2 C d^2 e^2-\right.\right.$$

$$10 b^4 B c^2 e f-10 a b^3 c^2 C e f-3 A b^4 c d e f+13 a b^3 B c d e f+37 a^2 b^2 c C d e f+7 a A b^3 d^2 e f-7 a^2 b^2 B d^2 e f-23 a^3 b C d^2 e f+$$
$$\left.8 A b^4 c^2 f^2+2 a b^3 B c^2 f^2+3 a^2 b^2 c^2 C f^2-13 a A b^3 c d f^2-2 a^2 b^2 B c d f^2-13 a^3 b c C d f^2+3 a^2 A b^2 d^2 f^2+2 a^3 b B d^2 f^2+8 a^4 C d^2 f^2\right)$$

$$(a+b x)^{3/2} \left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right) \left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)+\frac{1}{d \sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}} \sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}}$$

$$(-b c+a d)\,(b e-a f)\,(a+b x) \sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)} \left(\left(\left(15\, i\, b^4 c^2 C e^2 f \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}} \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.\right.\right.$$

$$\left.\left.\left(\text{EllipticE}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]-\text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]\right)\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(5\, i\, b^4 B c d e^2 f \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}} \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left.\left(\text{EllipticE}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]-\text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]\right)\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(40\, i\, a b^3 c C d e^2 f \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}} \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\;(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(2\,\mathbb{i}\,A\,b^4 d^2 e^2 f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\;(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(3\,\mathbb{i}\,a\,b^3 B\,d^2 e^2 f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\;(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(23\,\mathbb{i}\,a^2 b^2 C\,d^2 e^2 f\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\;(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(10\,\mathrm{i}\,b^4 B c^2 e f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\;\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\;(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(10\,\mathrm{i}\,a b^3 c^2 C e f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\;\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\;(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(3\,\mathrm{i}\,A b^4 c d e f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\;\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\;(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(13\,\mathrm{i}\,a b^3 B c d e f^2\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\;\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(37\,i\,a^2 b^2 c\,C\,d\,e\,f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(7\,i\,a\,A\,b^3 d^2 e\,f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(7\,i\,a^2 b^2 B\,d^2 e\,f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(23\,\mathbb{i}\,a^3\,b\,C\,d^2\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(8\,\mathbb{i}\,A\,b^4\,c^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(2\,\mathbb{i}\,a\,b^3\,B\,c^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(3\,\mathbb{i}\,a^2\,b^2\,c^2\,C\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(13\,i\,a A b^3 c d f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(2\,i\,a^2 b^2 B c d f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(13\,i\,a^3 b c C d f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(3\,\mathrm{i}\,a^2\,A\,b^2\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(2\,\mathrm{i}\,a^3\,b\,B\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(8\,\mathrm{i}\,a^4\,C\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,\left(a+b\,x\right)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,\left(a+b\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\,\frac{d\,\left(-b\,e+a\,f\right)}{\left(-b\,c+a\,d\right)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,\left(-b\,e+a\,f\right)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-$$

$$\frac{15\,i\,b^3\,c\,C\,d\,e^2\sqrt{1-\frac{-b c+a d}{d (a+b x)}}\sqrt{1-\frac{-b e+a f}{f (a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{15\,i\,a\,b^2\,C\,d^2\,e^2\sqrt{1-\frac{-b c+a d}{d (a+b x)}}\sqrt{1-\frac{-b e+a f}{f (a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{5\,i\,b^3\,B\,c\,d\,e\,f\sqrt{1-\frac{-b c+a d}{d (a+b x)}}\sqrt{1-\frac{-b e+a f}{f (a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{20\,i\,a\,b^2\,c\,C\,d\,e\,f\sqrt{1-\frac{-b c+a d}{d (a+b x)}}\sqrt{1-\frac{-b e+a f}{f (a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{i\,A\,b^3\,d^2\,e\,f\sqrt{1-\frac{-b c+a d}{d (a+b x)}}\sqrt{1-\frac{-b e+a f}{f (a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}-$$

$$\frac{6\,i\,a\,b^2\,B\,d^2\,e\,f\sqrt{1-\frac{-b c+a d}{d (a+b x)}}\sqrt{1-\frac{-b e+a f}{f (a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}-$$

$$\frac{19\, i\, a^2\, b\, C\, d^2\, e\, f \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{4\, i\, A\, b^3\, c\, d\, f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{i\, a\, b^2\, B\, c\, d\, f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} -$$

$$\frac{9\, i\, a^2\, b\, c\, C\, d\, f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{3\, i\, a\, A\, b^2\, d^2\, f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\frac{2\, i\, a^2\, b\, B\, d^2\, f^2 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]}{\sqrt{-\frac{-b c+a d}{d}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right)}} +$$

$$\left.\left.\frac{8\,i\,a^3\,C\,d^2\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 73: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,x)^{3/2}\,(A+B\,x+C\,x^2)}{\sqrt{c+d\,x}\,\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 838 leaves, 9 steps):

$$-\frac{1}{105\,b\,d^3\,f^3}2\,(5\,b\,d\,f\,(5\,b\,c\,C\,e+a\,C\,d\,e+a\,c\,C\,f-7\,A\,b\,d\,f)+(3\,a\,d\,f-4\,b\,(d\,e+c\,f))\,(2\,a\,C\,d\,f-b\,(7\,B\,d\,f-6\,C\,(d\,e+c\,f))))\,\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}-$$

$$\frac{2\,(2\,a\,C\,d\,f-b\,(7\,B\,d\,f-6\,C\,(d\,e+c\,f)))\,(a+b\,x)^{3/2}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}{35\,b\,d^2\,f^2}+\frac{2\,C\,(a+b\,x)^{5/2}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}{7\,b\,d\,f}-\frac{1}{105\,b^2\,d^{7/2}\,f^4\,\sqrt{c+d\,x}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}}$$

$$2\,\sqrt{-b\,c+a\,d}\,\Big(3\,b\,d\,f\,(5\,a\,d\,f\,(5\,b\,c\,C\,e+a\,C\,d\,e+a\,c\,C\,f-7\,A\,b\,d\,f)-(3\,b\,c\,e+a\,d\,e+a\,c\,f)\,(2\,a\,C\,d\,f-b\,(7\,B\,d\,f-6\,C\,(d\,e+c\,f))))+$$

$$2\left(\frac{a\,d\,f}{2}-b\,(d\,e+c\,f)\right)(5\,b\,d\,f\,(5\,b\,c\,C\,e+a\,C\,d\,e+a\,c\,C\,f-7\,A\,b\,d\,f)+(3\,a\,d\,f-4\,b\,(d\,e+c\,f))\,(2\,a\,C\,d\,f-b\,(7\,B\,d\,f-6\,C\,(d\,e+c\,f))))\Big)$$

$$\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{e+f\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]-\frac{1}{105\,b^2\,d^{7/2}\,f^4\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}$$

$$2\,\sqrt{-b\,c+a\,d}\,(b\,e-a\,f)\,(3\,a^2\,C\,d^2\,f^2\,(d\,e-c\,f)-3\,a\,b\,d\,f\,(7\,d\,f\,(3\,B\,d\,e+2\,B\,c\,f-5\,A\,d\,f)-C\,(16\,d^2\,e^2+8\,c\,d\,e\,f+11\,c^2\,f^2))-$$
$$b^2\,(C\,(48\,d^3\,e^3+16\,c\,d^2\,e^2\,f+17\,c^2\,d\,e\,f^2+24\,c^3\,f^3)+7\,d\,f\,(5\,A\,d\,f\,(2\,d\,e+c\,f)-B\,(8\,d^2\,e^2+3\,c\,d\,e\,f+4\,c^2\,f^2))))$$

$$\sqrt{\frac{b\,(c+d\,x)}{b\,c-a\,d}}\,\sqrt{\frac{b\,(e+f\,x)}{b\,e-a\,f}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{(b\,c-a\,d)\,f}{d\,(b\,e-a\,f)}\right]$$

Result (type 4, 7300 leaves):

$$\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}$$

$$\left(\frac{1}{105\,b\,d^3\,f^3}2\,(24\,b^2\,C\,d^2\,e^2+23\,b^2\,c\,C\,d\,e\,f-28\,b^2\,B\,d^2\,e\,f-33\,a\,b\,C\,d^2\,e\,f+24\,b^2\,c^2\,C\,f^2-28\,b^2\,B\,c\,d\,f^2-33\,a\,b\,c\,C\,d\,f^2+35\,A\,b^2\,d^2\,f^2+\right.$$

$$42\,a\,b\,B\,d^2\,f^2+3\,a^2\,C\,d^2\,f^2\Big)+\frac{2\,\left(-6\,b\,C\,d\,e-6\,b\,c\,C\,f+7\,b\,B\,d\,f+8\,a\,C\,d\,f\right)\,x}{35\,d^2\,f^2}+\frac{2\,b\,C\,x^2}{7\,d\,f}\Bigg)+$$

$$\frac{1}{105\,b^3\,d^3\,f^3}\,2\left(\frac{1}{d\,f\,\sqrt{c+\frac{(a+b\,x)\,\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\,\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}}\left(-48\,b^3\,C\,d^3\,e^3-40\,b^3\,c\,C\,d^2\,e^2\,f+56\,b^3\,B\,d^3\,e^2\,f+72\,a\,b^2\,C\,d^3\,e^2\,f-\right.\right.$$

$$40\,b^3\,c^2\,C\,d\,e\,f^2+49\,b^3\,B\,c\,d^2\,e\,f^2+62\,a\,b^2\,c\,C\,d^2\,e\,f^2-70\,A\,b^3\,d^3\,e\,f^2-91\,a\,b^2\,B\,d^3\,e\,f^2-12\,a^2\,b\,C\,d^3\,e\,f^2-48\,b^3\,c^3\,C\,f^3+$$
$$56\,b^3\,B\,c^2\,d\,f^3+72\,a\,b^2\,c^2\,C\,d\,f^3-70\,A\,b^3\,c\,d^2\,f^3-91\,a\,b^2\,B\,c\,d^2\,f^3-12\,a^2\,b\,c\,C\,d^2\,f^3+140\,a\,A\,b^2\,d^3\,f^3+21\,a^2\,b\,B\,d^3\,f^3-6\,a^3\,C\,d^3\,f^3\Big)$$

$$(a+b\,x)^{3/2}\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)+\frac{1}{d\,f\,\sqrt{c+\frac{(a+b\,x)\,\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\,\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}}$$

$$(-b\,c+a\,d)\,(-b\,e+a\,f)\,(a+b\,x)\,\sqrt{\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)}\left(\left(48\,i\,b^3\,C\,d^3\,e^3\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(40\,i\,b^3\,c\,C\,d^2\,e^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(56\ \mathrm{i}\ b^3 B d^3 e^2 f^2 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(72\ \mathrm{i}\ a b^2 C d^3 e^2 f^2 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(40\ \mathrm{i}\ b^3 c^2 C d e f^3 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(49\ \mathrm{i}\ b^3 B c d^2 e f^3 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(62\,i\,a b^2 c\,C\,d^2 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(70\,i\,A b^3 d^3 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(91\,i\,a b^2 B d^3 e f^3\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(12\,\mathrm{i}\,a^2\,b\,C\,d^3\,e\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(48\,\mathrm{i}\,b^3\,c^3\,C\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(56\,\mathrm{i}\,b^3\,B\,c^2\,d\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(72\,\mathrm{i}\,a\,b^2\,c^2\,C\,d\,f^4\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\Bigg(70\,i\,A\,b^3\,c\,d^2\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\Bigg(91\,i\,a\,b^2\,B\,c\,d^2\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\Bigg(12\,i\,a^2\,b\,c\,C\,d^2\,f^4\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(140\, i\, a A b^2 d^3 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(21\, i\, a^2 b B d^3 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(6\, i\, a^3 C d^3 f^4 \sqrt{1-\frac{-b c+a d}{d (a+b x)}} \sqrt{1-\frac{-b e+a f}{f (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d (-b e+a f)}{(-b c+a d) f}\right]\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-$$

$$\frac{24\,i\,b^2\,C\,d^3\,e^2\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{23\,i\,b^2\,c\,C\,d^2\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{28\,i\,b^2\,B\,d^3\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{15\,i\,a\,b\,C\,d^3\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{24\,i\,b^2\,c^2\,C\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{28\,i\,b^2\,B\,c\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{15\,i\,a\,b\,c\,C\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{35\,i\,A\,b^2\,d^3\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{21\,i\,a\,b\,B\,d^3\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\left.\left.\frac{6\,i\,a^2\,C\,d^3\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 74: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{a+b\,x}\,\left(A+B\,x+C\,x^2\right)}{\sqrt{c+d\,x}\,\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 528 leaves, 8 steps):

$$-\frac{2\left(2aCdf-b\left(5Bdf-4C\left(de+cf\right)\right)\right)\sqrt{a+bx}\,\sqrt{c+dx}\,\sqrt{e+fx}}{15\,b\,d^2\,f^2}+\frac{2C\left(a+bx\right)^{3/2}\sqrt{c+dx}\,\sqrt{e+fx}}{5\,b\,d\,f}-$$

$$\left(2\sqrt{-bc+ad}\,\left(3bdf\left(3bcCe+aCde+acCf-5Abdf\right)+\left(adf-2b\left(de+cf\right)\right)\left(2aCdf-b\left(5Bdf-4C\left(de+cf\right)\right)\right)\right)\right.$$

$$\left.\sqrt{\frac{b\left(c+dx\right)}{bc-ad}}\,\sqrt{e+fx}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+bx}}{\sqrt{-bc+ad}}\right],\frac{\left(bc-ad\right)f}{d\left(be-af\right)}\right]\right)\Big/\left(15\,b^2\,d^{5/2}\,f^3\sqrt{c+dx}\,\sqrt{\frac{b\left(e+fx\right)}{be-af}}\right)-$$

$$\left(2\sqrt{-bc+ad}\,\left(be-af\right)\left(aCdf\left(de-cf\right)-b\left(5df\left(2Bde+Bcf-3Adf\right)-C\left(8d^2e^2+3cdef+4c^2f^2\right)\right)\right)\sqrt{\frac{b\left(c+dx\right)}{bc-ad}}\right.$$

$$\left.\sqrt{\frac{b\left(e+fx\right)}{be-af}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+bx}}{\sqrt{-bc+ad}}\right],\frac{\left(bc-ad\right)f}{d\left(be-af\right)}\right]\right)\Big/\left(15\,b^2\,d^{5/2}\,f^3\sqrt{c+dx}\,\sqrt{e+fx}\right)$$

Result (type 4, 3657 leaves) :

$$\sqrt{a+bx}\,\sqrt{c+dx}\left(\frac{2\left(-4bCde-4bcCf+5bBdf+aCdf\right)}{15\,b\,d^2\,f^2}+\frac{2Cx}{5df}\right)\sqrt{e+fx}-\frac{1}{15\,b^3\,d^2\,f^2}$$

$$2\left(\left(\left(-8b^2Cd^2e^2-7b^2cCdef+10b^2Bd^2ef+3abCd^2ef-8b^2c^2Cf^2+10b^2Bcdf^2+3abcCdf^2-15Ab^2d^2f^2-5abBd^2f^2+2a^2Cd^2f^2\right)\right.\right.$$

$$\left.\left(a+bx\right)^{3/2}\left(d+\frac{bc}{a+bx}-\frac{ad}{a+bx}\right)\left(f+\frac{be}{a+bx}-\frac{af}{a+bx}\right)\right)\Big/\left(df\sqrt{c+\frac{\left(a+bx\right)\left(d-\frac{ad}{a+bx}\right)}{b}}\,\sqrt{e+\frac{\left(a+bx\right)\left(f-\frac{af}{a+bx}\right)}{b}}\right)+$$

$$\frac{1}{df\sqrt{c+\frac{\left(a+bx\right)\left(d-\frac{ad}{a+bx}\right)}{b}}\,\sqrt{e+\frac{\left(a+bx\right)\left(f-\frac{af}{a+bx}\right)}{b}}}\left(-bc+ad\right)\left(-be+af\right)\left(a+bx\right)\sqrt{\left(d+\frac{bc}{a+bx}-\frac{ad}{a+bx}\right)\left(f+\frac{be}{a+bx}-\frac{af}{a+bx}\right)}$$

$$\Bigg(\Bigg(8\,\mathbb{i}\,b^2\,C\,d^2\,e^2\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\Bigg(7\,\mathbb{i}\,b^2\,c\,C\,d\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(10\,\mathbb{i}\,b^2\,B\,d^2\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(3\,\mathbb{i}\,a\,b\,C\,d^2\,e\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[\text{i ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\text{i ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\bigg) \bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(8\, \text{i}\, b^2 c^2 C f^3 \sqrt{1-\frac{-b c+a d}{d(a+b x)}} \sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[\text{i ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\text{i ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg) \bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(10\, \text{i}\, b^2 B c d f^3 \sqrt{1-\frac{-b c+a d}{d(a+b x)}} \sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[\text{i ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\text{i ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg) \bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f) \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(3\, \text{i}\, a b c C d f^3 \sqrt{1-\frac{-b c+a d}{d(a+b x)}} \sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[\text{i ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[\text{i ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right], \frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg) \bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(15\,\mathrm{i}\,A\,b^2 d^2 f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\mathrm{EllipticE}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(5\,\mathrm{i}\,a\,b\,B\,d^2 f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\mathrm{EllipticE}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(2\,\mathrm{i}\,a^2 C\,d^2 f^3\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\mathrm{EllipticE}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/\left(\sqrt{-\frac{-b c+a d}{d}}\right.$$

$$\left.(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\frac{4\,\mathrm{i}\,b\,C\,d^2 e\,f\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}-$$

$$\frac{4\,i\,b\,c\,C\,d\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{5\,i\,b\,B\,d^2\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\left.\left.\frac{2\,i\,a\,C\,d^2\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 75: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{A+B\,x+C\,x^2}{\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 387 leaves, 7 steps):

$$\frac{2\,C\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}{3\,b\,d\,f}-$$

$$\left(2\sqrt{-b\,c+a\,d}\,\left(2\,a\,C\,d\,f-b\,\left(3\,B\,d\,f-2\,C\,\left(d\,e+c\,f\right)\right)\right)\sqrt{\frac{b\,\left(c+d\,x\right)}{b\,c-a\,d}}\,\sqrt{e+f\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{\left(b\,c-a\,d\right)\,f}{d\,\left(b\,e-a\,f\right)}\right]\right)\Big/$$

$$\left(3\,b^2\,d^{3/2}\,f^2\sqrt{c+d\,x}\,\sqrt{\frac{b\,\left(e+f\,x\right)}{b\,e-a\,f}}\right)+\left(2\sqrt{-b\,c+a\,d}\,\left(a\,C\,f\,\left(d\,e-c\,f\right)-b\,\left(3\,d\,f\,\left(B\,e-A\,f\right)-C\,e\,\left(2\,d\,e+c\,f\right)\right)\right)\right.$$

$$\left.\sqrt{\frac{b\,\left(c+d\,x\right)}{b\,c-a\,d}}\,\sqrt{\frac{b\,\left(e+f\,x\right)}{b\,e-a\,f}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,x}}{\sqrt{-b\,c+a\,d}}\right],\frac{\left(b\,c-a\,d\right)\,f}{d\,\left(b\,e-a\,f\right)}\right]\right)\Big/\left(3\,b^2\,d^{3/2}\,f^2\sqrt{c+d\,x}\,\sqrt{e+f\,x}\right)$$

Result (type 4, 418 leaves):

$$\frac{1}{3\,b^3\,d^2\,f^2\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}\sqrt{a+b\,x}\left(2\,b^2\,C\,d\,f\,(c+d\,x)\,(e+f\,x)-\frac{2\,b^2\,\big(-3\,b\,B\,d\,f+2\,a\,C\,d\,f+2\,b\,C\,(d\,e+c\,f)\big)\,(c+d\,x)\,(e+f\,x)}{a+b\,x}+\right.$$

$$2\,\mathrm{i}\,\sqrt{-a+\frac{b\,c}{d}}\,d\,f\,\big(3\,b\,B\,d\,f-2\,a\,C\,d\,f-2\,b\,C\,(d\,e+c\,f)\big)\,\sqrt{a+b\,x}\,\sqrt{\frac{b\,(c+d\,x)}{d\,(a+b\,x)}}\,\sqrt{\frac{b\,(e+f\,x)}{f\,(a+b\,x)}}$$

$$\mathrm{EllipticE}\Big[\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{-a+\frac{b\,c}{d}}}{\sqrt{a+b\,x}}\Big],\frac{b\,d\,e-a\,d\,f}{b\,c\,f-a\,d\,f}\Big]+\frac{1}{\sqrt{-a+\frac{b\,c}{d}}}2\,\mathrm{i}\,b\,f\,\Big(a\,C\,d\,(-d\,e+c\,f)+b\,\big(2\,c^2\,C\,f+3\,A\,d^2\,f+c\,d\,(C\,e-3\,B\,f)\big)\Big)$$

$$\left.\sqrt{a+b\,x}\,\sqrt{\frac{b\,(c+d\,x)}{d\,(a+b\,x)}}\,\sqrt{\frac{b\,(e+f\,x)}{f\,(a+b\,x)}}\,\mathrm{EllipticF}\Big[\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{-a+\frac{b\,c}{d}}}{\sqrt{a+b\,x}}\Big],\frac{b\,d\,e-a\,d\,f}{b\,c\,f-a\,d\,f}\Big]\right)$$

Problem 76: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{A+B\,x+C\,x^2}{(a+b\,x)^{3/2}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 422 leaves, 7 steps):

$$-\frac{2\left(A b^2-a\left(b B-a C\right)\right)\sqrt{c+d x}\,\sqrt{e+f x}}{b\left(b c-a d\right)\left(b e-a f\right)\sqrt{a+b x}}-$$

$$\left(2\left(2 a^2 C d f+b^2\left(c C e+A d f\right)-a b\left(C d e+c C f+B d f\right)\right)\sqrt{\frac{b\left(c+d x\right)}{b c-a d}}\,\sqrt{e+f x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b x}}{\sqrt{-b c+a d}}\right],\frac{\left(b c-a d\right) f}{d\left(b e-a f\right)}\right]\right)\Big/$$

$$\left(b^2\sqrt{d}\,\sqrt{-b c+a d}\,f\left(b e-a f\right)\sqrt{c+d x}\,\sqrt{\frac{b\left(e+f x\right)}{b e-a f}}\right)-$$

$$\frac{2\left(a C\left(d e-c f\right)-b\left(c C e-B c f+A d f\right)\right)\sqrt{\frac{b\left(c+d x\right)}{b c-a d}}\,\sqrt{\frac{b\left(e+f x\right)}{b e-a f}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b x}}{\sqrt{-b c+a d}}\right],\frac{\left(b c-a d\right) f}{d\left(b e-a f\right)}\right]}{b^2\sqrt{d}\,\sqrt{-b c+a d}\,f\sqrt{c+d x}\,\sqrt{e+f x}}$$

Result (type 4, 477 leaves) :

$$\frac{1}{b^3\left(b c-a d\right)\left(b e-a f\right)\sqrt{a+b x}\,\sqrt{c+d x}\,\sqrt{e+f x}}$$

$$2\left(-b^2\left(A b^2+a\left(-b B+a C\right)\right)\left(c+d x\right)\left(e+f x\right)+\frac{b^2\left(2 a^2 C d f+b^2\left(c C e+A d f\right)-a b\left(C d e+c C f+B d f\right)\right)\left(c+d x\right)\left(e+f x\right)}{d f}+\right.$$

$$\frac{1}{\sqrt{-a+\frac{b c}{d}}\,d}\,i\left(b c-a d\right)\left(2 a^2 C d f+b^2\left(c C e+A d f\right)-a b\left(C d e+c C f+B d f\right)\right)\left(a+b x\right)^{3/2}\sqrt{\frac{b\left(c+d x\right)}{d\left(a+b x\right)}}\,\sqrt{\frac{b\left(e+f x\right)}{f\left(a+b x\right)}}$$

$$\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-a+\frac{b c}{d}}}{\sqrt{a+b x}}\right],\frac{b d e-a d f}{b c f-a d f}\right]+\frac{1}{\sqrt{-a+\frac{b c}{d}}\,d}\,i\,b\left(-b c+a d\right)\left(a C\left(d e-c f\right)+b\left(c C e-B d e+A d f\right)\right)$$

$$\left.\left(a+b x\right)^{3/2}\sqrt{\frac{b\left(c+d x\right)}{d\left(a+b x\right)}}\,\sqrt{\frac{b\left(e+f x\right)}{f\left(a+b x\right)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-a+\frac{b c}{d}}}{\sqrt{a+b x}}\right],\frac{b d e-a d f}{b c f-a d f}\right]\right)$$

Problem 77: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A+B x+C x^2}{(a+b x)^{5/2} \sqrt{c+d x} \sqrt{e+f x}} \, dx$$

Optimal (type 4, 642 leaves, 8 steps):

$$-\frac{2 \left(A b^2-a (b B-a C)\right) \sqrt{c+d x} \sqrt{e+f x}}{3 b (b c-a d) (b e-a f) (a+b x)^{3/2}}+$$
$$\left(2 \left(2 a^3 C d f+a b^2 (6 c C e+B d e+B c f-4 A d f)-b^3 (3 B c e-2 A (d e+c f))+a^2 b (B d f-4 C (d e+c f))\right) \sqrt{c+d x} \sqrt{e+f x}\right) \Big/$$
$$\left(3 b (b c-a d)^2 (b e-a f)^2 \sqrt{a+b x}\right)-$$
$$\left(2 \sqrt{d} \left(2 a^3 C d f+a b^2 (6 c C e+B d e+B c f-4 A d f)-b^3 (3 B c e-2 A (d e+c f))+a^2 b (B d f-4 C (d e+c f))\right) \sqrt{\frac{b (c+d x)}{b c-a d}}\right.$$
$$\left.\sqrt{e+f x} \text{ EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d} \sqrt{a+b x}}{\sqrt{-b c+a d}}\right], \frac{(b c-a d) f}{d (b e-a f)}\right]\right) \Big/ \left(3 b^2 (-b c+a d)^{3/2} (b e-a f)^2 \sqrt{c+d x} \sqrt{\frac{b (e+f x)}{b e-a f}}\right)-$$
$$\left(2 \left(a^2 C d (d e-c f)-b^2 \left(3 c^2 C e-3 B c d e+2 A d^2 e+A c d f\right)+a b \left(3 \left(c^2 C+A d^2\right) f-B d (d e+2 c f)\right)\right) \sqrt{\frac{b (c+d x)}{b c-a d}}\right.$$
$$\left.\sqrt{\frac{b (e+f x)}{b e-a f}} \text{ EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d} \sqrt{a+b x}}{\sqrt{-b c+a d}}\right], \frac{(b c-a d) f}{d (b e-a f)}\right]\right) \Big/ \left(3 b^2 \sqrt{d} (-b c+a d)^{3/2} (b e-a f) \sqrt{c+d x} \sqrt{e+f x}\right)$$

Result (type 4, 4349 leaves):

$$\sqrt{a+b x} \sqrt{c+d x} \sqrt{e+f x} \left(-\frac{2 \left(A b^2-a b B+a^2 C\right)}{3 b (b c-a d) (b e-a f) (a+b x)^2}-\right.$$
$$\left(2 \left(3 b^3 B c e-6 a b^2 c C e-2 A b^3 d e-a b^2 B d e+4 a^2 b C d e-2 A b^3 c f-a b^2 B c f+4 a^2 b c C f+4 a A b^2 d f-a^2 b B d f-2 a^3 C d f\right)\right) \Big/$$
$$\left.\left(3 b (b c-a d)^2 (b e-a f)^2 (a+b x)\right)\right)+\frac{1}{3 b^3 (b c-a d)^2 (b e-a f)^2}$$

$$2\Bigg(\Big(\big(3 b^3 B c e - 6 a b^2 c C e - 2 A b^3 d e - a b^2 B d e + 4 a^2 b C d e - 2 A b^3 c f - a b^2 B c f + 4 a^2 b c C f + 4 a A b^2 d f - a^2 b B d f - 2 a^3 C d f\big)$$

$$(a + b x)^{3/2} \left(d + \frac{b c}{a + b x} - \frac{a d}{a + b x}\right) \left(f + \frac{b e}{a + b x} - \frac{a f}{a + b x}\right)\Big) \Big/ \left(\sqrt{c + \frac{(a + b x) \left(d - \frac{a d}{a+b x}\right)}{b}} \sqrt{e + \frac{(a + b x) \left(f - \frac{a f}{a+b x}\right)}{b}}\right) -$$

$$\frac{1}{\sqrt{c + \frac{(a+b x) \left(d-\frac{a d}{a+b x}\right)}{b}} \sqrt{e + \frac{(a+b x) \left(f-\frac{a f}{a+b x}\right)}{b}}} (b c - a d) (b e - a f) (a + b x) \sqrt{\left(d + \frac{b c}{a + b x} - \frac{a d}{a + b x}\right) \left(f + \frac{b e}{a + b x} - \frac{a f}{a + b x}\right)}$$

$$\Bigg(\Bigg(3 \mathrm{i} b^3 B c e f \sqrt{1 - \frac{-b c + a d}{d (a + b x)}} \sqrt{1 - \frac{-b e + a f}{f (a + b x)}}$$

$$\left(\text{EllipticE}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a + b x}}\right], \frac{d (-b e + a f)}{(-b c + a d) f}\right] - \text{EllipticF}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a + b x}}\right], \frac{d (-b e + a f)}{(-b c + a d) f}\right]\right)\Bigg) \Big/$$

$$\left(\sqrt{-\frac{-b c + a d}{d}} (-b e + a f) \sqrt{\left(d + \frac{b c - a d}{a + b x}\right) \left(f + \frac{b e - a f}{a + b x}\right)}\right) - \Bigg(6 \mathrm{i} a b^2 c C e f \sqrt{1 - \frac{-b c + a d}{d (a + b x)}} \sqrt{1 - \frac{-b e + a f}{f (a + b x)}}$$

$$\left(\text{EllipticE}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a + b x}}\right], \frac{d (-b e + a f)}{(-b c + a d) f}\right] - \text{EllipticF}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a + b x}}\right], \frac{d (-b e + a f)}{(-b c + a d) f}\right]\right)\Bigg) \Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(2\,i\,A\,b^3\,d\,e\,f\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(i\,a\,b^2\,B\,d\,e\,f\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(4\,i\,a^2\,b\,C\,d\,e\,f\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(2\,i\,A\,b^3\,c\,f^2\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\Bigg(i\,a\,b^2 B\,c\,f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(4\,i\,a^2 b\,c\,C\,f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\Bigg(4\,i\,a\,A\,b^2 d\,f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(\mathbb{i}\, a^2 b B d f^2 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]-\text{EllipticF}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(2\,\mathbb{i}\, a^3 C d f^2 \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]-\text{EllipticF}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]\right)\right)\Big/\left(\sqrt{-\frac{-b c+a d}{d}}\right.$$

$$\left.(-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\frac{3\,\mathbb{i}\, b^2 c C e \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\ \text{EllipticF}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{3\,\mathbb{i}\, a b C d e \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\ \text{EllipticF}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{3\,\mathbb{i}\, a b c C f \sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\ \text{EllipticF}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\ \frac{d\,(-b e+a f)}{(-b c+a d)\, f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{i\,A\,b^2\,d\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\Big],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\Big]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{i\,a\,b\,B\,d\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\Big],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\Big]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\left.\left.\frac{2\,i\,a^2\,C\,d\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\Big],\,\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\Big]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Problem 78: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A+B\,x+C\,x^2}{(a+b\,x)^{7/2}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}\,dx$$

Optimal (type 4, 1116 leaves, 9 steps) :

$$-\frac{2\left(A b^2-a\left(b B-a C\right)\right)\sqrt{c+d x}\,\sqrt{e+f x}}{5 b\left(b c-a d\right)\left(b e-a f\right)\left(a+b x\right)^{5/2}}+$$

$$\left(2\left(2 a^3 C d f+a b^2\left(10 c C e+B d e+B c f-8 A d f\right)-b^3\left(5 B c e-4 A\left(d e+c f\right)\right)+3 a^2 b\left(B d f-2 C\left(d e+c f\right)\right)\right)\sqrt{c+d x}\,\sqrt{e+f x}\right)\Big/$$

$$\left(15 b\left(b c-a d\right)^2\left(b e-a f\right)^2\left(a+b x\right)^{3/2}\right)+\frac{1}{15 b\left(b c-a d\right)^3\left(b e-a f\right)^3\sqrt{a+b x}}$$

$$2\left(2 a^4 C d^2 f^2+a^3 b d f\left(3 B d f-7 C\left(d e+c f\right)\right)-b^4\left(8 A d^2 e^2-c d e\left(10 B e-7 A f\right)+c^2\left(15 C e^2-10 B e f+8 A f^2\right)\right)-\right.$$
$$a b^3\left(d^2 e\left(2 B e-23 A f\right)-2 c^2 f\left(5 C e-B f\right)-c d\left(10 C e^2-33 B e f+23 A f^2\right)\right)-$$
$$\left.a^2 b^2\left(C\left(3 d^2 e^2-13 c d e f+3 c^2 f^2\right)+d f\left(23 A d f-7 B\left(d e+c f\right)\right)\right)\right)\sqrt{c+d x}\,\sqrt{e+f x}+\frac{1}{15 b^2\left(-b c+a d\right)^{5/2}\left(b e-a f\right)^3\sqrt{c+d x}\,\sqrt{\frac{b(e+f x)}{b e-a f}}}$$

$$2\sqrt{d}\,\left(2 a^4 C d^2 f^2+a^3 b d f\left(3 B d f-7 C\left(d e+c f\right)\right)-b^4\left(8 A d^2 e^2-c d e\left(10 B e-7 A f\right)+c^2\left(15 C e^2-10 B e f+8 A f^2\right)\right)-\right.$$
$$a b^3\left(d^2 e\left(2 B e-23 A f\right)-2 c^2 f\left(5 C e-B f\right)-c d\left(10 C e^2-33 B e f+23 A f^2\right)\right)-$$
$$\left.a^2 b^2\left(C\left(3 d^2 e^2-13 c d e f+3 c^2 f^2\right)+d f\left(23 A d f-7 B\left(d e+c f\right)\right)\right)\right)\sqrt{\frac{b\left(c+d x\right)}{b c-a d}}$$

$$\sqrt{e+f x}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b x}}{\sqrt{-b c+a d}}\right],\frac{\left(b c-a d\right) f}{d\left(b e-a f\right)}\right]+\frac{1}{15 b^2\left(-b c+a d\right)^{5/2}\left(b e-a f\right)^2\sqrt{c+d x}\,\sqrt{e+f x}}$$

$$2\sqrt{d}\,\left(a^3 C d f\left(d e-c f\right)+b^3\left(8 A d^2 e^2-c d e\left(10 B e-3 A f\right)+c^2\left(15 C e^2-5 B e f+4 A f^2\right)\right)+a b^2\right.$$
$$\left.\left(d^2 e\left(2 B e-19 A f\right)-c^2 f\left(20 C e-B f\right)-c d\left(10 C e^2-27 B e f+11 A f^2\right)\right)-3 a^2 b\left(d f\left(2 B d e+3 B c f-5 A d f\right)-C\left(d^2 e^2+c d e f+3 c^2 f^2\right)\right)\right)$$

$$\sqrt{\frac{b\left(c+d x\right)}{b c-a d}}\,\sqrt{\frac{b\left(e+f x\right)}{b e-a f}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b x}}{\sqrt{-b c+a d}}\right],\frac{\left(b c-a d\right) f}{d\left(b e-a f\right)}\right]$$

Result (type 4, 8844 leaves) :

$$\sqrt{a+b x}\,\sqrt{c+d x}\,\sqrt{e+f x}\left(-\frac{2\left(A b^2-a b B+a^2 C\right)}{5 b\left(b c-a d\right)\left(b e-a f\right)\left(a+b x\right)^3}-\right.$$

$$\left(2\left(5 b^3 B c e-10 a b^2 c C e-4 A b^3 d e-a b^2 B d e+6 a^2 b C d e-4 A b^3 c f-a b^2 B c f+6 a^2 b c C f+8 a A b^2 d f-3 a^2 b B d f-2 a^3 C d f\right)\right)\Big/$$

$$\left(15 b\left(b c-a d\right)^2\left(b e-a f\right)^2\left(a+b x\right)^2\right)-$$

$$\frac{1}{15 b\left(b c-a d\right)^3\left(b e-a f\right)^3\left(a+b x\right)}2\left(15 b^4 c^2 C e^2-10 b^4 B c d e^2-10 a b^3 c C d e^2+8 A b^4 d^2 e^2+2 a b^3 B d^2 e^2+3 a^2 b^2 C d^2 e^2-\right.$$
$$10 b^4 B c^2 e f-10 a b^3 c^2 C e f+7 A b^4 c d e f+33 a b^3 B c d e f-13 a^2 b^2 c C d e f-23 a A b^3 d^2 e f-7 a^2 b^2 B d^2 e f+7 a^3 b C d^2 e f+$$
$$\left.8 A b^4 c^2 f^2+2 a b^3 B c^2 f^2+3 a^2 b^2 c^2 C f^2-23 a A b^3 c d f^2-7 a^2 b^2 B c d f^2+7 a^3 b c C d f^2+23 a^2 A b^2 d^2 f^2-3 a^3 b B d^2 f^2-2 a^4 C d^2 f^2\right)+$$

$$\frac{1}{15\,b^3\,(b\,c-a\,d)^3\,(b\,e-a\,f)^3}\,2\,d\,f\left(\frac{1}{d\,f\,\sqrt{c+\frac{(a+b\,x)\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}}\right.$$

$$\left(15\,b^4\,c^2\,C\,e^2-10\,b^4\,B\,c\,d\,e^2-10\,a\,b^3\,c\,C\,d\,e^2+8\,A\,b^4\,d^2\,e^2+2\,a\,b^3\,B\,d^2\,e^2+3\,a^2\,b^2\,C\,d^2\,e^2-10\,b^4\,B\,c^2\,e\,f-10\,a\,b^3\,c^2\,C\,e\,f+7\,A\,b^4\,c\,d\,e\,f+\right.$$
$$33\,a\,b^3\,B\,c\,d\,e\,f-13\,a^2\,b^2\,c\,C\,d\,e\,f-23\,a\,A\,b^3\,d^2\,e\,f-7\,a^2\,b^2\,B\,d^2\,e\,f+7\,a^3\,b\,C\,d^2\,e\,f+8\,A\,b^4\,c^2\,f^2+2\,a\,b^3\,B\,c^2\,f^2+3\,a^2\,b^2\,c^2\,C\,f^2-23\,a\,A\,b^3\,c\,d\,f^2-$$
$$\left.7\,a^2\,b^2\,B\,c\,d\,f^2+7\,a^3\,b\,c\,C\,d\,f^2+23\,a^2\,A\,b^2\,d^2\,f^2-3\,a^3\,b\,B\,d^2\,f^2-2\,a^4\,C\,d^2\,f^2\right)(a+b\,x)^{3/2}\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)+$$

$$\frac{1}{d\,f\,\sqrt{c+\frac{(a+b\,x)\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}}\,(-b\,c+a\,d)\,(-b\,e+a\,f)\,(a+b\,x)\,\sqrt{\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)}$$

$$\left(-\left(\left(15\,i\,b^4\,c^2\,C\,e^2\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\right.\right.\right.\right.$$

$$\left.\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)\right)+$$

$$\left(10\,i\,b^4\,B\,c\,d\,e^2\,f\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\right.\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(10\ i\ a b^3 c\ C\ d\ e^2 f\ \sqrt{1-\frac{-b c+a d}{d\ (a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\ (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\ (-b e+a f)}{(-b c+a d)\ f}\right]-\text{EllipticF}\left[i\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\ (-b e+a f)}{(-b c+a d)\ f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(8\ i\ A\ b^4 d^2 e^2 f\ \sqrt{1-\frac{-b c+a d}{d\ (a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\ (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\ (-b e+a f)}{(-b c+a d)\ f}\right]-\text{EllipticF}\left[i\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\ (-b e+a f)}{(-b c+a d)\ f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(2\ i\ a b^3 B\ d^2 e^2 f\ \sqrt{1-\frac{-b c+a d}{d\ (a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\ (a+b x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\ (-b e+a f)}{(-b c+a d)\ f}\right]-\text{EllipticF}\left[i\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\ (-b e+a f)}{(-b c+a d)\ f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\ (-b e+a f)\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(3\ i\ a^2 b^2 C\ d^2 e^2 f\ \sqrt{1-\frac{-b c+a d}{d\ (a+b x)}}\ \sqrt{1-\frac{-b e+a f}{f\ (a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(10\,i\,b^4 B c^2 e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(10\,i\,a b^3 c^2 C e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(7\,i\,A b^4 c d e f^2\sqrt{1-\frac{-b c+a d}{d(a+b x)}}\sqrt{1-\frac{-b e+a f}{f(a+b x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d(-b e+a f)}{(-b c+a d) f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\left(-b e+a f\right)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-\left(33\,\mathrm{i}\,a\,b^3\,B\,c\,d\,e\,f^2\sqrt{1-\frac{-b c+a d}{d\left(a+b x\right)}}\sqrt{1-\frac{-b e+a f}{f\left(a+b x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\left(-b e+a f\right)}{\left(-b c+a d\right)f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\left(-b e+a f\right)}{\left(-b c+a d\right)f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\left(-b e+a f\right)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(13\,\mathrm{i}\,a^2\,b^2\,c\,C\,d\,e\,f^2\sqrt{1-\frac{-b c+a d}{d\left(a+b x\right)}}\sqrt{1-\frac{-b e+a f}{f\left(a+b x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\left(-b e+a f\right)}{\left(-b c+a d\right)f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\left(-b e+a f\right)}{\left(-b c+a d\right)f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\left(-b e+a f\right)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(23\,\mathrm{i}\,a\,A\,b^3\,d^2\,e\,f^2\sqrt{1-\frac{-b c+a d}{d\left(a+b x\right)}}\sqrt{1-\frac{-b e+a f}{f\left(a+b x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\left(-b e+a f\right)}{\left(-b c+a d\right)f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\left(-b e+a f\right)}{\left(-b c+a d\right)f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\left(-b e+a f\right)\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)+\left(7\,\mathrm{i}\,a^2\,b^2\,B\,d^2\,e\,f^2\sqrt{1-\frac{-b c+a d}{d\left(a+b x\right)}}\sqrt{1-\frac{-b e+a f}{f\left(a+b x\right)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(7\,i\,a^3\,b\,C\,d^2\,e\,f^2\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(8\,i\,A\,b^4\,c^2\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\Bigg(2\,i\,a\,b^3\,B\,c^2\,f^3\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(3\,\mathrm{i}\,a^2\,b^2\,c^2\,C\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(23\,\mathrm{i}\,a\,A\,b^3\,c\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(7\,\mathrm{i}\,a^2\,b^2\,B\,c\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(7\,\mathrm{i}\,a^3\,b\,c\,C\,d\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)-\left(23\,i\,a^2\,A\,b^2\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(3\,i\,a^3\,b\,B\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b\,c+a\,d}{d}}\,(-b\,e+a\,f)\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}\right)+\left(2\,i\,a^4\,C\,d^2\,f^3\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-b c+a d}{d}}\,(-b e+a f)\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}\right)-$$

$$\frac{5\,i\,b^3 B c d e f\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{10\,i\,a b^2 c C d e f\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{4\,i\,A b^3 d^2 e f\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{i\,a b^2 B d^2 e f\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}-$$

$$\frac{6\,i\,a^2 b C d^2 e f\,\sqrt{1-\frac{-b c+a d}{d\,(a+b x)}}\,\sqrt{1-\frac{-b e+a f}{f\,(a+b x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b c+a d}{d}}}{\sqrt{a+b x}}\right],\frac{d\,(-b e+a f)}{(-b c+a d)\,f}\right]}{\sqrt{-\frac{-b c+a d}{d}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)}}+$$

$$\frac{4\,\mathrm{i}\,A\,b^3\,c\,d\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{\mathrm{i}\,a\,b^2\,B\,c\,d\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{6\,\mathrm{i}\,a^2\,b\,c\,C\,d\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}-$$

$$\frac{8\,\mathrm{i}\,a\,A\,b^2\,d^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\frac{3\,\mathrm{i}\,a^2\,b\,B\,d^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}+$$

$$\left.\left.\frac{2\,\mathrm{i}\,a^3\,C\,d^2\,f^2\,\sqrt{1-\frac{-b\,c+a\,d}{d\,(a+b\,x)}}\,\sqrt{1-\frac{-b\,e+a\,f}{f\,(a+b\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-b\,c+a\,d}{d}}}{\sqrt{a+b\,x}}\right],\frac{d\,(-b\,e+a\,f)}{(-b\,c+a\,d)\,f}\right]}{\sqrt{-\frac{-b\,c+a\,d}{d}}\,\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)}}\right)\right)$$

Test results for the 35 problems in "1.1.1.7 P(x) (a+b x)^m (c+d x)^n (e+f x)^p (g+h x)^q.m"

Problem 1: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^2 (A+B x)}{\sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}} \, dx$$

Optimal (type 4, 700 leaves, 9 steps):

$$\frac{2 b \left(7 a B d f h+b \left(5 A d f h-4 B (d f g+d e h+c f h)\right)\right) \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{15 d^2 f^2 h^2}+$$

$$\frac{2 b B (a+b x) \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{5 d f h}+\left(2 \sqrt{-d e+c f} \left(15 a^2 B d^2 f^2 h^2+10 a b d f h \left(3 A d f h-2 B (d f g+d e h+c f h)\right)-\right.\right.$$

$$\left.\left. b^2 \left(10 A d f h (d f g+d e h+c f h)-B \left(8 c^2 f^2 h^2+7 c d f h (f g+e h)+d^2 \left(8 f^2 g^2+7 e f g h+8 e^2 h^2\right)\right)\right)\right)$$

$$\left.\sqrt{\frac{d (e+f x)}{d e-c f}} \sqrt{g+h x} \, \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right], \frac{(d e-c f) h}{f (d g-c h)}\right]\right) \Big/ \left(15 d^3 f^{5/2} h^3 \sqrt{e+f x} \sqrt{\frac{d (g+h x)}{d g-c h}}\right)-$$

$$\frac{1}{15 d^3 f^{5/2} h^3 \sqrt{e+f x} \sqrt{g+h x}} 2 \sqrt{-d e+c f} \left(15 a^2 d^2 f^2 h^2 (B g-A h)+10 a b d f h \left(3 A d f g h-B \left(c h (f g-e h)+d g (2 f g+e h)\right)\right)-\right.$$

$$\left. b^2 \left(5 A d f h \left(c h (f g-e h)+d g (2 f g+e h)\right)-B \left(4 c^2 f h^2 (f g-e h)+c d h \left(3 f^2 g^2+e f g h-4 e^2 h^2\right)+d^2 g \left(8 f^2 g^2+3 e f g h+4 e^2 h^2\right)\right)\right)\right)$$

$$\sqrt{\frac{d (e+f x)}{d e-c f}} \sqrt{\frac{d (g+h x)}{d g-c h}} \, \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right], \frac{(d e-c f) h}{f (d g-c h)}\right]$$

Result (type 4, 12 443 leaves):

$$\sqrt{c+d x} \sqrt{e+f x} \left(\frac{2 b (-4 b B d f g-4 b B d e h-4 b B c f h+5 A b d f h+10 a B d f h)}{15 d^2 f^2 h^2}+\frac{2 b^2 B x}{5 d f h}\right) \sqrt{g+h x}+$$

$$\frac{1}{15 d^4 f^2 h^2} \left(\left(2 \left(8 b^2 B d^2 f^2 g^2+7 b^2 B d^2 e f g h+7 b^2 B c d f^2 g h-10 A b^2 d^2 f^2 g h-20 a b B d^2 f^2 g h+8 b^2 B d^2 e^2 h^2+7 b^2 B c d e f h^2-\right.\right.\right.$$

$$\left. 10 A b^2 d^2 e f h^2-20 a b B d^2 e f h^2+8 b^2 B c^2 f^2 h^2-10 A b^2 c d f^2 h^2-20 a b B c d f^2 h^2+30 a A b d^2 f^2 h^2+15 a^2 B d^2 f^2 h^2\right)$$

$$\left.(c+d x)^{3/2} \left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right) \left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)\right) \Big/ \left(f h \sqrt{e+\frac{(c+d x) \left(f-\frac{c f}{c+d x}\right)}{d}} \sqrt{g+\frac{(c+d x) \left(h-\frac{c h}{c+d x}\right)}{d}}\right)-$$

$$\frac{1}{f\,h\sqrt{e+\frac{(c+d\,x)\left(f-\frac{c\,f}{c+d\,x}\right)}{d}}\sqrt{g+\frac{(c+d\,x)\left(h-\frac{c\,h}{c+d\,x}\right)}{d}}}\,2\,(c+d\,x)\sqrt{\left(f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}\right)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}\left(\left(8\,\mathrm{i}\,b^2\,B\,d^4\,e\,f^2\,g^3\,h\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\right.\right.$$

$$\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\left(8\,\mathrm{i}\,b^2\,B\,c\,d^3\,f^3\,g^3\,h\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)+\left(7\,\mathrm{i}\,b^2\,B\,d^4\,e^2\,f\,g^2\,h^2\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\left(8\,\mathrm{i}\,b^2\,B\,c\,d^3\,e\,f^2\,g^2\,h^2\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(10\,i\,A\,b^2 d^4 e f^2 g^2 h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\;\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(20\,i\,a\,b\,B\,d^4 e f^2 g^2 h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\;\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(i\,b^2 B\,c^2 d^2 f^3 g^2 h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\;\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(10\,i\,A\,b^2\,c\,d^3\,f^3\,g^2\,h^2\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(20\,i\,a\,b\,B\,c\,d^3\,f^3\,g^2\,h^2\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(8\,i\,b^2\,B\,d^4\,e^3\,g\,h^3\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(8\,i\,b^2\,B\,c\,d^3\,e^2\,f\,g\,h^3\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(10\,i\,A\,b^2 d^4 e^2 f g h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(20\,i\,a\,b\,B\,d^4 e^2 f g h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(i\,b^2 B\,c^2 d^2 e f^2 g h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(10\,\mathbb{i}\,A\,b^2\,c\,d^3\,e\,f^2\,g\,h^3\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(20\,\mathbb{i}\,a\,b\,B\,c\,d^3\,e\,f^2\,g\,h^3\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(30\,\mathbb{i}\,a\,A\,b\,d^4\,e\,f^2\,g\,h^3\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(15\,\mathbb{i}\,a^2\,B\,d^4\,e\,f^2\,g\,h^3\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(i\,b^2 B c^3 d f^3 g h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(30\,i\,a A b c d^3 f^3 g h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(15\,i\,a^2 B c d^3 f^3 g h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(8\,\mathbb{i}\,b^2 B c d^3 e^3 h^4\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(\mathbb{i}\,b^2 B c^2 d^2 e^2 f h^4\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(10\,\mathbb{i}\,A b^2 c d^3 e^2 f h^4\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(20\,\mathbb{i}\,a b B c d^3 e^2 f h^4\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(i\,b^2 B c^3 d e f^2 h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(30\,i\,a A b c d^3 e f^2 h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(15\,i\,a^2 B c d^3 e f^2 h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(8\,i\,b^2 B c^4 f^3 h^4\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(10\,i\,A b^2 c^3 d f^3 h^4\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(20\,i\,a b B c^3 d f^3 h^4\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(30\,i\,a A b c^2 d^2 f^3 h^4\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\bigg)\bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(15\,\mathbb{i}\,a^2\,B\,c^2\,d^2\,f^3\,h^4\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\Bigg)\bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-$$

$$\frac{4\,\mathbb{i}\,b^2\,B\,d^3\,e\,f^2\,g^2\,h\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{4\,\mathbb{i}\,b^2\,B\,c\,d^2\,f^3\,g^2\,h\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}-$$

$$\frac{4\,\mathbb{i}\,b^2\,B\,d^3\,e^2\,f\,g\,h^2\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{i\, b^2\, B\, c\, d^2\, e\, f^2\, g\, h^2 \sqrt{1-\frac{-d\, e+c\, f}{f\, (c+d\, x)}}\, \sqrt{1-\frac{-d\, g+c\, h}{h\, (c+d\, x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\, e+c\, f}{f}}}{\sqrt{c+d\, x}}\right], \frac{f\, (-d\, g+c\, h)}{(-d\, e+c\, f)\, h}\right]}{\sqrt{-\frac{-d\, e+c\, f}{f}}\, \sqrt{\left(f+\frac{d\, e-c\, f}{c+d\, x}\right)\left(h+\frac{d\, g-c\, h}{c+d\, x}\right)}}+$$

$$\frac{5\, i\, A\, b^2\, d^3\, e\, f^2\, g\, h^2 \sqrt{1-\frac{-d\, e+c\, f}{f\, (c+d\, x)}}\, \sqrt{1-\frac{-d\, g+c\, h}{h\, (c+d\, x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\, e+c\, f}{f}}}{\sqrt{c+d\, x}}\right], \frac{f\, (-d\, g+c\, h)}{(-d\, e+c\, f)\, h}\right]}{\sqrt{-\frac{-d\, e+c\, f}{f}}\, \sqrt{\left(f+\frac{d\, e-c\, f}{c+d\, x}\right)\left(h+\frac{d\, g-c\, h}{c+d\, x}\right)}}+$$

$$\frac{10\, i\, a\, b\, B\, d^3\, e\, f^2\, g\, h^2 \sqrt{1-\frac{-d\, e+c\, f}{f\, (c+d\, x)}}\, \sqrt{1-\frac{-d\, g+c\, h}{h\, (c+d\, x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\, e+c\, f}{f}}}{\sqrt{c+d\, x}}\right], \frac{f\, (-d\, g+c\, h)}{(-d\, e+c\, f)\, h}\right]}{\sqrt{-\frac{-d\, e+c\, f}{f}}\, \sqrt{\left(f+\frac{d\, e-c\, f}{c+d\, x}\right)\left(h+\frac{d\, g-c\, h}{c+d\, x}\right)}}+$$

$$\frac{3\, i\, b^2\, B\, c^2\, d\, f^3\, g\, h^2 \sqrt{1-\frac{-d\, e+c\, f}{f\, (c+d\, x)}}\, \sqrt{1-\frac{-d\, g+c\, h}{h\, (c+d\, x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\, e+c\, f}{f}}}{\sqrt{c+d\, x}}\right], \frac{f\, (-d\, g+c\, h)}{(-d\, e+c\, f)\, h}\right]}{\sqrt{-\frac{-d\, e+c\, f}{f}}\, \sqrt{\left(f+\frac{d\, e-c\, f}{c+d\, x}\right)\left(h+\frac{d\, g-c\, h}{c+d\, x}\right)}}-$$

$$\frac{5\, i\, A\, b^2\, c\, d^2\, f^3\, g\, h^2 \sqrt{1-\frac{-d\, e+c\, f}{f\, (c+d\, x)}}\, \sqrt{1-\frac{-d\, g+c\, h}{h\, (c+d\, x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\, e+c\, f}{f}}}{\sqrt{c+d\, x}}\right], \frac{f\, (-d\, g+c\, h)}{(-d\, e+c\, f)\, h}\right]}{\sqrt{-\frac{-d\, e+c\, f}{f}}\, \sqrt{\left(f+\frac{d\, e-c\, f}{c+d\, x}\right)\left(h+\frac{d\, g-c\, h}{c+d\, x}\right)}}-$$

$$\frac{10\, i\, a\, b\, B\, c\, d^2\, f^3\, g\, h^2 \sqrt{1-\frac{-d\, e+c\, f}{f\, (c+d\, x)}}\, \sqrt{1-\frac{-d\, g+c\, h}{h\, (c+d\, x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\, e+c\, f}{f}}}{\sqrt{c+d\, x}}\right], \frac{f\, (-d\, g+c\, h)}{(-d\, e+c\, f)\, h}\right]}{\sqrt{-\frac{-d\, e+c\, f}{f}}\, \sqrt{\left(f+\frac{d\, e-c\, f}{c+d\, x}\right)\left(h+\frac{d\, g-c\, h}{c+d\, x}\right)}}+$$

$$\frac{4\,\mathbb{i}\,b^2\,B\,c\,d^2\,e^2\,f\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{3\,\mathbb{i}\,b^2\,B\,c^2\,d\,e\,f^2\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{5\,\mathbb{i}\,A\,b^2\,c\,d^2\,e\,f^2\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{10\,\mathbb{i}\,a\,b\,B\,c\,d^2\,e\,f^2\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{8\,\mathbb{i}\,b^2\,B\,c^3\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{10\,\mathbb{i}\,A\,b^2\,c^2\,d\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{20\,i\,a\,b\,B\,c^2\,d\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{30\,i\,a\,A\,b\,c\,d^2\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{15\,i\,a^2\,B\,c\,d^2\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\left.\left.\frac{15\,i\,a^2\,A\,d^3\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}\right)\right)$$

Problem 2: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{(a+b\,x)\,(A+B\,x)}{\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 405 leaves, 8 steps):

$$\frac{2\,b\,B\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{3\,d\,f\,h}+$$

$$\left(2\,\sqrt{-d\,e+c\,f}\,\left(3\,a\,B\,d\,f\,h+b\,\left(3\,A\,d\,f\,h-2\,B\,\left(d\,f\,g+d\,e\,h+c\,f\,h\right)\right)\right)\,\sqrt{\frac{d\,\left(e+f\,x\right)}{d\,e-c\,f}}\,\sqrt{g+h\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\,\frac{\left(d\,e-c\,f\right)\,h}{f\,\left(d\,g-c\,h\right)}\right]\right)\Big/$$

$$\left(3\,d^2\,f^{3/2}\,h^2\,\sqrt{e+f\,x}\,\sqrt{\frac{d\,\left(g+h\,x\right)}{d\,g-c\,h}}\right)-\left(2\,\sqrt{-d\,e+c\,f}\,\left(3\,a\,d\,f\,h\,\left(B\,g-A\,h\right)+b\,\left(3\,A\,d\,f\,g\,h-B\,\left(c\,h\,\left(f\,g-e\,h\right)+d\,g\,\left(2\,f\,g+e\,h\right)\right)\right)\right)\right.$$

$$\left.\sqrt{\frac{d\,\left(e+f\,x\right)}{d\,e-c\,f}}\,\sqrt{\frac{d\,\left(g+h\,x\right)}{d\,g-c\,h}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\,\frac{\left(d\,e-c\,f\right)\,h}{f\,\left(d\,g-c\,h\right)}\right]\right)\Big/\left(3\,d^2\,f^{3/2}\,h^2\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}\right)$$

Result (type 4, 450 leaves):

$$\frac{1}{3\,d^3\,f^2\,h^2\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}$$

$$\sqrt{c+d\,x}\,\left(2\,b\,B\,d^2\,f\,h\,\left(e+f\,x\right)\,\left(g+h\,x\right)-\frac{2\,d^2\,\left(-3\,A\,b\,d\,f\,h-3\,a\,B\,d\,f\,h+2\,b\,B\,\left(d\,f\,g+d\,e\,h+c\,f\,h\right)\right)\,\left(e+f\,x\right)\,\left(g+h\,x\right)}{c+d\,x}+\frac{1}{\sqrt{-c+\frac{d\,e}{f}}}2\,\mathrm{i}\,\left(d\,e-c\,f\right)\,h\right.$$

$$\left(3\,A\,b\,d\,f\,h+3\,a\,B\,d\,f\,h-2\,b\,B\,\left(d\,f\,g+d\,e\,h+c\,f\,h\right)\right)\,\sqrt{c+d\,x}\,\sqrt{\frac{d\,\left(e+f\,x\right)}{f\,\left(c+d\,x\right)}}\,\sqrt{\frac{d\,\left(g+h\,x\right)}{h\,\left(c+d\,x\right)}}\,\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d\,e}{f}}}{\sqrt{c+d\,x}}\right],\,\frac{d\,f\,g-c\,f\,h}{d\,e\,h-c\,f\,h}\right]+$$

$$\frac{1}{\sqrt{-c+\frac{d\,e}{f}}}2\,\mathrm{i}\,d\,h\,\left(3\,a\,d\,f\,\left(-B\,e+A\,f\right)\,h+b\,\left(-3\,A\,d\,e\,f\,h+B\,c\,f\,\left(-f\,g+e\,h\right)+B\,d\,e\,\left(f\,g+2\,e\,h\right)\right)\right)\,\sqrt{c+d\,x}$$

$$\left.\sqrt{\frac{d\,\left(e+f\,x\right)}{f\,\left(c+d\,x\right)}}\,\sqrt{\frac{d\,\left(g+h\,x\right)}{h\,\left(c+d\,x\right)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d\,e}{f}}}{\sqrt{c+d\,x}}\right],\,\frac{d\,f\,g-c\,f\,h}{d\,e\,h-c\,f\,h}\right]\right)$$

Problem 3: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{A+B x}{\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}\,dx$$

Optimal (type 4, 284 leaves, 6 steps):

$$\frac{2 B \sqrt{-d e+c f}\,\sqrt{\frac{d (e+f x)}{d e-c f}}\,\sqrt{g+h x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f) h}{f (d g-c h)}\right]}{d \sqrt{f}\,h \sqrt{e+f x}\,\sqrt{\frac{d (g+h x)}{d g-c h}}}-\frac{2 \sqrt{-d e+c f}\,(B g-A h)\,\sqrt{\frac{d (e+f x)}{d e-c f}}\,\sqrt{\frac{d (g+h x)}{d g-c h}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f) h}{f (d g-c h)}\right]}{d \sqrt{f}\,h \sqrt{e+f x}\,\sqrt{g+h x}}$$

Result (type 4, 319 leaves):

$$-\left(\left(2\left(-B d^2 \sqrt{-c+\frac{d e}{f}}\,(e+f x)\,(g+h x)-\right.\right.\right.$$

$$i B (d e-c f)\,h\,(c+d x)^{3/2} \sqrt{\frac{d (e+f x)}{f (c+d x)}}\,\sqrt{\frac{d (g+h x)}{h (c+d x)}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d e}{f}}}{\sqrt{c+d x}}\right],\frac{d f g-c f h}{d e h-c f h}\right]+i d (B e-A f)\,h\,(c+d x)^{3/2}$$

$$\left.\left.\left.\sqrt{\frac{d (e+f x)}{f (c+d x)}}\,\sqrt{\frac{d (g+h x)}{h (c+d x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d e}{f}}}{\sqrt{c+d x}}\right],\frac{d f g-c f h}{d e h-c f h}\right]\right)\right)\Big/\left(d^2 \sqrt{-c+\frac{d e}{f}}\,f h \sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}\right)\right)$$

Problem 4: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{A+B x}{(a+b x)\,\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}\,dx$$

Optimal (type 4, 313 leaves, 9 steps):

$$\frac{2 B \sqrt{-d e+c f} \sqrt{\frac{d (e+f x)}{d e-c f}} \sqrt{\frac{d (g+h x)}{d g-c h}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right], \frac{(d e-c f) h}{f (d g-c h)}\right]}{b d \sqrt{f} \sqrt{e+f x} \sqrt{g+h x}} -$$

$$\frac{2 \left(A-\frac{a B}{b}\right) \sqrt{-d e+c f} \sqrt{\frac{d (e+f x)}{d e-c f}} \sqrt{\frac{d (g+h x)}{d g-c h}} \text{EllipticPi}\left[-\frac{b (d e-c f)}{(b c-a d) f}, \text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right], \frac{(d e-c f) h}{f (d g-c h)}\right]}{(b c-a d) \sqrt{f} \sqrt{e+f x} \sqrt{g+h x}}$$

Result (type 4, 244 leaves) :

$$\left(2 i \sqrt{e+f x} \sqrt{\frac{d (g+h x)}{h (c+d x)}} \left(b (-B c+A d) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d e}{f}}}{\sqrt{c+d x}}\right], \frac{d f g-c f h}{d e h-c f h}\right] + \right.\right.$$

$$\left.\left.(-A b+a B) d \text{EllipticPi}\left[\frac{(b c-a d) f}{b (-d e+c f)}, i \text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d e}{f}}}{\sqrt{c+d x}}\right], \frac{d f g-c f h}{d e h-c f h}\right]\right)\right) \Big/ \left(b (-b c+a d) \sqrt{-c+\frac{d e}{f}} f \sqrt{\frac{d (e+f x)}{f (c+d x)}} \sqrt{g+h x}\right)$$

Problem 5: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A+B x}{(a+b x)^2 \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}} \, dx$$

Optimal (type 4, 678 leaves, 12 steps) :

$$-\frac{b\,(A\,b-a\,B)\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{(b\,c-a\,d)\,(b\,e-a\,f)\,(b\,g-a\,h)\,(a+b\,x)}+\frac{(A\,b-a\,B)\,\sqrt{f}\,\sqrt{-d\,e+c\,f}\,\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{g+h\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]}{(b\,c-a\,d)\,(b\,e-a\,f)\,(b\,g-a\,h)\,\sqrt{e+f\,x}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}}-$$

$$\frac{(A\,b-a\,B)\,\sqrt{f}\,\sqrt{-d\,e+c\,f}\,\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]}{b\,(b\,c-a\,d)\,(b\,e-a\,f)\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}+$$

$$\left(\sqrt{-d\,e+c\,f}\,\left(3\,a^2\,A\,b\,d\,f\,h-a^3\,B\,d\,f\,h-b^3\,\left(2\,B\,c\,e\,g-A\,(d\,e\,g+c\,f\,g+c\,e\,h)\right)+a\,b^2\,\left(B\,(d\,e\,g+c\,f\,g+c\,e\,h)-2\,A\,(d\,f\,g+d\,e\,h+c\,f\,h)\right)\right)\,\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\right.$$

$$\left.\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\,\text{EllipticPi}\left[-\frac{b\,(d\,e-c\,f)}{(b\,c-a\,d)\,f},\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]\right)\Big/\left(b\,(b\,c-a\,d)^2\,\sqrt{f}\,(b\,e-a\,f)\,(b\,g-a\,h)\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}\right)$$

Result (type 4, 14 516 leaves):

$$-\frac{b\,(A\,b-a\,B)\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{(b\,c-a\,d)\,(b\,e-a\,f)\,(b\,g-a\,h)\,(a+b\,x)}-$$

$$\frac{1}{d\,(-b\,c+a\,d)\,(-b\,e+a\,f)\,(-b\,g+a\,h)}\left(\frac{(A\,b-a\,B)\,(c+d\,x)^{3/2}\,\left(f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}\right)\,\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{\sqrt{e+\frac{(c+d\,x)\,\left(f-\frac{c\,f}{c+d\,x}\right)}{d}}\,\sqrt{g+\frac{(c+d\,x)\,\left(h-\frac{c\,h}{c+d\,x}\right)}{d}}}+\left((c+d\,x)\,\left(-b+\frac{b\,c}{c+d\,x}-\frac{a\,d}{c+d\,x}\right)\right.\right.$$

$$\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}$$

$$\left(\frac{(b\,c-a\,d)\,h\,(-2\,b\,B\,e\,g+A\,b\,f\,g+a\,B\,f\,g+A\,b\,e\,h+a\,B\,e\,h-2\,a\,A\,f\,h)}{(-b\,g+a\,h)\,\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}}-\frac{(A\,b-a\,B)\,(d\,e-c\,f)\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}}{\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}}+\right.$$

$$\left(2\,b^3\,B\,c\,e\,g-A\,b^3\,d\,e\,g-a\,b^2\,B\,d\,e\,g-A\,b^3\,c\,f\,g-a\,b^2\,B\,c\,f\,g+2\,a\,A\,b^2\,d\,f\,g-A\,b^3\,c\,e\,h-a\,b^2\,B\,c\,e\,h+2\,a\,A\,b^2\,d\,e\,h+2\,a\,A\,b^2\,c\,f\,h-\right.$$

$$3 a^2 A b d f h + a^3 B d f h) \sqrt{h + \frac{d g}{c + d x} - \frac{c h}{c + d x}} \Bigg/ \left((-b g + a h) \left(b - \frac{b c}{c + d x} + \frac{a d}{c + d x}\right) \sqrt{f + \frac{d e}{c + d x} - \frac{c f}{c + d x}} \right) \Bigg)$$

$$\Bigg(\Bigg(i A b d^2 e f g \sqrt{1 - \frac{-d e + c f}{f (c + d x)}} \sqrt{1 - \frac{-d g + c h}{h (c + d x)}} \Bigg(\text{EllipticE}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g + c h}{h}}}{\sqrt{c + d x}} \right], \frac{(-d e + c f) h}{f (-d g + c h)} \right] -$$

$$\text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g + c h}{h}}}{\sqrt{c + d x}} \right], \frac{(-d e + c f) h}{f (-d g + c h)} \right] \Bigg) \Bigg) \Bigg/$$

$$\left((b c - a d) (-d e + c f) \sqrt{-\frac{-d g + c h}{h}} \sqrt{f h + \frac{d^2 e g - c d f g - c d e h + c^2 f h}{(c + d x)^2} + \frac{d f g + d e h - 2 c f h}{c + d x}} \right) - \Bigg(i a B d^2 e f g \sqrt{1 - \frac{-d e + c f}{f (c + d x)}}$$

$$\sqrt{1 - \frac{-d g + c h}{h (c + d x)}} \Bigg(\text{EllipticE}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g + c h}{h}}}{\sqrt{c + d x}} \right], \frac{(-d e + c f) h}{f (-d g + c h)} \right] - \text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g + c h}{h}}}{\sqrt{c + d x}} \right], \frac{(-d e + c f) h}{f (-d g + c h)} \right] \Bigg) \Bigg) \Bigg/$$

$$\left((b c - a d) (-d e + c f) \sqrt{-\frac{-d g + c h}{h}} \sqrt{f h + \frac{d^2 e g - c d f g - c d e h + c^2 f h}{(c + d x)^2} + \frac{d f g + d e h - 2 c f h}{c + d x}} \right) - \Bigg(i A b c d f^2 g \sqrt{1 - \frac{-d e + c f}{f (c + d x)}}$$

$$\sqrt{1 - \frac{-d g + c h}{h (c + d x)}} \Bigg(\text{EllipticE}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g + c h}{h}}}{\sqrt{c + d x}} \right], \frac{(-d e + c f) h}{f (-d g + c h)} \right] - \text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g + c h}{h}}}{\sqrt{c + d x}} \right], \frac{(-d e + c f) h}{f (-d g + c h)} \right] \Bigg) \Bigg) \Bigg/$$

$$\left((b c-a d)\,(-d e+c f)\,\sqrt{-\frac{-d g+c h}{h}}\,\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)+\left(\mathrm{i}\,a B c d f^2 g\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\right.$$

$$\left.\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]\right)\right)\Big/$$

$$\left((b c-a d)\,(-d e+c f)\,\sqrt{-\frac{-d g+c h}{h}}\,\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)-\left(\mathrm{i}\,A b c d e f h\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\right.$$

$$\left.\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]\right)\right)\Big/$$

$$\left((b c-a d)\,(-d e+c f)\,\sqrt{-\frac{-d g+c h}{h}}\,\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)+\left(\mathrm{i}\,a B c d e f h\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\right.$$

$$\left.\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]\right)\right)\Big/$$

$$\left((b c-a d)\,(-d e+c f)\,\sqrt{-\frac{-d g+c h}{h}}\,\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)+\left(\mathrm{i}\,A b c^2 f^2 h\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\right.$$

$$\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]\right)\right)\Big/$$

$$\left((b\,c-a\,d)\,(-d\,e+c\,f)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}\right)-\left(i\,a\,B\,c^2\,f^2\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\right.$$

$$\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]\right)\right)\Big/$$

$$\left((b\,c-a\,d)\,(-d\,e+c\,f)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}\right)-$$

$$\frac{i\,A\,b^2\,d^2\,e\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{i\,a\,b\,B\,d^2\,e\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{2\,i\,b\,B\,d\,e\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{i\,A\,b^2\,c\,d\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{i\,a\,b\,B\,c\,d\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{2\,i\,A\,b\,d\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{i\,A\,b^2\,c\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{i\,a\,b\,B\,c\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{2\,i\,A\,b\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{\mathbb{i}\, A\, b^2 c^2 f h \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{(b c-a d)^2 \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+$$

$$\frac{\mathbb{i}\, a\, b\, B\, c^2 f h \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{(b c-a d)^2 \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+$$

$$\frac{2\, \mathbb{i}\, A\, b\, c f h \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{(b c-a d) \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}-$$

$$\frac{2\, \mathbb{i}\, a\, B\, c f h \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{(b c-a d) \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+$$

$$\frac{2\, \mathbb{i}\, a\, A\, d f h \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{(b c-a d) \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+\frac{1}{(b c-a d)^3}$$

$$A\, b^3 d^2 e g \left(\frac{\mathbb{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\; \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{(b c-a d)^3} a b^2 B d^2 e g \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\; \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\; \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{(b c-a d)^2} 2 b^2 B d e g \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\; \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\; \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{(b c-a d)^3} A b^3 c d f g \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\; \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^3} a\, b^2\, B\, c\, d\, f\, g \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right.-$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} 2\, A\, b^2\, d\, f\, g \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right.-$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^3} A\, b^3\, c\, d\, e\, h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right.-$$

$$\left.\frac{\mathbb{i}\, a\, d\, \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d)\, h}{b\,(-d g+c h)},\, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\, \frac{(-d e+c f)\, h}{f\,(-d g+c h)}\right]}{b\, \sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^3} a\, b^2\, B\, c\, d\, e\, h \left(\frac{\mathbb{i}\, c\, \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d)\, h}{b\,(-d g+c h)},\, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\, \frac{(-d e+c f)\, h}{f\,(-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right. -$$

$$\left.\frac{\mathbb{i}\, a\, d\, \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d)\, h}{b\,(-d g+c h)},\, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\, \frac{(-d e+c f)\, h}{f\,(-d g+c h)}\right]}{b\, \sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} 2\, A\, b^2\, d\, e\, h \left(\frac{\mathbb{i}\, c\, \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d)\, h}{b\,(-d g+c h)},\, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\, \frac{(-d e+c f)\, h}{f\,(-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right. -$$

$$\left.\frac{\mathbb{i}\, a\, d\, \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d)\, h}{b\,(-d g+c h)},\, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\, \frac{(-d e+c f)\, h}{f\,(-d g+c h)}\right]}{b\, \sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^3} A\, b^3\, c^2\, f\, h \left(\frac{\mathbb{i}\, c\, \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d)\, h}{b\,(-d g+c h)},\, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\, \frac{(-d e+c f)\, h}{f\,(-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right. -$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{(b c-a d)^3} a\, b^2 B\, c^2 f\, h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{(b c-a d)^2} 2 A\, b^2 c\, f\, h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) +$$

$$\frac{1}{(b c-a d)^2} 2 a\, b\, B\, c\, f\, h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)},\ i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\ \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^2} 2 a A b d f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)},\ i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\ \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)},\ i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\ \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{b c-a d} A b f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)},\ i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\ \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)},\ i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\ \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{b c-a d} a B f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)},\ i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\ \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\frac{i\, a\, d\, \sqrt{1-\frac{-d e+c f}{f (c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\Bigg)\Bigg)\Bigg) \Big/$$

$$\Bigg(\Bigg(A b f h-a B f h+\frac{A b d^2 e g}{(c+d x)^2}-\frac{a B d^2 e g}{(c+d x)^2}-\frac{A b c d f g}{(c+d x)^2}+\frac{a B c d f g}{(c+d x)^2}-\frac{A b c d e h}{(c+d x)^2}+\frac{a B c d e h}{(c+d x)^2}+\frac{A b c^2 f h}{(c+d x)^2}-\frac{a B c^2 f h}{(c+d x)^2}-\frac{2 b B d e g}{c+d x}+$$

$$\frac{2 A b d f g}{c+d x}+\frac{2 A b d e h}{c+d x}-\frac{2 A b c f h}{c+d x}+\frac{2 a B c f h}{c+d x}-\frac{2 a A d f h}{c+d x}\Bigg) \sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\, \sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}\Bigg)\Bigg)$$

Problem 6: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b x)^{3/2} (A+B x)}{\sqrt{c+d x}\, \sqrt{e+f x}\, \sqrt{g+h x}}\, dx$$

Optimal (type 4, 981 leaves, 10 steps):

$$\frac{\left(5\,a\,B\,d\,f\,h+b\,\left(4\,A\,d\,f\,h-3\,B\,\left(d\,f\,g+d\,e\,h+c\,f\,h\right)\right)\right)\sqrt{a+b\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{4\,d\,f^2\,h^2\,\sqrt{c+d\,x}}+\frac{b\,B\,\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{2\,d\,f\,h}-$$

$$\left(\sqrt{d\,g-c\,h}\,\sqrt{f\,g-e\,h}\,\left(5\,a\,B\,d\,f\,h+b\,\left(4\,A\,d\,f\,h-3\,B\,\left(d\,f\,g+d\,e\,h+c\,f\,h\right)\right)\right)\sqrt{a+b\,x}\,\sqrt{-\frac{\left(d\,e-c\,f\right)\left(g+h\,x\right)}{\left(f\,g-e\,h\right)\left(c+d\,x\right)}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d\,g-c\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}}\right],\frac{\left(b\,c-a\,d\right)\left(f\,g-e\,h\right)}{\left(b\,e-a\,f\right)\left(d\,g-c\,h\right)}\right]\right)\Bigg/\left(4\,d^2\,f^2\,h^2\,\sqrt{\frac{\left(d\,e-c\,f\right)\left(a+b\,x\right)}{\left(b\,e-a\,f\right)\left(c+d\,x\right)}}\,\sqrt{g+h\,x}\right)-$$

$$\left(\left(b\,e-a\,f\right)\sqrt{b\,g-a\,h}\,\left(3\,a\,B\,d\,f\,h+b\,\left(4\,A\,d\,f\,h-B\,\left(c\,f\,h+3\,d\,\left(f\,g+e\,h\right)\right)\right)\right)\sqrt{\frac{\left(b\,e-a\,f\right)\left(c+d\,x\right)}{\left(d\,e-c\,f\right)\left(a+b\,x\right)}}\,\sqrt{g+h\,x}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b\,g-a\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{a+b\,x}}\right],-\frac{\left(b\,c-a\,d\right)\left(f\,g-e\,h\right)}{\left(d\,e-c\,f\right)\left(b\,g-a\,h\right)}\right]\right)\Bigg/\left(4\,b\,d\,f^2\,h^2\,\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}\,\sqrt{-\frac{\left(b\,e-a\,f\right)\left(g+h\,x\right)}{\left(f\,g-e\,h\right)\left(a+b\,x\right)}}\right)+$$

$$\frac{1}{4\,b\,d^2\,\sqrt{b\,c-a\,d}\,f^2\,h^3\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}\sqrt{-d\,g+c\,h}\,\left(4\,d\,f\,h\,\left(2\,a\,\left(2\,A\,b+a\,B\right)d\,f\,h-b\,B\,\left(b\,\left(d\,e\,g+c\,f\,g+c\,e\,h\right)+a\,\left(d\,f\,g+d\,e\,h+c\,f\,h\right)\right)\right)-\right.$$

$$\left(a\,d\,f\,h+b\,\left(d\,f\,g+d\,e\,h+c\,f\,h\right)\right)\left(5\,a\,B\,d\,f\,h+b\,\left(4\,A\,d\,f\,h-3\,B\,\left(d\,f\,g+d\,e\,h+c\,f\,h\right)\right)\right)\right)\left(a+b\,x\right)\sqrt{\frac{\left(b\,g-a\,h\right)\left(c+d\,x\right)}{\left(d\,g-c\,h\right)\left(a+b\,x\right)}}$$

$$\sqrt{\frac{\left(b\,g-a\,h\right)\left(e+f\,x\right)}{\left(f\,g-e\,h\right)\left(a+b\,x\right)}}\,\text{EllipticPi}\left[-\frac{b\,\left(d\,g-c\,h\right)}{\left(b\,c-a\,d\right)h},\text{ArcSin}\left[\frac{\sqrt{b\,c-a\,d}\,\sqrt{g+h\,x}}{\sqrt{-d\,g+c\,h}\,\sqrt{a+b\,x}}\right],\frac{\left(b\,e-a\,f\right)\left(d\,g-c\,h\right)}{\left(b\,c-a\,d\right)\left(f\,g-e\,h\right)}\right]$$

Result (type 4, 21 555 leaves) : Display of huge result suppressed!

Problem 7: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+b\,x}\,\left(A+B\,x\right)}{\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 736 leaves, 7 steps) :

$$\frac{B\sqrt{a+bx}\,\sqrt{e+fx}\,\sqrt{g+hx}}{fh\sqrt{c+dx}}-\frac{B\sqrt{dg-ch}\,\sqrt{fg-eh}\,\sqrt{a+bx}\,\sqrt{-\frac{(de-cf)(g+hx)}{(fg-eh)(c+dx)}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{dg-ch}\,\sqrt{e+fx}}{\sqrt{fg-eh}\,\sqrt{c+dx}}\right],\frac{(bc-ad)(fg-eh)}{(be-af)(dg-ch)}\right]}{dfh\sqrt{\frac{(de-cf)(a+bx)}{(be-af)(c+dx)}}\,\sqrt{g+hx}}-$$

$$\frac{B(be-af)\sqrt{bg-ah}\,\sqrt{\frac{(be-af)(c+dx)}{(de-cf)(a+bx)}}\,\sqrt{g+hx}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{bg-ah}\,\sqrt{e+fx}}{\sqrt{fg-eh}\,\sqrt{a+bx}}\right],-\frac{(bc-ad)(fg-eh)}{(de-cf)(bg-ah)}\right]}{bfh\sqrt{fg-eh}\,\sqrt{c+dx}\,\sqrt{-\frac{(be-af)(g+hx)}{(fg-eh)(a+bx)}}}+$$

$$\Bigg(\sqrt{-dg+ch}\,(2Abdfh+B(adfh-b(dfg+deh+cfh)))\,(a+bx)\sqrt{\frac{(bg-ah)(c+dx)}{(dg-ch)(a+bx)}}\,\sqrt{\frac{(bg-ah)(e+fx)}{(fg-eh)(a+bx)}}$$

$$\text{EllipticPi}\left[-\frac{b(dg-ch)}{(bc-ad)h},\text{ArcSin}\left[\frac{\sqrt{bc-ad}\,\sqrt{g+hx}}{\sqrt{-dg+ch}\,\sqrt{a+bx}}\right],\frac{(be-af)(dg-ch)}{(bc-ad)(fg-eh)}\right]\Bigg)\Big/\left(bd\sqrt{bc-ad}\,fh^2\sqrt{c+dx}\,\sqrt{e+fx}\right)$$

Result (type 4, 6648 leaves) :

$$-\frac{1}{d^2}2\left(-\frac{B(c+dx)^{3/2}\left(f+\frac{de}{c+dx}-\frac{cf}{c+dx}\right)\left(h+\frac{dg}{c+dx}-\frac{ch}{c+dx}\right)\sqrt{a+\frac{(c+dx)\left(b-\frac{bc}{c+dx}\right)}{d}}}{2fh\sqrt{e+\frac{(c+dx)\left(f-\frac{cf}{c+dx}\right)}{d}}\,\sqrt{g+\frac{(c+dx)\left(h-\frac{ch}{c+dx}\right)}{d}}}+\right.$$

$$\Bigg(d(bg-ah)(dg-ch)(Bfg+Beh-2Afh)\sqrt{c+dx}\sqrt{\left(b-\frac{bc}{c+dx}+\frac{ad}{c+dx}\right)\left(f+\frac{de}{c+dx}-\frac{cf}{c+dx}\right)\left(h+\frac{dg}{c+dx}-\frac{ch}{c+dx}\right)}$$

$$\sqrt{a+\frac{(c+dx)\left(b-\frac{bc}{c+dx}\right)}{d}}\left(\left(de\sqrt{-\frac{(bc-ad)(-dg+ch)\left(-\frac{b}{bc-ad}+\frac{1}{c+dx}\right)}{-bdg+adh}}\left(-\frac{f}{-de+cf}+\frac{1}{c+dx}\right)\right.\right.$$

$$\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(c f\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\right.$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(f\sqrt{\frac{-\frac{b}{b c-a d}+\frac{1}{c+d x}}{-\frac{b}{b c-a d}+\frac{h}{-d g+c h}}}\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\right.$$

$$\left.\left(-\frac{h}{-d g+c h}+\frac{1}{c+d x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d e+c f)\left(-h-\frac{d g}{c+d x}+\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)\right)\Big/$$

$$\left(2 f h^2 (f g-e h)\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}\right)-$$

$$\left(d (b e-a f)(d e-c f)(B f g+B e h-2 A f h)\sqrt{c+d x}\sqrt{\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}\right.$$

$$\sqrt{a+\frac{(c+d x)\left(b-\frac{b c}{c+d x}\right)}{d}}\left(\left(d g\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\right.\right.$$

$$\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(c h\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\right.$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(h\sqrt{\frac{-\frac{b}{b c-a d}+\frac{1}{c+d x}}{-\frac{b}{b c-a d}+\frac{h}{-d g+c h}}}\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\right.$$

$$\left.\left(-\frac{h}{-d g+c h}+\frac{1}{c+d x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d e+c f)\left(-h-\frac{d g}{c+d x}+\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]\right)\Big/$$

$$\left.\left.\left(\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)\right)\right)\Big/$$

$$\left(2 f^2 h\,(f g-e h)\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}\right)-$$

$$\frac{1}{2 f^2 h^2\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}}$$

$$(b B d f g+b B d e h+b B c f h-2 A b d f h-a B d f h)\sqrt{c+d x}$$

$$\sqrt{\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}$$

$$\sqrt{a+\frac{(c+d x)\left(b-\frac{b c}{c+d x}\right)}{d}}$$

$$\Bigg(\Bigg(d^2\,e\,g\,\sqrt{-\frac{(b\,c-a\,d)\,(-d\,g+c\,h)\,\left(-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}\right)}{-b\,d\,g+a\,d\,h}}\,\left(-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}\right)\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}$$

$$\left(\frac{(-b\,d\,g+a\,d\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d\,e-c\,f)\,\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]}{(b\,c-a\,d)\,(-d\,g+c\,h)}-\right.$$

$$\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d\,e-c\,f)\,\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]}{b\,c-a\,d}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\,\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\Bigg(c\,d\,f\,g\,\sqrt{-\frac{(b\,c-a\,d)\,(-d\,g+c\,h)\,\left(-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}\right)}{-b\,d\,g+a\,d\,h}}$$

$$\left(-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}\right)\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\left(\frac{(-b\,d\,g+a\,d\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d\,e-c\,f)\,\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]}{(b\,c-a\,d)\,(-d\,g+c\,h)}-\right.$$

$$\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d\,e-c\,f)\,\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]}{b\,c-a\,d}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\,\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\Bigg(c\,d\,e\,h\,\sqrt{-\frac{(b\,c-a\,d)\,(-d\,g+c\,h)\,\left(-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}\right)}{-b\,d\,g+a\,d\,h}}$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{(b c-a d)\,(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(c^2 f h\sqrt{-\frac{(b c-a d)\,(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\right.$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{(b c-a d)\,(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(d f g\sqrt{\frac{-\frac{b}{b c-a d}+\frac{1}{c+d x}}{-\frac{b}{b c-a d}+\frac{h}{-d g+c h}}}\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\right.$$

$$\left.\left(-\frac{h}{-d g+c h}+\frac{1}{c+d x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d e+c f)\left(-h-\frac{d g}{c+d x}+\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+$$

$$\left(d\,e\,h\,\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\,\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\,\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)\,\text{EllipticF}\!\left[\text{ArcSin}\!\left[\sqrt{\frac{(-d\,e+c\,f)\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\right.\right.$$

$$\left.\left.\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\,\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-$$

$$\left(2\,c\,f\,h\,\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\,\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\,\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)\,\text{EllipticF}\!\left[\text{ArcSin}\!\left[\sqrt{\frac{(-d\,e+c\,f)\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\right.\right.$$

$$\left.\left.\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\,\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-$$

$$\left(f\,(-d\,g+c\,h)\left(-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}\right)\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\,\sqrt{-\frac{\left(-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}\right)\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)}{\left(-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}\right)^2}}\,\text{EllipticPi}\!\left[-\frac{-d\,f\,g+d\,e\,h}{(-d\,e+c\,f)\,h},\right.\right.$$

$$\left.\left.\text{ArcSin}\!\left[\sqrt{\frac{(-d\,e+c\,f)\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]\right)\Big/\left(\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)\Bigg)\Bigg)$$

Problem 9: Result more than twice size of optimal antiderivative.

$$\int\frac{A+B\,x}{(a+b\,x)^{3/2}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 606 leaves, 7 steps):

$$\frac{2\,(A\,b-a\,B)\,d\,\sqrt{a+b\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{(b\,c-a\,d)\,(b\,e-a\,f)\,(b\,g-a\,h)\,\sqrt{c+d\,x}}-\frac{2\,b\,(A\,b-a\,B)\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{(b\,c-a\,d)\,(b\,e-a\,f)\,(b\,g-a\,h)\,\sqrt{a+b\,x}}-$$

$$\left(2\,(A\,b-a\,B)\,\sqrt{d\,g-c\,h}\,\sqrt{f\,g-e\,h}\,\sqrt{a+b\,x}\,\sqrt{-\frac{(d\,e-c\,f)\,(g+h\,x)}{(f\,g-e\,h)\,(c+d\,x)}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d\,g-c\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}}\right],\frac{(b\,c-a\,d)\,(f\,g-e\,h)}{(b\,e-a\,f)\,(d\,g-c\,h)}\right]\right)\Big/$$

$$\left((b\,c-a\,d)\,(b\,e-a\,f)\,(b\,g-a\,h)\,\sqrt{\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}}\,\sqrt{g+h\,x}\right)+$$

$$\frac{2\,(B\,c-A\,d)\,\sqrt{\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}}\,\sqrt{g+h\,x}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b\,g-a\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{a+b\,x}}\right],-\frac{(b\,c-a\,d)\,(f\,g-e\,h)}{(d\,e-c\,f)\,(b\,g-a\,h)}\right]}{(b\,c-a\,d)\,\sqrt{b\,g-a\,h}\,\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}\,\sqrt{-\frac{(b\,e-a\,f)\,(g+h\,x)}{(f\,g-e\,h)\,(a+b\,x)}}}$$

Result (type 4, 1749 leaves) :

$$-\frac{2\,b\,(A\,b-a\,B)\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{(b\,c-a\,d)\,(b\,e-a\,f)\,(b\,g-a\,h)\,\sqrt{a+b\,x}}+$$

$$\frac{1}{b^2\,(-b\,c+a\,d)\,(-b\,e+a\,f)\,(-b\,g+a\,h)}\left(-\frac{2\,(A\,b-a\,B)\,(a+b\,x)^{5/2}\,\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{\sqrt{c+\frac{(a+b\,x)\,\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\,\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}\,\sqrt{g+\frac{(a+b\,x)\,\left(h-\frac{a\,h}{a+b\,x}\right)}{b}}}-\right.$$

$$\frac{1}{\sqrt{c+\frac{(a+b\,x)\,\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{(a+b\,x)\,\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}\,\sqrt{g+\frac{(a+b\,x)\,\left(h-\frac{a\,h}{a+b\,x}\right)}{b}}}\,2\,(b\,c-a\,d)\,(b\,e-a\,f)\,(b\,g-a\,h)\,(a+b\,x)^{3/2}$$

$$\sqrt{\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}\left(-\left(\left(A\,b\,\sqrt{\frac{(b\,c-a\,d)\,(b\,g-a\,h)\,\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}\right.\right.\right.$$

$$\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\left(-\frac{(b\,d\,g-b\,c\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\,\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,(b\,g-a\,h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{-b\,c+a\,d}\right)\right)\Big/$$

$$\left.\left(\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)\right)+\left(a\,B\sqrt{\frac{(b\,c-a\,d)\,(b\,g-a\,h)\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}\right.$$

$$\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\left(-\frac{(b\,d\,g-b\,c\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,(b\,g-a\,h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{-b\,c+a\,d}\right)\right)\Big/$$

$$\left.\left(\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)\right)-\left(B\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\right.$$

$$\left.\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]\right)\Big/$$

$$\left.\left.\left(\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)\right)\right)$$

Problem 10: Result more than twice size of optimal antiderivative.

$$\int \frac{A+B x}{(a+b x)^{5/2}\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}\,dx$$

Optimal (type 4, 1081 leaves, 8 steps):

$$\Big(2 d \left(3 a^3 B d f h+b^3 (3 B c e g-2 A (d e g+c f g+c e h))-a b^2 (B (d e g+c f g+c e h)-4 A (d f g+d e h+c f h))-a^2 b (6 A d f h+B (d f g+d e h+c f h))\right)\sqrt{a+b x}\,\sqrt{e+f x}\,\sqrt{g+h x}\Big)\Big/\left(3 (b c-a d)^2 (b e-a f)^2 (b g-a h)^2\sqrt{c+d x}\right)-\frac{2 b (A b-a B)\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}{3 (b c-a d)(b e-a f)(b g-a h)(a+b x)^{3/2}}-$$

$$\Big(2 b \left(3 a^3 B d f h+b^3 (3 B c e g-2 A (d e g+c f g+c e h))-a b^2 (B (d e g+c f g+c e h)-4 A (d f g+d e h+c f h))-a^2 b (6 A d f h+B (d f g+d e h+c f h))\right)\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}\Big)\Big/\left(3 (b c-a d)^2 (b e-a f)^2 (b g-a h)^2\sqrt{a+b x}\right)-$$

$$\Bigg(2\sqrt{d g-c h}\,\sqrt{f g-e h}\left(3 a^3 B d f h+b^3 (3 B c e g-2 A (d e g+c f g+c e h))-a b^2 (B (d e g+c f g+c e h)-4 A (d f g+d e h+c f h))-a^2 b (6 A d f h+B (d f g+d e h+c f h))\right)\sqrt{a+b x}\,\sqrt{-\frac{(d e-c f)(g+h x)}{(f g-e h)(c+d x)}}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d g-c h}\,\sqrt{e+f x}}{\sqrt{f g-e h}\,\sqrt{c+d x}}\right],\frac{(b c-a d)(f g-e h)}{(b e-a f)(d g-c h)}\right]\Bigg)\Bigg/\left(3 (b c-a d)^2 (b e-a f)^2 (b g-a h)^2\sqrt{\frac{(d e-c f)(a+b x)}{(b e-a f)(c+d x)}}\,\sqrt{g+h x}\right)-$$

$$\Bigg(2\left(3 a^2 d (B c-A d) f h+b^2 \left(3 B c d e g-A \left(2 d^2 e g-c^2 f h+c d (f g+e h)\right)\right)+a b \left(3 A d^2 (f g+e h)-B \left(d^2 e g+c^2 f h+2 c d (f g+e h)\right)\right)\right)\sqrt{\frac{(b e-a f)(c+d x)}{(d e-c f)(a+b x)}}\,\sqrt{g+h x}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b g-a h}\,\sqrt{e+f x}}{\sqrt{f g-e h}\,\sqrt{a+b x}}\right],-\frac{(b c-a d)(f g-e h)}{(d e-c f)(b g-a h)}\right]\Bigg)\Bigg/\left(3 (b c-a d)^2 (b e-a f)(b g-a h)^{3/2}\sqrt{f g-e h}\,\sqrt{c+d x}\,\sqrt{-\frac{(b e-a f)(g+h x)}{(f g-e h)(a+b x)}}\right)$$

Result (type 4, 10637 leaves):

$$\sqrt{a+b x}\,\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}\Bigg(-\frac{2 b (A b-a B)}{3 (b c-a d)(b e-a f)(b g-a h)(a+b x)^2}-\Big(2 b \big(3 b^3 B c e g-2 A b^3 d e g-a b^2 B d e g-2 A b^3 c f g-a b^2 B c f g+4 a A b^2 d f g-a^2 b B d f g-2 A b^3 c e h-a b^2 B c e h+4 a A b^2 d e h-a^2 b B d e h+4 a A b^2 c f h-a^2 b B c f h-6 a^2 A b d f h+3 a^3 B d f h\big)\Big)\Big/$$

$$\left(3\,(b c-a d)^2\,(b e-a f)^2\,(b g-a h)^2\,(a+b x)\right)\Big)+\frac{1}{3 b^2\,(-b c+a d)^2\,(-b e+a f)^2\,(-b g+a h)^2}$$

$$2\Bigg(\Big(\big(3 b^3 B c e g-2 A b^3 d e g-a b^2 B d e g-2 A b^3 c f g-a b^2 B c f g+4 a A b^2 d f g-a^2 b B d f g-2 A b^3 c e h-a b^2 B c e h+4 a A b^2 d e h-a^2 b B d e h+$$

$$4 a A b^2 c f h-a^2 b B c f h-6 a^2 A b d f h+3 a^3 B d f h\big)\,(a+b x)^{5/2}\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)\Big)\Big/$$

$$\left(\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\,\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\,\sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}\right)+$$

$$\frac{1}{\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\,\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\,\sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}}\,(b c-a d)\,(b e-a f)\,(b g-a h)\,(a+b x)^{3/2}$$

$$\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}\;\Bigg(-\Bigg(\Bigg(3 b^3 B c e g\sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-\right.$$

$$\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)\Bigg)+\Bigg(2 A b^3 d e g\sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a b^2 B d e g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 A b^3 c f g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a b^2 B c f g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(4 a A b^2 d f g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a^2 b B d f g \sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right) \sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \left(-\frac{(b d g-b c h) \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right) \Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 A b^3 c e h \sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right) \sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \left(-\frac{(b d g-b c h) \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right) \Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a b^2 B c e h \sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(4 a A b^2 d e h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a^2 b B d e h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(4 a A b^2 c f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a^2 b B c f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\Bigg(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\;\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\Bigg)+\Bigg(6 a^2 A b d f h \sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\;\Bigg(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\;\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\Bigg)-\Bigg(3 a^3 B d f h \sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\;\Bigg(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\;\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\Bigg)+\Bigg(A b^2 d f g \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\;\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg) \Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\Bigg(a b B d f g \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg) \Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\Bigg(A b^2 d e h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg) \Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\Bigg(a b B d e h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg) \Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\Bigg(A b^2 c f h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg) \Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(a b B c f h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(3 a A b d f h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(3 a^2 B d f h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left.\left.\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)\right)\right)$$

Problem 11: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b x)^{3/2}(d e+c f+2 d f x)}{\sqrt{c+d x}\sqrt{e+f x}\sqrt{g+h x}}\,dx$$

Optimal (type 4, 898 leaves, 10 steps) :

$$\frac{\left(5\,a\,d\,f\,h-b\,\left(3\,d\,f\,g+d\,e\,h+c\,f\,h\right)\right)\sqrt{a+b\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{2\,f\,h^2\sqrt{c+d\,x}}+\frac{b\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{h}-$$

$$\left(\sqrt{d\,g-c\,h}\,\sqrt{f\,g-e\,h}\,\left(5\,a\,d\,f\,h-b\,\left(3\,d\,f\,g+d\,e\,h+c\,f\,h\right)\right)\sqrt{a+b\,x}\,\sqrt{-\frac{\left(d\,e-c\,f\right)\left(g+h\,x\right)}{\left(f\,g-e\,h\right)\left(c+d\,x\right)}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d\,g-c\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}}\right],\frac{\left(b\,c-a\,d\right)\left(f\,g-e\,h\right)}{\left(b\,e-a\,f\right)\left(d\,g-c\,h\right)}\right]\right)\Big/\left(2\,d\,f\,h^2\sqrt{\frac{\left(d\,e-c\,f\right)\left(a+b\,x\right)}{\left(b\,e-a\,f\right)\left(c+d\,x\right)}}\,\sqrt{g+h\,x}\right)-$$

$$\left(\left(b\,e-a\,f\right)\sqrt{b\,g-a\,h}\,\left(3\,a\,d\,f\,h+b\,\left(c\,f\,h-d\,\left(3\,f\,g+e\,h\right)\right)\right)\sqrt{\frac{\left(b\,e-a\,f\right)\left(c+d\,x\right)}{\left(d\,e-c\,f\right)\left(a+b\,x\right)}}\,\sqrt{g+h\,x}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b\,g-a\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{a+b\,x}}\right],-\frac{\left(b\,c-a\,d\right)\left(f\,g-e\,h\right)}{\left(d\,e-c\,f\right)\left(b\,g-a\,h\right)}\right]\right)\Big/\left(2\,b\,f\,h^2\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}\,\sqrt{-\frac{\left(b\,e-a\,f\right)\left(g+h\,x\right)}{\left(f\,g-e\,h\right)\left(a+b\,x\right)}}\right)-$$

$$\left(\sqrt{-d\,g+c\,h}\,\left(6\,a\,b\,d^2\,f^2\,g\,h-3\,a^2\,d^2\,f^2\,h^2+b^2\left(2\,c\,d\,e\,f\,h^2-c^2\,f^2\,h^2-d^2\left(3\,f^2\,g^2+e^2\,h^2\right)\right)\right)\left(a+b\,x\right)\sqrt{\frac{\left(b\,g-a\,h\right)\left(c+d\,x\right)}{\left(d\,g-c\,h\right)\left(a+b\,x\right)}}\,\sqrt{\frac{\left(b\,g-a\,h\right)\left(e+f\,x\right)}{\left(f\,g-e\,h\right)\left(a+b\,x\right)}}\right.$$

$$\left.\text{EllipticPi}\left[-\frac{b\left(d\,g-c\,h\right)}{\left(b\,c-a\,d\right)h},\text{ArcSin}\left[\frac{\sqrt{b\,c-a\,d}\,\sqrt{g+h\,x}}{\sqrt{-d\,g+c\,h}\,\sqrt{a+b\,x}}\right],\frac{\left(b\,e-a\,f\right)\left(d\,g-c\,h\right)}{\left(b\,c-a\,d\right)\left(f\,g-e\,h\right)}\right]\right)\Big/\left(2\,b\,d\sqrt{b\,c-a\,d}\,f\,h^3\sqrt{c+d\,x}\,\sqrt{e+f\,x}\right)$$

Result (type 4, 14 853 leaves) :

$$\frac{b\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{h}+\frac{1}{b^2\,h}\left(\frac{\left(-3\,b\,d\,f\,g-b\,d\,e\,h-b\,c\,f\,h+5\,a\,d\,f\,h\right)\left(a+b\,x\right)^{5/2}\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{2\,d\,f\,h\sqrt{c+\frac{\left(a+b\,x\right)\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{\left(a+b\,x\right)\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}\,\sqrt{g+\frac{\left(a+b\,x\right)\left(h-\frac{a\,h}{a+b\,x}\right)}{b}}}+\right.$$

$$\frac{1}{2\,d\,f\,h\sqrt{c+\frac{\left(a+b\,x\right)\left(d-\frac{a\,d}{a+b\,x}\right)}{b}}\,\sqrt{e+\frac{\left(a+b\,x\right)\left(f-\frac{a\,f}{a+b\,x}\right)}{b}}\,\sqrt{g+\frac{\left(a+b\,x\right)\left(h-\frac{a\,h}{a+b\,x}\right)}{b}}}$$

$$\left(a+b\,x\right)^{3/2}\sqrt{\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}\;\left(\left(3\,b^4\,c\,d\,e\,f\,g^2\sqrt{\frac{\left(b\,c-a\,d\right)\left(b\,g-a\,h\right)\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}\right.\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(3 a b^3 d^2 e f g^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(3 a b^3 c d f^2 g^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(3 a^2 b^2 d^2 f^2 g^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(b^4 c d e^2 g h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)-\left(a b^3 d^2 e^2 g h\sqrt{\frac{(bc-ad)(bg-ah)\left(-\frac{d}{-bc+ad}+\frac{1}{a+bx}\right)}{bdg-bch}}\right.$$

$$\left(-\frac{f}{-be+af}+\frac{1}{a+bx}\right)\sqrt{\frac{-\frac{h}{-bg+ah}+\frac{1}{a+bx}}{\frac{f}{-be+af}-\frac{h}{-bg+ah}}}\left(-\frac{(bdg-bch)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(be-af)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}{b(-fg+eh)}}\right],\frac{(-bc+ad)(-fg+eh)}{(-be+af)(-dg+ch)}\right]}{(bc-ad)(bg-ah)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(be-af)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}{b(-fg+eh)}}\right],\frac{(-bc+ad)(-fg+eh)}{(-be+af)(-dg+ch)}\right]}{-bc+ad}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)+\left(b^4 c^2 e f g h\sqrt{\frac{(bc-ad)(bg-ah)\left(-\frac{d}{-bc+ad}+\frac{1}{a+bx}\right)}{bdg-bch}}\right.$$

$$\left(-\frac{f}{-be+af}+\frac{1}{a+bx}\right)\sqrt{\frac{-\frac{h}{-bg+ah}+\frac{1}{a+bx}}{\frac{f}{-be+af}-\frac{h}{-bg+ah}}}\left(-\frac{(bdg-bch)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(be-af)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}{b(-fg+eh)}}\right],\frac{(-bc+ad)(-fg+eh)}{(-be+af)(-dg+ch)}\right]}{(bc-ad)(bg-ah)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(be-af)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}{b(-fg+eh)}}\right],\frac{(-bc+ad)(-fg+eh)}{(-be+af)(-dg+ch)}\right]}{-bc+ad}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)-\left(10\,a b^3 c d e f g h\sqrt{\frac{(bc-ad)(bg-ah)\left(-\frac{d}{-bc+ad}+\frac{1}{a+bx}\right)}{bdg-bch}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(9 a^2 b^2 d^2 e f g h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(a b^3 c^2 f^2 g h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\Bigg(9 a^2 b^2 c d f^2 g h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\Bigg(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\Bigg(8 a^3 b d^2 f^2 g h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\Bigg(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(a b^3 c d e^2 h^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a^2 b^2 d^2 e^2 h^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(a b^3 c^2 e f h^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(7 a^2 b^2 c d e f h^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(6 a^3 b d^2 e f h^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a^2 b^2 c^2 f^2 h^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(6 a^3 b c d f^2 h^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)+\left(5a^4d^2f^2h^2\sqrt{\frac{(bc-ad)(bg-ah)\left(-\frac{d}{-bc+ad}+\frac{1}{a+bx}\right)}{bdg-bch}}\right.$$

$$\left(-\frac{f}{-be+af}+\frac{1}{a+bx}\right)\sqrt{\frac{-\frac{h}{-bg+ah}+\frac{1}{a+bx}}{\frac{f}{-be+af}-\frac{h}{-bg+ah}}}\left(-\frac{(bdg-bch)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(be-af)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}{b(-fg+eh)}}\right],\frac{(-bc+ad)(-fg+eh)}{(-be+af)(-dg+ch)}\right]}{(bc-ad)(bg-ah)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(be-af)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}{b(-fg+eh)}}\right],\frac{(-bc+ad)(-fg+eh)}{(-be+af)(-dg+ch)}\right]}{-bc+ad}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)+\left(2b^3cdefgh\sqrt{\frac{-\frac{d}{-bc+ad}+\frac{1}{a+bx}}{-\frac{d}{-bc+ad}+\frac{h}{-bg+ah}}}\right.$$

$$\left.\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\left(-\frac{h}{-bg+ah}+\frac{1}{a+bx}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-be+af)\left(-h-\frac{bg}{a+bx}+\frac{ah}{a+bx}\right)}{b(-fg+eh)}}\right],\frac{(-bc+ad)(-fg+eh)}{(-be+af)(-dg+ch)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-bg+ah}+\frac{1}{a+bx}}{\frac{f}{-be+af}-\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)-\left(2ab^2d^2efgh\sqrt{\frac{-\frac{d}{-bc+ad}+\frac{1}{a+bx}}{-\frac{d}{-bc+ad}+\frac{h}{-bg+ah}}}\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\right.$$

$$\left.\left(-\frac{h}{-bg+ah}+\frac{1}{a+bx}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-be+af)\left(-h-\frac{bg}{a+bx}+\frac{ah}{a+bx}\right)}{b(-fg+eh)}}\right],\frac{(-bc+ad)(-fg+eh)}{(-be+af)(-dg+ch)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-bg+ah}+\frac{1}{a+bx}}{\frac{f}{-be+af}-\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)-\left(2ab^2cdf^2gh\sqrt{\frac{-\frac{d}{-bc+ad}+\frac{1}{a+bx}}{-\frac{d}{-bc+ad}+\frac{h}{-bg+ah}}}\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\right.$$

$$\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+\left(2\,a^2\,b\,d^2\,f^2\,g\,h\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\right.$$

$$\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)-\left(2\,a\,b^2\,c\,d\,e\,f\,h^2\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\right.$$

$$\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+\left(2\,a^2\,b\,d^2\,e\,f\,h^2\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\right.$$

$$\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+\left(2\,a^2\,b\,c\,d\,f^2\,h^2\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\right.$$

$$\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-$$

$$\left(2 a^3 d^2 f^2 h^2 \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\right.\right.$$

$$\left.\left.\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-$$

$$\left(6 a b d^2 f^2 g(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\right.$$

$$\left.\text{EllipticPi}\left[-\frac{-b f g+b e h}{(-b e+a f) h},\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(3 b^2 d^2 f^2 g^2(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\right.$$

$$\sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\text{EllipticPi}\left[-\frac{-b f g+b e h}{(-b e+a f) h},\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\right.$$

$$\left.\left.\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/\left(h\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+$$

$$\left(b^2 d^2 e^2 h(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\ \text{EllipticPi}\left[-\frac{-b f g+b e h}{(-b e+a f) h},\right.\right.$$

$$\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}},\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg/\left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-$$

$$\Bigg(2 b^2 c d e f h(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}$$

$$\text{EllipticPi}\left[-\frac{-b f g+b e h}{(-b e+a f) h},\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg/$$

$$\left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\Bigg(b^2 c^2 f^2 h(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}$$

$$\sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\ \text{EllipticPi}\Bigg[-\frac{-b f g+b e h}{(-b e+a f) h},\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],$$

$$\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\Bigg]\Bigg/\left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+$$

$$\Bigg(3 a^2 d^2 f^2 h(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\ \text{EllipticPi}\Bigg[-\frac{-b f g+b e h}{(-b e+a f) h},$$

$$\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\Bigg]\Bigg/\left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)\Bigg)\Bigg)$$

Problem 12: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+b x}\,(d e+c f+2 d f x)}{\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}\,dx$$

Optimal (type 4, 472 leaves, 5 steps):

$$\frac{2 b \sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}{h \sqrt{a+b x}} - \frac{2 \sqrt{b g-a h}\,\sqrt{f g-e h}\,\sqrt{c+d x}\,\sqrt{-\frac{(b e-a f)(g+h x)}{(f g-e h)(a+b x)}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{b g-a h}\,\sqrt{e+f x}}{\sqrt{f g-e h}\,\sqrt{a+b x}}\right], -\frac{(b c-a d)(f g-e h)}{(d e-c f)(b g-a h)}\right]}{h \sqrt{\frac{(b e-a f)(c+d x)}{(d e-c f)(a+b x)}}\,\sqrt{g+h x}} -$$

$$\left(2 d (b g-a h)^{3/2} \sqrt{\frac{(f g-e h)(a+b x)}{(b g-a h)(e+f x)}}\,\sqrt{\frac{(f g-e h)(c+d x)}{(d g-c h)(e+f x)}}\,(e+f x)\right.$$

$$\left.\text{EllipticPi}\left[\frac{f (b g-a h)}{(b e-a f) h}, \text{ArcSin}\left[\frac{\sqrt{b e-a f}\,\sqrt{g+h x}}{\sqrt{b g-a h}\,\sqrt{e+f x}}\right], \frac{(d e-c f)(b g-a h)}{(b e-a f)(d g-c h)}\right]\right) \Big/ \left(\sqrt{b e-a f}\,h^2 \sqrt{a+b x}\,\sqrt{c+d x}\right)$$

Result (type 4, 6583 leaves):

$$-\frac{1}{d} 2 \left(-\frac{(c+d x)^{3/2} \left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right) \left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right) \sqrt{a+\frac{(c+d x)\left(b-\frac{b c}{c+d x}\right)}{d}}}{h \sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\,\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}} -\right.$$

$$\left(f (b g-a h)(d g-c h)^2 \sqrt{c+d x}\,\sqrt{\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}\right.$$

$$\sqrt{a+\frac{(c+d x)\left(b-\frac{b c}{c+d x}\right)}{d}} \left(\left(d e \sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\,\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\right.\right.$$

$$\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}} \left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right], \frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)} -\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(c f\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\right.$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(f\sqrt{\frac{-\frac{b}{b c-a d}+\frac{1}{c+d x}}{-\frac{b}{b c-a d}+\frac{h}{-d g+c h}}}\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\right.$$

$$\left.\left(-\frac{h}{-d g+c h}+\frac{1}{c+d x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d e+c f)\left(-h-\frac{d g}{c+d x}+\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]\right)\Big/$$

$$\left.\left.\left(\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)\right)\right)\Big/$$

$$\left(h^2(-f g+e h)\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}\right)+$$

$$\Bigg((b e-a f)(d e-c f)(d g-c h)\sqrt{c+d x}\sqrt{\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}$$

$$\sqrt{a+\frac{(c+d x)\left(b-\frac{b c}{c+d x}\right)}{d}}\left(\left(d g\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\right.\right.$$

$$\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(c h\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\right.$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-de+cf}+\frac{1}{c+dx}}{-\frac{f}{-de+cf}+\frac{h}{-dg+ch}}}\sqrt{\left(b+\frac{-bc+ad}{c+dx}\right)\left(f+\frac{de-cf}{c+dx}\right)\left(h+\frac{dg-ch}{c+dx}\right)}\right)+\left(h\sqrt{\frac{-\frac{b}{bc-ad}+\frac{1}{c+dx}}{-\frac{b}{bc-ad}+\frac{h}{-dg+ch}}}\sqrt{\frac{-\frac{f}{-de+cf}+\frac{1}{c+dx}}{-\frac{f}{-de+cf}+\frac{h}{-dg+ch}}}\right.$$

$$\left.\left(-\frac{h}{-dg+ch}+\frac{1}{c+dx}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-de+cf)\left(-h-\frac{dg}{c+dx}+\frac{ch}{c+dx}\right)}{d(-fg+eh)}}\right],\frac{(bc-ad)(-fg+eh)}{(-de+cf)(-bg+ah)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-dg+ch}+\frac{1}{c+dx}}{\frac{f}{-de+cf}-\frac{h}{-dg+ch}}}\sqrt{\left(b+\frac{-bc+ad}{c+dx}\right)\left(f+\frac{de-cf}{c+dx}\right)\left(h+\frac{dg-ch}{c+dx}\right)}\right)\Bigg)\Bigg)\Big/$$

$$\left(h(-fg+eh)\left(b-\frac{bc}{c+dx}+\frac{ad}{c+dx}\right)\sqrt{e+\frac{(c+dx)\left(f-\frac{cf}{c+dx}\right)}{d}}\sqrt{g+\frac{(c+dx)\left(h-\frac{ch}{c+dx}\right)}{d}}\right)-$$

$$\frac{1}{h^2\left(b-\frac{bc}{c+dx}+\frac{ad}{c+dx}\right)\sqrt{e+\frac{(c+dx)\left(f-\frac{cf}{c+dx}\right)}{d}}\sqrt{g+\frac{(c+dx)\left(h-\frac{ch}{c+dx}\right)}{d}}}$$

$$d(bg-ah)\sqrt{c+dx}$$

$$\sqrt{\left(b-\frac{bc}{c+dx}+\frac{ad}{c+dx}\right)\left(f+\frac{de}{c+dx}-\frac{cf}{c+dx}\right)\left(h+\frac{dg}{c+dx}-\frac{ch}{c+dx}\right)}$$

$$\sqrt{a+\frac{(c+dx)\left(b-\frac{bc}{c+dx}\right)}{d}}$$

$$\left(\left(d^2eg\sqrt{-\frac{(bc-ad)(-dg+ch)\left(-\frac{b}{bc-ad}+\frac{1}{c+dx}\right)}{-bdg+adh}}\left(-\frac{f}{-de+cf}+\frac{1}{c+dx}\right)\sqrt{\frac{-\frac{h}{-dg+ch}+\frac{1}{c+dx}}{\frac{f}{-de+cf}-\frac{h}{-dg+ch}}}\right.\right.$$

$$\left(\frac{(-bdg+adh)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(de-cf)\left(h+\frac{dg}{c+dx}-\frac{ch}{c+dx}\right)}{d(-fg+eh)}}\right],\frac{(bc-ad)(-fg+eh)}{(-de+cf)(-bg+ah)}\right]}{(bc-ad)(-dg+ch)}-\right.$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{b c-a d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(c\,d\,f\,g\sqrt{-\frac{(b c-a d)\,(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\Bigg(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{(b c-a d)\,(-d g+c h)}-$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{b c-a d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(c\,d\,e\,h\sqrt{-\frac{(b c-a d)\,(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\Bigg(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{(b c-a d)\,(-d g+c h)}-$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{b c-a d}\Bigg)\Bigg)\Big/$$

$$\Bigg(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\ \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\Bigg)+\Bigg(c^2 f h \sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\ \Bigg(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\Bigg)\Bigg)\Big/$$

$$\Bigg(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\ \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\Bigg)+\Bigg(d f g\sqrt{\frac{-\frac{b}{b c-a d}+\frac{1}{c+d x}}{-\frac{b}{b c-a d}+\frac{h}{-d g+c h}}}\ \sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}$$

$$\left(-\frac{h}{-d g+c h}+\frac{1}{c+d x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d e+c f)\left(-h-\frac{d g}{c+d x}+\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]\Bigg)\Big/$$

$$\Bigg(\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\ \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\Bigg)+$$

$$\Bigg(d e h\sqrt{\frac{-\frac{b}{b c-a d}+\frac{1}{c+d x}}{-\frac{b}{b c-a d}+\frac{h}{-d g+c h}}}\ \sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\ \left(-\frac{h}{-d g+c h}+\frac{1}{c+d x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d e+c f)\left(-h-\frac{d g}{c+d x}+\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\right.$$

$$\left.\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]\Bigg)\Big/\Bigg(\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\ \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\Bigg)-$$

$$\left(2\,c\,f\,h\,\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\,\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\,\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d\,e+c\,f)\,\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\right.\right.$$

$$\left.\left.\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\,\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\,\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\,\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-$$

$$\left(f\,(-d\,g+c\,h)\,\left(-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}\right)\,\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\,\sqrt{-\frac{\left(-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}\right)\,\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)}{\left(-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}\right)^2}}\,\text{EllipticPi}\left[-\frac{-d\,f\,g+d\,e\,h}{(-d\,e+c\,f)\,h},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\sqrt{\frac{(-d\,e+c\,f)\,\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]\right)\Big/\left(\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\,\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\,\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)\Bigg)\Bigg)$$

Problem 13: Result more than twice size of optimal antiderivative.

$$\int\frac{d\,e+c\,f+2\,d\,f\,x}{\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 449 leaves, 5 steps):

$$\frac{2\,(b\,d\,e+b\,c\,f-2\,a\,d\,f)\,\sqrt{\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}}\,\sqrt{g+h\,x}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b\,g-a\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{a+b\,x}}\right],-\frac{(b\,c-a\,d)\,(f\,g-e\,h)}{(d\,e-c\,f)\,(b\,g-a\,h)}\right]}{b\,\sqrt{b\,g-a\,h}\,\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}\,\sqrt{-\frac{(b\,e-a\,f)\,(g+h\,x)}{(f\,g-e\,h)\,(a+b\,x)}}}+$$

$$\left(4\,d\,f\,\sqrt{-d\,g+c\,h}\,(a+b\,x)\,\sqrt{\frac{(b\,g-a\,h)\,(c+d\,x)}{(d\,g-c\,h)\,(a+b\,x)}}\,\sqrt{\frac{(b\,g-a\,h)\,(e+f\,x)}{(f\,g-e\,h)\,(a+b\,x)}}\right.$$

$$\left.\text{EllipticPi}\left[-\frac{b\,(d\,g-c\,h)}{(b\,c-a\,d)\,h},\text{ArcSin}\left[\frac{\sqrt{b\,c-a\,d}\,\sqrt{g+h\,x}}{\sqrt{-d\,g+c\,h}\,\sqrt{a+b\,x}}\right],\frac{(b\,e-a\,f)\,(d\,g-c\,h)}{(b\,c-a\,d)\,(f\,g-e\,h)}\right]\right)\Big/\left(b\,\sqrt{b\,c-a\,d}\,h\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\right)$$

Result (type 4, 1529 leaves):

$$\frac{1}{b^2\sqrt{c+\frac{(a+bx)\left(d-\frac{ad}{a+bx}\right)}{b}}\sqrt{e+\frac{(a+bx)\left(f-\frac{af}{a+bx}\right)}{b}}\sqrt{g+\frac{(a+bx)\left(h-\frac{ah}{a+bx}\right)}{b}}}2\,(a+bx)^{3/2}\sqrt{\left(d+\frac{bc}{a+bx}-\frac{ad}{a+bx}\right)\left(f+\frac{be}{a+bx}-\frac{af}{a+bx}\right)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}$$

$$\left(-\left(\left(b\,d\,e\sqrt{\frac{-\frac{d}{-bc+ad}+\frac{1}{a+bx}}{-\frac{d}{-bc+ad}+\frac{h}{-bg+ah}}}\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\left(-\frac{h}{-bg+ah}+\frac{1}{a+bx}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-be+af)\left(-h-\frac{bg}{a+bx}+\frac{ah}{a+bx}\right)}{b\,(-fg+eh)}}\right],\right.\right.\right.\right.$$

$$\left.\left.\left.\frac{(-bc+ad)\,(-fg+eh)}{(-be+af)\,(-dg+ch)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-bg+ah}+\frac{1}{a+bx}}{\frac{f}{-be+af}-\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)\right)-$$

$$\left(b\,c\,f\sqrt{\frac{-\frac{d}{-bc+ad}+\frac{1}{a+bx}}{-\frac{d}{-bc+ad}+\frac{h}{-bg+ah}}}\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\left(-\frac{h}{-bg+ah}+\frac{1}{a+bx}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-be+af)\left(-h-\frac{bg}{a+bx}+\frac{ah}{a+bx}\right)}{b\,(-fg+eh)}}\right],\right.\right.$$

$$\left.\left.\frac{(-bc+ad)\,(-fg+eh)}{(-be+af)\,(-dg+ch)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-bg+ah}+\frac{1}{a+bx}}{\frac{f}{-be+af}-\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)+$$

$$\left(2\,a\,d\,f\sqrt{\frac{-\frac{d}{-bc+ad}+\frac{1}{a+bx}}{-\frac{d}{-bc+ad}+\frac{h}{-bg+ah}}}\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\left(-\frac{h}{-bg+ah}+\frac{1}{a+bx}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-be+af)\left(-h-\frac{bg}{a+bx}+\frac{ah}{a+bx}\right)}{b\,(-fg+eh)}}\right],\right.\right.$$

$$\left.\left.\frac{(-bc+ad)\,(-fg+eh)}{(-be+af)\,(-dg+ch)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-bg+ah}+\frac{1}{a+bx}}{\frac{f}{-be+af}-\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)+$$

$$\left(2\,d\,f\,(-bg+ah)\left(-\frac{f}{-be+af}+\frac{h}{-bg+ah}\right)\sqrt{\frac{-\frac{d}{-bc+ad}+\frac{1}{a+bx}}{-\frac{d}{-bc+ad}+\frac{h}{-bg+ah}}}\sqrt{-\frac{\left(-\frac{f}{-be+af}+\frac{1}{a+bx}\right)\left(-\frac{h}{-bg+ah}+\frac{1}{a+bx}\right)}{\left(-\frac{f}{-be+af}+\frac{h}{-bg+ah}\right)^2}}\,\text{EllipticPi}\left[-\frac{-bfg+beh}{(-be+af)\,h},\right.\right.$$

$$\left.\left.\left.\text{ArcSin}\left[\sqrt{\frac{(-be+af)\left(-h-\frac{bg}{a+bx}+\frac{ah}{a+bx}\right)}{b\,(-fg+eh)}}\right],\frac{(-bc+ad)\,(-fg+eh)}{(-be+af)\,(-dg+ch)}\right]\right)\Big/\left(h\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)\right)$$

Problem 14: Result more than twice size of optimal antiderivative.

$$\int \frac{d e + c f + 2 d f x}{(a + b x)^{3/2} \sqrt{c + d x} \sqrt{e + f x} \sqrt{g + h x}} \, dx$$

Optimal (type 4, 625 leaves, 7 steps):

$$\frac{2 d (b d e + b c f - 2 a d f) \sqrt{a + b x} \sqrt{e + f x} \sqrt{g + h x}}{(b c - a d) (b e - a f) (b g - a h) \sqrt{c + d x}} - \frac{2 b (b d e + b c f - 2 a d f) \sqrt{c + d x} \sqrt{e + f x} \sqrt{g + h x}}{(b c - a d) (b e - a f) (b g - a h) \sqrt{a + b x}} -$$
$$\left(2 (b d e + b c f - 2 a d f) \sqrt{d g - c h} \sqrt{f g - e h} \sqrt{a + b x} \sqrt{-\frac{(d e - c f) (g + h x)}{(f g - e h) (c + d x)}}\right.$$
$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d g - c h} \sqrt{e + f x}}{\sqrt{f g - e h} \sqrt{c + d x}}\right], \frac{(b c - a d) (f g - e h)}{(b e - a f) (d g - c h)}\right]\right) \Big/ \left((b c - a d) (b e - a f) (b g - a h) \sqrt{\frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}} \sqrt{g + h x}\right) -$$
$$\frac{2 d (d e - c f) \sqrt{\frac{(b e - a f) (c + d x)}{(d e - c f) (a + b x)}} \sqrt{g + h x} \,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b g - a h} \sqrt{e + f x}}{\sqrt{f g - e h} \sqrt{a + b x}}\right], -\frac{(b c - a d) (f g - e h)}{(d e - c f) (b g - a h)}\right]}{(b c - a d) \sqrt{b g - a h} \sqrt{f g - e h} \sqrt{c + d x} \sqrt{-\frac{(b e - a f) (g + h x)}{(f g - e h) (a + b x)}}}$$

Result (type 4, 2236 leaves):

$$-\frac{2 b (b d e + b c f - 2 a d f) \sqrt{c + d x} \sqrt{e + f x} \sqrt{g + h x}}{(b c - a d) (b e - a f) (b g - a h) \sqrt{a + b x}} +$$
$$\frac{1}{b^2 (-b c + a d) (-b e + a f) (-b g + a h)} 2 \left(\frac{(-b d e - b c f + 2 a d f) (a + b x)^{5/2} \left(d + \frac{b c}{a+b x} - \frac{a d}{a+b x}\right) \left(f + \frac{b e}{a+b x} - \frac{a f}{a+b x}\right) \left(h + \frac{b g}{a+b x} - \frac{a h}{a+b x}\right)}{\sqrt{c + \frac{(a+b x) \left(d - \frac{a d}{a+b x}\right)}{b}} \sqrt{e + \frac{(a+b x) \left(f - \frac{a f}{a+b x}\right)}{b}} \sqrt{g + \frac{(a+b x) \left(h - \frac{a h}{a+b x}\right)}{b}}} - \right.$$
$$\frac{1}{\sqrt{c + \frac{(a+b x) \left(d - \frac{a d}{a+b x}\right)}{b}} \sqrt{e + \frac{(a+b x) \left(f - \frac{a f}{a+b x}\right)}{b}} \sqrt{g + \frac{(a+b x) \left(h - \frac{a h}{a+b x}\right)}{b}}} (b c - a d) (b e - a f) (b g - a h) (a + b x)^{3/2}$$

$$\sqrt{\left(d+\frac{b\,c}{a+b\,x}-\frac{a\,d}{a+b\,x}\right)\left(f+\frac{b\,e}{a+b\,x}-\frac{a\,f}{a+b\,x}\right)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}\;\Bigg(-\Bigg(\Bigg(b\,d\,e\sqrt{\frac{(b\,c-a\,d)\,(b\,g-a\,h)\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}$$

$$\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\;\Bigg(-\frac{(b\,d\,g-b\,c\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,(b\,g-a\,h)}-$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{-b\,c+a\,d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)\Bigg)-\Bigg(b\,c\,f\sqrt{\frac{(b\,c-a\,d)\,(b\,g-a\,h)\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}$$

$$\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\;\Bigg(-\frac{(b\,d\,g-b\,c\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,(b\,g-a\,h)}-$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{-b\,c+a\,d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+\Bigg(2\,a\,d\,f\sqrt{\frac{(b\,c-a\,d)\,(b\,g-a\,h)\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right) \sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \left(-\frac{(b d g-b c h) \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f) \left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right]}{(b c-a d) (b g-a h)}-\right.$$

$$\left.\left.\frac{d \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f) \left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right]}{-b c+a d}\right)\right) \Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(2 d f \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right]\right) \Big/$$

$$\left.\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right)\right)$$

Problem 15: Result more than twice size of optimal antiderivative.

$$\int \frac{d e+c f+2 d f x}{(a+b x)^{5/2} \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}} \, dx$$

Optimal (type 4, 1090 leaves, 8 steps):

$$\left(4 d \left(3 a^3 d^2 f^2 h - a^2 b d f (d f g + 4 d e h + 4 c f h) - b^3 (d^2 e^2 g - c d e (f g - e h) + c^2 f (f g + e h)) + a b^2 (2 c^2 f^2 h + d^2 e (f g + 2 e h) + c d f (f g + 3 e h))\right) \sqrt{a + b x} \sqrt{e + f x} \sqrt{g + h x}\right) \Big/ \left(3 (b c - a d)^2 (b e - a f)^2 (b g - a h)^2 \sqrt{c + d x}\right) - \frac{2 b (b d e + b c f - 2 a d f) \sqrt{c + d x} \sqrt{e + f x} \sqrt{g + h x}}{3 (b c - a d) (b e - a f) (b g - a h) (a + b x)^{3/2}} -$$

$$\left(4 b \left(3 a^3 d^2 f^2 h - a^2 b d f (d f g + 4 d e h + 4 c f h) - b^3 (d^2 e^2 g - c d e (f g - e h) + c^2 f (f g + e h)) + a b^2 (2 c^2 f^2 h + d^2 e (f g + 2 e h) + c d f (f g + 3 e h))\right) \sqrt{c + d x} \sqrt{e + f x} \sqrt{g + h x}\right) \Big/ \left(3 (b c - a d)^2 (b e - a f)^2 (b g - a h)^2 \sqrt{a + b x}\right) -$$

$$\left(4 \sqrt{d g - c h} \sqrt{f g - e h} \left(3 a^3 d^2 f^2 h - a^2 b d f (d f g + 4 d e h + 4 c f h) - b^3 (d^2 e^2 g - c d e (f g - e h) + c^2 f (f g + e h)) + a b^2 (2 c^2 f^2 h + d^2 e (f g + 2 e h) + c d f (f g + 3 e h))\right) \sqrt{a + b x} \sqrt{-\frac{(d e - c f) (g + h x)}{(f g - e h) (c + d x)}} \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d g - c h} \sqrt{e + f x}}{\sqrt{f g - e h} \sqrt{c + d x}}\right], \frac{(b c - a d) (f g - e h)}{(b e - a f) (d g - c h)}\right]\right) \Big/ \left(3 (b c - a d)^2 (b e - a f)^2 (b g - a h)^2 \sqrt{\frac{(d e - c f) (a + b x)}{(b e - a f) (c + d x)}} \sqrt{g + h x}\right) +$$

$$\left(2 (d e - c f) \left(3 a^2 d^2 f h - a b d (d f g + 3 d e h + 2 c f h) + b^2 (2 d^2 e g - c d f g + c d e h + c^2 f h)\right) \sqrt{\frac{(b e - a f) (c + d x)}{(d e - c f) (a + b x)}} \sqrt{g + h x} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b g - a h} \sqrt{e + f x}}{\sqrt{f g - e h} \sqrt{a + b x}}\right], -\frac{(b c - a d) (f g - e h)}{(d e - c f) (b g - a h)}\right]\right) \Big/ \left(3 (b c - a d)^2 (b e - a f) (b g - a h)^{3/2} \sqrt{f g - e h} \sqrt{c + d x} \sqrt{-\frac{(b e - a f) (g + h x)}{(f g - e h) (a + b x)}}\right)$$

Result (type 4, 10 601 leaves):

$$\sqrt{a + b x} \sqrt{c + d x} \sqrt{e + f x} \sqrt{g + h x} \left(-\frac{2 b (b d e + b c f - 2 a d f)}{3 (b c - a d) (b e - a f) (b g - a h) (a + b x)^2} + \left(4 b \left(b^3 d^2 e^2 g - b^3 c d e f g - a b^2 d^2 e f g + b^3 c^2 f^2 g - a b^2 c d f^2 g + a^2 b d^2 f^2 g + b^3 c d e^2 h - 2 a b^2 d^2 e^2 h + b^3 c^2 e f h - 3 a b^2 c d e f h + 4 a^2 b d^2 e f h - 2 a b^2 c^2 f^2 h + 4 a^2 b c d f^2 h - 3 a^3 d^2 f^2 h\right)\right) \Big/ \left(3 (b c - a d)^2 (b e - a f)^2 (b g - a h)^2 (a + b x)\right)\right) + \frac{1}{3 b^2 (-b c + a d)^2 (-b e + a f)^2 (-b g + a h)^2}$$

$$2\Bigg(-\Bigg(\Big(2\,\big(b^3 d^2 e^2 g - b^3 c d e f g - a b^2 d^2 e f g + b^3 c^2 f^2 g - a b^2 c d f^2 g + a^2 b d^2 f^2 g + b^3 c d e^2 h - 2 a b^2 d^2 e^2 h + b^3 c^2 e f h - 3 a b^2 c d e f h +$$

$$4 a^2 b d^2 e f h - 2 a b^2 c^2 f^2 h + 4 a^2 b c d f^2 h - 3 a^3 d^2 f^2 h\big)\,(a+b x)^{5/2}\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)$$

$$\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)\Big)\Big/\left(\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}\right)\Bigg)+$$

$$\frac{1}{\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}}(b c-a d)\,(b e-a f)\,(b g-a h)\,(a+b x)^{3/2}$$

$$\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}\;\Bigg(\Bigg(2 b^3 d^2 e^2 g\sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\Bigg(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\Bigg(2 b^3 c d e f g\sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(2 a b^2 d^2 e f g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 b^3 c^2 f^2 g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(2 a b^2 c d f^2 g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 a^2 b d^2 f^2 g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 b^3 c d e^2 h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(4 a b^2 d^2 e^2 h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 b^3 c^2 e f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(6 a b^2 c d e f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(8 a^2 b d^2 e f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\Bigg(4 a b^2 c^2 f^2 h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\Bigg(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\Bigg(8 a^2 b c d f^2 h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\Bigg(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(6 a^3 d^2 f^2 h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(b^2 d^2 e f g\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(b^2 c d f^2 g\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(2 a b d^2 f^2 g\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(b^2 d^2 e^2 h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 b^2 c d e f h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(5 a b d^2 e f h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(b^2 c^2 f^2 h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(5 a b c d f^2 h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(6 a^2 d^2 f^2 h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg)\Bigg/$$

$$\left.\left.\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)\right)\right)$$

Problem 16: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(a+b x)\left(a b B-a^2 C+b^2 B x+b^2 C x^2\right)}{\sqrt{c+d x}\sqrt{e+f x}\sqrt{g+h x}}\,dx$$

Optimal (type 4, 721 leaves, 8 steps) :

$$\frac{2 b^2 \left(5 b B d f h + 2 C \left(a d f h - 2 b \left(d f g + d e h + c f h\right)\right)\right) \sqrt{c + d x} \sqrt{e + f x} \sqrt{g + h x}}{15 d^2 f^2 h^2} +$$

$$\frac{2 b^2 C \left(a + b x\right) \sqrt{c + d x} \sqrt{e + f x} \sqrt{g + h x}}{5 d f h} - \left(2 b \sqrt{-d e + c f} \left(15 a^2 C d^2 f^2 h^2 - 10 a b d f h \left(3 B d f h - C \left(d f g + d e h + c f h\right)\right) + \right.\right.$$

$$\left.\left. b^2 \left(10 B d f h \left(d f g + d e h + c f h\right) - C \left(8 c^2 f^2 h^2 + 7 c d f h \left(f g + e h\right) + d^2 \left(8 f^2 g^2 + 7 e f g h + 8 e^2 h^2\right)\right)\right)\right) \sqrt{\frac{d \left(e + f x\right)}{d e - c f}} \sqrt{g + h x}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c + d x}}{\sqrt{-d e + c f}}\right], \frac{\left(d e - c f\right) h}{f \left(d g - c h\right)}\right]\right) \Big/ \left(15 d^3 f^{5/2} h^3 \sqrt{e + f x} \sqrt{\frac{d \left(g + h x\right)}{d g - c h}}\right) - \frac{1}{15 d^3 f^{5/2} h^3 \sqrt{e + f x} \sqrt{g + h x}}$$

$$2 \sqrt{-d e + c f} \left(15 a^3 C d^2 f^2 h^3 - 15 a^2 b d^2 f^2 h^2 \left(C g + B h\right) + 5 a b^2 d f h \left(6 B d f g h - C \left(c h \left(f g - e h\right) + d g \left(2 f g + e h\right)\right)\right) - \right.$$
$$\left. b^3 \left(5 B d f h \left(c h \left(f g - e h\right) + d g \left(2 f g + e h\right)\right) - C \left(4 c^2 f h^2 \left(f g - e h\right) + c d h \left(3 f^2 g^2 + e f g h - 4 e^2 h^2\right) + d^2 g \left(8 f^2 g^2 + 3 e f g h + 4 e^2 h^2\right)\right)\right)\right)$$

$$\sqrt{\frac{d \left(e + f x\right)}{d e - c f}} \sqrt{\frac{d \left(g + h x\right)}{d g - c h}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c + d x}}{\sqrt{-d e + c f}}\right], \frac{\left(d e - c f\right) h}{f \left(d g - c h\right)}\right]$$

Result (type 4, 12 665 leaves) :

$$\sqrt{c + d x} \sqrt{e + f x} \left(\frac{2 b^2 \left(-4 b C d f g - 4 b C d e h - 4 b c C f h + 5 b B d f h + 5 a C d f h\right)}{15 d^2 f^2 h^2} + \frac{2 b^3 C x}{5 d f h}\right) \sqrt{g + h x} +$$

$$\frac{1}{15 d^4 f^2 h^2} 2 \left(-\frac{1}{f h \sqrt{e + \frac{(c+d x) \left(f - \frac{c f}{c+d x}\right)}{d}} \sqrt{g + \frac{(c+d x) \left(h - \frac{c h}{c+d x}\right)}{d}}}\right.$$

$$b \left(-8 b^2 C d^2 f^2 g^2 - 7 b^2 C d^2 e f g h - 7 b^2 c C d f^2 g h + 10 b^2 B d^2 f^2 g h + 10 a b C d^2 f^2 g h - 8 b^2 C d^2 e^2 h^2 - 7 b^2 c C d e f h^2 + \right.$$
$$\left. 10 b^2 B d^2 e f h^2 + 10 a b C d^2 e f h^2 - 8 b^2 c^2 C f^2 h^2 + 10 b^2 B c d f^2 h^2 + 10 a b c C d f^2 h^2 - 30 a b B d^2 f^2 h^2 + 15 a^2 C d^2 f^2 h^2\right)$$

$$\left(c + d x\right)^{3/2} \left(f + \frac{d e}{c + d x} - \frac{c f}{c + d x}\right) \left(h + \frac{d g}{c + d x} - \frac{c h}{c + d x}\right) - \frac{1}{f h \sqrt{e + \frac{(c+d x) \left(f - \frac{c f}{c+d x}\right)}{d}} \sqrt{g + \frac{(c+d x) \left(h - \frac{c h}{c+d x}\right)}{d}}}$$

$$(c+d x) \sqrt{\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right) \left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)} \left(\left(8 \, i \, b^3 C d^4 e f^2 g^3 h \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\right.\right.$$

$$\left.\left(\text{EllipticE}\left[i \, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i \, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}} (-d g+c h) \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(8 \, i \, b^3 c C d^3 f^3 g^3 h \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i \, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i \, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}} (-d g+c h) \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(7 \, i \, b^3 C d^4 e^2 f g^2 h^2 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i \, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i \, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]\right)\right) \Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}} (-d g+c h) \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(8 \, i \, b^3 c C d^3 e f^2 g^2 h^2 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(10\,i\,b^3 B d^4 e f^2 g^2 h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(10\,i\,a b^2 C d^4 e f^2 g^2 h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(i\,b^3 c^2 C d^2 f^3 g^2 h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(10\,\mathbb{i}\,b^3 B c d^3 f^3 g^2 h^2\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(10\,\mathbb{i}\,a b^2 c C d^3 f^3 g^2 h^2\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(8\,\mathbb{i}\,b^3 C d^4 e^3 g h^3\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(8\,\mathbb{i}\,b^3 c C d^3 e^2 f g h^3\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(10\,\mathbb{i}\,b^3 B d^4 e^2 f g h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(10\,\mathbb{i}\,a b^2 C d^4 e^2 f g h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(\mathbb{i}\,b^3 c^2 C d^2 e f^2 g h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\;\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(10\,\mathbb{i}\,b^3 B c d^3 e f^2 g h^3\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\;\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\;\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(10\,\mathbb{i}\,a b^2 c C d^3 e f^2 g h^3\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\;\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\;\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(30\,\mathbb{i}\,a b^2 B d^4 e f^2 g h^3\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\;\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\;(-d g+c h)\;\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(15\,\mathbb{i}\,a^2 b C d^4 e f^2 g h^3\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\;\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(i\,b^3 c^3 C d f^3 g h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(30\,i\,a b^2 B c d^3 f^3 g h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(15\,i\,a^2 b c C d^3 f^3 g h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(8\,i\,b^3 c\,C\,d^3 e^3 h^4\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(i\,b^3 c^2 C\,d^2 e^2 f\,h^4\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(10\,i\,b^3 B\,c\,d^3 e^2 f\,h^4\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(10\,i\,a\,b^2 c\,C\,d^3 e^2 f\,h^4\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(i\,b^3 c^3 C d e f^2 h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(30\,i\,a b^2 B c d^3 e f^2 h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(15\,i\,a^2 b c C d^3 e f^2 h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(8\, i\, b^3 c^4 C f^3 h^4 \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(10\, i\, b^3 B c^3 d f^3 h^4 \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(10\, i\, a\, b^2 c^3 C d f^3 h^4 \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(30\, i\, a\, b^2 B c^2 d^2 f^3 h^4 \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(15\, i\, a^2 b c^2 C d^2 f^3 h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-$$

$$\frac{4\, i\, b^3 C d^3 e f^2 g^2 h\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\,\text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{4\, i\, b^3 c C d^2 f^3 g^2 h\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\,\text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}-$$

$$\frac{4\, i\, b^3 C d^3 e^2 f g h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\,\text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{\text{i}\, b^3\, c\, C\, d^2\, e\, f^2\, g\, h^2 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticF}\left[\text{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}} \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{5\, \text{i}\, b^3\, B\, d^3\, e\, f^2\, g\, h^2 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticF}\left[\text{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}} \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{5\, \text{i}\, a\, b^2\, C\, d^3\, e\, f^2\, g\, h^2 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticF}\left[\text{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}} \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{3\, \text{i}\, b^3\, c^2\, C\, d\, f^3\, g\, h^2 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticF}\left[\text{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}} \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}}-$$

$$\frac{5\, \text{i}\, b^3\, B\, c\, d^2\, f^3\, g\, h^2 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticF}\left[\text{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}} \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}}-$$

$$\frac{5\, \text{i}\, a\, b^2\, c\, C\, d^2\, f^3\, g\, h^2 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticF}\left[\text{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}} \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{4\,i\,b^3\,c\,C\,d^2\,e^2\,f\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{3\,i\,b^3\,c^2\,C\,d\,e\,f^2\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{5\,i\,b^3\,B\,c\,d^2\,e\,f^2\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{5\,i\,a\,b^2\,c\,C\,d^2\,e\,f^2\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{8\,i\,b^3\,c^3\,C\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{10\,i\,b^3\,B\,c^2\,d\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{10\,\mathrm{i}\,a\,b^2\,c^2\,C\,d\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{30\,\mathrm{i}\,a\,b^2\,B\,c\,d^2\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{15\,\mathrm{i}\,a^2\,b\,c\,C\,d^2\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{15\,\mathrm{i}\,a^2\,b\,B\,d^3\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\left.\left.\frac{15\,\mathrm{i}\,a^3\,C\,d^3\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}\right)\right)$$

Problem 17: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{a\,b\,B-a^2\,C+b^2\,B\,x+b^2\,C\,x^2}{\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 410 leaves, 7 steps):

$$\frac{2 b^2 C \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{3 d f h}+$$

$$\left(2 b^2 \sqrt{-d e+c f} \left(3 B d f h-2 C \left(d f g+d e h+c f h\right)\right) \sqrt{\frac{d \left(e+f x\right)}{d e-c f}} \sqrt{g+h x} \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right], \frac{\left(d e-c f\right) h}{f \left(d g-c h\right)}\right]\right)\Big/$$

$$\left(3 d^2 f^{3/2} h^2 \sqrt{e+f x} \sqrt{\frac{d \left(g+h x\right)}{d g-c h}}\right)+\Bigg(2 \sqrt{-d e+c f} \left(3 a b B d f h^2-3 a^2 C d f h^2-b^2 \left(3 B d f g h-C \left(c h \left(f g-e h\right)+d g \left(2 f g+e h\right)\right)\right)\right)$$

$$\sqrt{\frac{d \left(e+f x\right)}{d e-c f}} \sqrt{\frac{d \left(g+h x\right)}{d g-c h}} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right], \frac{\left(d e-c f\right) h}{f \left(d g-c h\right)}\right]\Bigg)\Big/\left(3 d^2 f^{3/2} h^2 \sqrt{e+f x} \sqrt{g+h x}\right)$$

Result (type 4, 569 leaves) :

$$\frac{2 b^2 C \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{3 d f h}+\frac{1}{3 d^3 \sqrt{-c+\frac{d e}{f}} f^2 h^2 \sqrt{e+\frac{\left(c+d x\right) \left(f-\frac{c f}{c+d x}\right)}{d}} \sqrt{g+\frac{\left(c+d x\right) \left(h-\frac{c h}{c+d x}\right)}{d}}}$$

$$\left(c+d x\right)^{3/2} \Bigg(-2 b^2 \sqrt{-c+\frac{d e}{f}} \left(-3 B d f h+2 C \left(d f g+d e h+c f h\right)\right) \left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right) \left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)-\frac{1}{\sqrt{c+d x}} 2 i b^2 \left(-d e+c f\right) h$$

$$\left(3 B d f h-2 C \left(d f g+d e h+c f h\right)\right) \sqrt{1-\frac{c}{c+d x}+\frac{d e}{f \left(c+d x\right)}} \sqrt{1-\frac{c}{c+d x}+\frac{d g}{h \left(c+d x\right)}} \text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d e}{f}}}{\sqrt{c+d x}}\right], \frac{d f g-c f h}{d e h-c f h}\right]+$$

$$\frac{1}{\sqrt{c+d x}} 2 i d h \left(3 a b B d f^2 h-3 a^2 C d f^2 h+b^2 \left(-3 B d e f h+c C f \left(-f g+e h\right)+C d e \left(f g+2 e h\right)\right)\right)$$

$$\sqrt{1-\frac{c}{c+d x}+\frac{d e}{f \left(c+d x\right)}} \sqrt{1-\frac{c}{c+d x}+\frac{d g}{h \left(c+d x\right)}} \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d e}{f}}}{\sqrt{c+d x}}\right], \frac{d f g-c f h}{d e h-c f h}\right]\Bigg)$$

Problem 18: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{a b B - a^2 C + b^2 B x + b^2 C x^2}{(a + b x) \sqrt{c + d x} \sqrt{e + f x} \sqrt{g + h x}} \, dx$$

Optimal (type 4, 291 leaves, 7 steps):

$$\frac{2 b C \sqrt{-d e + c f} \sqrt{\frac{d (e+f x)}{d e-c f}} \sqrt{g + h x} \, \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right], \frac{(d e-c f) h}{f (d g-c h)}\right]}{d \sqrt{f} \, h \sqrt{e + f x} \sqrt{\frac{d (g+h x)}{d g-c h}}} -$$

$$\frac{2 \sqrt{-d e + c f} (b C g - b B h + a C h) \sqrt{\frac{d (e+f x)}{d e-c f}} \sqrt{\frac{d (g+h x)}{d g-c h}} \, \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f} \sqrt{c+d x}}{\sqrt{-d e+c f}}\right], \frac{(d e-c f) h}{f (d g-c h)}\right]}{d \sqrt{f} \, h \sqrt{e + f x} \sqrt{g + h x}}$$

Result (type 4, 326 leaves):

$$\left(2 \left(b C d^2 \sqrt{-c + \frac{d e}{f}} (e + f x) (g + h x) + \right.\right.$$

$$i b C (d e - c f) h (c + d x)^{3/2} \sqrt{\frac{d (e + f x)}{f (c + d x)}} \sqrt{\frac{d (g + h x)}{h (c + d x)}} \, \text{EllipticE}\left[i \, \text{ArcSinh}\left[\frac{\sqrt{-c + \frac{d e}{f}}}{\sqrt{c + d x}}\right], \frac{d f g - c f h}{d e h - c f h}\right] - i d (b C e - b B f + a C f) h$$

$$\left.\left.(c + d x)^{3/2} \sqrt{\frac{d (e + f x)}{f (c + d x)}} \sqrt{\frac{d (g + h x)}{h (c + d x)}} \, \text{EllipticF}\left[i \, \text{ArcSinh}\left[\frac{\sqrt{-c + \frac{d e}{f}}}{\sqrt{c + d x}}\right], \frac{d f g - c f h}{d e h - c f h}\right]\right)\right) \Big/ \left(d^2 \sqrt{-c + \frac{d e}{f}} \, f h \sqrt{c + d x} \sqrt{e + f x} \sqrt{g + h x}\right)$$

Problem 19: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{a b B - a^2 C + b^2 B x + b^2 C x^2}{(a + b x)^2 \sqrt{c + d x} \sqrt{e + f x} \sqrt{g + h x}} \, dx$$

Optimal (type 4, 309 leaves, 10 steps):

$$\frac{2\,C\,\sqrt{-d\,e+c\,f}\,\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]}{d\,\sqrt{f}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}-$$

$$\frac{2\,(b\,B-2\,a\,C)\,\sqrt{-d\,e+c\,f}\,\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\,\text{EllipticPi}\left[-\frac{b\,(d\,e-c\,f)}{(b\,c-a\,d)\,f},\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{f}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}$$

Result (type 4, 248 leaves) :

$$\left(2\,\mathrm{i}\,\sqrt{e+f\,x}\,\sqrt{\frac{d\,(g+h\,x)}{h\,(c+d\,x)}}\left(-(b\,c\,C-b\,B\,d+a\,C\,d)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d\,e}{f}}}{\sqrt{c+d\,x}}\right],\frac{d\,f\,g-c\,f\,h}{d\,e\,h-c\,f\,h}\right]+\right.\right.$$

$$\left.\left.(-b\,B+2\,a\,C)\,d\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,f}{b\,(-d\,e+c\,f)},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d\,e}{f}}}{\sqrt{c+d\,x}}\right],\frac{d\,f\,g-c\,f\,h}{d\,e\,h-c\,f\,h}\right]\right)\right)\Big/\left((-b\,c+a\,d)\,\sqrt{-c+\frac{d\,e}{f}}\,f\,\sqrt{\frac{d\,(e+f\,x)}{f\,(c+d\,x)}}\,\sqrt{g+h\,x}\right)$$

Problem 20: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{a\,b\,B-a^2\,C+b^2\,B\,x+b^2\,C\,x^2}{(a+b\,x)^3\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 680 leaves, 13 steps) :

$$-\frac{b^2\left(b B-2 a C\right)\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}{\left(b c-a d\right)\left(b e-a f\right)\left(b g-a h\right)\left(a+b x\right)}+\frac{b\left(b B-2 a C\right)\sqrt{f}\,\sqrt{-d e+c f}\,\sqrt{\frac{d\,(e+f x)}{d e-c f}}\,\sqrt{g+h x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f)\,h}{f\,(d g-c h)}\right]}{\left(b c-a d\right)\left(b e-a f\right)\left(b g-a h\right)\sqrt{e+f x}\,\sqrt{\frac{d\,(g+h x)}{d g-c h}}}-$$

$$\frac{\left(b B-2 a C\right)\sqrt{f}\,\sqrt{-d e+c f}\,\sqrt{\frac{d\,(e+f x)}{d e-c f}}\,\sqrt{\frac{d\,(g+h x)}{d g-c h}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f)\,h}{f\,(d g-c h)}\right]}{\left(b c-a d\right)\left(b e-a f\right)\sqrt{e+f x}\,\sqrt{g+h x}}-$$

$$\left(\sqrt{-d e+c f}\,\left(4 a^3 C d f h+2 a b^2 B\left(d f g+d e h+c f h\right)-b^3\left(B d e g-c\left(2 C e g-B f g-B e h\right)\right)-a^2 b\left(3 B d f h+2 C\left(d f g+d e h+c f h\right)\right)\right)\right.$$

$$\left.\sqrt{\frac{d\,(e+f x)}{d e-c f}}\,\sqrt{\frac{d\,(g+h x)}{d g-c h}}\,\text{EllipticPi}\left[-\frac{b\,(d e-c f)}{(b c-a d)\,f},\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f)\,h}{f\,(d g-c h)}\right]\right)\Big/$$

$$\left(\left(b c-a d\right)^2\sqrt{f}\,\left(b e-a f\right)\left(b g-a h\right)\sqrt{e+f x}\,\sqrt{g+h x}\right)$$

Result (type 4, 16 821 leaves) :

$$-\frac{b^2\left(b B-2 a C\right)\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}{\left(b c-a d\right)\left(b e-a f\right)\left(b g-a h\right)\left(a+b x\right)}-$$

$$\frac{1}{d\left(-b c+a d\right)\left(-b e+a f\right)\left(-b g+a h\right)}\left(\frac{b\left(b B-2 a C\right)\left(c+d x\right)^{3/2}\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{\sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\,\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}}+\left(\left(c+d x\right)\left(-b+\frac{b c}{c+d x}-\frac{a d}{c+d x}\right)\right.\right.$$

$$\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}\,\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}\,\sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}$$

$$\left(\frac{\left(b c-a d\right)h\left(-2 b^2 C e g+b^2 B f g+b^2 B e h-2 a b B f h+2 a^2 C f h\right)}{\left(-b g+a h\right)\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}\,\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}-\frac{b\left(b B-2 a C\right)\left(d e-c f\right)\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}+\right.$$

$$\left(b\left(2 b^3 c C e g-b^3 B d e g-b^3 B c f g+2 a b^2 B d f g-2 a^2 b C d f g-b^3 B c e h+2 a b^2 B d e h-2 a^2 b C d e h+2 a b^2 B c f h-2 a^2 b c C f h-\right.\right.$$

$$\left.\left.3 a^2 b B d f h+4 a^3 C d f h\right)\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}\right)\Big/\left(\left(-b g+a h\right)\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}\right)$$

$$\left(\left(\mathbb{i}\, b^2 B d^2 e f g\sqrt{1-\frac{-d e+c f}{f\left(c+d x\right)}}\sqrt{1-\frac{-d g+c h}{h\left(c+d x\right)}}\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{\left(-d e+c f\right)h}{f\left(-d g+c h\right)}\right]-\right.\right.\right.$$

$$\left.\left.\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{\left(-d e+c f\right)h}{f\left(-d g+c h\right)}\right]\right)\right)\Big/$$

$$\left(\left(b c-a d\right)\left(-d e+c f\right)\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{\left(c+d x\right)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)-\left(2\,\mathbb{i}\, a b C d^2 e f g\sqrt{1-\frac{-d e+c f}{f\left(c+d x\right)}}\right.$$

$$\left.\sqrt{1-\frac{-d g+c h}{h\left(c+d x\right)}}\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{\left(-d e+c f\right)h}{f\left(-d g+c h\right)}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{\left(-d e+c f\right)h}{f\left(-d g+c h\right)}\right]\right)\right)\Big/$$

$$\left(\left(b c-a d\right)\left(-d e+c f\right)\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{\left(c+d x\right)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)-\left(\mathbb{i}\, b^2 B c d f^2 g\sqrt{1-\frac{-d e+c f}{f\left(c+d x\right)}}\right.$$

$$\sqrt{1-\frac{-d g+c h}{h (c+d x)}} \left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right] - \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]\right)\Bigg) \Big/$$

$$\left((b c-a d) (-d e+c f) \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right) + \Bigg(2 i a b c C d f^2 g \sqrt{1-\frac{-d e+c f}{f (c+d x)}}$$

$$\sqrt{1-\frac{-d g+c h}{h (c+d x)}} \left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right] - \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]\right)\Bigg) \Big/$$

$$\left((b c-a d) (-d e+c f) \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right) - \Bigg(i b^2 B c d e f h \sqrt{1-\frac{-d e+c f}{f (c+d x)}}$$

$$\sqrt{1-\frac{-d g+c h}{h (c+d x)}} \left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right] - \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]\right)\Bigg) \Big/$$

$$\left((b c-a d) (-d e+c f) \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right) + \Bigg(2 i a b c C d e f h \sqrt{1-\frac{-d e+c f}{f (c+d x)}}$$

$$\sqrt{1-\frac{-d g+c h}{h (c+d x)}} \left(\text{EllipticE}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right] - \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]\right)\Bigg) \Big/$$

$$\left((b c-a d)(-d e+c f)\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)+\Bigg(\mathbb{i}\, b^2 B c^2 f^2 h\sqrt{1-\frac{-d e+c f}{f(c+d x)}}$$

$$\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f(-d g+c h)}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f(-d g+c h)}\right]\right)\Bigg)\Big/$$

$$\left((b c-a d)(-d e+c f)\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)-\Bigg(2\,\mathbb{i}\, a b c^2 C f^2 h\sqrt{1-\frac{-d e+c f}{f(c+d x)}}$$

$$\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f(-d g+c h)}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f(-d g+c h)}\right]\right)\Bigg)\Big/$$

$$\left((b c-a d)(-d e+c f)\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)-$$

$$\frac{\mathbb{i}\, b^3 B d^2 e g\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f(-d g+c h)}\right]}{(b c-a d)^2\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+$$

$$\frac{2\,\mathbb{i}\, a b^2 C d^2 e g\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f) h}{f(-d g+c h)}\right]}{(b c-a d)^2\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+$$

$$\frac{2\,i\,b^2\,C\,d\,e\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{i\,b^3\,B\,c\,d\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{2\,i\,a\,b^2\,c\,C\,d\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{2\,i\,b^2\,B\,d\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{2\,i\,a\,b\,C\,d\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{i\,b^3\,B\,c\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{2\,\mathrm{i}\,a\,b^2\,c\,C\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{2\,\mathrm{i}\,b^2\,B\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{2\,\mathrm{i}\,a\,b\,C\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{\mathrm{i}\,b^3\,B\,c^2\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{2\,\mathrm{i}\,a\,b^2\,c^2\,C\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{2\,\mathrm{i}\,b^2\,B\,c\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{4\,i\,a\,b\,c\,C\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{2\,i\,a\,b\,B\,d\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{2\,i\,a^2\,C\,d\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+\frac{1}{(b\,c-a\,d)^3}$$

$$b^4\,B\,d^2\,e\,g\left(\frac{i\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{i\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)-$$

$$\frac{1}{(b\,c-a\,d)^3}2\,a\,b^3\,C\,d^2\,e\,g\left(\frac{i\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{\mathbb{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{(b c-a d)^2} 2 b^3 C d e g \left(\frac{\mathbb{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{\mathbb{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{(b c-a d)^3} b^4 B c d f g \left(\frac{\mathbb{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{\mathbb{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) +$$

$$\frac{1}{(b c-a d)^3} 2 a b^3 c C d f g \left(\frac{\mathbb{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{\mathrm{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\; \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} 2 b^3 B d f g \left(\frac{\mathrm{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\; \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{\mathrm{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\; \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^2} 2 a b^2 C d f g \left(\frac{\mathrm{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\; \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{\mathrm{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\; \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^3} b^4 B c d e h \left(\frac{\mathrm{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\; \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{\mathrm{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^3} 2 a b^3 c\, C\, d\, e\, h \left(\frac{\mathrm{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{\mathrm{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} 2 b^3 B\, d\, e\, h \left(\frac{\mathrm{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{\mathrm{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^2} 2 a b^2 C\, d\, e\, h \left(\frac{\mathrm{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^3} b^4 B c^2 f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^3} 2 a b^3 c^2 C f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^2} 2 b^3 B c f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} 4 a b^2 c C f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right.-$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^2} 2 a b^2 B d f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right.-$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} 2 a^2 b C d f h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right.-$$

$$\left.\frac{\mathrm{i}\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)+$$

$$\frac{1}{b\,c-a\,d}b^2\,B\,f\,h\left(\frac{\mathrm{i}\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{\mathrm{i}\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)-$$

$$\frac{1}{b\,c-a\,d}2\,a\,b\,C\,f\,h\left(\frac{\mathrm{i}\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\left.\left.\frac{\mathrm{i}\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)\right)\right)\Big/$$

$$\left(\left(b^2\,B\,f\,h-2\,a\,b\,C\,f\,h+\frac{b^2\,B\,d^2\,e\,g}{(c+d\,x)^2}-\frac{2\,a\,b\,C\,d^2\,e\,g}{(c+d\,x)^2}-\frac{b^2\,B\,c\,d\,f\,g}{(c+d\,x)^2}+\frac{2\,a\,b\,c\,C\,d\,f\,g}{(c+d\,x)^2}-\frac{b^2\,B\,c\,d\,e\,h}{(c+d\,x)^2}+\frac{2\,a\,b\,c\,C\,d\,e\,h}{(c+d\,x)^2}+\frac{b^2\,B\,c^2\,f\,h}{(c+d\,x)^2}-\right.\right.$$

$$\frac{2\,a\,b\,c^2\,C\,f\,h}{(c+d\,x)^2}-\frac{2\,b^2\,C\,d\,e\,g}{c+d\,x}+\frac{2\,b^2\,B\,d\,f\,g}{c+d\,x}-\frac{2\,a\,b\,C\,d\,f\,g}{c+d\,x}+\frac{2\,b^2\,B\,d\,e\,h}{c+d\,x}-\frac{2\,a\,b\,C\,d\,e\,h}{c+d\,x}-\frac{2\,b^2\,B\,c\,f\,h}{c+d\,x}+$$

$$\left.\left(\frac{4\,a\,b\,c\,C\,f\,h}{c+d\,x}-\frac{2\,a\,b\,B\,d\,f\,h}{c+d\,x}+\frac{2\,a^2\,C\,d\,f\,h}{c+d\,x}\right)\sqrt{e+\frac{(c+d\,x)\left(f-\frac{c\,f}{c+d\,x}\right)}{d}}\;\sqrt{g+\frac{(c+d\,x)\left(h-\frac{c\,h}{c+d\,x}\right)}{d}}\right)\right)$$

Problem 21: Result more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{a+b\,x}\,\left(a\,b\,B-a^2\,C+b^2\,B\,x+b^2\,C\,x^2\right)}{\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 980 leaves, 9 steps):

$$\frac{b\,(4\,b\,B\,d\,f\,h+C\,(a\,d\,f\,h-3\,b\,(d\,f\,g+d\,e\,h+c\,f\,h)))\,\sqrt{a+b\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{4\,d\,f^2\,h^2\,\sqrt{c+d\,x}}+\frac{b^2\,C\,\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{2\,d\,f\,h}-$$

$$\left(b\,\sqrt{d\,g-c\,h}\,\sqrt{f\,g-e\,h}\,(4\,b\,B\,d\,f\,h+C\,(a\,d\,f\,h-3\,b\,(d\,f\,g+d\,e\,h+c\,f\,h)))\,\sqrt{a+b\,x}\,\sqrt{-\frac{(d\,e-c\,f)\,(g+h\,x)}{(f\,g-e\,h)\,(c+d\,x)}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d\,g-c\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}}\right],\frac{(b\,c-a\,d)\,(f\,g-e\,h)}{(b\,e-a\,f)\,(d\,g-c\,h)}\right]\right)\Big/\left(4\,d^2\,f^2\,h^2\,\sqrt{\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}}\,\sqrt{g+h\,x}\right)+$$

$$\left((b\,e-a\,f)\,\sqrt{b\,g-a\,h}\,(a\,C\,d\,f\,h-b\,(4\,B\,d\,f\,h-C\,(3\,d\,f\,g+3\,d\,e\,h+c\,f\,h)))\,\sqrt{\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}}\,\sqrt{g+h\,x}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b\,g-a\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{a+b\,x}}\right],-\frac{(b\,c-a\,d)\,(f\,g-e\,h)}{(d\,e-c\,f)\,(b\,g-a\,h)}\right]\right)\Big/\left(4\,d\,f^2\,h^2\,\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}\,\sqrt{-\frac{(b\,e-a\,f)\,(g+h\,x)}{(f\,g-e\,h)\,(a+b\,x)}}\right)-$$

$$\frac{1}{4\,d^2\,\sqrt{b\,c-a\,d}\,f^2\,h^3\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}}\sqrt{-d\,g+c\,h}\,((a\,d\,f\,h+b\,(d\,f\,g+d\,e\,h+c\,f\,h))\,(4\,b\,B\,d\,f\,h+C\,(a\,d\,f\,h-3\,b\,(d\,f\,g+d\,e\,h+c\,f\,h)))+$$

$$4\,d\,f\,h\,(2\,a^2\,C\,d\,f\,h+b^2\,C\,(d\,e\,g+c\,f\,g+c\,e\,h)-a\,b\,(4\,B\,d\,f\,h-C\,(d\,f\,g+d\,e\,h+c\,f\,h))))\,(a+b\,x)\,\sqrt{\frac{(b\,g-a\,h)\,(c+d\,x)}{(d\,g-c\,h)\,(a+b\,x)}}$$

$$\sqrt{\frac{(b\,g-a\,h)\,(e+f\,x)}{(f\,g-e\,h)\,(a+b\,x)}}\;\text{EllipticPi}\left[-\frac{b\,(d\,g-c\,h)}{(b\,c-a\,d)\,h},\text{ArcSin}\left[\frac{\sqrt{b\,c-a\,d}\,\sqrt{g+h\,x}}{\sqrt{-d\,g+c\,h}\,\sqrt{a+b\,x}}\right],\frac{(b\,e-a\,f)\,(d\,g-c\,h)}{(b\,c-a\,d)\,(f\,g-e\,h)}\right]$$

Result (type 4, 21 555 leaves): Display of huge result suppressed!

Problem 22: Result more than twice size of optimal antiderivative.

$$\int \frac{a b B - a^2 C + b^2 B x + b^2 C x^2}{\sqrt{a+b x} \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}} \, dx$$

Optimal (type 4, 734 leaves, 8 steps):

$$\frac{b C \sqrt{a+b x} \sqrt{e+f x} \sqrt{g+h x}}{f h \sqrt{c+d x}} - \frac{b C \sqrt{d g-c h} \sqrt{f g-e h} \sqrt{a+b x} \sqrt{-\frac{(d e-c f) (g+h x)}{(f g-e h) (c+d x)}} \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d g-c h} \sqrt{e+f x}}{\sqrt{f g-e h} \sqrt{c+d x}}\right], \frac{(b c-a d) (f g-e h)}{(b e-a f) (d g-c h)}\right]}{d f h \sqrt{\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}} \sqrt{g+h x}} -$$

$$\frac{C (b e-a f) \sqrt{b g-a h} \sqrt{\frac{(b e-a f) (c+d x)}{(d e-c f) (a+b x)}} \sqrt{g+h x} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b g-a h} \sqrt{e+f x}}{\sqrt{f g-e h} \sqrt{a+b x}}\right], -\frac{(b c-a d) (f g-e h)}{(d e-c f) (b g-a h)}\right]}{f h \sqrt{f g-e h} \sqrt{c+d x} \sqrt{-\frac{(b e-a f) (g+h x)}{(f g-e h) (a+b x)}}} -$$

$$\left(\sqrt{-d g+c h} \left(a C d f h-b \left(2 B d f h-C \left(d f g+d e h+c f h\right)\right)\right) (a+b x) \sqrt{\frac{(b g-a h) (c+d x)}{(d g-c h) (a+b x)}} \sqrt{\frac{(b g-a h) (e+f x)}{(f g-e h) (a+b x)}} \right.$$

$$\left. \text{EllipticPi}\left[-\frac{b (d g-c h)}{(b c-a d) h}, \text{ArcSin}\left[\frac{\sqrt{b c-a d} \sqrt{g+h x}}{\sqrt{-d g+c h} \sqrt{a+b x}}\right], \frac{(b e-a f) (d g-c h)}{(b c-a d) (f g-e h)}\right]\right) \Big/ \left(d \sqrt{b c-a d} \, f h^2 \sqrt{c+d x} \sqrt{e+f x}\right)$$

Result (type 4, 6667 leaves):

$$\frac{1}{d^2} 2 \left(\frac{b C (c+d x)^{3/2} \left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right) \left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right) \sqrt{a+\frac{(c+d x) \left(b-\frac{b c}{c+d x}\right)}{d}}}{2 f h \sqrt{e+\frac{(c+d x) \left(f-\frac{c f}{c+d x}\right)}{d}} \sqrt{g+\frac{(c+d x) \left(h-\frac{c h}{c+d x}\right)}{d}}} - \right.$$

$$\left(d (b g-a h) (d g-c h) (b C f g+b C e h-2 b B f h+2 a C f h) \sqrt{c+d x} \sqrt{\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right) \left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right) \left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)} \right.$$

$$\sqrt{a+\frac{(c+d\,x)\left(b-\frac{b\,c}{c+d\,x}\right)}{d}}\;\Bigg(\Bigg(d\,e\,\sqrt{-\frac{(b\,c-a\,d)\,(-d\,g+c\,h)\left(-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}\right)}{-b\,d\,g+a\,d\,h}}\;\left(-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}\right)$$

$$\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\;\Bigg(\frac{(-b\,d\,g+a\,d\,h)\,\text{EllipticE}\Big[\text{ArcSin}\Big[\sqrt{\frac{(d\,e-c\,f)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\Big],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\Big]}{(b\,c-a\,d)\,(-d\,g+c\,h)}-$$

$$\frac{b\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{(d\,e-c\,f)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\Big],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\Big]}{b\,c-a\,d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\;\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\Bigg(c\,f\,\sqrt{-\frac{(b\,c-a\,d)\,(-d\,g+c\,h)\left(-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}\right)}{-b\,d\,g+a\,d\,h}}$$

$$\left(-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}\right)\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\;\Bigg(\frac{(-b\,d\,g+a\,d\,h)\,\text{EllipticE}\Big[\text{ArcSin}\Big[\sqrt{\frac{(d\,e-c\,f)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\Big],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\Big]}{(b\,c-a\,d)\,(-d\,g+c\,h)}-$$

$$\frac{b\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{(d\,e-c\,f)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\Big],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\Big]}{b\,c-a\,d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\;\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)+\Bigg(f\,\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\;\sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}$$

$$\left(-\frac{h}{-d g+c h}+\frac{1}{c+d x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d e+c f)\left(-h-\frac{d g}{c+d x}+\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right], \frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}} \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)\Bigg)\Bigg)\Bigg/$$

$$\left(2 f h^2 (f g-e h)\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right) \sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}} \sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}\right)+$$

$$\Bigg(d (b e-a f)(d e-c f)(b C f g+b C e h-2 b B f h+2 a C f h) \sqrt{c+d x}$$

$$\sqrt{\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)} \sqrt{a+\frac{(c+d x)\left(b-\frac{b c}{c+d x}\right)}{d}}$$

$$\Bigg(\Bigg(d g \sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right) \sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}$$

$$\left(\frac{(-b d g+a d h) \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right], \frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\frac{b \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right], \frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\,\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(c h\sqrt{-\frac{(b c-a d)\,(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\;\Bigg(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{(b c-a d)\,(-d g+c h)}-$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]}{b c-a d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\,\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(h\sqrt{\frac{-\frac{b}{b c-a d}+\frac{1}{c+d x}}{-\frac{b}{b c-a d}+\frac{h}{-d g+c h}}}\,\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}$$

$$\left(-\frac{h}{-d g+c h}+\frac{1}{c+d x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d e+c f)\left(-h-\frac{d g}{c+d x}+\frac{c h}{c+d x}\right)}{d\,(-f g+e h)}}\right],\frac{(b c-a d)\,(-f g+e h)}{(-d e+c f)\,(-b g+a h)}\right]\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\,\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)\Bigg)\Bigg)\Big/$$

$$\left(2 f^2 h\,(f g-e h)\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\,\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}\right)+$$

$$\frac{1}{2 f^2 h^2\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\,\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}}$$

$$b\,(b C d f g+b C d e h+b c C f h-2 b B d f h+a C d f h)$$

$$\sqrt{c+d x}\sqrt{\left(b-\frac{b c}{c+d x}+\frac{a d}{c+d x}\right)\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}$$

$$\sqrt{a+\frac{(c+d x)\left(b-\frac{b c}{c+d x}\right)}{d}}$$

$$\left(\left(d^2 e g\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\right.\right.$$

$$\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(c d f g\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\right.$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\ \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(c d e h\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\right.$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\ \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(c^2 f h\sqrt{-\frac{(b c-a d)(-d g+c h)\left(-\frac{b}{b c-a d}+\frac{1}{c+d x}\right)}{-b d g+a d h}}\right.$$

$$\left(-\frac{f}{-d e+c f}+\frac{1}{c+d x}\right)\sqrt{\frac{-\frac{h}{-d g+c h}+\frac{1}{c+d x}}{\frac{f}{-d e+c f}-\frac{h}{-d g+c h}}}\left(\frac{(-b d g+a d h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{(b c-a d)(-d g+c h)}-\right.$$

$$\left.\left.\frac{b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(d e-c f)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{d(-f g+e h)}}\right],\frac{(b c-a d)(-f g+e h)}{(-d e+c f)(-b g+a h)}\right]}{b c-a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\ \sqrt{\left(b+\frac{-b c+a d}{c+d x}\right)\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(d f g\sqrt{\frac{-\frac{b}{b c-a d}+\frac{1}{c+d x}}{-\frac{b}{b c-a d}+\frac{h}{-d g+c h}}}\ \sqrt{\frac{-\frac{f}{-d e+c f}+\frac{1}{c+d x}}{-\frac{f}{-d e+c f}+\frac{h}{-d g+c h}}}\right.$$

$$\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d\,e+c\,f)\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\ \sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)+$$

$$\left(d\,e\,h\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\ \sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d\,e+c\,f)\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\right.\right.$$

$$\left.\left.\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\ \sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-$$

$$\left(2\,c\,f\,h\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\ \sqrt{\frac{-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}}{-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}}}\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-d\,e+c\,f)\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\right.\right.$$

$$\left.\left.\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}}{\frac{f}{-d\,e+c\,f}-\frac{h}{-d\,g+c\,h}}}\ \sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-$$

$$\left(f\,(-d\,g+c\,h)\left(-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}\right)\sqrt{\frac{-\frac{b}{b\,c-a\,d}+\frac{1}{c+d\,x}}{-\frac{b}{b\,c-a\,d}+\frac{h}{-d\,g+c\,h}}}\ \sqrt{-\frac{\left(-\frac{f}{-d\,e+c\,f}+\frac{1}{c+d\,x}\right)\left(-\frac{h}{-d\,g+c\,h}+\frac{1}{c+d\,x}\right)}{\left(-\frac{f}{-d\,e+c\,f}+\frac{h}{-d\,g+c\,h}\right)^2}}\ \text{EllipticPi}\left[-\frac{-d\,f\,g+d\,e\,h}{(-d\,e+c\,f)\,h},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\sqrt{\frac{(-d\,e+c\,f)\left(-h-\frac{d\,g}{c+d\,x}+\frac{c\,h}{c+d\,x}\right)}{d\,(-f\,g+e\,h)}}\right],\frac{(b\,c-a\,d)\,(-f\,g+e\,h)}{(-d\,e+c\,f)\,(-b\,g+a\,h)}\right]\right)\Big/\left(\sqrt{\left(b+\frac{-b\,c+a\,d}{c+d\,x}\right)\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)\Bigg)\Bigg)$$

Problem 24: Result more than twice size of optimal antiderivative.

$$\int\frac{a\,b\,B-a^2\,C+b^2\,B\,x+b^2\,C\,x^2}{(a+b\,x)^{5/2}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 616 leaves, 8 steps):

$$\frac{2 b (b B-2 a C) d \sqrt{a+b x} \sqrt{e+f x} \sqrt{g+h x}}{(b c-a d) (b e-a f) (b g-a h) \sqrt{c+d x}}-\frac{2 b^2 (b B-2 a C) \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{(b c-a d) (b e-a f) (b g-a h) \sqrt{a+b x}}-$$
$$\left(2 b (b B-2 a C) \sqrt{d g-c h} \sqrt{f g-e h} \sqrt{a+b x} \sqrt{-\frac{(d e-c f) (g+h x)}{(f g-e h) (c+d x)}} \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d g-c h} \sqrt{e+f x}}{\sqrt{f g-e h} \sqrt{c+d x}}\right], \frac{(b c-a d) (f g-e h)}{(b e-a f) (d g-c h)}\right]\right)\Big/$$
$$\left((b c-a d) (b e-a f) (b g-a h) \sqrt{\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}} \sqrt{g+h x}\right)+$$
$$\frac{2 (b c C-b B d+a C d) \sqrt{\frac{(b e-a f) (c+d x)}{(d e-c f) (a+b x)}} \sqrt{g+h x} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b g-a h} \sqrt{e+f x}}{\sqrt{f g-e h} \sqrt{a+b x}}\right], -\frac{(b c-a d) (f g-e h)}{(d e-c f) (b g-a h)}\right]}{(b c-a d) \sqrt{b g-a h} \sqrt{f g-e h} \sqrt{c+d x} \sqrt{-\frac{(b e-a f) (g+h x)}{(f g-e h) (a+b x)}}}$$

Result (type 4, 1753 leaves):

$$-\frac{2 b^2 (b B-2 a C) \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{(b c-a d) (b e-a f) (b g-a h) \sqrt{a+b x}}+$$
$$\frac{1}{b (-b c+a d) (-b e+a f) (-b g+a h)} 2 \left(\frac{(-b B+2 a C) (a+b x)^{5/2} \left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right) \left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right) \left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{\sqrt{c+\frac{(a+b x) \left(d-\frac{a d}{a+b x}\right)}{b}} \sqrt{e+\frac{(a+b x) \left(f-\frac{a f}{a+b x}\right)}{b}} \sqrt{g+\frac{(a+b x) \left(h-\frac{a h}{a+b x}\right)}{b}}}-\right.$$
$$\frac{1}{\sqrt{c+\frac{(a+b x) \left(d-\frac{a d}{a+b x}\right)}{b}} \sqrt{e+\frac{(a+b x) \left(f-\frac{a f}{a+b x}\right)}{b}} \sqrt{g+\frac{(a+b x) \left(h-\frac{a h}{a+b x}\right)}{b}}} (b c-a d) (b e-a f) (b g-a h) (a+b x)^{3/2}$$
$$\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right) \left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right) \left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)} \left(-\left(\left(b B \sqrt{\frac{(b c-a d) (b g-a h) \left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.\right.\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)\right)+\left(2 a C\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(C\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\;\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)\Bigg)\Bigg)$$

Problem 25: Result more than twice size of optimal antiderivative.

$$\int \frac{a\,b\,B-a^2\,C+b^2\,B\,x+b^2\,C\,x^2}{(a+b\,x)^{7/2}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 1128 leaves, 9 steps) :

$$\left(2 b d \left(9 a^3 C d f h-b^3 \left(2 B d e g-c \left(3 C e g-2 B f g-2 B e h\right)\right)+a b^2 \left(C \left(d e g+c f g+c e h\right)+4 B \left(d f g+d e h+c f h\right)\right)-a^2 b \left(6 B d f h+5 C \left(d f g+d e h+c f h\right)\right)\right) \sqrt{a+b x} \sqrt{e+f x} \sqrt{g+h x}\right) \Big/ \left(3 \left(b c-a d\right)^2 \left(b e-a f\right)^2 \left(b g-a h\right)^2 \sqrt{c+d x}\right)-\frac{2 b^2 \left(b B-2 a C\right) \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{3 \left(b c-a d\right) \left(b e-a f\right) \left(b g-a h\right) \left(a+b x\right)^{3/2}}-$$

$$\left(2 b^2 \left(9 a^3 C d f h-b^3 \left(2 B d e g-c \left(3 C e g-2 B f g-2 B e h\right)\right)+a b^2 \left(C \left(d e g+c f g+c e h\right)+4 B \left(d f g+d e h+c f h\right)\right)-a^2 b \left(6 B d f h+5 C \left(d f g+d e h+c f h\right)\right)\right) \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}\right) \Big/ \left(3 \left(b c-a d\right)^2 \left(b e-a f\right)^2 \left(b g-a h\right)^2 \sqrt{a+b x}\right)-$$

$$\left(2 b \sqrt{d g-c h} \sqrt{f g-e h} \left(9 a^3 C d f h-b^3 \left(2 B d e g-c \left(3 C e g-2 B f g-2 B e h\right)\right)+a b^2 \left(C \left(d e g+c f g+c e h\right)+4 B \left(d f g+d e h+c f h\right)\right)-a^2 b \left(6 B d f h+5 C \left(d f g+d e h+c f h\right)\right)\right) \sqrt{a+b x} \sqrt{-\frac{\left(d e-c f\right) \left(g+h x\right)}{\left(f g-e h\right) \left(c+d x\right)}}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d g-c h} \sqrt{e+f x}}{\sqrt{f g-e h} \sqrt{c+d x}}\right], \frac{\left(b c-a d\right) \left(f g-e h\right)}{\left(b e-a f\right) \left(d g-c h\right)}\right]\right) \Big/ \left(3 \left(b c-a d\right)^2 \left(b e-a f\right)^2 \left(b g-a h\right)^2 \sqrt{\frac{\left(d e-c f\right) \left(a+b x\right)}{\left(b e-a f\right) \left(c+d x\right)}} \sqrt{g+h x}\right)-$$

$$\left(2 \left(3 a^3 C d^2 f h-b^3 \left(2 B d^2 e g-B c^2 f h-c d \left(3 C e g-B f g-B e h\right)\right)-3 a^2 b d \left(B d f h+C \left(d f g+d e h-c f h\right)\right)+a b^2 \left(3 B d^2 \left(f g+e h\right)+C \left(d^2 e g-c d f g-c d e h-2 c^2 f h\right)\right)\right) \sqrt{\frac{\left(b e-a f\right) \left(c+d x\right)}{\left(d e-c f\right) \left(a+b x\right)}} \sqrt{g+h x}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b g-a h} \sqrt{e+f x}}{\sqrt{f g-e h} \sqrt{a+b x}}\right], -\frac{\left(b c-a d\right) \left(f g-e h\right)}{\left(d e-c f\right) \left(b g-a h\right)}\right]\right) \Big/ \left(3 \left(b c-a d\right)^2 \left(b e-a f\right) \left(b g-a h\right)^{3/2} \sqrt{f g-e h} \sqrt{c+d x} \sqrt{-\frac{\left(b e-a f\right) \left(g+h x\right)}{\left(f g-e h\right) \left(a+b x\right)}}\right)$$

Result (type 4, 10 645 leaves) :

$$\sqrt{a+b x} \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x} \left(-\frac{2 b^2 \left(b B-2 a C\right)}{3 \left(b c-a d\right) \left(b e-a f\right) \left(b g-a h\right) \left(a+b x\right)^2}-\left(2 b^2 \left(3 b^3 c C e g-2 b^3 B d e g+a b^2 C d e g-2 b^3 B c f g+a b^2 c C f g+4 a b^2 B d f g-5 a^2 b C d f g-2 b^3 B c e h+a b^2 c C e h+4 a b^2 B d e h-5 a^2 b C d e h+4 a b^2 B c f h-5 a^2 b c C f h-6 a^2 b B d f h+9 a^3 C d f h\right)\right) \Big/ \left(3 \left(b c-a d\right)^2 \left(b e-a f\right)^2 \left(b g-a h\right)^2 \left(a+b x\right)\right)\right)-\frac{1}{3 b \left(-b c+a d\right)^2 \left(-b e+a f\right)^2 \left(-b g+a h\right)^2}$$

$$2\Bigg(\bigg(\Big(-3 b^3 c C e g+2 b^3 B d e g-a b^2 C d e g+2 b^3 B c f g-a b^2 c C f g-4 a b^2 B d f g+5 a^2 b C d f g+2 b^3 B c e h-a b^2 c C e h-4 a b^2 B d e h+$$

$$5 a^2 b C d e h-4 a b^2 B c f h+5 a^2 b c C f h+6 a^2 b B d f h-9 a^3 C d f h\Big)\ (a+b x)^{5/2}\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)$$

$$\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)\bigg)\Bigg/\left(\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\ \sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\ \sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}\right)-$$

$$\frac{1}{\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\ \sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\ \sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}}(b c-a d)\ (b e-a f)\ (b g-a h)\ (a+b x)^{3/2}$$

$$\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}\ \Bigg(-\Bigg(\bigg(3 b^3 c C e g\sqrt{\frac{(b c-a d)\ (b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\ \Bigg(-\frac{(b d g-b c h)\ \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\ (-f g+e h)}{(-b e+a f)\ (-d g+c h)}\right]}{(b c-a d)\ (b g-a h)}-$$

$$\frac{d\ \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\ (-f g+e h)}{(-b e+a f)\ (-d g+c h)}\right]}{-b c+a d}\Bigg)\bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\Bigg(2 b^3 B d e g\sqrt{\frac{(b c-a d)\ (b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(a b^2 C d e g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 b^3 B c f g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{-b\,c+a\,d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)-\left(a\,b^2\,c\,C\,f\,g\sqrt{\frac{(b\,c-a\,d)\,(b\,g-a\,h)\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}\right.$$

$$\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\left(-\frac{(b\,d\,g-b\,c\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,(b\,g-a\,h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{-b\,c+a\,d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)-\left(4\,a\,b^2\,B\,d\,f\,g\sqrt{\frac{(b\,c-a\,d)\,(b\,g-a\,h)\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}\right.$$

$$\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\left(-\frac{(b\,d\,g-b\,c\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,(b\,g-a\,h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{-b\,c+a\,d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(5 a^2 b C d f g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 b^3 B c e h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(a b^2 c C e h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(4 a b^2 B d e h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(5 a^2 b C d e h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(4 a b^2 B c f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(5 a^2 b c C f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(6 a^2 b B d f h \sqrt{\frac{(b c-a d)\ (b g-a h)\ \left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\ \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\ \left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\ (-f g+e h)}}\right],\frac{(-b c+a d)\ (-f g+e h)}{(-b e+a f)\ (-d g+c h)}\right]}{(b c-a d)\ (b g-a h)}-\right.$$

$$\left.\left.\frac{d\ \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\ \left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\ (-f g+e h)}}\right],\frac{(-b c+a d)\ (-f g+e h)}{(-b e+a f)\ (-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(9 a^3 C d f h \sqrt{\frac{(b c-a d)\ (b g-a h)\ \left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\ \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\ \left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\ (-f g+e h)}}\right],\frac{(-b c+a d)\ (-f g+e h)}{(-b e+a f)\ (-d g+c h)}\right]}{(b c-a d)\ (b g-a h)}-\right.$$

$$\left.\left.\frac{d\ \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\ \left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\ (-f g+e h)}}\right],\frac{(-b c+a d)\ (-f g+e h)}{(-b e+a f)\ (-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(b^2 B d f g \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\ \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)-\left(2\,a\,b\,C\,d\,f\,g\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\right.$$

$$\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+\left(b^2\,B\,d\,e\,h\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\right.$$

$$\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)-\left(2\,a\,b\,C\,d\,e\,h\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\right.$$

$$\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+\left(b^2\,B\,c\,f\,h\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\right.$$

$$\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(2 a b c C f h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(3 a b B d f h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(6 a^2 C d f h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left.\left.\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)\right)\right)$$

Problem 26: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(a+b x)^2\left(A+C x^2\right)}{\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}\,dx$$

Optimal (type 4, 1097 leaves, 9 steps):

$$\frac{1}{105\,d^3 f^3 h^3} 2\left(4 C\left(2 a d f h-3 b\left(d f g+d e h+c f h\right)\right)\left(a d f h-2 b\left(d f g+d e h+c f h\right)\right)+5 b d f h\left(7 A b d f h-C\left(5 b\left(d e g+c f g+c e h\right)+2 a\left(d f g+d e h+c f h\right)\right)\right)\right)\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}+\frac{4 C\left(2 a d f h-3 b\left(d f g+d e h+c f h\right)\right)(a+b x)\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}{35\,d^2 f^2 h^2}+\frac{2 C (a+b x)^2\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}{7 d f h}-$$

$$\frac{1}{105\,d^4 f^{7/2} h^4\sqrt{e+f x}\,\sqrt{\frac{d (g+h x)}{d g-c h}}} 4\sqrt{-d e+c f}\left(35 a^2 C d^2 f^2 h^2\left(d f g+d e h+c f h\right)-7 a b d f h\left(15 A d^2 f^2 h^2+C\left(8 c^2 f^2 h^2+7 c d f h (f g+e h)+d^2\left(8 f^2 g^2+7 e f g h+8 e^2 h^2\right)\right)\right)+b^2\left(35 A d^2 f^2 h^2\left(d f g+d e h+c f h\right)+2 C\left(12 c^3 f^3 h^3+10 c^2 d f^2 h^2 (f g+e h)+c d^2 f h\left(10 f^2 g^2+9 e f g h+10 e^2 h^2\right)+2 d^3\left(6 f^3 g^3+5 e f^2 g^2 h+5 e^2 f g h^2+6 e^3 h^3\right)\right)\right)\right)\sqrt{\frac{d (e+f x)}{d e-c f}}\,\sqrt{g+h x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f) h}{f (d g-c h)}\right]+\frac{1}{105\,d^4 f^{7/2} h^4\sqrt{e+f x}\,\sqrt{g+h x}}$$

$$2\sqrt{-d e+c f}\left(35 a^2 d^2 f^2 h^2\left(3 A d f h^2+C\left(c h (f g-e h)+d g (2 f g+e h)\right)\right)-14 a b d f h\left(15 A d^2 f^2 g h^2+C\left(4 c^2 f h^2 (f g-e h)+c d h\left(3 f^2 g^2+e f g h-4 e^2 h^2\right)+d^2 g\left(8 f^2 g^2+3 e f g h+4 e^2 h^2\right)\right)\right)+b^2\left(35 A d^2 f^2 h^2\left(c h (f g-e h)+d g (2 f g+e h)\right)+C\left(24 c^3 f^2 h^3 (f g-e h)+c^2 d f h^2\left(17 f^2 g^2+6 e f g h-23 e^2 h^2\right)+2 c d^2 h\left(8 f^3 g^3+e f^2 g^2 h+3 e^2 f g h^2-12 e^3 h^3\right)+d^3 g\left(48 f^3 g^3+16 e f^2 g^2 h+17 e^2 f g h^2+24 e^3 h^3\right)\right)\right)\right)\sqrt{\frac{d (e+f x)}{d e-c f}}\,\sqrt{\frac{d (g+h x)}{d g-c h}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f) h}{f (d g-c h)}\right]$$

Result (type 4, 18 383 leaves) :

$$\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}\left(\frac{1}{105\,d^3 f^3 h^3} 2\left(24 b^2 C d^2 f^2 g^2+23 b^2 C d^2 e f g h+23 b^2 c C d f^2 g h-56 a b C d^2 f^2 g h+24 b^2 C d^2 e^2 h^2+23 b^2 c C d e f h^2-56 a b C d^2 e f h^2+24 b^2 c^2 C f^2 h^2-56 a b c C d f^2 h^2+35 A b^2 d^2 f^2 h^2+35 a^2 C d^2 f^2 h^2\right)-\frac{4 b C\left(3 b d f g+3 b d e h+3 b c f h-7 a d f h\right) x}{35\,d^2 f^2 h^2}+\frac{2 b^2 C x^2}{7 d f h}\right)+\frac{1}{105\,d^5 f^3 h^3}$$

$$\left(\frac{1}{f h\sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\,\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}} 4\left(-24 b^2 C d^3 f^3 g^3-20 b^2 C d^3 e f^2 g^2 h-20 b^2 c C d^2 f^3 g^2 h+56 a b C d^3 f^3 g^2 h-20 b^2 C d^3 e^2 f g h^2-18 b^2 c C d^2 e f^2 g h^2+49 a b C d^3 e f^2 g h^2-20 b^2 c^2 C d f^3 g h^2+49 a b c C d^2 f^3 g h^2-35 A b^2 d^3 f^3 g h^2-35 a^2 C d^3 f^3 g h^2-24 b^2 C d^3 e^3 h^3-20 b^2 c C d^2 e^2 f h^3+56 a b C d^3 e^2 f h^3-20 b^2 c^2 C d e f^2 h^3+49 a b c C d^2 e f^2 h^3-35 A b^2 d^3 e f^2 h^3-35 a^2 C d^3 e f^2 h^3-24 b^2 c^3 C f^3 h^3+56 a b c^2 C d f^3 h^3-35 A b^2 c d^2 f^3 h^3-35 a^2 c C d^2 f^3 h^3+105 a A b d^3 f^3 h^3\right)(c+d x)^{3/2}\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)+$$

$$\frac{1}{f\,h\,\sqrt{e+\frac{(c+d\,x)\left(f-\frac{c\,f}{c+d\,x}\right)}{d}}\,\sqrt{g+\frac{(c+d\,x)\left(h-\frac{c\,h}{c+d\,x}\right)}{d}}}\,2\,(c+d\,x)\,\sqrt{\left(f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}\right)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}\,\Bigg(\Bigg(48\,\mathrm{i}\,b^2\,C\,d^5\,e\,f^3\,g^4\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}$$

$$\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\Bigg(48\,\mathrm{i}\,b^2\,c\,C\,d^4\,f^4\,g^4\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)+\Bigg(40\,\mathrm{i}\,b^2\,C\,d^5\,e^2\,f^2\,g^3\,h^2\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}$$

$$\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\Bigg)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\Bigg(48\,\mathrm{i}\,b^2\,c\,C\,d^4\,e\,f^3\,g^3\,h^2\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(112\,i\,a\,b\,C\,d^5\,e\,f^3\,g^3\,h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(8\,i\,b^2\,c^2\,C\,d^3\,f^4\,g^3\,h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(112\,i\,a\,b\,c\,C\,d^4\,f^4\,g^3\,h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\ \sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(40\,\mathbb{i}\,b^2\,C\,d^5\,e^3\,f\,g^2\,h^3\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\ \sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(44\,\mathbb{i}\,b^2\,c\,C\,d^4\,e^2\,f^2\,g^2\,h^3\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\ \sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(98\,\mathbb{i}\,a\,b\,C\,d^5\,e^2\,f^2\,g^2\,h^3\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\ \sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(4\,\mathbb{i}\,b^2\,c^2\,C\,d^3\,e\,f^3\,g^2\,h^3\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(112\,i\,a\,b\,c\,C\,d^4\,e\,f^3\,g^2\,h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(70\,i\,A\,b^2\,d^5\,e\,f^3\,g^2\,h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(70\,i\,a^2\,C\,d^5\,e\,f^3\,g^2\,h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\ \sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(14\ \mathrm{i}\ a\, b\, c^2\, C\, d^3\, f^4\, g^2\, h^3\ \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\ \frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\ \frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\ \sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(70\ \mathrm{i}\ A\, b^2\, c\, d^4\, f^4\, g^2\, h^3\ \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\ \frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\ \frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\ \sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(70\ \mathrm{i}\ a^2\, c\, C\, d^4\, f^4\, g^2\, h^3\ \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\ \frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[\mathrm{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\ \frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\ \sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(48\ \mathrm{i}\ b^2\, C\, d^5\, e^4\, g\, h^4\ \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\bigg)\bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(48\,i\,b^2 c\,C\,d^4 e^3 f\,g\,h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\bigg)\bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(112\,i\,a\,b\,C\,d^5 e^3 f\,g\,h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\bigg)\bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(4\,i\,b^2 c^2 C\,d^3 e^2 f^2 g\,h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\bigg)\bigg/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,\left(-d\,g+c\,h\right)\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)+\left(112\,\mathrm{i}\,a\,b\,c\,C\,d^4\,e^2\,f^2\,g\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,\left(c+d\,x\right)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,\left(c+d\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\,\frac{f\,\left(-d\,g+c\,h\right)}{\left(-d\,e+c\,f\right)\,h}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\,\frac{f\,\left(-d\,g+c\,h\right)}{\left(-d\,e+c\,f\right)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,\left(-d\,g+c\,h\right)\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)+\left(70\,\mathrm{i}\,A\,b^2\,d^5\,e^2\,f^2\,g\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,\left(c+d\,x\right)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,\left(c+d\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\,\frac{f\,\left(-d\,g+c\,h\right)}{\left(-d\,e+c\,f\right)\,h}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\,\frac{f\,\left(-d\,g+c\,h\right)}{\left(-d\,e+c\,f\right)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,\left(-d\,g+c\,h\right)\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)+\left(70\,\mathrm{i}\,a^2\,C\,d^5\,e^2\,f^2\,g\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,\left(c+d\,x\right)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,\left(c+d\,x\right)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\,\frac{f\,\left(-d\,g+c\,h\right)}{\left(-d\,e+c\,f\right)\,h}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\,\frac{f\,\left(-d\,g+c\,h\right)}{\left(-d\,e+c\,f\right)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,\left(-d\,g+c\,h\right)\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)+\left(4\,\mathrm{i}\,b^2\,c^3\,C\,d^2\,e\,f^3\,g\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,\left(c+d\,x\right)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,\left(c+d\,x\right)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(14\,i\,a\,b\,c^2\,C\,d^3\,e\,f^3\,g\,h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(70\,i\,A\,b^2\,c\,d^4\,e\,f^3\,g\,h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(70\,i\,a^2\,c\,C\,d^4\,e\,f^3\,g\,h^4\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\ \sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(210\ \mathbb{i}\ a\ A\ b\ d^5\ e\ f^3\ g\ h^4\ \sqrt{1-\frac{-d e+c f}{f\ (c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\ (c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\ \frac{f\ (-d g+c h)}{(-d e+c f)\ h}\right]-\text{EllipticF}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\ \frac{f\ (-d g+c h)}{(-d e+c f)\ h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\ \sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(8\ \mathbb{i}\ b^2\ c^4\ C\ d\ f^4\ g\ h^4\ \sqrt{1-\frac{-d e+c f}{f\ (c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\ (c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\ \frac{f\ (-d g+c h)}{(-d e+c f)\ h}\right]-\text{EllipticF}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\ \frac{f\ (-d g+c h)}{(-d e+c f)\ h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\ \sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(14\ \mathbb{i}\ a\ b\ c^3\ C\ d^2\ f^4\ g\ h^4\ \sqrt{1-\frac{-d e+c f}{f\ (c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\ (c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\ \frac{f\ (-d g+c h)}{(-d e+c f)\ h}\right]-\text{EllipticF}\left[\mathbb{i}\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\ \frac{f\ (-d g+c h)}{(-d e+c f)\ h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\ \sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(210\ \mathbb{i}\ a\ A\ b\ c\ d^4\ f^4\ g\ h^4\ \sqrt{1-\frac{-d e+c f}{f\ (c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\ (c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(48\,i\,b^2 c\,C\,d^4 e^4 h^5\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(8\,i\,b^2 c^2 C\,d^3 e^3 f\,h^5\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(112\,i\,a\,b\,c\,C\,d^4 e^3 f\,h^5\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\left(14\,i\,a\,b\,c^2\,C\,d^3\,e^2\,f^2\,h^5\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\left(70\,i\,A\,b^2\,c\,d^4\,e^2\,f^2\,h^5\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\left(70\,i\,a^2\,c\,C\,d^4\,e^2\,f^2\,h^5\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\left(8\,i\,b^2\,c^4\,C\,d\,e\,f^3\,h^5\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(14\,i\,a\,b\,c^3\,C\,d^2\,e\,f^3\,h^5\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(210\,i\,a\,A\,b\,c\,d^4\,e\,f^3\,h^5\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(48\,i\,b^2\,c^5\,C\,f^4\,h^5\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(112\,i\,a\,b\,c^4\,C\,d\,f^4\,h^5\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(70\,i\,A\,b^2\,c^3\,d^2\,f^4\,h^5\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(70\,i\,a^2\,c^3\,C\,d^2\,f^4\,h^5\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(210\,i\,a\,A\,b\,c^2\,d^3\,f^4\,h^5\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-$$

$$\frac{24\,i\,b^2 C d^4 e f^3 g^3 h\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{24\,i\,b^2 c C d^3 f^4 g^3 h\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}-$$

$$\frac{23\,i\,b^2 C d^4 e^2 f^2 g^2 h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{6\,i\,b^2 c C d^3 e f^3 g^2 h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{56\,i\,a b C d^4 e f^3 g^2 h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{17\,\mathrm{i}\,b^2c^2Cd^2f^4g^2h^2\sqrt{1-\frac{-de+cf}{f(c+dx)}}\sqrt{1-\frac{-dg+ch}{h(c+dx)}}\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-de+cf}{f}}}{\sqrt{c+dx}}\right],\frac{f(-dg+ch)}{(-de+cf)h}\right]}{\sqrt{-\frac{-de+cf}{f}}\sqrt{\left(f+\frac{de-cf}{c+dx}\right)\left(h+\frac{dg-ch}{c+dx}\right)}}-$$

$$\frac{56\,\mathrm{i}\,a\,b\,c\,C\,d^3f^4g^2h^2\sqrt{1-\frac{-de+cf}{f(c+dx)}}\sqrt{1-\frac{-dg+ch}{h(c+dx)}}\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-de+cf}{f}}}{\sqrt{c+dx}}\right],\frac{f(-dg+ch)}{(-de+cf)h}\right]}{\sqrt{-\frac{-de+cf}{f}}\sqrt{\left(f+\frac{de-cf}{c+dx}\right)\left(h+\frac{dg-ch}{c+dx}\right)}}-$$

$$\frac{24\,\mathrm{i}\,b^2Cd^4e^3f\,g\,h^3\sqrt{1-\frac{-de+cf}{f(c+dx)}}\sqrt{1-\frac{-dg+ch}{h(c+dx)}}\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-de+cf}{f}}}{\sqrt{c+dx}}\right],\frac{f(-dg+ch)}{(-de+cf)h}\right]}{\sqrt{-\frac{-de+cf}{f}}\sqrt{\left(f+\frac{de-cf}{c+dx}\right)\left(h+\frac{dg-ch}{c+dx}\right)}}+$$

$$\frac{6\,\mathrm{i}\,b^2c\,C\,d^3e^2f^2g\,h^3\sqrt{1-\frac{-de+cf}{f(c+dx)}}\sqrt{1-\frac{-dg+ch}{h(c+dx)}}\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-de+cf}{f}}}{\sqrt{c+dx}}\right],\frac{f(-dg+ch)}{(-de+cf)h}\right]}{\sqrt{-\frac{-de+cf}{f}}\sqrt{\left(f+\frac{de-cf}{c+dx}\right)\left(h+\frac{dg-ch}{c+dx}\right)}}+$$

$$\frac{56\,\mathrm{i}\,a\,b\,C\,d^4e^2f^2g\,h^3\sqrt{1-\frac{-de+cf}{f(c+dx)}}\sqrt{1-\frac{-dg+ch}{h(c+dx)}}\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-de+cf}{f}}}{\sqrt{c+dx}}\right],\frac{f(-dg+ch)}{(-de+cf)h}\right]}{\sqrt{-\frac{-de+cf}{f}}\sqrt{\left(f+\frac{de-cf}{c+dx}\right)\left(h+\frac{dg-ch}{c+dx}\right)}}+$$

$$\frac{2\,\mathrm{i}\,b^2c^2Cd^2e\,f^3g\,h^3\sqrt{1-\frac{-de+cf}{f(c+dx)}}\sqrt{1-\frac{-dg+ch}{h(c+dx)}}\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{-\frac{-de+cf}{f}}}{\sqrt{c+dx}}\right],\frac{f(-dg+ch)}{(-de+cf)h}\right]}{\sqrt{-\frac{-de+cf}{f}}\sqrt{\left(f+\frac{de-cf}{c+dx}\right)\left(h+\frac{dg-ch}{c+dx}\right)}}-$$

$$\frac{14\,i\,a\,b\,c\,C\,d^3\,e\,f^3\,g\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{35\,i\,A\,b^2\,d^4\,e\,f^3\,g\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{35\,i\,a^2\,C\,d^4\,e\,f^3\,g\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{16\,i\,b^2\,c^3\,C\,d\,f^4\,g\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{42\,i\,a\,b\,c^2\,C\,d^2\,f^4\,g\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{35\,i\,A\,b^2\,c\,d^3\,f^4\,g\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{35\, i\, a^2 c\, C\, d^3 f^4 g\, h^3 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}} \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{24\, i\, b^2 c\, C\, d^3 e^3 f\, h^4 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}} \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{17\, i\, b^2 c^2 C\, d^2 e^2 f^2 h^4 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}} \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}}-$$

$$\frac{56\, i\, a\, b\, c\, C\, d^3 e^2 f^2 h^4 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}} \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{16\, i\, b^2 c^3 C\, d\, e\, f^3 h^4 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}} \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}}-$$

$$\frac{42\, i\, a\, b\, c^2 C\, d^2 e\, f^3 h^4 \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right], \frac{f (-d g+c h)}{(-d e+c f) h}\right]}{\sqrt{-\frac{-d e+c f}{f}} \sqrt{\left(f+\frac{d e-c f}{c+d x}\right) \left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{35\,\mathrm{i}\,A\,b^2\,c\,d^3\,e\,f^3\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{35\,\mathrm{i}\,a^2\,c\,C\,d^3\,e\,f^3\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{48\,\mathrm{i}\,b^2\,c^4\,C\,f^4\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{112\,\mathrm{i}\,a\,b\,c^3\,C\,d\,f^4\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{70\,\mathrm{i}\,A\,b^2\,c^2\,d^2\,f^4\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{70\,\mathrm{i}\,a^2\,c^2\,C\,d^2\,f^4\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{210\,\mathbb{i}\,a\,A\,b\,c\,d^3\,f^4\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\left.\left.\frac{105\,\mathbb{i}\,a^2\,A\,d^4\,f^4\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}\right)\right)$$

Problem 27: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,x)\,(A+C\,x^2)}{\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 611 leaves, 8 steps):

$$\frac{4\,C\,(a\,d\,f\,h-2\,b\,(d\,f\,g+d\,e\,h+c\,f\,h))\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{15\,d^2\,f^2\,h^2}+\frac{2\,C\,(a+b\,x)\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{5\,d\,f\,h}-$$

$$\left(2\,\sqrt{-d\,e+c\,f}\,\left(10\,a\,C\,d\,f\,h\,(d\,f\,g+d\,e\,h+c\,f\,h)-b\,\left(15\,A\,d^2\,f^2\,h^2+C\,\left(8\,c^2\,f^2\,h^2+7\,c\,d\,f\,h\,(f\,g+e\,h)+d^2\,\left(8\,f^2\,g^2+7\,e\,f\,g\,h+8\,e^2\,h^2\right)\right)\right)\right)\right.$$

$$\left.\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{g+h\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]\right)\Big/\left(15\,d^3\,f^{5/2}\,h^3\,\sqrt{e+f\,x}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\right)+$$

$$\left(2\,\sqrt{-d\,e+c\,f}\,\left(5\,a\,d\,f\,h\,\left(3\,A\,d\,f\,h^2+C\,(c\,h\,(f\,g-e\,h)+d\,g\,(2\,f\,g+e\,h))\right)-\right.\right.$$

$$\left.b\,\left(15\,A\,d^2\,f^2\,g\,h^2+C\,\left(4\,c^2\,f\,h^2\,(f\,g-e\,h)+c\,d\,h\,\left(3\,f^2\,g^2+e\,f\,g\,h-4\,e^2\,h^2\right)+d^2\,g\,\left(8\,f^2\,g^2+3\,e\,f\,g\,h+4\,e^2\,h^2\right)\right)\right)\right)$$

$$\left.\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]\right)\Big/\left(15\,d^3\,f^{5/2}\,h^3\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}\right)$$

Result (type 4, 8828 leaves):

$$\sqrt{c+d x}\,\sqrt{e+f x}\,\left(\frac{2 C\,(-4 b d f g-4 b d e h-4 b c f h+5 a d f h)}{15 d^2 f^2 h^2}+\frac{2 b C x}{5 d f h}\right)\sqrt{g+h x}-\frac{1}{15 d^4 f^2 h^2}$$

$$2\left(\left(\left(-8 b C d^2 f^2 g^2-7 b C d^2 e f g h-7 b c C d f^2 g h+10 a C d^2 f^2 g h-8 b C d^2 e^2 h^2-7 b c C d e f h^2+10 a C d^2 e f h^2-8 b c^2 C f^2 h^2+10 a c C d f^2 h^2-\right.\right.\right.$$

$$\left.15 A b d^2 f^2 h^2\right)(c+d x)^{3/2}\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)\Bigg)\Bigg/\left(f h\sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\,\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}\right)+$$

$$\frac{1}{f h\sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\,\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}}(c+d x)\sqrt{\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}\left(\left(8\,i\,b C d^4 e f^2 g^3 h\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\right.\right.$$

$$\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(8\,i\,b c C d^3 f^3 g^3 h\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(7\,i\,b\,C\,d^4 e^2 f g^2 h^2\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(8\,i\,b\,c\,C\,d^3 e f^2 g^2 h^2\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(10\,i\,a\,C\,d^4 e f^2 g^2 h^2\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(i\,b\,c^2 C\,d^2 f^3 g^2 h^2\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\ \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(10\,i\,a\,c\,C\,d^3 f^3 g^2 h^2\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\Bigg(8\,i\,b\,C\,d^4 e^3 g\,h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\Bigg(8\,i\,b\,c\,C\,d^3 e^2 f\,g\,h^3\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h(c+d x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(10\, i\, a\, C\, d^4 e^2 f g h^3\sqrt{1-\frac{-d e+c f}{f (c+d x)}}\sqrt{1-\frac{-d g+c h}{h (c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(i\, b\, c^2 C\, d^2 e f^2 g h^3\sqrt{1-\frac{-d e+c f}{f (c+d x)}}\sqrt{1-\frac{-d g+c h}{h (c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(10\, i\, a\, c\, C\, d^3 e f^2 g h^3\sqrt{1-\frac{-d e+c f}{f (c+d x)}}\sqrt{1-\frac{-d g+c h}{h (c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f(-d g+c h)}{(-d e+c f) h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\ (-d g+c h)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(15\, i\, A\, b\, d^4 e f^2 g h^3\sqrt{1-\frac{-d e+c f}{f (c+d x)}}\sqrt{1-\frac{-d g+c h}{h (c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\right)\Bigg/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\left(\mathbb{i}\,b\,c^3\,C\,d\,f^3\,g\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\right)\Bigg/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\left(15\,\mathbb{i}\,A\,b\,c\,d^3\,f^3\,g\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\right)\Bigg/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\,(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\left(8\,\mathbb{i}\,b\,c\,C\,d^3\,e^3\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\right)\Bigg/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(i\, b\, c^2\, C\, d^2\, e^2\, f\, h^4\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)+\left(10\, i\, a\, c\, C\, d^3\, e^2\, f\, h^4\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(i\, b\, c^3\, C\, d\, e\, f^2\, h^4\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\,(-d g+c h)\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-\left(15\, i\, A\, b\, c\, d^3\, e\, f^2\, h^4\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\;(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)+\left(8\,i\,b\,c^4\,C\,f^3\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\;\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\;(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)-\left(10\,i\,a\,c^3\,C\,d\,f^3\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\;\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d\,e+c\,f}{f}}\;(-d\,g+c\,h)\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}\right)+\left(15\,i\,A\,b\,c^2\,d^2\,f^3\,h^4\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\;\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]\right)\right)\Big/$$

$$\left(\sqrt{-\frac{-d e+c f}{f}}\left(-d g+c h\right)\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}\right)-$$

$$\frac{4\, i\, b\, C\, d^3\, e\, f^2\, g^2\, h\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\;\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{4\, i\, b\, c\, C\, d^2\, f^3\, g^2\, h\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\;\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}-$$

$$\frac{4\, i\, b\, C\, d^3\, e^2\, f\, g\, h^2\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\;\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{i\, b\, c\, C\, d^2\, e\, f^2\, g\, h^2\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\;\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{5\, i\, a\, C\, d^3\, e\, f^2\, g\, h^2\,\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\,\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\;\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d e+c f}{f}}}{\sqrt{c+d x}}\right],\frac{f\,(-d g+c h)}{(-d e+c f)\,h}\right]}{\sqrt{-\frac{-d e+c f}{f}}\,\sqrt{\left(f+\frac{d e-c f}{c+d x}\right)\left(h+\frac{d g-c h}{c+d x}\right)}}+$$

$$\frac{3\,i\,b\,c^2\,C\,d\,f^3\,g\,h^2\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{5\,i\,a\,c\,C\,d^2\,f^3\,g\,h^2\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{4\,i\,b\,c\,C\,d^2\,e^2\,f\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{3\,i\,b\,c^2\,C\,d\,e\,f^2\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{5\,i\,a\,c\,C\,d^2\,e\,f^2\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{8\,i\,b\,c^3\,C\,f^3\,h^3\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\,\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\frac{10\,i\,a\,c^2\,C\,d\,f^3\,h^3\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}+$$

$$\frac{15\,i\,A\,b\,c\,d^2\,f^3\,h^3\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}-$$

$$\left.\left.\frac{15\,i\,a\,A\,d^3\,f^3\,h^3\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,e+c\,f}{f}}}{\sqrt{c+d\,x}}\right],\frac{f\,(-d\,g+c\,h)}{(-d\,e+c\,f)\,h}\right]}{\sqrt{-\frac{-d\,e+c\,f}{f}}\sqrt{\left(f+\frac{d\,e-c\,f}{c+d\,x}\right)\left(h+\frac{d\,g-c\,h}{c+d\,x}\right)}}\right)\right)$$

Problem 28: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{A+C\,x^2}{\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 368 leaves, 7 steps):

$$\frac{2\,C\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{3\,d\,f\,h}-\frac{4\,C\sqrt{-d\,e+c\,f}\,\left(d\,f\,g+d\,e\,h+c\,f\,h\right)\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{g+h\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]}{3\,d^2\,f^{3/2}\,h^2\sqrt{e+f\,x}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}}+$$

$$\left(2\sqrt{-d\,e+c\,f}\,\left(3\,A\,d\,f\,h^2+C\,\left(c\,h\,\left(f\,g-e\,h\right)+d\,g\,\left(2\,f\,g+e\,h\right)\right)\right)\sqrt{\frac{d\,\left(e+f\,x\right)}{d\,e-c\,f}}\,\sqrt{\frac{d\,\left(g+h\,x\right)}{d\,g-c\,h}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{\left(d\,e-c\,f\right)\,h}{f\,\left(d\,g-c\,h\right)}\right]\right)\Big/$$

$$\left(3\,d^2\,f^{3/2}\,h^2\sqrt{e+f\,x}\,\sqrt{g+h\,x}\right)$$

Result (type 4, 390 leaves):

$$\left(\sqrt{c+d\,x}\right.$$

$$\left(2\,C\,d^2\,f\,h\,(e+f\,x)\,(g+h\,x)-\frac{4\,C\,d^2\,(d\,f\,g+d\,e\,h+c\,f\,h)\,(e+f\,x)\,(g+h\,x)}{c+d\,x}-4\,i\,C\,\sqrt{-c+\frac{d\,e}{f}}\,f\,h\,(d\,f\,g+d\,e\,h+c\,f\,h)\,\sqrt{c+d\,x}\,\sqrt{\frac{d\,(e+f\,x)}{f\,(c+d\,x)}}\right.$$

$$\sqrt{\frac{d\,(g+h\,x)}{h\,(c+d\,x)}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d\,e}{f}}}{\sqrt{c+d\,x}}\right],\frac{d\,f\,g-c\,f\,h}{d\,e\,h-c\,f\,h}\right]+\frac{1}{\sqrt{-c+\frac{d\,e}{f}}}2\,i\,d\,h\,\left(3\,A\,d\,f^2\,h+c\,C\,f\,(-f\,g+e\,h)+C\,d\,e\,(f\,g+2\,e\,h)\right)$$

$$\left.\left.\sqrt{c+d\,x}\,\sqrt{\frac{d\,(e+f\,x)}{f\,(c+d\,x)}}\,\sqrt{\frac{d\,(g+h\,x)}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-c+\frac{d\,e}{f}}}{\sqrt{c+d\,x}}\right],\frac{d\,f\,g-c\,f\,h}{d\,e\,h-c\,f\,h}\right]\right)\right)\Big/\left(3\,d^3\,f^2\,h^2\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}\right)$$

Problem 29: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{A+C\,x^2}{(a+b\,x)\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 465 leaves, 11 steps):

$$\frac{2\,C\,\sqrt{-d\,e+c\,f}\,\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{g+h\,x}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]}{b\,d\,\sqrt{f}\,h\,\sqrt{e+f\,x}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}}-$$

$$\frac{2\,C\,\sqrt{-d\,e+c\,f}\,(b\,g+a\,h)\,\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]}{b^2\,d\,\sqrt{f}\,h\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}-$$

$$\frac{2\left(A+\frac{a^2\,C}{b^2}\right)\sqrt{-d\,e+c\,f}\,\sqrt{\frac{d\,(e+f\,x)}{d\,e-c\,f}}\,\sqrt{\frac{d\,(g+h\,x)}{d\,g-c\,h}}\,\text{EllipticPi}\left[-\frac{b\,(d\,e-c\,f)}{(b\,c-a\,d)\,f},\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d\,x}}{\sqrt{-d\,e+c\,f}}\right],\frac{(d\,e-c\,f)\,h}{f\,(d\,g-c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{f}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}$$

Result (type 4, 13 075 leaves) :

$$-\frac{1}{d^2}\,2\left(-\frac{C\,(c+d\,x)^{3/2}\left(f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}\right)\left(h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}\right)}{b\,f\,h\,\sqrt{e+\frac{(c+d\,x)\left(f-\frac{c\,f}{c+d\,x}\right)}{d}}\,\sqrt{g+\frac{(c+d\,x)\left(h-\frac{c\,h}{c+d\,x}\right)}{d}}}+\left((c+d\,x)\left(b-\frac{b\,c}{c+d\,x}+\frac{a\,d}{c+d\,x}\right)\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}\right.\right.$$

$$\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}$$

$$\left(-\frac{d\,(b\,C\,e\,g+a\,C\,f\,g-a\,C\,e\,h+A\,b\,f\,h)}{b\,f\,(b\,g-a\,h)\,\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}}-\frac{a\,C\,d^3\,e\,g\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}}{b\,(b\,c-a\,d)\,f\,h\,(d\,g-c\,h)\,\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}}-\right.$$

$$\frac{c^3\,C\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}}{(b\,c-a\,d)\,(-d\,g+c\,h)\,\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}}+\frac{a\,c^2\,C\,d\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}}{b\,(b\,c-a\,d)\,(-d\,g+c\,h)\,\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}}+\frac{c^2\,C\,d\,e\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}}{(b\,c-a\,d)\,f\,(-d\,g+c\,h)\,\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}}-$$

$$\frac{a\,c\,C\,d^2\,e\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}}{b\,(b\,c-a\,d)\,f\,(-d\,g+c\,h)\,\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}}+\frac{c^2\,C\,d\,g\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}}{(b\,c-a\,d)\,h\,(-d\,g+c\,h)\,\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}}-\frac{a\,c\,C\,d^2\,g\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}}{b\,(b\,c-a\,d)\,h\,(-d\,g+c\,h)\,\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}}-$$

$$\left.\frac{c\,C\,d^2\,e\,g\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}}{(b\,c-a\,d)\,f\,h\,(-d\,g+c\,h)\,\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}}+\frac{(A\,b^2+a^2\,C)\,d\,\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}}{b\,(b\,g-a\,h)\,\left(b-\frac{b\,c}{c+d\,x}+\frac{a\,d}{c+d\,x}\right)\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}}\right)\Bigg(\Bigg(i\,C\,d^2\,e\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}$$

$$\left.\left.\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]\right)\right)\right/$$

$$\left((-d\,e+c\,f)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}\right)-\Bigg(i\,c\,C\,d\,f^2\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}$$

$$\left.\left.\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]\right)\right)\right/$$

$$\left((-d\,e+c\,f)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}\right)-\Bigg(i\,c\,C\,d\,e\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}$$

$$\left.\left.\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]\right)\right)\right/$$

$$\left(\left(-d e+c f\right)\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)+\left(\mathrm{i}\, c^2 C f^2 h\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\right.$$

$$\left.\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]\right)\right)\Big/$$

$$\left(\left(-d e+c f\right)\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)-$$

$$\frac{\mathrm{i}\, b^2 c\, C d^2 e g\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]}{(b c-a d)^2\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+$$

$$\frac{\mathrm{i}\, a b C d^3 e g\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]}{(b c-a d)^2\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+$$

$$\frac{\mathrm{i}\, b C d^2 e g\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]}{(b c-a d)\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+$$

$$\frac{\mathrm{i}\, b^2 c^2 C d f g\sqrt{1-\frac{-d e+c f}{f\,(c+d x)}}\sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)\,h}{f\,(-d g+c h)}\right]}{(b c-a d)^2\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}-$$

$$\frac{i\,a\,b\,c\,C\,d^2\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{i\,b\,c\,C\,d\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{i\,b^2\,c^2\,C\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{i\,a\,b\,c\,C\,d^2\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{i\,b\,c\,C\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{i\,b^2\,c^3\,C\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{\mathbb{i}\, a\, b\, c^2\, C\, d\, f\, h \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}} \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\ \text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f)\, h}{f\,(-d g+c h)}\right]}{(b c-a d)^2 \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+$$

$$\frac{2\, \mathbb{i}\, b\, c^2\, C\, f\, h \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}} \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\ \text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f)\, h}{f\,(-d g+c h)}\right]}{(b c-a d) \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+$$

$$\frac{\mathbb{i}\, A\, b\, d^2\, f\, h \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}} \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\ \text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f)\, h}{f\,(-d g+c h)}\right]}{(b c-a d) \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}+\frac{1}{(b c-a d)^3}$$

$$b^3\, c\, C\, d^2\, e\, g \left(\frac{\mathbb{i}\, c \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}} \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d)\, h}{b\,(-d g+c h)}, \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f)\, h}{f\,(-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{\mathbb{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}} \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d)\, h}{b\,(-d g+c h)}, \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f)\, h}{f\,(-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^3} a\, b^2\, C\, d^3\, e\, g \left(\frac{\mathbb{i}\, c \sqrt{1-\frac{-d e+c f}{f\,(c+d x)}} \sqrt{1-\frac{-d g+c h}{h\,(c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d)\, h}{b\,(-d g+c h)}, \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f)\, h}{f\,(-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{(b c-a d)^2} b^2 C d^2 e g \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{(b c-a d)^3} b^3 c^2 C d f g \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) +$$

$$\frac{1}{(b c-a d)^3} a b^2 c C d^2 f g \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} b^2 c\, C\, d f g \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^3} b^3 c^2\, C\, d e h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^3} a\, b^2 c\, C\, d^2 e h \left(\frac{i\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{\mathrm{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} b^2 c\, C\, d\, e\, h \left(\frac{\mathrm{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right. -$$

$$\left.\frac{\mathrm{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^3} b^3 c^3\, C\, f\, h \left(\frac{\mathrm{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right. -$$

$$\left.\frac{\mathrm{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^3} a\, b^2 c^2\, C\, d\, f\, h \left(\frac{\mathrm{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}}\, \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\, \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}}\, \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right. -$$

$$\left.\frac{\mathrm{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{(b c-a d)^2} 2 b^2 c^2 C f h \left(\frac{\mathrm{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{\mathrm{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{(b c-a d)^2} A b^2 d^2 f h \left(\frac{\mathrm{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{\mathrm{i}\, a\, d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) +$$

$$\frac{1}{b c-a d} b c C f h \left(\frac{\mathrm{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{i\, a\, d\, \sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\, \sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\, \text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\, \frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\, \sqrt{-\frac{-d\,g+c\,h}{h}}\, \sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right) +$$

$$\frac{1}{b\,c-a\,d}\, a\, C\, d\, f\, h\, \left(\frac{i\, c\, \sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\, \sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\, \text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\, \frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\, \sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}} -\right.$$

$$\left.\left.\left.\frac{i\, a\, d\, \sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\, \sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\, \text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\, i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\, \frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\, \sqrt{-\frac{-d\,g+c\,h}{h}}\, \sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)\right)\right) \Big/$$

$$\left(\left(-b\,c\,C\,f\,h-a\,C\,d\,f\,h-\frac{b\,c\,C\,d^2\,e\,g}{(c+d\,x)^2}+\frac{a\,C\,d^3\,e\,g}{(c+d\,x)^2}+\frac{b\,c^2\,C\,d\,f\,g}{(c+d\,x)^2}-\frac{a\,c\,C\,d^2\,f\,g}{(c+d\,x)^2}+\frac{b\,c^2\,C\,d\,e\,h}{(c+d\,x)^2}-\frac{a\,c\,C\,d^2\,e\,h}{(c+d\,x)^2}-\frac{b\,c^3\,C\,f\,h}{(c+d\,x)^2}+\frac{a\,c^2\,C\,d\,f\,h}{(c+d\,x)^2}+\right.\right.$$

$$\left.\left.\frac{b\,C\,d^2\,e\,g}{c+d\,x}-\frac{b\,c\,C\,d\,f\,g}{c+d\,x}-\frac{b\,c\,C\,d\,e\,h}{c+d\,x}+\frac{2\,b\,c^2\,C\,f\,h}{c+d\,x}+\frac{A\,b\,d^2\,f\,h}{c+d\,x}\right)\sqrt{e+\frac{(c+d\,x)\left(f-\frac{c\,f}{c+d\,x}\right)}{d}}\,\sqrt{g+\frac{(c+d\,x)\left(h-\frac{c\,h}{c+d\,x}\right)}{d}}\right)$$

Problem 30: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A+C\,x^2}{(a+b\,x)^2\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 738 leaves, 12 steps) :

$$-\frac{\left(A b^2+a^2 C\right)\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}{(b c-a d)\,(b e-a f)\,(b g-a h)\,(a+b x)}+\frac{\left(A b+\frac{a^2 C}{b}\right)\sqrt{f}\,\sqrt{-d e+c f}\,\sqrt{\frac{d (e+f x)}{d e-c f}}\,\sqrt{g+h x}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f)\,h}{f\,(d g-c h)}\right]}{(b c-a d)\,(b e-a f)\,(b g-a h)\,\sqrt{e+f x}\,\sqrt{\frac{d (g+h x)}{d g-c h}}}+$$

$$\left(\sqrt{-d e+c f}\,\left(a^2 C d f-2 a b C\,(d e+c f)+b^2\,(2 c C e-A d f)\right)\sqrt{\frac{d\,(e+f x)}{d e-c f}}\,\sqrt{\frac{d\,(g+h x)}{d g-c h}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f)\,h}{f\,(d g-c h)}\right]\right)\Big/$$

$$\left(b^2 d\,(b c-a d)\,\sqrt{f}\,(b e-a f)\,\sqrt{e+f x}\,\sqrt{g+h x}\right)-$$

$$\left(\sqrt{-d e+c f}\,\left(a^4 C d f h-A b^4\,(d e g+c f g+c e h)-2 a^3 b C\,(d f g+d e h+c f h)-2 a b^3\,(2 c C e g-A d f g-A d e h-A c f h)-\right.\right.$$

$$\left.3 a^2 b^2\,(A d f h-C\,(d e g+c f g+c e h))\right)\sqrt{\frac{d\,(e+f x)}{d e-c f}}\,\sqrt{\frac{d\,(g+h x)}{d g-c h}}$$

$$\left.\text{EllipticPi}\left[-\frac{b\,(d e-c f)}{(b c-a d)\,f},\text{ArcSin}\left[\frac{\sqrt{f}\,\sqrt{c+d x}}{\sqrt{-d e+c f}}\right],\frac{(d e-c f)\,h}{f\,(d g-c h)}\right]\right)\Big/\left(b^2\,(b c-a d)^2\sqrt{f}\,(b e-a f)\,(b g-a h)\,\sqrt{e+f x}\,\sqrt{g+h x}\right)$$

Result (type 4, 17 743 leaves) :

$$\frac{\left(-A b^2-a^2 C\right)\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}{(b c-a d)\,(b e-a f)\,(b g-a h)\,(a+b x)}-$$

$$\frac{1}{d\,(-b c+a d)\,(-b e+a f)\,(-b g+a h)}\left(\frac{\left(A b^2+a^2 C\right)(c+d x)^{3/2}\left(f+\frac{d e}{c+d x}-\frac{c f}{c+d x}\right)\left(h+\frac{d g}{c+d x}-\frac{c h}{c+d x}\right)}{b\sqrt{e+\frac{(c+d x)\left(f-\frac{c f}{c+d x}\right)}{d}}\,\sqrt{g+\frac{(c+d x)\left(h-\frac{c h}{c+d x}\right)}{d}}}+\left((c+d x)\left(-b+\frac{b c}{c+d x}-\frac{a d}{c+d x}\right)\right.\right.$$

$$\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}\,\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}\,\sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}$$

$$\left(-\frac{(b c-a d)\left(2 b^2 C e g^2-2 a b C f g^2+A b^2 f g h+a^2 C f g h+A b^2 e h^2-a^2 C e h^2-2 a A b f h^2\right)}{b\,(b g-a h)\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}\,\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}-\frac{\left(A b^2+a^2 C\right)(d e-c f)\sqrt{h+\frac{d g}{c+d x}-\frac{c h}{c+d x}}}{b\sqrt{f+\frac{d e}{c+d x}-\frac{c f}{c+d x}}}-\right.$$

$$\Bigg(\Big(-4\,a\,b^3\,c\,C\,e\,g-A\,b^4\,d\,e\,g+3\,a^2\,b^2\,C\,d\,e\,g-A\,b^4\,c\,f\,g+3\,a^2\,b^2\,c\,C\,f\,g+2\,a\,A\,b^3\,d\,f\,g-2\,a^3\,b\,C\,d\,f\,g-A\,b^4\,c\,e\,h+3\,a^2\,b^2\,c\,C\,e\,h+$$

$$2\,a\,A\,b^3\,d\,e\,h-2\,a^3\,b\,C\,d\,e\,h+2\,a\,A\,b^3\,c\,f\,h-2\,a^3\,b\,c\,C\,f\,h-3\,a^2\,A\,b^2\,d\,f\,h+a^4\,C\,d\,f\,h\Big)\sqrt{h+\frac{d\,g}{c+d\,x}-\frac{c\,h}{c+d\,x}}\Bigg)\Big/$$

$$\left(b\,(b\,g-a\,h)\left(b-\frac{b\,c}{c+d\,x}+\frac{a\,d}{c+d\,x}\right)\sqrt{f+\frac{d\,e}{c+d\,x}-\frac{c\,f}{c+d\,x}}\right)\Bigg)\Bigg)+\Bigg(\Bigg(\mathbb{i}\,A\,b^2\,d^2\,e\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]\right)\Bigg)\Big/$$

$$\left((b\,c-a\,d)\,(-d\,e+c\,f)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}\right)+\Bigg(\mathbb{i}\,a^2\,C\,d^2\,e\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}$$

$$\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]-\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]\right)\Bigg)\Big/$$

$$\left((b\,c-a\,d)\,(-d\,e+c\,f)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}\right)-\Bigg(\mathbb{i}\,A\,b^2\,c\,d\,f^2\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}$$

$$\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]\right)\Bigg)\Bigg/$$

$$\left((b\,c-a\,d)\,(-d\,e+c\,f)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}\right)-\Bigg(\mathrm{i}\,a^2\,c\,C\,d\,f^2\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}$$

$$\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]\right)\Bigg)\Bigg/$$

$$\left((b\,c-a\,d)\,(-d\,e+c\,f)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}\right)-\Bigg(\mathrm{i}\,A\,b^2\,c\,d\,e\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}$$

$$\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]\right)\Bigg)\Bigg/$$

$$\left((b\,c-a\,d)\,(-d\,e+c\,f)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}\right)-\Bigg(\mathrm{i}\,a^2\,c\,C\,d\,e\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}$$

$$\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]\right)\Bigg)\Bigg/$$

$$\left((b c-a d)(-d e+c f)\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)+\left(i A b^2 c^2 f^2 h\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\right.$$

$$\left.\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)h}{f(-d g+c h)}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)h}{f(-d g+c h)}\right]\right)\right)\Big/$$

$$\left((b c-a d)(-d e+c f)\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)+\left(i a^2 c^2 C f^2 h\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\right.$$

$$\left.\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)h}{f(-d g+c h)}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)h}{f(-d g+c h)}\right]\right)\right)\Big/$$

$$\left((b c-a d)(-d e+c f)\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}\right)-$$

$$\frac{i A b^3 d^2 e g\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)h}{f(-d g+c h)}\right]}{(b c-a d)^2\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}-$$

$$\frac{i a^2 b C d^2 e g\sqrt{1-\frac{-d e+c f}{f(c+d x)}}\sqrt{1-\frac{-d g+c h}{h(c+d x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right],\frac{(-d e+c f)h}{f(-d g+c h)}\right]}{(b c-a d)^2\sqrt{-\frac{-d g+c h}{h}}\sqrt{f h+\frac{d^2 e g-c d f g-c d e h+c^2 f h}{(c+d x)^2}+\frac{d f g+d e h-2 c f h}{c+d x}}}-$$

$$\frac{2\,\mathrm{i}\,b^2\,c\,C\,e\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{2\,\mathrm{i}\,a\,b\,C\,d\,e\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{\mathrm{i}\,A\,b^3\,c\,d\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{\mathrm{i}\,a^2\,b\,c\,C\,d\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{2\,\mathrm{i}\,a\,b\,c\,C\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{2\,\mathrm{i}\,A\,b^2\,d\,f\,g\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{i\,A\,b^3\,c\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{i\,a^2\,b\,c\,C\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{2\,i\,a\,b\,c\,C\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{2\,i\,A\,b^2\,d\,e\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{i\,A\,b^3\,c^2\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}-$$

$$\frac{i\,a^2\,b\,c^2\,C\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)^2\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{2\,\mathbb{i}\,A\,b^2\,c\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+$$

$$\frac{2\,\mathbb{i}\,a\,A\,b\,d\,f\,h\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h+c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g+d\,e\,h-2\,c\,f\,h}{c+d\,x}}}+\frac{1}{(b\,c-a\,d)^3}$$

$$A\,b^4\,d^2\,e\,g\left(\frac{\mathbb{i}\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{\mathbb{i}\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)+$$

$$\frac{1}{(b\,c-a\,d)^3}a^2\,b^2\,C\,d^2\,e\,g\left(\frac{\mathbb{i}\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{\mathbb{i}\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} 2 b^3 c C e g \left(\frac{\mathbb{i} c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{\mathbb{i} a d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} 2 a b^2 C d e g \left(\frac{\mathbb{i} c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{\mathbb{i} a d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{b c-a d} 2 b^2 C e g \left(\frac{\mathbb{i} c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{\mathbb{i} a d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b\,c-a\,d)^3}A\,b^4\,c\,d\,f\,g\left(\frac{i\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{i\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)-$$

$$\frac{1}{(b\,c-a\,d)^3}a^2\,b^2\,c\,C\,d\,f\,g\left(\frac{i\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{i\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)-$$

$$\frac{1}{(b\,c-a\,d)^2}2\,a\,b^2\,c\,C\,f\,g\left(\frac{i\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{i\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)+$$

$$\frac{1}{(b c-a d)^2} 2 A b^3 d f g \left(\frac{i c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i a d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)+$$

$$\frac{1}{b c-a d} 2 a b C f g \left(\frac{i c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i a d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b c-a d)^3} A b^4 c d e h \left(\frac{i c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}-\right.$$

$$\left.\frac{i a d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}} \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, i \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right)-$$

$$\frac{1}{(b\,c-a\,d)^3}a^2\,b^2\,c\,C\,d\,e\,h\left(\frac{i\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{i\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)-$$

$$\frac{1}{(b\,c-a\,d)^2}2\,a\,b^2\,c\,C\,e\,h\left(\frac{i\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{i\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)+$$

$$\frac{1}{(b\,c-a\,d)^2}2\,A\,b^3\,d\,e\,h\left(\frac{i\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{i\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)+$$

$$\frac{1}{b c-a d} 2 a b C e h \left(\frac{\mathbb{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{\mathbb{i}\, a d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) +$$

$$\frac{1}{(b c-a d)^3} A b^4 c^2 f h \left(\frac{\mathbb{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{\mathbb{i}\, a d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) +$$

$$\frac{1}{(b c-a d)^3} a^2 b^2 c^2 C f h \left(\frac{\mathbb{i}\, c \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{\sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}} -\right.$$

$$\left.\frac{\mathbb{i}\, a d \sqrt{1-\frac{-d e+c f}{f (c+d x)}} \sqrt{1-\frac{-d g+c h}{h (c+d x)}}\ \text{EllipticPi}\left[\frac{(b c-a d) h}{b (-d g+c h)}, \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{-d g+c h}{h}}}{\sqrt{c+d x}}\right], \frac{(-d e+c f) h}{f (-d g+c h)}\right]}{b \sqrt{-\frac{-d g+c h}{h}} \sqrt{f h+\frac{d^2 e g}{(c+d x)^2}-\frac{c d f g}{(c+d x)^2}-\frac{c d e h}{(c+d x)^2}+\frac{c^2 f h}{(c+d x)^2}+\frac{d f g}{c+d x}+\frac{d e h}{c+d x}-\frac{2 c f h}{c+d x}}}\right) -$$

$$\frac{1}{\left(b\,c-a\,d\right)^2}2\,A\,b^3\,c\,f\,h\left(\frac{\mathbb{i}\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{\mathbb{i}\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)-$$

$$\frac{1}{\left(b\,c-a\,d\right)^2}2\,a\,A\,b^2\,d\,f\,h\left(\frac{\mathbb{i}\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{\mathbb{i}\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)+$$

$$\frac{1}{b\,c-a\,d}A\,b^2\,f\,h\left(\frac{\mathbb{i}\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{\mathbb{i}\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)-$$

$$\frac{1}{b\,c-a\,d}a^2\,C\,f\,h\left(\frac{i\,c\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}-\right.$$

$$\left.\frac{i\,a\,d\,\sqrt{1-\frac{-d\,e+c\,f}{f\,(c+d\,x)}}\,\sqrt{1-\frac{-d\,g+c\,h}{h\,(c+d\,x)}}\,\text{EllipticPi}\left[\frac{(b\,c-a\,d)\,h}{b\,(-d\,g+c\,h)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{-d\,g+c\,h}{h}}}{\sqrt{c+d\,x}}\right],\,\frac{(-d\,e+c\,f)\,h}{f\,(-d\,g+c\,h)}\right]}{b\,\sqrt{-\frac{-d\,g+c\,h}{h}}\,\sqrt{f\,h+\frac{d^2\,e\,g}{(c+d\,x)^2}-\frac{c\,d\,f\,g}{(c+d\,x)^2}-\frac{c\,d\,e\,h}{(c+d\,x)^2}+\frac{c^2\,f\,h}{(c+d\,x)^2}+\frac{d\,f\,g}{c+d\,x}+\frac{d\,e\,h}{c+d\,x}-\frac{2\,c\,f\,h}{c+d\,x}}}\right)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\Bigg(-2\,b^2\,C\,e\,g+2\,a\,b\,C\,f\,g+2\,a\,b\,C\,e\,h+A\,b^2\,f\,h-a^2\,C\,f\,h+\frac{A\,b^2\,d^2\,e\,g}{(c+d\,x)^2}+\frac{a^2\,C\,d^2\,e\,g}{(c+d\,x)^2}-\frac{A\,b^2\,c\,d\,f\,g}{(c+d\,x)^2}-\frac{a^2\,c\,C\,d\,f\,g}{(c+d\,x)^2}-\frac{A\,b^2\,c\,d\,e\,h}{(c+d\,x)^2}-$$

$$\frac{a^2\,c\,C\,d\,e\,h}{(c+d\,x)^2}+\frac{A\,b^2\,c^2\,f\,h}{(c+d\,x)^2}+\frac{a^2\,c^2\,C\,f\,h}{(c+d\,x)^2}+\frac{2\,b^2\,c\,C\,e\,g}{c+d\,x}+\frac{2\,a\,b\,C\,d\,e\,g}{c+d\,x}-\frac{2\,a\,b\,c\,C\,f\,g}{c+d\,x}+\frac{2\,A\,b^2\,d\,f\,g}{c+d\,x}-\frac{2\,a\,b\,c\,C\,e\,h}{c+d\,x}+$$

$$\frac{2\,A\,b^2\,d\,e\,h}{c+d\,x}-\frac{2\,A\,b^2\,c\,f\,h}{c+d\,x}-\frac{2\,a\,A\,b\,d\,f\,h}{c+d\,x}\Bigg)\,\sqrt{e+\frac{(c+d\,x)\left(f-\frac{c\,f}{c+d\,x}\right)}{d}}\,\sqrt{g+\frac{(c+d\,x)\left(h-\frac{c\,h}{c+d\,x}\right)}{d}}\Bigg)$$

Problem 31: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,x)^{3/2}\,\left(A+C\,x^2\right)}{\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 1395 leaves, 10 steps):

$$\frac{1}{24\, b\, d^2 f^3 h^3 \sqrt{c+d x}} \Big(C \left(3 a d f h-5 b \left(d f g+d e h+c f h\right)\right) \left(a d f h-3 b \left(d f g+d e h+c f h\right)\right)+$$
$$8 b d f h \left(3 A b d f h-C \left(2 b \left(d e g+c f g+c e h\right)+a \left(d f g+d e h+c f h\right)\right)\right)\Big) \sqrt{a+b x} \sqrt{e+f x} \sqrt{g+h x}+$$
$$\frac{C \left(3 a d f h-5 b \left(d f g+d e h+c f h\right)\right) \sqrt{a+b x} \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{12\, d^2 f^2 h^2}+\frac{C \left(a+b x\right)^{3/2} \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{3\, d f h}-$$

$$\Bigg(\sqrt{d g-c h} \sqrt{f g-e h} \Big(C \left(3 a d f h-5 b \left(d f g+d e h+c f h\right)\right) \left(a d f h-3 b \left(d f g+d e h+c f h\right)\right)+$$
$$8 b d f h \left(3 A b d f h-C \left(2 b \left(d e g+c f g+c e h\right)+a \left(d f g+d e h+c f h\right)\right)\right)\Big) \sqrt{a+b x} \sqrt{-\frac{\left(d e-c f\right) \left(g+h x\right)}{\left(f g-e h\right) \left(c+d x\right)}}$$
$$\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d g-c h} \sqrt{e+f x}}{\sqrt{f g-e h} \sqrt{c+d x}}\right], \frac{\left(b c-a d\right) \left(f g-e h\right)}{\left(b e-a f\right) \left(d g-c h\right)}\right]\Bigg) \Bigg/ \left(24\, b\, d^3 f^3 h^3 \sqrt{\frac{\left(d e-c f\right) \left(a+b x\right)}{\left(b e-a f\right) \left(c+d x\right)}} \sqrt{g+h x}\right)+\Bigg(\left(b e-a f\right) \sqrt{b g-a h}$$
$$\left(3 a^2 C d^2 f^2 h^2+6 a b C d f h \left(c f h+2 d \left(f g+e h\right)\right)-b^2 \left(24 A d^2 f^2 h^2+C \left(5 c^2 f^2 h^2+4 c d f h \left(f g+e h\right)+d^2 \left(15 f^2 g^2+14 e f g h+15 e^2 h^2\right)\right)\right)\right)$$
$$\sqrt{\frac{\left(b e-a f\right) \left(c+d x\right)}{\left(d e-c f\right) \left(a+b x\right)}} \sqrt{g+h x}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b g-a h} \sqrt{e+f x}}{\sqrt{f g-e h} \sqrt{a+b x}}\right], -\frac{\left(b c-a d\right) \left(f g-e h\right)}{\left(d e-c f\right) \left(b g-a h\right)}\right]\Bigg) \Bigg/$$
$$\left(24\, b^2 d^2 f^3 h^3 \sqrt{f g-e h} \sqrt{c+d x} \sqrt{-\frac{\left(b e-a f\right) \left(g+h x\right)}{\left(f g-e h\right) \left(a+b x\right)}}\right)-\frac{1}{24\, b^2 d^3 \sqrt{b c-a d}\, f^3 h^4 \sqrt{c+d x} \sqrt{e+f x}}$$

$$\sqrt{-d g+c h} \Big(4 b d f h \left(C \left(b \left(d e g+c f g+c e h\right)+a \left(d f g+d e h+c f h\right)\right) \left(3 a d f h-5 b \left(d f g+d e h+c f h\right)\right)+\right.$$
$$\left.2 d f h \left(3 b^2 c C e g+2 a^2 C \left(d f g+d e h+c f h\right)-a b \left(12 A d f h-5 C \left(d e g+c f g+c e h\right)\right)\right)\right)+$$
$$\left(a d f h+b \left(d f g+d e h+c f h\right)\right) \Big(C \left(3 a d f h-5 b \left(d f g+d e h+c f h\right)\right) \left(a d f h-3 b \left(d f g+d e h+c f h\right)\right)+$$
$$8 b d f h \left(3 A b d f h-C \left(2 b \left(d e g+c f g+c e h\right)+a \left(d f g+d e h+c f h\right)\right)\right)\Big)\Big) \left(a+b x\right) \sqrt{\frac{\left(b g-a h\right) \left(c+d x\right)}{\left(d g-c h\right) \left(a+b x\right)}}$$
$$\sqrt{\frac{\left(b g-a h\right) \left(e+f x\right)}{\left(f g-e h\right) \left(a+b x\right)}}\ \text{EllipticPi}\left[-\frac{b \left(d g-c h\right)}{\left(b c-a d\right) h}, \text{ArcSin}\left[\frac{\sqrt{b c-a d} \sqrt{g+h x}}{\sqrt{-d g+c h} \sqrt{a+b x}}\right], \frac{\left(b e-a f\right) \left(d g-c h\right)}{\left(b c-a d\right) \left(f g-e h\right)}\right]$$

Result (type 4, 38 310 leaves) : Display of huge result suppressed!

Problem 32: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+b x}\,\left(A+C x^2\right)}{\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}\,dx$$

Optimal (type 4, 937 leaves, 9 steps):

$$\frac{C\,(a d f h-3 b\,(d f g+d e h+c f h))\,\sqrt{a+b x}\,\sqrt{e+f x}\,\sqrt{g+h x}}{4 b d f^2 h^2\,\sqrt{c+d x}}+\frac{C\,\sqrt{a+b x}\,\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}{2 d f h}-$$

$$\left(C\,\sqrt{d g-c h}\,\sqrt{f g-e h}\,(a d f h-3 b\,(d f g+d e h+c f h))\,\sqrt{a+b x}\,\sqrt{-\frac{(d e-c f)\,(g+h x)}{(f g-e h)\,(c+d x)}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d g-c h}\,\sqrt{e+f x}}{\sqrt{f g-e h}\,\sqrt{c+d x}}\right],\frac{(b c-a d)\,(f g-e h)}{(b e-a f)\,(d g-c h)}\right]\right)\Bigg/\left(4 b d^2 f^2 h^2\,\sqrt{\frac{(d e-c f)\,(a+b x)}{(b e-a f)\,(c+d x)}}\,\sqrt{g+h x}\right)+$$

$$\left(C\,(b e-a f)\,\sqrt{b g-a h}\,(a d f h+b\,(c f h+3 d\,(f g+e h)))\,\sqrt{\frac{(b e-a f)\,(c+d x)}{(d e-c f)\,(a+b x)}}\,\sqrt{g+h x}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b g-a h}\,\sqrt{e+f x}}{\sqrt{f g-e h}\,\sqrt{a+b x}}\right],-\frac{(b c-a d)\,(f g-e h)}{(d e-c f)\,(b g-a h)}\right]\right)\Bigg/\left(4 b^2 d f^2 h^2\,\sqrt{f g-e h}\,\sqrt{c+d x}\,\sqrt{-\frac{(b e-a f)\,(g+h x)}{(f g-e h)\,(a+b x)}}\right)-$$

$$\left(\sqrt{-d g+c h}\,\left(C\,(a d f h-3 b\,(d f g+d e h+c f h))\,(a d f h+b\,(d f g+d e h+c f h))-\right.\right.$$

$$\left.4 b d f h\,(2 A b d f h-C\,(b\,(d e g+c f g+c e h)+a\,(d f g+d e h+c f h)))\right)\,(a+b x)\,\sqrt{\frac{(b g-a h)\,(c+d x)}{(d g-c h)\,(a+b x)}}\,\sqrt{\frac{(b g-a h)\,(e+f x)}{(f g-e h)\,(a+b x)}}$$

$$\left.\text{EllipticPi}\left[-\frac{b\,(d g-c h)}{(b c-a d)\,h},\text{ArcSin}\left[\frac{\sqrt{b c-a d}\,\sqrt{g+h x}}{\sqrt{-d g+c h}\,\sqrt{a+b x}}\right],\frac{(b e-a f)\,(d g-c h)}{(b c-a d)\,(f g-e h)}\right]\right)\Bigg/\left(4 b^2 d^2\,\sqrt{b c-a d}\,f^2 h^3\,\sqrt{c+d x}\,\sqrt{e+f x}\right)$$

Result (type 4, 16 659 leaves):

$$\frac{C\,\sqrt{a+b x}\,\sqrt{c+d x}\,\sqrt{e+f x}\,\sqrt{g+h x}}{2 d f h}+$$

$$\frac{1}{2 b^3 d f h}\Bigg(\Bigg(C\,(-3 b d f g-3 b d e h-3 b c f h+a d f h)\,(a+b x)^{5/2}\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)\Bigg)\Bigg/$$

$$\left(2 d f h\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}\right)+$$

$$\frac{1}{2 d f h\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}}$$

$$(a+b x)^{3/2}\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}\Bigg(\Bigg(3 b^4 c\, C d e f g^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\Bigg(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\Bigg(3 a b^3 C d^2 e f g^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\Bigg(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(3 a b^3 c\, C\, d f^2 g^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(3 a^2 b^2 C d^2 f^2 g^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\;\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+\left(3\,b^4\,c\,C\,d\,e^2\,g\,h\sqrt{\frac{(b\,c-a\,d)\,(b\,g-a\,h)\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}\right.$$

$$\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\left(-\frac{(b\,d\,g-b\,c\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,(b\,g-a\,h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{-b\,c+a\,d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\;\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)-\left(3\,a\,b^3\,C\,d^2\,e^2\,g\,h\sqrt{\frac{(b\,c-a\,d)\,(b\,g-a\,h)\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}\right.$$

$$\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\sqrt{\frac{-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}}{\frac{f}{-b\,e+a\,f}-\frac{h}{-b\,g+a\,h}}}\left(-\frac{(b\,d\,g-b\,c\,h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{(b\,c-a\,d)\,(b\,g-a\,h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b\,e-a\,f)\left(h+\frac{b\,g}{a+b\,x}-\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\right]}{-b\,c+a\,d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}}{-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}}}\;\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+\left(3\,b^4\,c^2\,C\,e\,f\,g\,h\sqrt{\frac{(b\,c-a\,d)\,(b\,g-a\,h)\left(-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}\right)}{b\,d\,g-b\,c\,h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(10 a b^3 c C d e f g h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(7 a^2 b^2 C d^2 e f g h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(3 a b^3 c^2 C f^2 g h\,\sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(7 a^2 b^2 c C d f^2 g h\,\sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(4 a^3 b C d^2 f^2 g h \sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(3 a b^3 c C d e^2 h^2 \sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(3 a^2 b^2 C d^2 e^2 h^2 \sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(3 a b^3 c^2 C e f h^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(7 a^2 b^2 c\, C d e f h^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(4 a^3 b C d^2 e f h^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(3 a^2 b^2 c^2 C f^2 h^2\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)-\left(4a^3bcCdf^2h^2\sqrt{\frac{(bc-ad)(bg-ah)\left(-\frac{d}{-bc+ad}+\frac{1}{a+bx}\right)}{bdg-bch}}\right.$$

$$\left(-\frac{f}{-be+af}+\frac{1}{a+bx}\right)\sqrt{\frac{-\frac{h}{-bg+ah}+\frac{1}{a+bx}}{\frac{f}{-be+af}-\frac{h}{-bg+ah}}}\left(-\frac{(bdg-bch)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(be-af)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}{b(-fg+eh)}}\right],\frac{(-bc+ad)(-fg+eh)}{(-be+af)(-dg+ch)}\right]}{(bc-ad)(bg-ah)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(be-af)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}{b(-fg+eh)}}\right],\frac{(-bc+ad)(-fg+eh)}{(-be+af)(-dg+ch)}\right]}{-bc+ad}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)+\left(a^4Cd^2f^2h^2\sqrt{\frac{(bc-ad)(bg-ah)\left(-\frac{d}{-bc+ad}+\frac{1}{a+bx}\right)}{bdg-bch}}\right.$$

$$\left(-\frac{f}{-be+af}+\frac{1}{a+bx}\right)\sqrt{\frac{-\frac{h}{-bg+ah}+\frac{1}{a+bx}}{\frac{f}{-be+af}-\frac{h}{-bg+ah}}}\left(-\frac{(bdg-bch)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(be-af)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}{b(-fg+eh)}}\right],\frac{(-bc+ad)(-fg+eh)}{(-be+af)(-dg+ch)}\right]}{(bc-ad)(bg-ah)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(be-af)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}{b(-fg+eh)}}\right],\frac{(-bc+ad)(-fg+eh)}{(-be+af)(-dg+ch)}\right]}{-bc+ad}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-be+af}+\frac{1}{a+bx}}{-\frac{f}{-be+af}+\frac{h}{-bg+ah}}}\sqrt{\left(d+\frac{bc-ad}{a+bx}\right)\left(f+\frac{be-af}{a+bx}\right)\left(h+\frac{bg-ah}{a+bx}\right)}\right)+\left(2b^3cCdefgh\sqrt{\frac{-\frac{d}{-bc+ad}+\frac{1}{a+bx}}{-\frac{d}{-bc+ad}+\frac{h}{-bg+ah}}}\right.$$

$$\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}} \left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right] \Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right) - \left(2 a b^2 C d^2 e f g h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\right.$$

$$\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}} \left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right] \Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right) - \left(2 a b^2 c C d f^2 g h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\right.$$

$$\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}} \left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right] \Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right) + \left(2 a^2 b C d^2 f^2 g h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right] \Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right) - \left(2 a b^2 c C d e f h^2 \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\right.$$

$$\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}} \left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d) (-f g+e h)}{(-b e+a f) (-d g+c h)}\right] \Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 a^2 b C d^2 e f h^2 \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\ \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\ \right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 a^2 b c C d f^2 h^2 \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\ \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\ \right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-$$

$$\left(2 a^3 C d^2 f^2 h^2 \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\ \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\ \right],\right.\right.$$

$$\left.\left.\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\ \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+$$

$$\left(2 b^2 C d^2 e f g(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\ \sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\right.$$

$$\left.\text{EllipticPi}\left[-\frac{-b f g+b e h}{(-b e+a f) h}, \text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\ \right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+\left(2\,b^2\,c\,C\,d\,f^2\,g\,(-b\,g+a\,h)\left(-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}\right)\right.$$

$$\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\;\sqrt{-\frac{\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)}{\left(-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}\right)^2}}\;\text{EllipticPi}\left[-\frac{-b\,f\,g+b\,e\,h}{(-b\,e+a\,f)\,h},\right.$$

$$\left.\left.\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)(-f\,g+e\,h)}{(-b\,e+a\,f)(-d\,g+c\,h)}\right]\right)\Big/\left(\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)-$$

$$\left(2\,a\,b\,C\,d^2\,f^2\,g\,(-b\,g+a\,h)\left(-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}\right)\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\;\sqrt{-\frac{\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)}{\left(-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}\right)^2}}\right.$$

$$\left.\text{EllipticPi}\left[-\frac{-b\,f\,g+b\,e\,h}{(-b\,e+a\,f)\,h},\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\frac{(-b\,c+a\,d)(-f\,g+e\,h)}{(-b\,e+a\,f)(-d\,g+c\,h)}\right]\right)\Big/$$

$$\left(\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+\left(3\,b^2\,C\,d^2\,f^2\,g^2\,(-b\,g+a\,h)\left(-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}\right)\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\right.$$

$$\sqrt{-\frac{\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)}{\left(-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}\right)^2}}\;\text{EllipticPi}\left[-\frac{-b\,f\,g+b\,e\,h}{(-b\,e+a\,f)\,h},\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\right.$$

$$\left.\left.\frac{(-b\,c+a\,d)(-f\,g+e\,h)}{(-b\,e+a\,f)(-d\,g+c\,h)}\right]\right)\Big/\left(h\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+$$

$$\left(3\,b^2\,C\,d^2\,e^2\,h\,(-b\,g+a\,h)\left(-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}\right)\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\;\sqrt{-\frac{\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)}{\left(-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}\right)^2}}\right.$$

$$\text{EllipticPi}\left[-\frac{-b f g+b e h}{(-b e+a f)\, h},\ \text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\,\right],\ \frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]\Bigg/$$

$$\left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\Bigg(2 b^2 c\, C\, d\, e\, f\, h\,(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)$$

$$\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\ \sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\ \text{EllipticPi}\left[-\frac{-b f g+b e h}{(-b e+a f)\, h},\right.$$

$$\left.\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\,\right],\ \frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]\Bigg/\left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-$$

$$\Bigg(2 a b\, C\, d^2 e\, f\, h\,(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\ \sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}$$

$$\text{EllipticPi}\left[-\frac{-b f g+b e h}{(-b e+a f)\, h},\ \text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\,\right],\ \frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]\Bigg/$$

$$\left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\Bigg(3 b^2 c^2\, C\, f^2 h\,(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}$$

$$\sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\ \text{EllipticPi}\left[-\frac{-b f g+b e h}{(-b e+a f)\, h},\ \text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\,\right],\right.$$

$$\left.\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]\Bigg/\left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-$$

$$\left(2 a b c C d f^2 h \left(-b g+a h\right) \left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right) \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right) \left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\right.$$

$$\left.\text{EllipticPi}\left[-\frac{-b f g+b e h}{\left(-b e+a f\right) h}, \text{ArcSin}\left[\sqrt{\frac{\left(-b e+a f\right) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b \left(-f g+e h\right)}}\right], \frac{\left(-b c+a d\right) \left(-f g+e h\right)}{\left(-b e+a f\right) \left(-d g+c h\right)}\right]\right) \Big/$$

$$\left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(8 A b^2 d^2 f^2 h \left(-b g+a h\right) \left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right) \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\right.$$

$$\sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right) \left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\ \text{EllipticPi}\left[-\frac{-b f g+b e h}{\left(-b e+a f\right) h}, \text{ArcSin}\left[\sqrt{\frac{\left(-b e+a f\right) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b \left(-f g+e h\right)}}\right],\right.$$

$$\left.\left.\frac{\left(-b c+a d\right) \left(-f g+e h\right)}{\left(-b e+a f\right) \left(-d g+c h\right)}\right]\right) \Big/ \left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right)-$$

$$\left(a^2 C d^2 f^2 h \left(-b g+a h\right) \left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right) \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right) \left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\ \text{EllipticPi}\left[-\frac{-b f g+b e h}{\left(-b e+a f\right) h},\right.\right.$$

$$\left.\left.\left.\text{ArcSin}\left[\sqrt{\frac{\left(-b e+a f\right) \left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b \left(-f g+e h\right)}}\right], \frac{\left(-b c+a d\right) \left(-f g+e h\right)}{\left(-b e+a f\right) \left(-d g+c h\right)}\right]\right) \Big/ \left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right) \left(f+\frac{b e-a f}{a+b x}\right) \left(h+\frac{b g-a h}{a+b x}\right)}\right)\right)\right)$$

Problem 33: Result more than twice size of optimal antiderivative.

$$\int \frac{A+C x^2}{\sqrt{a+b x}\ \sqrt{c+d x}\ \sqrt{e+f x}\ \sqrt{g+h x}}\, dx$$

Optimal (type 4, 757 leaves, 8 steps) :

$$\frac{C\sqrt{a+bx}\,\sqrt{e+fx}\,\sqrt{g+hx}}{b\,f\,h\,\sqrt{c+dx}}-\frac{C\sqrt{dg-ch}\,\sqrt{fg-eh}\,\sqrt{a+bx}\,\sqrt{-\frac{(de-cf)\,(g+hx)}{(fg-eh)\,(c+dx)}}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{dg-ch}\,\sqrt{e+fx}}{\sqrt{fg-eh}\,\sqrt{c+dx}}\right],\frac{(bc-ad)\,(fg-eh)}{(be-af)\,(dg-ch)}\right]}{b\,d\,f\,h\,\sqrt{\frac{(de-cf)\,(a+bx)}{(be-af)\,(c+dx)}}\,\sqrt{g+hx}}+$$

$$\left(a^2\,C\,f\,h+a\,b\,C\,(f\,g+e\,h)-b^2\,(C\,e\,g-2\,A\,f\,h)\right)\sqrt{\frac{(be-af)\,(c+dx)}{(de-cf)\,(a+bx)}}\,\sqrt{g+hx}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{bg-ah}\,\sqrt{e+fx}}{\sqrt{fg-eh}\,\sqrt{a+bx}}\right],-\frac{(bc-ad)\,(fg-eh)}{(de-cf)\,(bg-ah)}\right]\Bigg/\left(b^2\,f\,h\,\sqrt{bg-ah}\,\sqrt{fg-eh}\,\sqrt{c+dx}\,\sqrt{-\frac{(be-af)\,(g+hx)}{(fg-eh)\,(a+bx)}}\right)-$$

$$\left(C\sqrt{-dg+ch}\,\left(a\,d\,f\,h+b\,(d\,f\,g+d\,e\,h+c\,f\,h)\right)\,(a+bx)\,\sqrt{\frac{(bg-ah)\,(c+dx)}{(dg-ch)\,(a+bx)}}\,\sqrt{\frac{(bg-ah)\,(e+fx)}{(fg-eh)\,(a+bx)}}\right.$$

$$\left.\text{EllipticPi}\left[-\frac{b\,(dg-ch)}{(bc-ad)\,h},\text{ArcSin}\left[\frac{\sqrt{bc-ad}\,\sqrt{g+hx}}{\sqrt{-dg+ch}\,\sqrt{a+bx}}\right],\frac{(be-af)\,(dg-ch)}{(bc-ad)\,(fg-eh)}\right]\right)\Bigg/\left(b^2\,d\,\sqrt{bc-ad}\,f\,h^2\,\sqrt{c+dx}\,\sqrt{e+fx}\right)$$

Result (type 4, 6207 leaves):

$$-\frac{1}{b^3}2\left(-\frac{C\,(a+bx)^{5/2}\left(d+\frac{bc}{a+bx}-\frac{ad}{a+bx}\right)\left(f+\frac{be}{a+bx}-\frac{af}{a+bx}\right)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}{2\,d\,f\,h\,\sqrt{c+\frac{(a+bx)\left(d-\frac{ad}{a+bx}\right)}{b}}\,\sqrt{e+\frac{(a+bx)\left(f-\frac{af}{a+bx}\right)}{b}}\,\sqrt{g+\frac{(a+bx)\left(h-\frac{ah}{a+bx}\right)}{b}}}+\frac{1}{2\,d\,f\,h\,\sqrt{c+\frac{(a+bx)\left(d-\frac{ad}{a+bx}\right)}{b}}\,\sqrt{e+\frac{(a+bx)\left(f-\frac{af}{a+bx}\right)}{b}}\,\sqrt{g+\frac{(a+bx)\left(h-\frac{ah}{a+bx}\right)}{b}}}\right.$$

$$(a+bx)^{3/2}\sqrt{\left(d+\frac{bc}{a+bx}-\frac{ad}{a+bx}\right)\left(f+\frac{be}{a+bx}-\frac{af}{a+bx}\right)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}\ \Bigg(\Bigg(b^3\,c\,C\,e\,g\,\sqrt{\frac{(bc-ad)\,(bg-ah)\left(-\frac{d}{-bc+ad}+\frac{1}{a+bx}\right)}{b\,d\,g-b\,c\,h}}$$

$$\left(-\frac{f}{-be+af}+\frac{1}{a+bx}\right)\sqrt{\frac{-\frac{h}{-bg+ah}+\frac{1}{a+bx}}{\frac{f}{-be+af}-\frac{h}{-bg+ah}}}\ \left(-\frac{(b\,d\,g-b\,c\,h)\ \text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(be-af)\left(h+\frac{bg}{a+bx}-\frac{ah}{a+bx}\right)}{b\,(-fg+eh)}}\right],\frac{(-bc+ad)\,(-fg+eh)}{(-be+af)\,(-dg+ch)}\right]}{(bc-ad)\,(bg-ah)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(a b^2 C d e g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(a b^2 c C f g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a^2 b C d f g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(a b^2 c C e h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a^2 b C d e h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a^2 b c C f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(a^3 C d f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 A b^2 d f h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+$$

$$\left(2 a^2 C d f h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\right.\right.$$

$$\left.\left.\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+$$

$$\left(b C d e(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\;\text{EllipticPi}\left[-\frac{-b f g+b e h}{(-b e+a f)h},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Big/\left(\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+$$

$$\left(b c C f(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}}\;\text{EllipticPi}\left[-\frac{-b f g+b e h}{(-b e+a f)h},\right.\right.$$

$$\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\ \frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\Bigg]\Bigg/\left(\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+$$

$$\Bigg(a\,C\,d\,f\,(-b\,g+a\,h)\left(-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}\right)\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\ \sqrt{-\frac{\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)}{\left(-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}\right)^2}}\ \text{EllipticPi}\left[-\frac{-b\,f\,g+b\,e\,h}{(-b\,e+a\,f)\,h},\right.$$

$$\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\ \frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\Bigg]\Bigg/\left(\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)+$$

$$\Bigg(b\,C\,d\,f\,g\,(-b\,g+a\,h)\left(-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}\right)\sqrt{\frac{-\frac{d}{-b\,c+a\,d}+\frac{1}{a+b\,x}}{-\frac{d}{-b\,c+a\,d}+\frac{h}{-b\,g+a\,h}}}\ \sqrt{-\frac{\left(-\frac{f}{-b\,e+a\,f}+\frac{1}{a+b\,x}\right)\left(-\frac{h}{-b\,g+a\,h}+\frac{1}{a+b\,x}\right)}{\left(-\frac{f}{-b\,e+a\,f}+\frac{h}{-b\,g+a\,h}\right)^2}}\ \text{EllipticPi}\left[-\frac{-b\,f\,g+b\,e\,h}{(-b\,e+a\,f)\,h},\right.$$

$$\text{ArcSin}\left[\sqrt{\frac{(-b\,e+a\,f)\left(-h-\frac{b\,g}{a+b\,x}+\frac{a\,h}{a+b\,x}\right)}{b\,(-f\,g+e\,h)}}\right],\ \frac{(-b\,c+a\,d)\,(-f\,g+e\,h)}{(-b\,e+a\,f)\,(-d\,g+c\,h)}\Bigg]\Bigg/\left(h\sqrt{\left(d+\frac{b\,c-a\,d}{a+b\,x}\right)\left(f+\frac{b\,e-a\,f}{a+b\,x}\right)\left(h+\frac{b\,g-a\,h}{a+b\,x}\right)}\right)\Bigg)\Bigg)$$

Problem 34: Result more than twice size of optimal antiderivative.

$$\int\frac{A+C\,x^2}{(a+b\,x)^{3/2}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}\,dx$$

Optimal (type 4, 867 leaves, 9 steps):

$$\frac{2\left(A b^2+a^2 C\right) d \sqrt{a+b x} \sqrt{e+f x} \sqrt{g+h x}}{b (b c-a d) (b e-a f) (b g-a h) \sqrt{c+d x}}-\frac{2\left(A b^2+a^2 C\right) \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{(b c-a d) (b e-a f) (b g-a h) \sqrt{a+b x}}-$$

$$\left(2\left(A b^2+a^2 C\right) \sqrt{d g-c h} \sqrt{f g-e h} \sqrt{a+b x} \sqrt{-\frac{(d e-c f) (g+h x)}{(f g-e h) (c+d x)}} \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d g-c h} \sqrt{e+f x}}{\sqrt{f g-e h} \sqrt{c+d x}}\right], \frac{(b c-a d) (f g-e h)}{(b e-a f) (d g-c h)}\right]\right) \Big/$$

$$\left(b (b c-a d) (b e-a f) (b g-a h) \sqrt{\frac{(d e-c f) (a+b x)}{(b e-a f) (c+d x)}} \sqrt{g+h x}\right)-$$

$$\frac{2\left(2 a b c C+A b^2 d-a^2 C d\right) \sqrt{\frac{(b e-a f) (c+d x)}{(d e-c f) (a+b x)}} \sqrt{g+h x} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b g-a h} \sqrt{e+f x}}{\sqrt{f g-e h} \sqrt{a+b x}}\right],-\frac{(b c-a d) (f g-e h)}{(d e-c f) (b g-a h)}\right]}{b^2 (b c-a d) \sqrt{b g-a h} \sqrt{f g-e h} \sqrt{c+d x} \sqrt{-\frac{(b e-a f) (g+h x)}{(f g-e h) (a+b x)}}}+$$

$$\left(2 C \sqrt{-d g+c h} (a+b x) \sqrt{\frac{(b g-a h) (c+d x)}{(d g-c h) (a+b x)}} \sqrt{\frac{(b g-a h) (e+f x)}{(f g-e h) (a+b x)}}\right.$$

$$\left.\text{EllipticPi}\left[-\frac{b (d g-c h)}{(b c-a d) h}, \text{ArcSin}\left[\frac{\sqrt{b c-a d} \sqrt{g+h x}}{\sqrt{-d g+c h} \sqrt{a+b x}}\right], \frac{(b e-a f) (d g-c h)}{(b c-a d) (f g-e h)}\right]\right) \Big/ \left(b^2 \sqrt{b c-a d}\, h \sqrt{c+d x} \sqrt{e+f x}\right)$$

Result (type 4, 2103 leaves) :

$$-\frac{2\left(A b^2+a^2 C\right) \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}}{(b c-a d) (b e-a f) (b g-a h) \sqrt{a+b x}}+$$

$$\frac{1}{b^3 (-b c+a d) (-b e+a f) (-b g+a h)} 2 \left(\frac{\left(-A b^2-a^2 C\right) (a+b x)^{5/2}\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}} \sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}} \sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}}+\right.$$

$$\frac{1}{\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}} \sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}} \sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}} (b c-a d) (b e-a f) (b g-a h) (a+b x)^{3/2}$$

$$\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}\ \Bigg/\ \left(\left(A b^2 \sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(a^2 C \sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(2 a C \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right] \Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right) -$$

$$\left(C(-b g+a h)\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right) \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{-\frac{\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)}{\left(-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}\right)^2}} \text{EllipticPi}\left[-\frac{-b f g+b e h}{(-b e+a f) h},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right] \Bigg/ \left(h \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)\right)$$

Problem 35: Result more than twice size of optimal antiderivative.

$$\int \frac{A+C x^2}{(a+b x)^{5/2} \sqrt{c+d x} \sqrt{e+f x} \sqrt{g+h x}} \, dx$$

Optimal (type 4, 1070 leaves, 8 steps) :

$$-\left(\left(4\,d\,\left(A\,b^3\,(d\,e\,g+c\,f\,g+c\,e\,h)+a^3\,C\,(d\,f\,g+d\,e\,h+c\,f\,h)+a^2\,b\,(3\,A\,d\,f\,h-2\,C\,(d\,e\,g+c\,f\,g+c\,e\,h))-a\,b^2\,(2\,A\,d\,(f\,g+e\,h)-c\,(3\,C\,e\,g-2\,A\,f\,h))\right)\sqrt{a+b\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}\right)\Big/\left(3\,(b\,c-a\,d)^2\,(b\,e-a\,f)^2\,(b\,g-a\,h)^2\,\sqrt{c+d\,x}\right)\right)-\frac{2\,\left(A\,b^2+a^2\,C\right)\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}}{3\,(b\,c-a\,d)\,(b\,e-a\,f)\,(b\,g-a\,h)\,(a+b\,x)^{3/2}}+$$

$$\left(4\,b\,\left(A\,b^3\,(d\,e\,g+c\,f\,g+c\,e\,h)+a^3\,C\,(d\,f\,g+d\,e\,h+c\,f\,h)+a^2\,b\,(3\,A\,d\,f\,h-2\,C\,(d\,e\,g+c\,f\,g+c\,e\,h))-a\,b^2\,(2\,A\,d\,(f\,g+e\,h)-c\,(3\,C\,e\,g-2\,A\,f\,h))\right)\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}\right)\Big/\left(3\,(b\,c-a\,d)^2\,(b\,e-a\,f)^2\,(b\,g-a\,h)^2\,\sqrt{a+b\,x}\right)+\left(4\,\sqrt{d\,g-c\,h}\,\sqrt{f\,g-e\,h}\right.$$

$$\left(A\,b^3\,(d\,e\,g+c\,f\,g+c\,e\,h)+a^3\,C\,(d\,f\,g+d\,e\,h+c\,f\,h)+a^2\,b\,(3\,A\,d\,f\,h-2\,C\,(d\,e\,g+c\,f\,g+c\,e\,h))-a\,b^2\,(2\,A\,d\,(f\,g+e\,h)-c\,(3\,C\,e\,g-2\,A\,f\,h))\right)$$

$$\left.\sqrt{a+b\,x}\,\sqrt{-\frac{(d\,e-c\,f)\,(g+h\,x)}{(f\,g-e\,h)\,(c+d\,x)}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d\,g-c\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}}\right],\frac{(b\,c-a\,d)\,(f\,g-e\,h)}{(b\,e-a\,f)\,(d\,g-c\,h)}\right]\right)\Big/$$

$$\left(3\,(b\,c-a\,d)^2\,(b\,e-a\,f)^2\,(b\,g-a\,h)^2\sqrt{\frac{(d\,e-c\,f)\,(a+b\,x)}{(b\,e-a\,f)\,(c+d\,x)}}\,\sqrt{g+h\,x}\right)-$$

$$\left(2\,\left(3\,a\,b\,\left(c^2\,C+A\,d^2\right)(f\,g+e\,h)-b^2\,\left(2\,A\,d^2\,e\,g+A\,c\,d\,(f\,g+e\,h)+c^2\,(3\,C\,e\,g-A\,f\,h)\right)-a^2\,\left(3\,A\,d^2\,f\,h-C\,\left(d^2\,e\,g-c\,d\,f\,g-c\,d\,e\,h-2\,c^2\,f\,h\right)\right)\right)\right.$$

$$\left.\sqrt{\frac{(b\,e-a\,f)\,(c+d\,x)}{(d\,e-c\,f)\,(a+b\,x)}}\,\sqrt{g+h\,x}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{b\,g-a\,h}\,\sqrt{e+f\,x}}{\sqrt{f\,g-e\,h}\,\sqrt{a+b\,x}}\right],-\frac{(b\,c-a\,d)\,(f\,g-e\,h)}{(d\,e-c\,f)\,(b\,g-a\,h)}\right]\right)\Big/$$

$$\left(3\,(b\,c-a\,d)^2\,(b\,e-a\,f)\,(b\,g-a\,h)^{3/2}\,\sqrt{f\,g-e\,h}\,\sqrt{c+d\,x}\,\sqrt{-\frac{(b\,e-a\,f)\,(g+h\,x)}{(f\,g-e\,h)\,(a+b\,x)}}\right)$$

Result (type 4, 11 160 leaves):

$$\sqrt{a+b\,x}\,\sqrt{c+d\,x}\,\sqrt{e+f\,x}\,\sqrt{g+h\,x}$$

$$\left(-\frac{2\,\left(A\,b^2+a^2\,C\right)}{3\,(b\,c-a\,d)\,(b\,e-a\,f)\,(b\,g-a\,h)\,(a+b\,x)^2}+\left(4\,b\,\left(3\,a\,b^2\,c\,C\,e\,g+A\,b^3\,d\,e\,g-2\,a^2\,b\,C\,d\,e\,g+A\,b^3\,c\,f\,g-2\,a^2\,b\,c\,C\,f\,g-\right.\right.\right.$$

$$\left.\left.2\,a\,A\,b^2\,d\,f\,g+a^3\,C\,d\,f\,g+A\,b^3\,c\,e\,h-2\,a^2\,b\,c\,C\,e\,h-2\,a\,A\,b^2\,d\,e\,h+a^3\,C\,d\,e\,h-2\,a\,A\,b^2\,c\,f\,h+a^3\,c\,C\,f\,h+3\,a^2\,A\,b\,d\,f\,h\right)\right)\Big/$$

$$\left.\left(3\,(b\,c-a\,d)^2\,(b\,e-a\,f)^2\,(b\,g-a\,h)^2\,(a+b\,x)\right)\right)+\frac{1}{3\,b^2\,(-b\,c+a\,d)^2\,(-b\,e+a\,f)^2\,(-b\,g+a\,h)^2}$$

$$2\left(-\left(\left(2\left(3 a b^2 c C e g+A b^3 d e g-2 a^2 b C d e g+A b^3 c f g-2 a^2 b c C f g-2 a A b^2 d f g+a^3 C d f g+A b^3 c e h-2 a^2 b c C e h-2 a A b^2 d e h+\right.\right.\right.\right.$$

$$\left.a^3 C d e h-2 a A b^2 c f h+a^3 c C f h+3 a^2 A b d f h\right)(a+b x)^{5/2}\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)\Bigg)\Bigg/$$

$$\left.\left(\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}\right)\right)+$$

$$\frac{1}{\sqrt{c+\frac{(a+b x)\left(d-\frac{a d}{a+b x}\right)}{b}}\sqrt{e+\frac{(a+b x)\left(f-\frac{a f}{a+b x}\right)}{b}}\sqrt{g+\frac{(a+b x)\left(h-\frac{a h}{a+b x}\right)}{b}}}(b c-a d)(b e-a f)(b g-a h)(a+b x)^{3/2}$$

$$\sqrt{\left(d+\frac{b c}{a+b x}-\frac{a d}{a+b x}\right)\left(f+\frac{b e}{a+b x}-\frac{a f}{a+b x}\right)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}\left(\left(6 a b^2 c C e g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 A b^3 d e g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(4 a^2 b C d e g\sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 A b^3 c f g\sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-\right.$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\Bigg(4\,a^2\,b\,c\,C\,f\,g\,\sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\,\Bigg(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\,\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\Bigg(4\,a\,A\,b^2\,d\,f\,g\,\sqrt{\frac{(b c-a d)\,(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\,\Bigg(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{(b c-a d)\,(b g-a h)}-$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b\,(-f g+e h)}}\right],\frac{(-b c+a d)\,(-f g+e h)}{(-b e+a f)\,(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 a^3 C d f g\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 A b^3 c e h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(4 a^2 b c C e h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(4 a A b^2 d e h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Big/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 a^3 C d e h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(4 a A b^2 c f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(2 a^3 c C f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\Bigg)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(6 a^2 A b d f h\sqrt{\frac{(b c-a d)(b g-a h)\left(-\frac{d}{-b c+a d}+\frac{1}{a+b x}\right)}{b d g-b c h}}\right.$$

$$\left(-\frac{f}{-b e+a f}+\frac{1}{a+b x}\right)\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\left(-\frac{(b d g-b c h)\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{(b c-a d)(b g-a h)}-\right.$$

$$\left.\left.\frac{d\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(b e-a f)\left(h+\frac{b g}{a+b x}-\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]}{-b c+a d}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(3 b^2 c C e g\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(3 a b C d e g\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(3 a b c C f g\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg) \Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(A b^2 d f g \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg) \Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(2 a^2 C d f g \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg) \Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(3 a b c C e h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg) \Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}} \sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(A b^2 d e h \sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}} \sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b (-f g+e h)}}\right], \frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\Bigg) \Big/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(2 a^2 C d e h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)+\left(A b^2 c f h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(2 a^2 c C f h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Bigg/$$

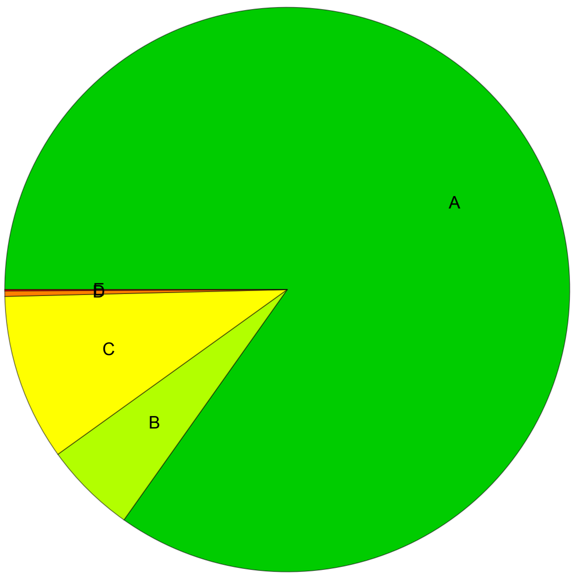
$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)-\left(3 a A b d f h\sqrt{\frac{-\frac{d}{-b c+a d}+\frac{1}{a+b x}}{-\frac{d}{-b c+a d}+\frac{h}{-b g+a h}}}\sqrt{\frac{-\frac{f}{-b e+a f}+\frac{1}{a+b x}}{-\frac{f}{-b e+a f}+\frac{h}{-b g+a h}}}\right.$$

$$\left.\left(-\frac{h}{-b g+a h}+\frac{1}{a+b x}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(-b e+a f)\left(-h-\frac{b g}{a+b x}+\frac{a h}{a+b x}\right)}{b(-f g+e h)}}\right],\frac{(-b c+a d)(-f g+e h)}{(-b e+a f)(-d g+c h)}\right]\right)\Bigg/$$

$$\left(\sqrt{\frac{-\frac{h}{-b g+a h}+\frac{1}{a+b x}}{\frac{f}{-b e+a f}-\frac{h}{-b g+a h}}}\sqrt{\left(d+\frac{b c-a d}{a+b x}\right)\left(f+\frac{b e-a f}{a+b x}\right)\left(h+\frac{b g-a h}{a+b x}\right)}\right)\Bigg)\Bigg)$$

Summary of Integration Test Results

5424 integration problems



A - 4600 optimal antiderivatives

B - 286 more than twice size of optimal antiderivatives

C - 517 unnecessarily complex antiderivatives

D - 17 unable to integrate problems

E - 4 integration timeouts