Mathematica 11.3 Integration Test Results

Test results for the 958 problems in "1.2.1.4 (d+e x)^m (f+g x)^n (a+b x+c x^2)^p.m"

Problem 221: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 35 leaves, 4 steps):

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

Result (type 3, 80 leaves):

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

Problem 223: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{1-a^2 x^2}}{\sqrt{x}\,\sqrt{1-a x}}\,dx$$

Optimal (type 3, 34 leaves, 4 steps):

$$\sqrt{x}\,\sqrt{1+a x}+\frac{\text{ArcSinh}\left[\sqrt{a}\,\sqrt{x}\right]}{\sqrt{a}}$$

Result (type 3, 100 leaves):

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

Problem 225: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 63 leaves, 5 steps):

$$-\frac{\sqrt{x}\ \sqrt{1-a\,x}}{4\,a}+\frac{1}{2}\,x^{3/2}\,\sqrt{1-a\,x}+\frac{\text{ArcSin}\left[\sqrt{a}\ \sqrt{x}\ \right]}{4\,a^{3/2}}$$

Result (type 3, 94 leaves):

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

Problem 229: Result more than twice size of optimal antiderivative.

$$\int (g\,x)^m\ \left(d^2-e^2\,x^2\right)^{5/2}\,dx$$

Optimal (type 5, 80 leaves, 2 steps):

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

Result (type 5, 183 leaves):

$$\left(x\ (g\,x)^m\ \sqrt{d^2-e^2\,x^2}\ \left(d^4\ \left(15+8\,m+m^2\right)\ \text{Hypergeometric2F1}\left[-\frac{1}{2},\ \frac{1+m}{2},\ \frac{3+m}{2},\ \frac{e^2\,x^2}{d^2}\right]-\right.\right.$$
$$e^2\ \left(1+m\right)\ x^2\ \left(2\,d^2\ (5+m)\ \text{Hypergeometric2F1}\left[-\frac{1}{2},\ \frac{3+m}{2},\ \frac{5+m}{2},\ \frac{e^2\,x^2}{d^2}\right]-e^2\ \left(3+m\right)\ x^2\right.$$
$$\left.\left.\left.\text{Hypergeometric2F1}\left[-\frac{1}{2},\ \frac{5+m}{2},\ \frac{7+m}{2},\ \frac{e^2\,x^2}{d^2}\right]\right)\right)\right)\Big/\left(\left(1+m\right)\ \left(3+m\right)\ (5+m)\ \sqrt{1-\frac{e^2\,x^2}{d^2}}\right)$$

Problem 232: Result unnecessarily involves higher level functions.

$$\int\frac{(g\,x)^m\ \left(d^2-e^2\,x^2\right)^{5/2}}{\left(d+e\,x\right)^3}\,dx$$

Optimal (type 5, 250 leaves, 8 steps):

$$-\frac{3\,d\,(g\,x)^{1+m}\sqrt{d^2-e^2\,x^2}}{g\,(2+m)}+\frac{e\,(g\,x)^{2+m}\sqrt{d^2-e^2\,x^2}}{g^2\,(3+m)}+$$

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

$$\left(g\,(1+m)\,(2+m)\sqrt{d^2-e^2\,x^2}\right)-$$

$$\left(d^2\,e\,(11+4\,m)\,(g\,x)^{2+m}\sqrt{1-\frac{e^2\,x^2}{d^2}}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{2+m}{2},\,\frac{4+m}{2},\,\frac{e^2\,x^2}{d^2}\right]\right)\Big/$$

$$\left(g^2\,(2+m)\,(3+m)\sqrt{d^2-e^2\,x^2}\right)$$

Result (type 6, 272 leaves):

$$\frac{1}{(1+m)\,(2+m)}$$

$$x\,(g\,x)^m\left(\frac{1}{\sqrt{1-\frac{e^2\,x^2}{d^2}}}\sqrt{d^2-e^2\,x^2}\left(e\,(1+m)\,x\,\text{Hypergeometric2F1}\left[-\frac{1}{2},\,1+\frac{m}{2},\,2+\frac{m}{2},\,\frac{e^2\,x^2}{d^2}\right]-\right.\right.$$

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

$$\left(8\,d^3\,(2+m)^2\sqrt{d-e\,x}\,\text{AppellF1}\left[1+m,\,-\frac{1}{2},\,\frac{1}{2},\,2+m,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]\right)\Big/$$

$$\left(\sqrt{d+e\,x}\left(2\,d\,(2+m)\,\text{AppellF1}\left[1+m,\,-\frac{1}{2},\,\frac{1}{2},\,2+m,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]-e\,x\left(\text{AppellF1}\left[2+m,\,-\frac{1}{2},\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{3}{2},\,3+m,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]+\text{HypergeometricPFQ}\left[\left\{\frac{1}{2},\,1+\frac{m}{2}\right\},\,\left\{2+\frac{m}{2}\right\},\,\frac{e^2\,x^2}{d^2}\right]\right)\right)\right)\Bigg)$$

Problem 237: Result unnecessarily involves higher level functions.

$$\int\frac{(g\,x)^m}{(d+e\,x)\,\left(d^2-e^2\,x^2\right)^{7/2}}\,dx$$

Optimal (type 5, 163 leaves, 8 steps):

$$\frac{(g\,x)^{1+m}\sqrt{1-\frac{e^2\,x^2}{d^2}}\ \text{Hypergeometric2F1}\left[\frac{9}{2},\ \frac{1+m}{2},\ \frac{3+m}{2},\ \frac{e^2\,x^2}{d^2}\right]}{d^7\,g\,(1+m)\,\sqrt{d^2-e^2\,x^2}}-$$

$$\frac{e\,(g\,x)^{2+m}\sqrt{1-\frac{e^2\,x^2}{d^2}}\ \text{Hypergeometric2F1}\left[\frac{9}{2},\ \frac{2+m}{2},\ \frac{4+m}{2},\ \frac{e^2\,x^2}{d^2}\right]}{d^8\,g^2\,(2+m)\,\sqrt{d^2-e^2\,x^2}}$$

Result (type 6, 161 leaves):

$$\left(2\,d\,(2+m)\,x\,(g\,x)^m\,\text{AppellF1}\left[1+m,\ \frac{7}{2},\ \frac{9}{2},\ 2+m,\ \frac{e\,x}{d},\ -\frac{e\,x}{d}\right]\right)\Big/$$
$$\left((1+m)\,(d-e\,x)^{7/2}\,(d+e\,x)^{9/2}\left(2\,d\,(2+m)\,\text{AppellF1}\left[1+m,\ \frac{7}{2},\ \frac{9}{2},\ 2+m,\ \frac{e\,x}{d},\ -\frac{e\,x}{d}\right]+\right.\right.$$
$$e\,x\left(-9\,\text{AppellF1}\left[2+m,\ \frac{7}{2},\ \frac{11}{2},\ 3+m,\ \frac{e\,x}{d},\ -\frac{e\,x}{d}\right]+\right.$$
$$\left.\left.\left.7\,\text{HypergeometricPFQ}\left[\left\{\frac{9}{2},\ 1+\frac{m}{2}\right\},\ \left\{2+\frac{m}{2}\right\},\ \frac{e^2\,x^2}{d^2}\right]\right)\right)\right)$$

Problem 238: Result unnecessarily involves higher level functions.

$$\int\frac{(g\,x)^m}{(d+e\,x)^2\,(d^2-e^2\,x^2)^{7/2}}\,dx$$

Optimal (type 5, 217 leaves, 7 steps):

$$\frac{2\,(g\,x)^{1+m}\,(d-e\,x)}{9\,d\,g\,(d^2-e^2\,x^2)^{9/2}}+\frac{(7-2\,m)\,(g\,x)^{1+m}\sqrt{1-\frac{e^2\,x^2}{d^2}}\ \text{Hypergeometric2F1}\left[\frac{9}{2},\ \frac{1+m}{2},\ \frac{3+m}{2},\ \frac{e^2\,x^2}{d^2}\right]}{9\,d^8\,g\,(1+m)\,\sqrt{d^2-e^2\,x^2}}-$$

$$\frac{2\,e\,(7-m)\,(g\,x)^{2+m}\sqrt{1-\frac{e^2\,x^2}{d^2}}\ \text{Hypergeometric2F1}\left[\frac{9}{2},\ \frac{2+m}{2},\ \frac{4+m}{2},\ \frac{e^2\,x^2}{d^2}\right]}{9\,d^9\,g^2\,(2+m)\,\sqrt{d^2-e^2\,x^2}}$$

Result (type 6, 157 leaves):

$$\left(2\,d\,(2+m)\,x\,(g\,x)^m\,\text{AppellF1}\left[1+m,\ \frac{7}{2},\ \frac{11}{2},\ 2+m,\ \frac{e\,x}{d},\ -\frac{e\,x}{d}\right]\right)\Big/$$
$$\left((1+m)\,(d-e\,x)^{7/2}\,(d+e\,x)^{11/2}\left(2\,d\,(2+m)\,\text{AppellF1}\left[1+m,\ \frac{7}{2},\ \frac{11}{2},\ 2+m,\ \frac{e\,x}{d},\ -\frac{e\,x}{d}\right]+\right.\right.$$
$$e\,x\left(-11\,\text{AppellF1}\left[2+m,\ \frac{7}{2},\ \frac{13}{2},\ 3+m,\ \frac{e\,x}{d},\ -\frac{e\,x}{d}\right]+\right.$$
$$\left.\left.\left.7\,\text{AppellF1}\left[2+m,\ \frac{9}{2},\ \frac{11}{2},\ 3+m,\ \frac{e\,x}{d},\ -\frac{e\,x}{d}\right]\right)\right)\right)$$

Problem 239: Result unnecessarily involves higher level functions.

$$\int \frac{(g\,x)^m}{(d+e\,x)^3\,(d^2-e^2\,x^2)^{7/2}}\,dx$$

Optimal (type 5, 214 leaves, 7 steps):

$$\frac{4\,(g\,x)^{1+m}\,(d-e\,x)}{11\,g\,(d^2-e^2\,x^2)^{11/2}}+\frac{(7-4\,m)\,(g\,x)^{1+m}\sqrt{1-\frac{e^2\,x^2}{d^2}}\,\text{Hypergeometric2F1}\left[\frac{11}{2},\frac{1+m}{2},\frac{3+m}{2},\frac{e^2\,x^2}{d^2}\right]}{11\,d^9\,g\,(1+m)\,\sqrt{d^2-e^2\,x^2}}-$$

$$\left(e\,(25-4\,m)\,(g\,x)^{2+m}\sqrt{1-\frac{e^2\,x^2}{d^2}}\,\text{Hypergeometric2F1}\left[\frac{11}{2},\frac{2+m}{2},\frac{4+m}{2},\frac{e^2\,x^2}{d^2}\right]\right)\Big/$$

$$\left(11\,d^{10}\,g^2\,(2+m)\,\sqrt{d^2-e^2\,x^2}\right)$$

Result (type 6, 157 leaves):

$$\left(2\,d\,(2+m)\,x\,(g\,x)^m\,\text{AppellF1}\left[1+m,\frac{7}{2},\frac{13}{2},2+m,\frac{e\,x}{d},-\frac{e\,x}{d}\right]\right)\Big/$$

$$\Bigg((1+m)\,(d-e\,x)^{7/2}\,(d+e\,x)^{13/2}\left(2\,d\,(2+m)\,\text{AppellF1}\left[1+m,\frac{7}{2},\frac{13}{2},2+m,\frac{e\,x}{d},-\frac{e\,x}{d}\right]+\right.$$

$$e\,x\left(-13\,\text{AppellF1}\left[2+m,\frac{7}{2},\frac{15}{2},3+m,\frac{e\,x}{d},-\frac{e\,x}{d}\right]+\right.$$

$$\left.\left.7\,\text{AppellF1}\left[2+m,\frac{9}{2},\frac{13}{2},3+m,\frac{e\,x}{d},-\frac{e\,x}{d}\right]\right)\right)\Bigg)$$

Problem 254: Result more than twice size of optimal antiderivative.

$$\int (d+e\,x)^2\,(d^2-e^2\,x^2)^p\,dx$$

Optimal (type 5, 71 leaves, 2 steps):

$$-\frac{1}{e\,(1+p)}2^{2+p}\,d\left(1+\frac{e\,x}{d}\right)^{-1-p}(d^2-e^2\,x^2)^{1+p}\,\text{Hypergeometric2F1}\left[-2-p,1+p,2+p,\frac{d-e\,x}{2\,d}\right]$$

Result (type 5, 150 leaves):

$$\frac{1}{3\,e\,(1+p)}(d^2-e^2\,x^2)^p\left(1-\frac{e^2\,x^2}{d^2}\right)^{-p}\left(3\,d\,e^2\,x^2\left(1-\frac{e^2\,x^2}{d^2}\right)^p-\right.$$

$$3\,d^3\left(-1+\left(1-\frac{e^2\,x^2}{d^2}\right)^p\right)+3\,d^2\,e\,(1+p)\,x\,\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},\frac{e^2\,x^2}{d^2}\right]+$$

$$\left.e^3\,(1+p)\,x^3\,\text{Hypergeometric2F1}\left[\frac{3}{2},-p,\frac{5}{2},\frac{e^2\,x^2}{d^2}\right]\right)$$

Problem 263: Result more than twice size of optimal antiderivative.

$$\int (d+e\,x)^3\,\left(d^2-e^2\,x^2\right)^p\,\mathbb{d}x$$

Optimal (type 5, 73 leaves, 2 steps):

$$-\frac{1}{e\,(1+p)}2^{3+p}\,d^2\,\left(1+\frac{e\,x}{d}\right)^{-1-p}\,\left(d^2-e^2\,x^2\right)^{1+p}\,\text{Hypergeometric2F1}\left[-3-p,\,1+p,\,2+p,\,\frac{d-e\,x}{2\,d}\right]$$

Result (type 5, 271 leaves):

$$\frac{1}{2\,e\,(1+p)\,(2+p)}\left(d^2-e^2\,x^2\right)^p\left(1-\frac{e^2\,x^2}{d^2}\right)^{-p}\left(7\,d^4+3\,d^4\,p-7\,d^4\left(1-\frac{e^2\,x^2}{d^2}\right)^p-3\,d^4\,p\left(1-\frac{e^2\,x^2}{d^2}\right)^p+6\,d^2\,e^2\,x^2\left(1-\frac{e^2\,x^2}{d^2}\right)^p+2\,d^2\,e^2\,p\,x^2\left(1-\frac{e^2\,x^2}{d^2}\right)^p+e^4\,x^4\left(1-\frac{e^2\,x^2}{d^2}\right)^p+e^4\,p\,x^4\left(1-\frac{e^2\,x^2}{d^2}\right)^p+2\,d^3\,e\,\left(2+3\,p+p^2\right)\,x\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,-p,\,\frac{3}{2},\,\frac{e^2\,x^2}{d^2}\right]+2\,d\,e^3\,\left(2+3\,p+p^2\right)\,x^3\,\text{Hypergeometric2F1}\left[\frac{3}{2},\,-p,\,\frac{5}{2},\,\frac{e^2\,x^2}{d^2}\right]\right)$$

Problem 267: Result unnecessarily involves higher level functions.

$$\int\frac{x^4\,\left(d^2-e^2\,x^2\right)^p}{d+e\,x}\,\mathbb{d}x$$

Optimal (type 5, 148 leaves, 7 steps):

$$\frac{d^4\,\left(d^2-e^2\,x^2\right)^p}{2\,e^5\,p}-\frac{d^2\,\left(d^2-e^2\,x^2\right)^{1+p}}{e^5\,(1+p)}+\frac{\left(d^2-e^2\,x^2\right)^{2+p}}{2\,e^5\,(2+p)}+\frac{x^5\,\left(d^2-e^2\,x^2\right)^p\,\left(1-\frac{e^2\,x^2}{d^2}\right)^{-p}\,\text{Hypergeometric2F1}\left[\frac{5}{2},\,1-p,\,\frac{7}{2},\,\frac{e^2\,x^2}{d^2}\right]}{5\,d}$$

Result (type 6, 225 leaves):

$$\left(6\,d\,e^5\,(1+p)\,(2+p)\,x^{10}\,(d-e\,x)^p\,(d+e\,x)^{-1+p}\,\text{AppellF1}\left[5,\,-p,\,1-p,\,6,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]\right)\Big/\left(5\left(6\,d^4\,e^2\,p\,x^2\left(1-\frac{e^2\,x^2}{d^2}\right)^p+3\,d^2\,e^4\,p\,(1+p)\,x^4\left(1-\frac{e^2\,x^2}{d^2}\right)^p+6\,d^6\left(-1+\left(1-\frac{e^2\,x^2}{d^2}\right)^p\right)+6\,d\,e^5\,\left(2+3\,p+p^2\right)\,x^5\,\text{AppellF1}\left[5,\,-p,\,1-p,\,6,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]+e^6\,\left(-2-p+2\,p^2+p^3\right)\,x^6\,\text{AppellF1}\left[6,\,-p,\,2-p,\,7,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]\right)\right)$$

Problem 268: Result more than twice size of optimal antiderivative.

$$\int \frac{x^3 \left(d^2 - e^2 x^2\right)^p}{d + e x} \, dx$$

Optimal (type 5, 121 leaves, 7 steps):

$$-\frac{d^3 \left(d^2 - e^2 x^2\right)^p}{2 e^4 p} + \frac{d \left(d^2 - e^2 x^2\right)^{1+p}}{2 e^4 \left(1 + p\right)} -$$

$$\frac{e x^5 \left(d^2 - e^2 x^2\right)^p \left(1 - \frac{e^2 x^2}{d^2}\right)^{-p} \text{Hypergeometric2F1}\left[\frac{5}{2}, 1 - p, \frac{7}{2}, \frac{e^2 x^2}{d^2}\right]}{5 d^2}$$

Result (type 5, 245 leaves):

$$\frac{1}{6 e^4 \left(1 + p\right)} \left(1 + \frac{e x}{d}\right)^{-p} \left(d^2 - e^2 x^2\right)^p \left(1 - \frac{e^2 x^2}{d^2}\right)^{-p}$$

$$\left(6 d^2 e \left(1 + p\right) x \left(1 + \frac{e x}{d}\right)^p \text{Hypergeometric2F1}\left[\frac{1}{2}, -p, \frac{3}{2}, \frac{e^2 x^2}{d^2}\right] +\right.$$

$$2 e^3 \left(1 + p\right) x^3 \left(1 + \frac{e x}{d}\right)^p \text{Hypergeometric2F1}\left[\frac{3}{2}, -p, \frac{5}{2}, \frac{e^2 x^2}{d^2}\right] +$$

$$3 d \left(\left(1 + \frac{e x}{d}\right)^p \left(-e^2 x^2 \left(1 - \frac{e^2 x^2}{d^2}\right)^p + d^2 \left(-1 + \left(1 - \frac{e^2 x^2}{d^2}\right)^p\right)\right) +\right.$$

$$\left.\left. d \left(d - e x\right) \left(2 - \frac{2 e^2 x^2}{d^2}\right)^p \text{Hypergeometric2F1}\left[1 - p, 1 + p, 2 + p, \frac{d - e x}{2 d}\right]\right)\right)$$

Problem 274: Result more than twice size of optimal antiderivative.

$$\int \frac{\left(d^2 - e^2 x^2\right)^p}{x^3 \left(d + e x\right)} \, dx$$

Optimal (type 5, 108 leaves, 6 steps):

$$\frac{e \left(d^2 - e^2 x^2\right)^p \left(1 - \frac{e^2 x^2}{d^2}\right)^{-p} \text{Hypergeometric2F1}\left[-\frac{1}{2}, 1 - p, \frac{1}{2}, \frac{e^2 x^2}{d^2}\right]}{d^2 x} -$$

$$\frac{e^2 \left(d^2 - e^2 x^2\right)^p \text{Hypergeometric2F1}\left[2, p, 1 + p, 1 - \frac{e^2 x^2}{d^2}\right]}{2 d^3 p}$$

Result (type 5, 219 leaves):

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

Problem 275: Result unnecessarily involves higher level functions.

$$\int\frac{x^5\left(d^2-e^2\,x^2\right)^p}{(d+e\,x)^2}\,dx$$

Optimal (type 5, 179 leaves, 8 steps):

$$\frac{d^6\left(d^2-e^2\,x^2\right)^{-1+p}}{e^6\,(1-p)}+\frac{5\,d^4\left(d^2-e^2\,x^2\right)^p}{2\,e^6\,p}-\frac{2\,d^2\left(d^2-e^2\,x^2\right)^{1+p}}{e^6\,(1+p)}+\frac{\left(d^2-e^2\,x^2\right)^{2+p}}{2\,e^6\,(2+p)}-\frac{1}{7\,d^3}2\,e\,x^7\left(d^2-e^2\,x^2\right)^p\left(1-\frac{e^2\,x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[\frac{7}{2},\,2-p,\,\frac{9}{2},\,\frac{e^2\,x^2}{d^2}\right]$$

Result (type 6, 140 leaves):

$$-\left(\left(7\,d\,x^6\left(d-e\,x\right)^p\left(d+e\,x\right)^{-2+p}\text{AppellF1}\left[6,\,-p,\,2-p,\,7,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]\right)\Big/\left(6\left(-7\,d\,\text{AppellF1}\left[6,\,-p,\,2-p,\,7,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]+e\,x\left(p\,\text{AppellF1}\left[7,\,1-p,\,2-p,\,8,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]-(-2+p)\,\text{AppellF1}\left[7,\,-p,\,3-p,\,8,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]\right)\right)\right)\right)$$

Problem 276: Result unnecessarily involves higher level functions.

$$\int\frac{x^4\left(d^2-e^2\,x^2\right)^p}{(d+e\,x)^2}\,dx$$

Optimal (type 5, 184 leaves, 9 steps):

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

Result (type 6, 140 leaves):

$$-\left(\left(6\,d\,x^5\,(d-e\,x)^p\,(d+e\,x)^{-2+p}\,\text{AppellF1}\left[5,\,-p,\,2-p,\,6,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]\right)\Big/\right.$$
$$\left(5\left(-6\,d\,\text{AppellF1}\left[5,\,-p,\,2-p,\,6,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]+e\,x\left(p\,\text{AppellF1}\left[6,\,1-p,\,2-p,\,7,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]-\right.\right.\right.$$
$$\left.\left.\left.\left.(-2+p)\,\text{AppellF1}\left[6,\,-p,\,3-p,\,7,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]\right)\right)\right)\right)$$

Problem 277: Result more than twice size of optimal antiderivative.

$$\int\frac{x^3\,(d^2-e^2\,x^2)^p}{(d+e\,x)^2}\,dx$$

Optimal (type 5, 150 leaves, 8 steps):

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

Result (type 5, 332 leaves):

$$\frac{1}{e^4\,(1+p)}\,2^{-2+p}\left(1+\frac{e\,x}{d}\right)^{-p}(d^2-e^2\,x^2)^p\left(1-\frac{e^2\,x^2}{d^2}\right)^{-p}$$
$$\left(2\,d^2\left(\frac{1}{2}+\frac{e\,x}{2\,d}\right)^p-2\,d^2\left(\frac{1}{2}+\frac{e\,x}{2\,d}\right)^p\left(1-\frac{e^2\,x^2}{d^2}\right)^p+2\,e^2\,x^2\left(\frac{1}{2}+\frac{e\,x}{2\,d}\right)^p\left(1-\frac{e^2\,x^2}{d^2}\right)^p-\right.$$
$$8\,d\,e\,(1+p)\,x\left(\frac{1}{2}+\frac{e\,x}{2\,d}\right)^p\text{Hypergeometric2F1}\left[\frac{1}{2},\,-p,\,\frac{3}{2},\,\frac{e^2\,x^2}{d^2}\right]-$$
$$6\,d\,(d-e\,x)\left(1-\frac{e^2\,x^2}{d^2}\right)^p\text{Hypergeometric2F1}\left[1-p,\,1+p,\,2+p,\,\frac{d-e\,x}{2\,d}\right]+$$
$$d^2\left(1-\frac{e^2\,x^2}{d^2}\right)^p\text{Hypergeometric2F1}\left[2-p,\,1+p,\,2+p,\,\frac{d-e\,x}{2\,d}\right]-$$
$$\left.d\,e\,x\left(1-\frac{e^2\,x^2}{d^2}\right)^p\text{Hypergeometric2F1}\left[2-p,\,1+p,\,2+p,\,\frac{d-e\,x}{2\,d}\right]\right)$$

Problem 282: Result unnecessarily involves higher level functions.

$$\int\frac{(d^2-e^2\,x^2)^p}{x^2\,(d+e\,x)^2}\,dx$$

Optimal (type 5, 137 leaves, 7 steps):

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

Result (type 6, 195 leaves):

$$\left(2 e (-2+p) (d-e x)^p (d+e x)^{-2+p} \text{AppellF1}\left[3-2 p, -p, 2-p, 4-2 p, \frac{d}{e x}, -\frac{d}{e x}\right]\right) \Big/$$
$$\left((-3+2 p) \left(2 e (-2+p) x \text{AppellF1}\left[3-2 p, -p, 2-p, 4-2 p, \frac{d}{e x}, -\frac{d}{e x}\right]+\right.\right.$$
$$d p \text{AppellF1}\left[4-2 p, 1-p, 2-p, 5-2 p, \frac{d}{e x}, -\frac{d}{e x}\right]-$$
$$\left.\left.d (-2+p) \text{AppellF1}\left[4-2 p, -p, 3-p, 5-2 p, \frac{d}{e x}, -\frac{d}{e x}\right]\right)\right)$$

Problem 284: Result more than twice size of optimal antiderivative.

$$\int \frac{\left(d^2-e^2 x^2\right)^p}{x^4 (d+e x)^2} \mathbb{d}x$$

Optimal (type 5, 145 leaves, 7 steps):

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

Result (type 5, 334 leaves):

$$\frac{1}{12\,d^6}\left(d^2-e^2\,x^2\right)^p\left(-\frac{4\,d^4\left(1-\frac{e^2\,x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{3}{2},\,-p,\,-\frac{1}{2},\,\frac{e^2\,x^2}{d^2}\right]}{x^3}-\right.$$

$$\frac{36\,d^2\,e^2\left(1-\frac{e^2\,x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{1}{2},\,-p,\,\frac{1}{2},\,\frac{e^2\,x^2}{d^2}\right]}{x}-$$

$$\frac{12\,d^3\,e\left(1-\frac{d^2}{e^2\,x^2}\right)^{-p}\text{Hypergeometric2F1}\left[1-p,\,-p,\,2-p,\,\frac{d^2}{e^2\,x^2}\right]}{\left(-1+p\right)x^2}+\frac{1}{1+p}$$

$$3\times 2^{3+p}\,e^3\left(-d+e\,x\right)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[1-p,\,1+p,\,2+p,\,\frac{d-e\,x}{2\,d}\right]+$$

$$\frac{1}{1+p}3\times 2^p\,e^3\left(-d+e\,x\right)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[2-p,\,1+p,\,2+p,\,\frac{d-e\,x}{2\,d}\right]-$$

$$\left.\frac{24\,d\,e^3\left(1-\frac{d^2}{e^2\,x^2}\right)^{-p}\text{Hypergeometric2F1}\left[-p,\,-p,\,1-p,\,\frac{d^2}{e^2\,x^2}\right]}{p}\right)$$

Problem 285: Result more than twice size of optimal antiderivative.

$$\int\frac{\left(d^2-e^2\,x^2\right)^p}{x^5\left(d+e\,x\right)^2}\,\text{d}x$$

Optimal (type 5, 145 leaves, 7 steps):

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

$$\frac{e^4\,(5-p)\left(d^2-e^2\,x^2\right)^{-1+p}\text{Hypergeometric2F1}\left[2,\,-1+p,\,p,\,1-\frac{e^2\,x^2}{d^2}\right]}{4\,d^4\left(1-p\right)}$$

Result (type 5, 389 leaves):

$$\frac{1}{12\,d^7}\left(d^2-e^2x^2\right)^p\left(\frac{8\,d^4\,e\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{3}{2},-p,-\frac{1}{2},\frac{e^2x^2}{d^2}\right]}{x^3}+\right.$$

$$\frac{48\,d^2\,e^3\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},\frac{e^2x^2}{d^2}\right]}{x}+$$

$$\frac{18\,d^3\,e^2\left(1-\frac{d^2}{e^2x^2}\right)^{-p}\text{Hypergeometric2F1}\left[1-p,-p,2-p,\frac{d^2}{e^2x^2}\right]}{(-1+p)\,x^2}+\frac{1}{1+p}$$

$$15\times 2^{1+p}\,e^4\,(d-e\,x)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[1-p,1+p,2+p,\frac{d-e\,x}{2\,d}\right]+$$

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

$$3\times 2^p\,e^4\,(d-e\,x)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[2-p,1+p,2+p,\frac{d-e\,x}{2\,d}\right]+$$

$$\left.\frac{30\,d\,e^4\left(1-\frac{d^2}{e^2x^2}\right)^{-p}\text{Hypergeometric2F1}\left[-p,-p,1-p,\frac{d^2}{e^2x^2}\right]}{p}\right)$$

Problem 286: Result unnecessarily involves higher level functions.

$$\int\frac{x^4\left(d^2-e^2x^2\right)^p}{(d+e\,x)^3}\,dx$$

Optimal (type 5, 220 leaves, 8 steps):

$$-\frac{2\,d^6\left(d^2-e^2x^2\right)^{-2+p}}{e^5\,(2-p)}-\frac{3\,d\,x^5\left(d^2-e^2x^2\right)^{-2+p}}{1+2\,p}+$$

$$\frac{9\,d^4\left(d^2-e^2x^2\right)^{-1+p}}{2\,e^5\,(1-p)}+\frac{3\,d^2\left(d^2-e^2x^2\right)^p}{e^5\,p}-\frac{\left(d^2-e^2x^2\right)^{1+p}}{2\,e^5\,(1+p)}+\frac{1}{5\,d^3\,(1+2\,p)}$$

$$2\,(8+p)\,x^5\left(d^2-e^2x^2\right)^p\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[\frac{5}{2},3-p,\frac{7}{2},\frac{e^2x^2}{d^2}\right]$$

Result (type 6, 140 leaves):

$$-\left(\left(6\,d\,x^5\,(d-e\,x)^p\,(d+e\,x)^{-3+p}\,\text{AppellF1}\left[5,-p,3-p,6,\frac{e\,x}{d},-\frac{e\,x}{d}\right]\right)\Big/\right.$$

$$\left(5\left(-6\,d\,\text{AppellF1}\left[5,-p,3-p,6,\frac{e\,x}{d},-\frac{e\,x}{d}\right]+e\,x\left(p\,\text{AppellF1}\left[6,1-p,3-p,7,\frac{e\,x}{d},-\frac{e\,x}{d}\right]-\right.\right.\right.$$

$$\left.\left.\left.(-3+p)\,\text{AppellF1}\left[6,-p,4-p,7,\frac{e\,x}{d},-\frac{e\,x}{d}\right]\right)\right)\right)\Big)$$

Problem 287: Result unnecessarily involves higher level functions.

$$\int\frac{x^3\left(d^2-e^2x^2\right)^p}{(d+e\,x)^3}\,dx$$

Optimal (type 5, 194 leaves, 8 steps):

$$\frac{2\,d^5\,\left(d^2-e^2\,x^2\right)^{-2+p}}{e^4\,\left(2-p\right)}+\frac{e\,x^5\,\left(d^2-e^2\,x^2\right)^{-2+p}}{1+2\,p}-\frac{7\,d^3\,\left(d^2-e^2\,x^2\right)^{-1+p}}{2\,e^4\,\left(1-p\right)}-\frac{3\,d\,\left(d^2-e^2\,x^2\right)^{p}}{2\,e^4\,p}-\frac{1}{5\,d^4\,\left(1+2\,p\right)}$$

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

Result (type 6, 140 leaves):

$$-\left(\left(5\,d\,x^4\,\left(d-e\,x\right)^{p}\,\left(d+e\,x\right)^{-3+p}\,\text{AppellF1}\left[4,\,-p,\,3-p,\,5,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]\right)\Big/\left(4\,\left(-5\,d\,\text{AppellF1}\left[4,\,-p,\,3-p,\,5,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]+e\,x\,\left(p\,\text{AppellF1}\left[5,\,1-p,\,3-p,\,6,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]-\left(-3+p\right)\,\text{AppellF1}\left[5,\,-p,\,4-p,\,6,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]\right)\right)\right)\right)$$

Problem 291: Result unnecessarily involves higher level functions.

$$\int\frac{\left(d^2-e^2\,x^2\right)^{p}}{x\,\left(d+e\,x\right)^3}\,\mathbb{d}x$$

Optimal (type 5, 175 leaves, 8 steps):

$$\frac{2\,d\,\left(d^2-e^2\,x^2\right)^{-2+p}}{2-p}-\frac{e\,x\,\left(d^2-e^2\,x^2\right)^{-2+p}}{3-2\,p}-\frac{1}{d^4\,\left(3-2\,p\right)}$$

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

Result (type 6, 196 leaves):

$$\left(2\,e\,\left(-2+p\right)\,x\,\left(d-e\,x\right)^{p}\,\left(d+e\,x\right)^{-3+p}\,\text{AppellF1}\left[3-2\,p,\,-p,\,3-p,\,4-2\,p,\,\frac{d}{e\,x},\,-\frac{d}{e\,x}\right]\right)\Big/\left(\left(-3+2\,p\right)\,\left(2\,e\,\left(-2+p\right)\,x\,\text{AppellF1}\left[3-2\,p,\,-p,\,3-p,\,4-2\,p,\,\frac{d}{e\,x},\,-\frac{d}{e\,x}\right]+d\,p\,\text{AppellF1}\left[4-2\,p,\,1-p,\,3-p,\,5-2\,p,\,\frac{d}{e\,x},\,-\frac{d}{e\,x}\right]-d\,\left(-3+p\right)\,\text{AppellF1}\left[4-2\,p,\,-p,\,4-p,\,5-2\,p,\,\frac{d}{e\,x},\,-\frac{d}{e\,x}\right]\right)\right)$$

Problem 292: Result unnecessarily involves higher level functions.

$$\int\frac{\left(d^2-e^2\,x^2\right)^{p}}{x^2\,\left(d+e\,x\right)^3}\,\mathbb{d}x$$

Optimal (type 5, 166 leaves, 9 steps):

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

Result (type 6, 198 leaves):

$$\left(e\,(-5+2\,p)\,(d-e\,x)^p\,(d+e\,x)^{-3+p}\,\text{AppellF1}\left[4-2\,p,\,-p,\,3-p,\,5-2\,p,\,\frac{d}{e\,x},\,-\frac{d}{e\,x}\right]\right)\Big/$$
$$\left(2\,(-2+p)\,\left(e\,(-5+2\,p)\,x\,\text{AppellF1}\left[4-2\,p,\,-p,\,3-p,\,5-2\,p,\,\frac{d}{e\,x},\,-\frac{d}{e\,x}\right]+\right.\right.$$
$$d\,p\,\text{AppellF1}\left[5-2\,p,\,1-p,\,3-p,\,6-2\,p,\,\frac{d}{e\,x},\,-\frac{d}{e\,x}\right]-$$
$$\left.\left.d\,(-3+p)\,\text{AppellF1}\left[5-2\,p,\,-p,\,4-p,\,6-2\,p,\,\frac{d}{e\,x},\,-\frac{d}{e\,x}\right]\right)\right)$$

Problem 294: Result more than twice size of optimal antiderivative.

$$\int\frac{\left(d^2-e^2\,x^2\right)^p}{x^4\,(d+e\,x)^3}\,\mathbb{d}x$$

Optimal (type 5, 179 leaves, 8 steps):

$$-\frac{d\,\left(d^2-e^2\,x^2\right)^{-2+p}}{3\,x^3}+\frac{3\,e\,\left(d^2-e^2\,x^2\right)^{-2+p}}{2\,x^2}-\frac{1}{3\,d^5\,x}$$
$$2\,e^2\,(8-p)\,\left(d^2-e^2\,x^2\right)^p\left(1-\frac{e^2\,x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{1}{2},\,3-p,\,\frac{1}{2},\,\frac{e^2\,x^2}{d^2}\right]-$$
$$\frac{1}{2\,d^2\,(2-p)}e^3\,(10-3\,p)\,\left(d^2-e^2\,x^2\right)^{-2+p}\,\text{Hypergeometric2F1}\left[1,\,-2+p,\,-1+p,\,1-\frac{e^2\,x^2}{d^2}\right]$$

Result (type 5, 393 leaves):

$$\frac{1}{24\,d^7}\left(d^2-e^2x^2\right)^p\left(-\frac{8\,d^4\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{3}{2},-p,-\frac{1}{2},\frac{e^2x^2}{d^2}\right]}{x^3}-\right.$$

$$\frac{144\,d^2e^2\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},\frac{e^2x^2}{d^2}\right]}{x}-$$

$$\frac{36\,d^3e\left(1-\frac{d^2}{e^2x^2}\right)^{-p}\text{Hypergeometric2F1}\left[1-p,-p,2-p,\frac{d^2}{e^2x^2}\right]}{(-1+p)\,x^2}+\frac{1}{1+p}$$

$$15\times2^{3+p}e^3\left(-d+e\,x\right)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[1-p,1+p,2+p,\frac{d-e\,x}{2\,d}\right]+$$

$$\frac{1}{1+p}3\times2^{3+p}e^3\left(-d+e\,x\right)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[2-p,1+p,2+p,\frac{d-e\,x}{2\,d}\right]+$$

$$\frac{1}{1+p}3\times2^{p}e^3\left(-d+e\,x\right)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[3-p,1+p,2+p,\frac{d-e\,x}{2\,d}\right]-$$

$$\left.\frac{120\,d\,e^3\left(1-\frac{d^2}{e^2x^2}\right)^{-p}\text{Hypergeometric2F1}\left[-p,-p,1-p,\frac{d^2}{e^2x^2}\right]}{p}\right)$$

Problem 295: Result more than twice size of optimal antiderivative.

$$\int\frac{\left(d^2-e^2x^2\right)^p}{x^5\left(d+e\,x\right)^3}\,dx$$

Optimal (type 5, 174 leaves, 8 steps):

$$-\frac{d\left(d^2-e^2x^2\right)^{-2+p}}{4\,x^4}+\frac{e\left(d^2-e^2x^2\right)^{-2+p}}{x^3}+\frac{1}{d^6\,x}$$

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

$$\frac{1}{4\,d^3\,(2-p)}e^4\,(10-p)\left(d^2-e^2x^2\right)^{-2+p}\text{Hypergeometric2F1}\left[2,-2+p,-1+p,1-\frac{e^2x^2}{d^2}\right]$$

Result (type 5, 446 leaves):

$$\frac{1}{8\,d^8}\left(d^2-e^2x^2\right)^p\left(\frac{8\,d^4\,e\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{3}{2},-p,-\frac{1}{2},\frac{e^2x^2}{d^2}\right]}{x^3}+\right.$$

$$\frac{80\,d^2\,e^3\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},\frac{e^2x^2}{d^2}\right]}{x}+$$

$$\frac{24\,d^3\,e^2\left(1-\frac{d^2}{e^2x^2}\right)^{-p}\text{Hypergeometric2F1}\left[1-p,-p,2-p,\frac{d^2}{e^2x^2}\right]}{(-1+p)\,x^2}+\frac{1}{1+p}$$

$$15\times 2^{2+p}\,e^4\,(d-e\,x)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[1-p,1+p,2+p,\frac{d-e\,x}{2\,d}\right]+$$

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

$$5\times 2^{1+p}\,e^4\,(d-e\,x)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[2-p,1+p,2+p,\frac{d-e\,x}{2\,d}\right]+$$

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

$$\left.\frac{60\,d\,e^4\left(1-\frac{d^2}{e^2x^2}\right)^{-p}\text{Hypergeometric2F1}\left[-p,-p,1-p,\frac{d^2}{e^2x^2}\right]}{p}\right)$$

Problem 296: Result unnecessarily involves higher level functions.

$$\int\frac{x^4\left(d^2-e^2x^2\right)^p}{(d+e\,x)^4}\,dx$$

Optimal (type 5, 265 leaves, 9 steps):

$$-\frac{4\,d^7\left(d^2-e^2x^2\right)^{-3+p}}{e^5\,(3-p)}+\frac{d^2\,(13+12\,p)\,x^5\left(d^2-e^2x^2\right)^{-3+p}}{1-4\,p^2}-\frac{e^2x^7\left(d^2-e^2x^2\right)^{-3+p}}{1+2\,p}+$$

$$\frac{10\,d^5\left(d^2-e^2x^2\right)^{-2+p}}{e^5\,(2-p)}-\frac{8\,d^3\left(d^2-e^2x^2\right)^{-1+p}}{e^5\,(1-p)}-\frac{2\,d\left(d^2-e^2x^2\right)^p}{e^5\,p}-\frac{1}{5\,d^4\left(1-4\,p^2\right)}$$

$$4\left(16+15\,p+p^2\right)x^5\left(d^2-e^2x^2\right)^p\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[\frac{5}{2},4-p,\frac{7}{2},\frac{e^2x^2}{d^2}\right]$$

Result (type 6, 140 leaves):

$$-\left(\left(6\,d\,x^5\,(d-e\,x)^p\,(d+e\,x)^{-4+p}\,\text{AppellF1}\left[5,-p,4-p,6,\frac{e\,x}{d},-\frac{e\,x}{d}\right]\right)\Big/\right.$$

$$\left(5\left(-6\,d\,\text{AppellF1}\left[5,-p,4-p,6,\frac{e\,x}{d},-\frac{e\,x}{d}\right]+e\,x\left(p\,\text{AppellF1}\left[6,1-p,4-p,7,\frac{e\,x}{d},-\frac{e\,x}{d}\right]-\right.\right.\right.$$

$$\left.\left.\left.(-4+p)\,\text{AppellF1}\left[6,-p,5-p,7,\frac{e\,x}{d},-\frac{e\,x}{d}\right]\right)\right)\right)\Big)$$

Problem 297: Result unnecessarily involves higher level functions.

$$\int \frac{x^3 \left(d^2 - e^2 x^2\right)^p}{\left(d + e x\right)^4} \, dx$$

Optimal (type 5, 211 leaves, 5 steps):

$$\frac{d^2 \left(d^2 - e^2 x^2\right)^{1+p}}{2 e^4 \left(3 - p\right) \left(d + e x\right)^4} - \frac{d \left(1 + 2 p\right) \left(d^2 - e^2 x^2\right)^{1+p}}{e^4 \left(1 - 2 p\right) p \left(d + e x\right)^3} - \frac{\left(d^2 - e^2 x^2\right)^{1+p}}{2 e^4 p \left(d + e x\right)^2} +$$
$$\left(3 \times 2^{-2+p} \left(2 + p\right) \left(1 + \frac{e x}{d}\right)^{-1-p} \left(d^2 - e^2 x^2\right)^{1+p} \text{Hypergeometric2F1}\left[3 - p, 1 + p, 2 + p, \frac{d - e x}{2 d}\right]\right) \Big/$$
$$\left(d^2 e^4 \left(1 - 2 p\right) \left(3 - p\right) p \left(1 + p\right)\right)$$

Result (type 6, 140 leaves):

$$-\left(\left(5 d x^4 \left(d - e x\right)^p \left(d + e x\right)^{-4+p} \text{AppellF1}\left[4, -p, 4 - p, 5, \frac{e x}{d}, -\frac{e x}{d}\right]\right) \Big/ \right.$$
$$\left(4 \left(-5 d \, \text{AppellF1}\left[4, -p, 4 - p, 5, \frac{e x}{d}, -\frac{e x}{d}\right] + e x \left(p \, \text{AppellF1}\left[5, 1 - p, 4 - p, 6, \frac{e x}{d}, -\frac{e x}{d}\right] - \right.\right.\right.$$
$$\left.\left.\left.\left.(-4 + p) \, \text{AppellF1}\left[5, -p, 5 - p, 6, \frac{e x}{d}, -\frac{e x}{d}\right]\right)\right)\right)\right)$$

Problem 301: Result unnecessarily involves higher level functions.

$$\int \frac{\left(d^2 - e^2 x^2\right)^p}{x \left(d + e x\right)^4} \, dx$$

Optimal (type 5, 204 leaves, 9 steps):

$$\frac{4 d^2 \left(d^2 - e^2 x^2\right)^{-3+p}}{3 - p} - \frac{4 d e x \left(d^2 - e^2 x^2\right)^{-3+p}}{5 - 2 p} - \frac{\left(d^2 - e^2 x^2\right)^{-2+p}}{2 \left(2 - p\right)} - \frac{1}{d^5 \left(5 - 2 p\right)}$$
$$8 e \left(2 - p\right) x \left(d^2 - e^2 x^2\right)^p \left(1 - \frac{e^2 x^2}{d^2}\right)^{-p} \text{Hypergeometric2F1}\left[\frac{1}{2}, 4 - p, \frac{3}{2}, \frac{e^2 x^2}{d^2}\right] +$$
$$\frac{\left(d^2 - e^2 x^2\right)^{-2+p} \text{Hypergeometric2F1}\left[1, -2 + p, -1 + p, 1 - \frac{e^2 x^2}{d^2}\right]}{2 \left(2 - p\right)}$$

Result (type 6, 199 leaves):

$$\left(e \left(-5 + 2 p\right) x \left(d - e x\right)^p \left(d + e x\right)^{-4+p} \text{AppellF1}\left[4 - 2 p, -p, 4 - p, 5 - 2 p, \frac{d}{e x}, -\frac{d}{e x}\right]\right) \Big/$$
$$\left(2 \left(-2 + p\right) \left(e \left(-5 + 2 p\right) x \, \text{AppellF1}\left[4 - 2 p, -p, 4 - p, 5 - 2 p, \frac{d}{e x}, -\frac{d}{e x}\right] + \right.\right.$$
$$d p \, \text{AppellF1}\left[5 - 2 p, 1 - p, 4 - p, 6 - 2 p, \frac{d}{e x}, -\frac{d}{e x}\right] -$$
$$\left.\left.d \left(-4 + p\right) \text{AppellF1}\left[5 - 2 p, -p, 5 - p, 6 - 2 p, \frac{d}{e x}, -\frac{d}{e x}\right]\right)\right)$$

Problem 302: Result unnecessarily involves higher level functions.

$$\int \frac{\left(d^2-e^2 x^2\right)^p}{x^2 \left(d+e x\right)^4} \, dx$$

Optimal (type 5, 207 leaves, 9 steps):

$$-\frac{4 d e \left(d^2-e^2 x^2\right)^{-3+p}}{3-p}-\frac{d^2 \left(d^2-e^2 x^2\right)^{-3+p}}{x}+\frac{e^2 x \left(d^2-e^2 x^2\right)^{-3+p}}{5-2 p}+\frac{1}{d^6 \left(5-2 p\right)}$$

$$4 e^2 \left(16-9 p+p^2\right) x \left(d^2-e^2 x^2\right)^p \left(1-\frac{e^2 x^2}{d^2}\right)^{-p} \text{Hypergeometric2F1}\left[\frac{1}{2}, 4-p, \frac{3}{2}, \frac{e^2 x^2}{d^2}\right]-$$

$$\frac{2 e \left(d^2-e^2 x^2\right)^{-2+p} \text{Hypergeometric2F1}\left[1, -2+p, -1+p, 1-\frac{e^2 x^2}{d^2}\right]}{d \left(2-p\right)}$$

Result (type 6, 195 leaves):

$$\left(2 e \left(-3+p\right) \left(d-e x\right)^p \left(d+e x\right)^{-4+p} \text{AppellF1}\left[5-2 p, -p, 4-p, 6-2 p, \frac{d}{e x}, -\frac{d}{e x}\right]\right) \Big/$$

$$\left(\left(-5+2 p\right) \left(2 e \left(-3+p\right) x \, \text{AppellF1}\left[5-2 p, -p, 4-p, 6-2 p, \frac{d}{e x}, -\frac{d}{e x}\right]+\right.\right.$$

$$d p \, \text{AppellF1}\left[6-2 p, 1-p, 4-p, 7-2 p, \frac{d}{e x}, -\frac{d}{e x}\right]-$$

$$\left.\left.d \left(-4+p\right) \text{AppellF1}\left[6-2 p, -p, 5-p, 7-2 p, \frac{d}{e x}, -\frac{d}{e x}\right]\right)\right)$$

Problem 304: Result more than twice size of optimal antiderivative.

$$\int \frac{\left(d^2-e^2 x^2\right)^p}{x^4 \left(d+e x\right)^4} \, dx$$

Optimal (type 5, 210 leaves, 9 steps):

$$-\frac{d^2 \left(d^2-e^2 x^2\right)^{-3+p}}{3 x^3}+\frac{2 d e \left(d^2-e^2 x^2\right)^{-3+p}}{x^2}-\frac{e^2 \left(27-2 p\right) \left(d^2-e^2 x^2\right)^{-3+p}}{3 x}+\frac{1}{3 d^8}$$

$$4 e^4 \left(48-17 p+p^2\right) x \left(d^2-e^2 x^2\right)^p \left(1-\frac{e^2 x^2}{d^2}\right)^{-p} \text{Hypergeometric2F1}\left[\frac{1}{2}, 4-p, \frac{3}{2}, \frac{e^2 x^2}{d^2}\right]-$$

$$\frac{1}{d \left(3-p\right)} 2 e^3 \left(5-p\right) \left(d^2-e^2 x^2\right)^{-3+p} \text{Hypergeometric2F1}\left[1, -3+p, -2+p, 1-\frac{e^2 x^2}{d^2}\right]$$

Result (type 5, 452 leaves):

$$\frac{1}{48\,d^8}\left(d^2-e^2x^2\right)^p\left(-\frac{16\,d^4\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{3}{2},-p,-\frac{1}{2},\frac{e^2x^2}{d^2}\right]}{x^3}-\right.$$

$$\frac{480\,d^2e^2\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},\frac{e^2x^2}{d^2}\right]}{x}-$$

$$\frac{96\,d^3e\left(1-\frac{d^2}{e^2x^2}\right)^{-p}\text{Hypergeometric2F1}\left[1-p,-p,2-p,\frac{d^2}{e^2x^2}\right]}{(-1+p)\,x^2}+\frac{1}{1+p}$$

$$15\times2^{5+p}e^3\left(-d+ex\right)\left(1+\frac{ex}{d}\right)^{-p}\text{Hypergeometric2F1}\left[1-p,1+p,2+p,\frac{d-ex}{2d}\right]+$$

$$\frac{1}{1+p}15\times2^{3+p}e^3\left(-d+ex\right)\left(1+\frac{ex}{d}\right)^{-p}\text{Hypergeometric2F1}\left[2-p,1+p,2+p,\frac{d-ex}{2d}\right]+$$

$$\frac{1}{1+p}3\times2^{3+p}e^3\left(-d+ex\right)\left(1+\frac{ex}{d}\right)^{-p}\text{Hypergeometric2F1}\left[3-p,1+p,2+p,\frac{d-ex}{2d}\right]+$$

$$\frac{1}{1+p}3\times2^{p}e^3\left(-d+ex\right)\left(1+\frac{ex}{d}\right)^{-p}\text{Hypergeometric2F1}\left[4-p,1+p,2+p,\frac{d-ex}{2d}\right]-$$

$$\left.\frac{480\,de^3\left(1-\frac{d^2}{e^2x^2}\right)^{-p}\text{Hypergeometric2F1}\left[-p,-p,1-p,\frac{d^2}{e^2x^2}\right]}{p}\right)$$

Problem 305: Result more than twice size of optimal antiderivative.

$$\int\frac{\left(d^2-e^2x^2\right)^p}{x^5\left(d+ex\right)^4}\,dx$$

Optimal (type 5, 216 leaves, 9 steps):

$$-\frac{d^2\left(d^2-e^2x^2\right)^{-3+p}}{4x^4}+\frac{4de\left(d^2-e^2x^2\right)^{-3+p}}{3x^3}-\frac{e^2\left(17-p\right)\left(d^2-e^2x^2\right)^{-3+p}}{4x^2}+\frac{1}{3d^7x}$$

$$8e^3\left(6-p\right)\left(d^2-e^2x^2\right)^p\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{1}{2},4-p,\frac{1}{2},\frac{e^2x^2}{d^2}\right]+\frac{1}{4d^2\left(3-p\right)}$$

$$e^4\left(70-21p+p^2\right)\left(d^2-e^2x^2\right)^{-3+p}\text{Hypergeometric2F1}\left[1,-3+p,-2+p,1-\frac{e^2x^2}{d^2}\right]$$

Result (type 5, 505 leaves):

$$\frac{1}{48\,d^9}\left(d^2-e^2x^2\right)^p\left(\frac{64\,d^4\,e\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{3}{2},-p,-\frac{1}{2},\frac{e^2x^2}{d^2}\right]}{x^3}+\right.$$

$$\frac{960\,d^2\,e^3\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},\frac{e^2x^2}{d^2}\right]}{x}+$$

$$\frac{240\,d^3\,e^2\left(1-\frac{d^2}{e^2x^2}\right)^{-p}\text{Hypergeometric2F1}\left[1-p,-p,2-p,\frac{d^2}{e^2x^2}\right]}{(-1+p)\,x^2}+\frac{1}{1+p}$$

$$105\times 2^{3+p}\,e^4\,(d-e\,x)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[1-p,1+p,2+p,\frac{d-e\,x}{2\,d}\right]+$$

$$\frac{24\,d^5\left(1-\frac{d^2}{e^2x^2}\right)^{-p}\text{Hypergeometric2F1}\left[2-p,-p,3-p,\frac{d^2}{e^2x^2}\right]}{(-2+p)\,x^4}+\frac{1}{1+p}$$

$$45\times 2^{2+p}\,e^4\,(d-e\,x)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[2-p,1+p,2+p,\frac{d-e\,x}{2\,d}\right]+$$

$$\frac{1}{1+p}15\times 2^{1+p}\,e^4\,(d-e\,x)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[3-p,1+p,2+p,\frac{d-e\,x}{2\,d}\right]+$$

$$\frac{1}{1+p}3\times 2^{p}\,e^4\,(d-e\,x)\left(1+\frac{e\,x}{d}\right)^{-p}\text{Hypergeometric2F1}\left[4-p,1+p,2+p,\frac{d-e\,x}{2\,d}\right]+$$

$$\left.\frac{840\,d\,e^4\left(1-\frac{d^2}{e^2x^2}\right)^{-p}\text{Hypergeometric2F1}\left[-p,-p,1-p,\frac{d^2}{e^2x^2}\right]}{p}\right)$$

Problem 310: Result unnecessarily involves higher level functions.

$$\int\frac{(g\,x)^m\left(d^2-e^2x^2\right)^p}{d+e\,x}\,dx$$

Optimal (type 5, 163 leaves, 8 steps):

$$\frac{1}{d\,g\,(1+m)}(g\,x)^{1+m}\left(d^2-e^2x^2\right)^p\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[\frac{1+m}{2},1-p,\frac{3+m}{2},\frac{e^2x^2}{d^2}\right]-$$

$$\frac{1}{d^2\,g^2\,(2+m)}e\,(g\,x)^{2+m}\left(d^2-e^2x^2\right)^p\left(1-\frac{e^2x^2}{d^2}\right)^{-p}\text{Hypergeometric2F1}\left[\frac{2+m}{2},1-p,\frac{4+m}{2},\frac{e^2x^2}{d^2}\right]$$

Result (type 6, 168 leaves):

$$\left(d\,(2+m)\,x\,(g\,x)^m\left(d-e\,x\right)^p\left(d+e\,x\right)^{-1+p}\text{AppellF1}\left[1+m,-p,1-p,2+m,\frac{e\,x}{d},-\frac{e\,x}{d}\right]\right)\Big/$$

$$\left((1+m)\left(d\,(2+m)\,\text{AppellF1}\left[1+m,-p,1-p,2+m,\frac{e\,x}{d},-\frac{e\,x}{d}\right]+\right.\right.$$

$$e\,x\left(\left(-1+p\right)\text{AppellF1}\left[2+m,-p,2-p,3+m,\frac{e\,x}{d},-\frac{e\,x}{d}\right]-\right.$$

$$\left.\left.\left.p\,\text{HypergeometricPFQ}\left[\left\{1+\frac{m}{2},1-p\right\},\left\{2+\frac{m}{2}\right\},\frac{e^2x^2}{d^2}\right]\right)\right)\right)$$

Problem 311: Result unnecessarily involves higher level functions.

$$\int \frac{(g\,x)^m \left(d^2 - e^2\,x^2\right)^p}{(d + e\,x)^2}\,dx$$

Optimal (type 5, 214 leaves, 7 steps):

$$\frac{(g\,x)^{1+m}\left(d^2 - e^2\,x^2\right)^{-1+p}}{g\,(1 - m - 2\,p)} -$$

$$\left(2\,(m+p)\,(g\,x)^{1+m}\left(d^2 - e^2\,x^2\right)^p \left(1 - \frac{e^2\,x^2}{d^2}\right)^{-p} \text{Hypergeometric2F1}\left[\frac{1+m}{2}, 2-p, \frac{3+m}{2}, \frac{e^2\,x^2}{d^2}\right]\right) \Big/$$

$$\left(d^2\,g\,(1+m)\,(1-m-2\,p)\right) - \frac{1}{d^3\,g^2\,(2+m)}$$

$$2\,e\,(g\,x)^{2+m}\left(d^2 - e^2\,x^2\right)^p \left(1 - \frac{e^2\,x^2}{d^2}\right)^{-p} \text{Hypergeometric2F1}\left[\frac{2+m}{2}, 2-p, \frac{4+m}{2}, \frac{e^2\,x^2}{d^2}\right]$$

Result (type 6, 166 leaves):

$$\left(d\,(2+m)\,x\,(g\,x)^m\,(d - e\,x)^p\,(d + e\,x)^{-2+p}\,\text{AppellF1}\left[1+m, -p, 2-p, 2+m, \frac{e\,x}{d}, -\frac{e\,x}{d}\right]\right) \Big/$$

$$\left((1+m)\left(d\,(2+m)\,\text{AppellF1}\left[1+m, -p, 2-p, 2+m, \frac{e\,x}{d}, -\frac{e\,x}{d}\right] + \right.\right.$$

$$e\,x\left(-p\,\text{AppellF1}\left[2+m, 1-p, 2-p, 3+m, \frac{e\,x}{d}, -\frac{e\,x}{d}\right] + \right.$$

$$\left.\left.\left.(-2+p)\,\text{AppellF1}\left[2+m, -p, 3-p, 3+m, \frac{e\,x}{d}, -\frac{e\,x}{d}\right]\right)\right)\right)$$

Problem 312: Result unnecessarily involves higher level functions.

$$\int \frac{(g\,x)^m \left(d^2 - e^2\,x^2\right)^p}{(d + e\,x)^3}\,dx$$

Optimal (type 5, 275 leaves, 8 steps):

$$\frac{3\,d\,(g\,x)^{1+m}\left(d^2 - e^2\,x^2\right)^{-2+p}}{g\,(3 - m - 2\,p)} - \frac{e\,(g\,x)^{2+m}\left(d^2 - e^2\,x^2\right)^{-2+p}}{g^2\,(2 - m - 2\,p)} -$$

$$\left(2\,(2\,m+p)\,(g\,x)^{1+m}\left(d^2 - e^2\,x^2\right)^p \left(1 - \frac{e^2\,x^2}{d^2}\right)^{-p} \text{Hypergeometric2F1}\left[\frac{1+m}{2}, 3-p, \frac{3+m}{2}, \frac{e^2\,x^2}{d^2}\right]\right) \Big/$$

$$\left(d^3\,g\,(1+m)\,(3-m-2\,p)\right) - \left(2\,e\,(2-2\,m-3\,p)\,(g\,x)^{2+m}\left(d^2 - e^2\,x^2\right)^p \left(1 - \frac{e^2\,x^2}{d^2}\right)^{-p}\right.$$

$$\left.\text{Hypergeometric2F1}\left[\frac{2+m}{2}, 3-p, \frac{4+m}{2}, \frac{e^2\,x^2}{d^2}\right]\right) \Big/ \left(d^4\,g^2\,(2+m)\,(2-m-2\,p)\right)$$

Result (type 6, 166 leaves):

$$\left(d\,(2+m)\,x\,(g\,x)^m\,(d-e\,x)^p\,(d+e\,x)^{-3+p}\,\text{AppellF1}\left[1+m,\,-p,\,3-p,\,2+m,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]\right)\Big/$$
$$\left((1+m)\left(d\,(2+m)\,\text{AppellF1}\left[1+m,\,-p,\,3-p,\,2+m,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]+\right.\right.$$
$$e\,x\left(-p\,\text{AppellF1}\left[2+m,\,1-p,\,3-p,\,3+m,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]+\right.$$
$$\left.\left.\left.(-3+p)\,\text{AppellF1}\left[2+m,\,-p,\,4-p,\,3+m,\,\frac{e\,x}{d},\,-\frac{e\,x}{d}\right]\right)\right)\right)$$

Problem 313: Result unnecessarily involves higher level functions.

$$\int\frac{(g\,x)^m\left(1-a^2\,x^2\right)^p}{1+a\,x}\,\mathbb{d}x$$

Optimal (type 5, 89 leaves, 6 steps):

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

Result (type 6, 145 leaves):

$$\left((2+m)\,x\,(g\,x)^m\,(1-a\,x)^p\,(1+a\,x)^{-1+p}\,\text{AppellF1}[1+m,\,-p,\,1-p,\,2+m,\,a\,x,\,-a\,x]\right)\Big/$$
$$\left((1+m)\left((2+m)\,\text{AppellF1}[1+m,\,-p,\,1-p,\,2+m,\,a\,x,\,-a\,x]+\right.\right.$$
$$a\,x\left((-1+p)\,\text{AppellF1}[2+m,\,-p,\,2-p,\,3+m,\,a\,x,\,-a\,x]-\right.$$
$$\left.\left.\left.p\,\text{HypergeometricPFQ}\left[\left\{1+\frac{m}{2},\,1-p\right\},\,\left\{2+\frac{m}{2}\right\},\,a^2\,x^2\right]\right)\right)\right)$$

Problem 315: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{x\,\sqrt{1+x}}{1+x^2}\,\mathbb{d}x$$

Optimal (type 3, 214 leaves, 11 steps):

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

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

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

Result (type 3, 60 leaves):

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

Problem 359: Result more than twice size of optimal antiderivative.

$$\int x^2\left(a+b\,x\right)^n\left(c+d\,x^2\right)^3\,dx$$

Optimal (type 3, 343 leaves, 2 steps):

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

$$\frac{\left(b^2\,c+a^2\,d\right)\left(b^4\,c^2+17\,a^2\,b^2\,c\,d+28\,a^4\,d^2\right)\left(a+b\,x\right)^{3+n}}{b^9\left(3+n\right)}-$$

$$\frac{4\,a\,d\left(3\,b^4\,c^2+15\,a^2\,b^2\,c\,d+14\,a^4\,d^2\right)\left(a+b\,x\right)^{4+n}}{b^9\left(4+n\right)}+$$

$$\frac{d\left(3\,b^4\,c^2+45\,a^2\,b^2\,c\,d+70\,a^4\,d^2\right)\left(a+b\,x\right)^{5+n}}{b^9\left(5+n\right)}-\frac{2\,a\,d^2\left(9\,b^2\,c+28\,a^2\,d\right)\left(a+b\,x\right)^{6+n}}{b^9\left(6+n\right)}+$$

$$\frac{d^2\left(3\,b^2\,c+28\,a^2\,d\right)\left(a+b\,x\right)^{7+n}}{b^9\left(7+n\right)}-\frac{8\,a\,d^3\left(a+b\,x\right)^{8+n}}{b^9\left(8+n\right)}+\frac{d^3\left(a+b\,x\right)^{9+n}}{b^9\left(9+n\right)}$$

Result (type 3, 746 leaves):

$$\frac{1}{b^9 (1+n)(2+n)(3+n)(4+n)(5+n)(6+n)(7+n)(8+n)(9+n)} (a+b x)^{1+n}$$
$$\left(40\,320 a^8 d^3 - 40\,320 a^7 b d^3 (1+n) x + 720 a^6 b^2 d^2 \left(3 c \left(72+17 n+n^2\right) + 28 d \left(2+3 n+n^2\right) x^2\right) - \right.$$
$$240 a^5 b^3 d^2 (1+n) x \left(9 c \left(72+17 n+n^2\right) + 28 d \left(6+5 n+n^2\right) x^2\right) +$$
$$24 a^4 b^4 d \left(3 c^2 \left(3024+1650 n+335 n^2+30 n^3+n^4\right) + 45 c d \left(144+250 n+125 n^2+20 n^3+n^4\right) x^2 + \right.$$
$$\left. 70 d^2 \left(24+50 n+35 n^2+10 n^3+n^4\right) x^4\right) - 24 a^3 b^5 d (1+n) x$$
$$\left(3 c^2 \left(3024+1650 n+335 n^2+30 n^3+n^4\right) + 15 c d \left(432+462 n+163 n^2+22 n^3+n^4\right) x^2 + \right.$$
$$\left. 14 d^2 \left(120+154 n+71 n^2+14 n^3+n^4\right) x^4\right) + b^8 \left(384+784 n+540 n^2+160 n^3+21 n^4+n^5\right)$$
$$x^2 \left(c^3 \left(315+143 n+21 n^2+n^3\right) + 3 c^2 d \left(189+111 n+19 n^2+n^3\right) x^2 + \right.$$
$$\left. 3 c d^2 \left(135+87 n+17 n^2+n^3\right) x^4 + d^3 \left(105+71 n+15 n^2+n^3\right) x^6\right) +$$
$$2 a^2 b^6 \left(c^3 \left(60\,480+60\,216 n+24\,574 n^2+5265 n^3+625 n^4+39 n^5+n^6\right) + \right.$$
$$18 c^2 d \left(6048+12\,372 n+8644 n^2+2715 n^3+427 n^4+33 n^5+n^6\right) x^2 +$$
$$45 c d^2 \left(1728+4008 n+3394 n^2+1365 n^3+277 n^4+27 n^5+n^6\right) x^4 +$$
$$\left. 28 d^3 \left(720+1764 n+1624 n^2+735 n^3+175 n^4+21 n^5+n^6\right) x^6\right) -$$
$$2 a b^7 (1+n) x \left(c^3 \left(60\,480+60\,216 n+24\,574 n^2+5265 n^3+625 n^4+39 n^5+n^6\right) + \right.$$
$$6 c^2 d \left(18\,144+25\,020 n+13\,284 n^2+3505 n^3+491 n^4+35 n^5+n^6\right) x^2 +$$
$$9 c d^2 \left(8640+13\,128 n+7850 n^2+2369 n^3+381 n^4+31 n^5+n^6\right) x^4 +$$
$$\left. \left. 4 d^3 \left(5040+8028 n+5104 n^2+1665 n^3+295 n^4+27 n^5+n^6\right) x^6\right)\right)$$

Problem 360: Result more than twice size of optimal antiderivative.

$$\int x (a+b x)^n \left(c+d x^2\right)^3 \mathbb{d}x$$

Optimal (type 3, 282 leaves, 2 steps):

$$-\frac{a \left(b^2 c+a^2 d\right)^3 (a+b x)^{1+n}}{b^8 (1+n)} + \frac{\left(b^2 c+a^2 d\right)^2 \left(b^2 c+7 a^2 d\right) (a+b x)^{2+n}}{b^8 (2+n)} -$$
$$\frac{3 a d \left(b^2 c+a^2 d\right) \left(3 b^2 c+7 a^2 d\right) (a+b x)^{3+n}}{b^8 (3+n)} +$$
$$\frac{d \left(3 b^4 c^2+30 a^2 b^2 c d+35 a^4 d^2\right) (a+b x)^{4+n}}{b^8 (4+n)} - \frac{5 a d^2 \left(3 b^2 c+7 a^2 d\right) (a+b x)^{5+n}}{b^8 (5+n)} +$$
$$\frac{3 d^2 \left(b^2 c+7 a^2 d\right) (a+b x)^{6+n}}{b^8 (6+n)} - \frac{7 a d^3 (a+b x)^{7+n}}{b^8 (7+n)} + \frac{d^3 (a+b x)^{8+n}}{b^8 (8+n)}$$

Result (type 3, 578 leaves):

$$\frac{1}{b^8 (1+n)(2+n)(3+n)(4+n)(5+n)(6+n)(7+n)(8+n)} (a+b x)^{1+n}$$
$$\left(-5040 a^7 d^3 + 5040 a^6 b d^3 (1+n) x - 360 a^5 b^2 d^2 \left(c\left(56+15 n+n^2\right) + 7 d \left(2+3 n+n^2\right) x^2\right) + \right.$$
$$120 a^4 b^3 d^2 (1+n) x \left(3 c \left(56+15 n+n^2\right) + 7 d \left(6+5 n+n^2\right) x^2\right) -$$
$$6 a^3 b^4 d \left(3 c^2 \left(1680+1066 n+251 n^2+26 n^3+n^4\right) + \right.$$
$$\left. 30 c d \left(112+198 n+103 n^2+18 n^3+n^4\right) x^2 + 35 d^2 \left(24+50 n+35 n^2+10 n^3+n^4\right) x^4\right) +$$
$$6 a^2 b^5 d (1+n) x \left(3 c^2 \left(1680+1066 n+251 n^2+26 n^3+n^4\right) + \right.$$
$$\left. 10 c d \left(336+370 n+137 n^2+20 n^3+n^4\right) x^2 + 7 d^2 \left(120+154 n+71 n^2+14 n^3+n^4\right) x^4\right) +$$
$$b^7 \left(105+176 n+86 n^2+16 n^3+n^4\right) x \left(c^3 \left(192+104 n+18 n^2+n^3\right) + 3 c^2 d \right.$$
$$\left. \left(96+76 n+16 n^2+n^3\right) x^2 + 3 c d^2 \left(64+56 n+14 n^2+n^3\right) x^4 + d^3 \left(48+44 n+12 n^2+n^3\right) x^6\right) -$$
$$a b^6 \left(c^3 \left(20\,160+24\,552 n+12\,154 n^2+3135 n^3+445 n^4+33 n^5+n^6\right) + \right.$$
$$9 c^2 d \left(3360+7172 n+5380 n^2+1871 n^3+331 n^4+29 n^5+n^6\right) x^2 +$$
$$15 c d^2 \left(1344+3160 n+2734 n^2+1135 n^3+241 n^4+25 n^5+n^6\right) x^4 +$$
$$\left. 7 d^3 \left(720+1764 n+1624 n^2+735 n^3+175 n^4+21 n^5+n^6\right) x^6\right)\Big)$$

Problem 362: Result more than twice size of optimal antiderivative.

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

Optimal (type 5, 246 leaves, 4 steps):

$$-\frac{a d \left(3 b^4 c^2 + 3 a^2 b^2 c d + a^4 d^2\right) (a+b x)^{1+n}}{b^6 (1+n)} + \frac{d \left(3 b^4 c^2 + 9 a^2 b^2 c d + 5 a^4 d^2\right) (a+b x)^{2+n}}{b^6 (2+n)} -$$
$$\frac{a d^2 \left(9 b^2 c + 10 a^2 d\right) (a+b x)^{3+n}}{b^6 (3+n)} + \frac{d^2 \left(3 b^2 c + 10 a^2 d\right) (a+b x)^{4+n}}{b^6 (4+n)} - \frac{5 a d^3 (a+b x)^{5+n}}{b^6 (5+n)} +$$
$$\frac{d^3 (a+b x)^{6+n}}{b^6 (6+n)} - \frac{c^3 (a+b x)^{1+n} \text{Hypergeometric2F1}\left[1, 1+n, 2+n, 1+\frac{b x}{a}\right]}{a (1+n)}$$

Result (type 5, 546 leaves):

$$(a+b\,x)^n\left(\left(3\,c^2\,d\left(1+\frac{b\,x}{a}\right)^{-n}\left(a\,b\,n\,x\left(1+\frac{b\,x}{a}\right)^n+b^2\,(1+n)\,x^2\left(1+\frac{b\,x}{a}\right)^n-a^2\left(-1+\left(1+\frac{b\,x}{a}\right)^n\right)\right)\right)\Big/\right.$$
$$\left.\left(b^2\,(1+n)\,(2+n)\right)+\right.$$
$$\left(3\,c\,d^2\left(1+\frac{b\,x}{a}\right)^{-n}\left(6\,a^3\,b\,n\,x\left(1+\frac{b\,x}{a}\right)^n-3\,a^2\,b^2\,n\,(1+n)\,x^2\left(1+\frac{b\,x}{a}\right)^n+a\,b^3\,n\,\left(2+3\,n+n^2\right)\right.\right.$$
$$\left.\left.x^3\left(1+\frac{b\,x}{a}\right)^n+b^4\left(6+11\,n+6\,n^2+n^3\right)x^4\left(1+\frac{b\,x}{a}\right)^n-6\,a^4\left(-1+\left(1+\frac{b\,x}{a}\right)^n\right)\right)\right)\Big/$$
$$\left(b^4\,(1+n)\,(2+n)\,(3+n)\,(4+n)\right)+\frac{1}{b^6\,(1+n)\,(2+n)\,(3+n)\,(4+n)\,(5+n)\,(6+n)}$$
$$d^3\left(1+\frac{b\,x}{a}\right)^{-n}$$
$$\left(120\,a^5\,b\,n\,x\left(1+\frac{b\,x}{a}\right)^n-60\,a^4\,b^2\,n\,(1+n)\,x^2\left(1+\frac{b\,x}{a}\right)^n+20\,a^3\,b^3\,n\,\left(2+3\,n+n^2\right)x^3\left(1+\frac{b\,x}{a}\right)^n-\right.$$
$$5\,a^2\,b^4\,n\,\left(6+11\,n+6\,n^2+n^3\right)x^4\left(1+\frac{b\,x}{a}\right)^n+a\,b^5\,n\,\left(24+50\,n+35\,n^2+10\,n^3+n^4\right)x^5\left(1+\frac{b\,x}{a}\right)^n+$$
$$b^6\left(120+274\,n+225\,n^2+85\,n^3+15\,n^4+n^5\right)x^6\left(1+\frac{b\,x}{a}\right)^n-120\,a^6\left(-1+\left(1+\frac{b\,x}{a}\right)^n\right)\Big)+$$
$$\left.\frac{c^3\left(1+\frac{a}{b\,x}\right)^{-n}\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,-\frac{a}{b\,x}\right]}{n}\right)$$

Problem 363: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{x^4\,(d+e\,x)^n}{a+c\,x^2}\,dx$$

Optimal (type 5, 250 leaves, 6 steps):

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

Result (type 5, 354 leaves):

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

Problem 364: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 5, 209 leaves, 6 steps):

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

Result (type 5, 275 leaves):

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

Problem 365: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 5, 194 leaves, 6 steps):

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

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

Result (type 5, 233 leaves):

$$\frac{1}{2\,c^2\,e}(d+e\,x)^n\left(\frac{2\,c\,(d+e\,x)}{1+n}-\frac{1}{n}\right.$$

$$i\sqrt{a}\,\sqrt{c}\,e\left(-\left(\frac{\sqrt{c}\,(d+e\,x)}{e\left(-i\sqrt{a}+\sqrt{c}\,x\right)}\right)^{-n}\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,\frac{\sqrt{c}\,d+i\sqrt{a}\,e}{i\sqrt{a}\,e-\sqrt{c}\,e\,x}\right]+\right.$$

$$\left.\left.\left(\frac{\sqrt{c}\,(d+e\,x)}{e\left(i\sqrt{a}+\sqrt{c}\,x\right)}\right)^{-n}\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,-\frac{\sqrt{c}\,d-i\sqrt{a}\,e}{i\sqrt{a}\,e+\sqrt{c}\,e\,x}\right]\right)\right)$$

Problem 366: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 5, 163 leaves, 4 steps):

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

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

Result (type 5, 200 leaves):

$$\frac{1}{2\,c\,n}(d+e\,x)^n\left(\left(\frac{\sqrt{c}\,(d+e\,x)}{e\left(-i\sqrt{a}+\sqrt{c}\,x\right)}\right)^{-n}\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,\frac{\sqrt{c}\,d+i\sqrt{a}\,e}{i\sqrt{a}\,e-\sqrt{c}\,e\,x}\right]+\right.$$

$$\left.\left(\frac{\sqrt{c}\,(d+e\,x)}{e\left(i\sqrt{a}+\sqrt{c}\,x\right)}\right)^{-n}\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,-\frac{\sqrt{c}\,d-i\sqrt{a}\,e}{i\sqrt{a}\,e+\sqrt{c}\,e\,x}\right]\right)$$

Problem 367: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 5, 167 leaves, 4 steps):

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

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

Result (type 5, 210 leaves):

$$-\frac{1}{2\sqrt{a}\,\sqrt{c}\,n}$$

$$i\,(d+e\,x)^n\left(\left(\frac{\sqrt{c}\,(d+e\,x)}{e\left(-i\sqrt{a}+\sqrt{c}\,x\right)}\right)^{-n}\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,\frac{\sqrt{c}\,d+i\sqrt{a}\,e}{i\sqrt{a}\,e-\sqrt{c}\,e\,x}\right]-\right.$$

$$\left.\left(\frac{\sqrt{c}\,(d+e\,x)}{e\left(i\sqrt{a}+\sqrt{c}\,x\right)}\right)^{-n}\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,-\frac{\sqrt{c}\,d-i\sqrt{a}\,e}{i\sqrt{a}\,e+\sqrt{c}\,e\,x}\right]\right)$$

Problem 368: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 5, 207 leaves, 7 steps):

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

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

$$\frac{(d+e\,x)^{1+n}\,\text{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,1+\frac{e\,x}{d}\right]}{a\,d\,(1+n)}$$

Result (type 5, 239 leaves):

$$\frac{1}{2\,a\,n}(d+e\,x)^n\left(2\left(1+\frac{d}{e\,x}\right)^{-n}\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,-\frac{d}{e\,x}\right]-\right.$$

$$\left(\frac{\sqrt{c}\,(d+e\,x)}{e\left(-i\sqrt{a}+\sqrt{c}\,x\right)}\right)^{-n}\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,\frac{\sqrt{c}\,d+i\sqrt{a}\,e}{i\sqrt{a}\,e-\sqrt{c}\,e\,x}\right]-$$

$$\left.\left(\frac{\sqrt{c}\,(d+e\,x)}{e\left(i\sqrt{a}+\sqrt{c}\,x\right)}\right)^{-n}\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,-\frac{\sqrt{c}\,d-i\sqrt{a}\,e}{i\sqrt{a}\,e+\sqrt{c}\,e\,x}\right]\right)$$

Problem 369: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 5, 207 leaves, 7 steps):

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

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

$$\frac{e\,(d+e\,x)^{1+n}\,\text{Hypergeometric2F1}\left[2,\,1+n,\,2+n,\,1+\frac{e\,x}{d}\right]}{a\,d^2\,(1+n)}$$

Result (type 5, 263 leaves):

$$\frac{1}{2\,a}(d+e\,x)^n\left(\frac{2\left(1+\frac{d}{e\,x}\right)^{-n}\text{Hypergeometric2F1}\left[1-n,\,-n,\,2-n,\,-\frac{d}{e\,x}\right]}{(-1+n)\,x}+\frac{1}{\sqrt{a}\,n}\right.$$

$$i\sqrt{c}\left(\left(\frac{\sqrt{c}\,(d+e\,x)}{e\left(-i\sqrt{a}+\sqrt{c}\,x\right)}\right)^{-n}\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,\frac{\sqrt{c}\,d+i\sqrt{a}\,e}{i\sqrt{a}\,e-\sqrt{c}\,e\,x}\right]-\right.$$

$$\left.\left.\left(\frac{\sqrt{c}\,(d+e\,x)}{e\left(i\sqrt{a}+\sqrt{c}\,x\right)}\right)^{-n}\text{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,-\frac{\sqrt{c}\,d-i\sqrt{a}\,e}{i\sqrt{a}\,e+\sqrt{c}\,e\,x}\right]\right)\right)$$

Problem 370: Unable to integrate problem.

$$\int \frac{x^4\,(d+e\,x)^n}{(a+c\,x^2)^2}\,dx$$

Optimal (type 5, 332 leaves, 5 steps):

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

Result (type 8, 22 leaves):

$$\int\frac{x^4\,(d+e\,x)^n}{(a+c\,x^2)^2}\,dx$$

Problem 371: Unable to integrate problem.

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

Optimal (type 5, 297 leaves, 5 steps):

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

Result (type 8, 22 leaves):

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

Problem 372: Unable to integrate problem.

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

Optimal (type 5, 306 leaves, 5 steps):

$$-\frac{(a e + c d x)(d+e x)^{1+n}}{2c(c d^2 + a e^2)(a+c x^2)} +$$

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

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

Result (type 8, 22 leaves):

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

Problem 373: Unable to integrate problem.

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

Optimal (type 5, 279 leaves, 5 steps):

$$-\frac{(d-e x)(d+e x)^{1+n}}{2(c d^2 + a e^2)(a+c x^2)} +$$

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

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

Result (type 8, 20 leaves):

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

Problem 374: Unable to integrate problem.

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

Optimal (type 5, 304 leaves, 5 steps):

$$\frac{(a\,e+c\,d\,x)\,(d+e\,x)^{1+n}}{2\,a\,(c\,d^2+a\,e^2)\,(a+c\,x^2)} -$$

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

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

Result (type 8, 19 leaves):

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

Problem 375: Unable to integrate problem.

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

Optimal (type 5, 489 leaves, 12 steps):

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

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

$$\left(4\,(-a)^{3/2}\,\left(\sqrt{c}\,d-\sqrt{-a}\,e\right)\,\left(c\,d^2+a\,e^2\right)\,(1+n)\right)+$$

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

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

$$\left(4\,a^2\,\left(\sqrt{c}\,d+\sqrt{-a}\,e\right)\,\left(c\,d^2+a\,e^2\right)\,(1+n)\right)-$$

$$\frac{(d+e\,x)^{1+n}\,\text{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,1+\frac{e\,x}{d}\right]}{a^2\,d\,(1+n)}$$

Result (type 8, 22 leaves):

$$\int\frac{(d+e\,x)^n}{x\,\left(a+c\,x^2\right)^2}\,dx$$

Problem 376: Unable to integrate problem.

$$\int\frac{(d+e\,x)^n}{x^2\,\left(a+c\,x^2\right)^2}\,dx$$

Optimal (type 5, 513 leaves, 12 steps):

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

$$\left(c\left(c\,d^2+a\,e^2\,(1-n)+\sqrt{-a}\,\sqrt{c}\,d\,e\,n\right)\,(d+e\,x)^{1+n}\right.$$

$$\left.\text{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{\sqrt{c}\,(d+e\,x)}{\sqrt{c}\,d-\sqrt{-a}\,e}\right]\right)\Big/$$

$$\left(4\,(-a)^{5/2}\left(\sqrt{c}\,d-\sqrt{-a}\,e\right)\,(c\,d^2+a\,e^2)\,(1+n)\right)+$$

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

$$\left(c\left(c\,d^2+a\,e^2\,(1-n)-\sqrt{-a}\,\sqrt{c}\,d\,e\,n\right)\,(d+e\,x)^{1+n}\right.$$

$$\left.\text{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{\sqrt{c}\,(d+e\,x)}{\sqrt{c}\,d+\sqrt{-a}\,e}\right]\right)\Big/$$

$$\left(4\,(-a)^{5/2}\left(\sqrt{c}\,d+\sqrt{-a}\,e\right)\,(c\,d^2+a\,e^2)\,(1+n)\right)+$$

$$\frac{e\,(d+e\,x)^{1+n}\,\text{Hypergeometric2F1}\left[2,\,1+n,\,2+n,\,1+\frac{e\,x}{d}\right]}{a^2\,d^2\,(1+n)}$$

Result (type 8, 22 leaves):

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

Problem 379: Unable to integrate problem.

$$\int\frac{(g\,x)^m\,(d+e\,x)^n}{a+c\,x^2}\,dx$$

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

$$\frac{1}{2\,a\,g\,(1+m)}(g\,x)^{1+m}\,(d+e\,x)^n\left(1+\frac{e\,x}{d}\right)^{-n}\text{AppellF1}\left[1+m,\,-n,\,1,\,2+m,\,-\frac{e\,x}{d},\,-\frac{\sqrt{c}\,x}{\sqrt{-a}}\right]+$$

$$\frac{1}{2\,a\,g\,(1+m)}(g\,x)^{1+m}\,(d+e\,x)^n\left(1+\frac{e\,x}{d}\right)^{-n}\text{AppellF1}\left[1+m,\,-n,\,1,\,2+m,\,-\frac{e\,x}{d},\,\frac{\sqrt{c}\,x}{\sqrt{-a}}\right]$$

Result (type 8, 24 leaves):

$$\int\frac{(g\,x)^m\,(d+e\,x)^n}{a+c\,x^2}\,dx$$

Problem 380: Unable to integrate problem.

$$\int \frac{(g\,x)^m\,(d+e\,x)^n}{(a+c\,x^2)^2}\,dx$$

Optimal (type 6, 295 leaves, 12 steps):

$$\frac{1}{4\,a^2\,g\,(1+m)}(g\,x)^{1+m}\,(d+e\,x)^n\left(1+\frac{e\,x}{d}\right)^{-n}\text{AppellF1}\left[1+m,\,-n,\,1,\,2+m,\,-\frac{e\,x}{d},\,-\frac{\sqrt{c}\,x}{\sqrt{-a}}\right]+$$
$$\frac{1}{4\,a^2\,g\,(1+m)}(g\,x)^{1+m}\,(d+e\,x)^n\left(1+\frac{e\,x}{d}\right)^{-n}\text{AppellF1}\left[1+m,\,-n,\,1,\,2+m,\,-\frac{e\,x}{d},\,\frac{\sqrt{c}\,x}{\sqrt{-a}}\right]+$$
$$\frac{1}{4\,a^2\,g\,(1+m)}(g\,x)^{1+m}\,(d+e\,x)^n\left(1+\frac{e\,x}{d}\right)^{-n}\text{AppellF1}\left[1+m,\,-n,\,2,\,2+m,\,-\frac{e\,x}{d},\,-\frac{\sqrt{c}\,x}{\sqrt{-a}}\right]+$$
$$\frac{1}{4\,a^2\,g\,(1+m)}(g\,x)^{1+m}\,(d+e\,x)^n\left(1+\frac{e\,x}{d}\right)^{-n}\text{AppellF1}\left[1+m,\,-n,\,2,\,2+m,\,-\frac{e\,x}{d},\,\frac{\sqrt{c}\,x}{\sqrt{-a}}\right]$$

Result (type 8, 24 leaves):

$$\int \frac{(g\,x)^m\,(d+e\,x)^n}{(a+c\,x^2)^2}\,dx$$

Problem 408: Unable to integrate problem.

$$\int \frac{x^4\,(a+b\,x^2)^p}{d+e\,x}\,dx$$

Optimal (type 6, 199 leaves, 7 steps):

$$\frac{(b\,d^2-a\,e^2)\,(a+b\,x^2)^{1+p}}{2\,b^2\,e^3\,(1+p)}+\frac{(a+b\,x^2)^{2+p}}{2\,b^2\,e\,(2+p)}+$$
$$\frac{x^5\,(a+b\,x^2)^p\left(1+\frac{b\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{5}{2},\,-p,\,1,\,\frac{7}{2},\,-\frac{b\,x^2}{a},\,\frac{e^2\,x^2}{d^2}\right]}{5\,d}-$$
$$\frac{d^4\,(a+b\,x^2)^{1+p}\,\text{Hypergeometric2F1}\left[1,\,1+p,\,2+p,\,\frac{e^2\,(a+b\,x^2)}{b\,d^2+a\,e^2}\right]}{2\,e^3\,(b\,d^2+a\,e^2)\,(1+p)}$$

Result (type 8, 22 leaves):

$$\int \frac{x^4\,(a+b\,x^2)^p}{d+e\,x}\,dx$$

Problem 416: Unable to integrate problem.

$$\int \frac{x^4\,(a+b\,x^2)^p}{(d+e\,x)^2}\,dx$$

Optimal (type 6, 392 leaves, 12 steps):

$$-\frac{d\,(4+3p)\,(a+b\,x^2)^{1+p}}{b\,e^3\,(1+p)\,(3+2p)}-\frac{d^4\,(a+b\,x^2)^{1+p}}{e^3\,(b\,d^2+a\,e^2)\,(d+e\,x)}+\frac{(d+e\,x)\,(a+b\,x^2)^{1+p}}{b\,e^3\,(3+2p)}-\frac{1}{e^4\,(b\,d^2+a\,e^2)}$$
$$2\,d^2\,(2\,a\,e^2+b\,d^2\,(2+p))\,x\,(a+b\,x^2)^p\left(1+\frac{b\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]-$$
$$\left(\left(a^2\,e^4-2\,a\,b\,d^2\,e^2\,(4+3p)-2\,b^2\,d^4\,(6+7p+2p^2)\right)x\,(a+b\,x^2)^p\left(1+\frac{b\,x^2}{a}\right)^{-p}\right.$$
$$\left.\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,x^2}{a}\right]\right)\Big/\left(b\,e^4\,(b\,d^2+a\,e^2)\,(3+2p)\right)+$$
$$\left(d^3\,(2\,a\,e^2+b\,d^2\,(2+p))\,(a+b\,x^2)^{1+p}\,\text{Hypergeometric2F1}\left[1,1+p,2+p,\frac{e^2\,(a+b\,x^2)}{b\,d^2+a\,e^2}\right]\right)\Big/$$
$$\left(e^3\,(b\,d^2+a\,e^2)^2\,(1+p)\right)$$

Result (type 8, 22 leaves):

$$\int\frac{x^4\,(a+b\,x^2)^p}{(d+e\,x)^2}\,dx$$

Problem 422: Unable to integrate problem.

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

Optimal (type 6, 421 leaves, 20 steps):

$$\frac{2\,e^2\,x\,(a+b\,x^2)^p\left(1+\frac{b\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d^4}+$$
$$\frac{e^2\,x\,(a+b\,x^2)^p\left(1+\frac{b\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{1}{2},-p,2,\frac{3}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d^4}+$$
$$\frac{e^4\,x^3\,(a+b\,x^2)^p\left(1+\frac{b\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{3\,d^6}-$$
$$\frac{(a+b\,x^2)^p\left(1+\frac{b\,x^2}{a}\right)^{-p}\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,x^2}{a}\right]}{d^2\,x}-$$
$$\frac{e^3\,(a+b\,x^2)^{1+p}\,\text{Hypergeometric2F1}\left[1,1+p,2+p,\frac{e^2\,(a+b\,x^2)}{b\,d^2+a\,e^2}\right]}{d^3\,(b\,d^2+a\,e^2)\,(1+p)}+$$
$$\frac{e\,(a+b\,x^2)^{1+p}\,\text{Hypergeometric2F1}\left[1,1+p,2+p,1+\frac{b\,x^2}{a}\right]}{a\,d^3\,(1+p)}-$$
$$\frac{b\,e^3\,(a+b\,x^2)^{1+p}\,\text{Hypergeometric2F1}\left[2,1+p,2+p,\frac{e^2\,(a+b\,x^2)}{b\,d^2+a\,e^2}\right]}{d\,(b\,d^2+a\,e^2)^2\,(1+p)}$$

Result (type 8, 22 leaves):

$$\int \frac{\left(a+b\,x^2\right)^p}{x^2\,\left(d+e\,x\right)^2}\,dx$$

Problem 423: Unable to integrate problem.

$$\int \frac{x^4\,\left(a+b\,x^2\right)^p}{\left(d+e\,x\right)^3}\,dx$$

Optimal (type 6, 449 leaves, 12 steps):

$$\frac{\left(a+b\,x^2\right)^{1+p}}{2\,b\,e^3\,\left(1+p\right)}-\frac{d^4\,\left(a+b\,x^2\right)^{1+p}}{2\,e^3\,\left(b\,d^2+a\,e^2\right)\,\left(d+e\,x\right)^2}+\frac{d^3\,\left(4\,a\,e^2+b\,d^2\,\left(3+p\right)\right)\,\left(a+b\,x^2\right)^{1+p}}{e^3\,\left(b\,d^2+a\,e^2\right)^2\,\left(d+e\,x\right)}+$$

$$\frac{1}{e^4\,\left(b\,d^2+a\,e^2\right)^2}d\,\left(6\,a^2\,e^4+3\,a\,b\,d^2\,e^2\,\left(4+3\,p\right)+b^2\,d^4\,\left(6+7\,p+2\,p^2\right)\right)$$

$$x\,\left(a+b\,x^2\right)^p\,\left(1+\frac{b\,x^2}{a}\right)^{-p}\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]-$$

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

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

$$\left(d^2\,\left(6\,a^2\,e^4+3\,a\,b\,d^2\,e^2\,\left(4+3\,p\right)+b^2\,d^4\,\left(6+7\,p+2\,p^2\right)\right)\,\left(a+b\,x^2\right)^{1+p}\right.$$

$$\left.\text{Hypergeometric2F1}\left[1,1+p,2+p,\frac{e^2\,\left(a+b\,x^2\right)}{b\,d^2+a\,e^2}\right]\right)\Big/\left(2\,e^3\,\left(b\,d^2+a\,e^2\right)^3\,\left(1+p\right)\right)$$

Result (type 8, 22 leaves):

$$\int \frac{x^4\,\left(a+b\,x^2\right)^p}{\left(d+e\,x\right)^3}\,dx$$

Problem 424: Unable to integrate problem.

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

Optimal (type 6, 416 leaves, 11 steps):

$$\frac{d^3 \left(a+b x^2\right)^{1+p}}{2 e^2 \left(b d^2+a e^2\right) (d+e x)^2}-\frac{d^2 \left(3 a e^2+b d^2 (2+p)\right) \left(a+b x^2\right)^{1+p}}{e^2 \left(b d^2+a e^2\right)^2 (d+e x)}-$$

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

$$x \left(a+b x^2\right)^p \left(1+\frac{b x^2}{a}\right)^{-p} \text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b x^2}{a},\frac{e^2 x^2}{d^2}\right]+$$

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

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

$$\left(d \left(3 a^2 e^4+a b d^2 e^2 (6+7 p)+b^2 d^4 \left(3+5 p+2 p^2\right)\right) \left(a+b x^2\right)^{1+p}\right.$$

$$\left.\text{Hypergeometric2F1}\left[1,1+p,2+p,\frac{e^2 \left(a+b x^2\right)}{b d^2+a e^2}\right]\right) \Big/ \left(2 e^2 \left(b d^2+a e^2\right)^3 (1+p)\right)$$

Result (type 8, 22 leaves):

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

Problem 428: Unable to integrate problem.

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

Optimal (type 6, 700 leaves, 29 steps):

$$\frac{d\,e^2\,\left(a+b\,x^2\right)^{1+p}}{4\,\left(b\,d^2+a\,e^2\right)\,\left(d^2-e^2\,x^2\right)^2}-\frac{e\,x\,\left(a+b\,x^2\right)^p\,\left(1+\frac{b\,x^2}{a}\right)^{-p}\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d^4}-$$

$$\frac{e\,x\,\left(a+b\,x^2\right)^p\,\left(1+\frac{b\,x^2}{a}\right)^{-p}\,\text{AppellF1}\left[\frac{1}{2},-p,2,\frac{3}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d^4}-$$

$$\frac{e\,x\,\left(a+b\,x^2\right)^p\,\left(1+\frac{b\,x^2}{a}\right)^{-p}\,\text{AppellF1}\left[\frac{1}{2},-p,3,\frac{3}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d^4}-$$

$$\frac{e^3\,x^3\,\left(a+b\,x^2\right)^p\,\left(1+\frac{b\,x^2}{a}\right)^{-p}\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{3\,d^6}-$$

$$\frac{e^3\,x^3\,\left(a+b\,x^2\right)^p\,\left(1+\frac{b\,x^2}{a}\right)^{-p}\,\text{AppellF1}\left[\frac{3}{2},-p,3,\frac{5}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d^6}+$$

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

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

$$\frac{b\,e^2\,\left(a+b\,x^2\right)^{1+p}\,\text{Hypergeometric2F1}\left[2,1+p,2+p,\frac{e^2\,\left(a+b\,x^2\right)}{b\,d^2+a\,e^2}\right]}{d\,\left(b\,d^2+a\,e^2\right)^2\,\left(1+p\right)}-$$

$$\left(b\,e^2\,\left(2\,a\,e^2+b\,d^2\,\left(1+p\right)\right)\,\left(a+b\,x^2\right)^{1+p}\,\text{Hypergeometric2F1}\left[2,1+p,2+p,\frac{e^2\,\left(a+b\,x^2\right)}{b\,d^2+a\,e^2}\right]\right)\Big/$$

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

Result (type 8, 22 leaves):

$$\int\frac{\left(a+b\,x^2\right)^p}{x\,\left(d+e\,x\right)^3}\,\mathbb{d}x$$

Problem 429: Unable to integrate problem.

$$\int\frac{\left(a+b\,x^2\right)^p}{x^2\,\left(d+e\,x\right)^3}\,\mathbb{d}x$$

Optimal (type 6, 754 leaves, 31 steps):

$$-\frac{e^3\left(a+b\,x^2\right)^{1+p}}{4\left(b\,d^2+a\,e^2\right)\left(d^2-e^2\,x^2\right)^2}+\frac{3\,e^2\,x\left(a+b\,x^2\right)^p\left(1+\frac{b\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d^5}+$$

$$\frac{2\,e^2\,x\left(a+b\,x^2\right)^p\left(1+\frac{b\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{1}{2},-p,2,\frac{3}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d^5}+$$

$$\frac{e^2\,x\left(a+b\,x^2\right)^p\left(1+\frac{b\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{1}{2},-p,3,\frac{3}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d^5}+$$

$$\frac{2\,e^4\,x^3\left(a+b\,x^2\right)^p\left(1+\frac{b\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{3\,d^7}+$$

$$\frac{e^4\,x^3\left(a+b\,x^2\right)^p\left(1+\frac{b\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{3}{2},-p,3,\frac{5}{2},-\frac{b\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d^7}-$$

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

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

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

$$\frac{2\,b\,e^3\left(a+b\,x^2\right)^{1+p}\text{Hypergeometric2F1}\left[2,1+p,2+p,\frac{e^2\left(a+b\,x^2\right)}{b\,d^2+a\,e^2}\right]}{d^2\left(b\,d^2+a\,e^2\right)^2\left(1+p\right)}+$$

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

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

Result (type 8, 22 leaves):

$$\int\frac{\left(a+b\,x^2\right)^p}{x^2\left(d+e\,x\right)^3}\,\mathbb{d}x$$

Problem 434: Unable to integrate problem.

$$\int\frac{\left(g\,x\right)^m\left(a+c\,x^2\right)^p}{d+e\,x}\,\mathbb{d}x$$

Optimal (type 6, 157 leaves, 5 steps):

$$\frac{x\,(g\,x)^m\left(a+c\,x^2\right)^p\left(1+\frac{c\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{1+m}{2},-p,1,\frac{3+m}{2},-\frac{c\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d\,(1+m)}-\frac{1}{d^2\,(2+m)}$$
$$e\,x^2\,(g\,x)^m\left(a+c\,x^2\right)^p\left(1+\frac{c\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{2+m}{2},-p,1,\frac{4+m}{2},-\frac{c\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]$$

Result (type 8, 24 leaves):

$$\int\frac{(g\,x)^m\left(a+c\,x^2\right)^p}{d+e\,x}\,dx$$

Problem 435: Unable to integrate problem.

$$\int\frac{(g\,x)^m\left(a+c\,x^2\right)^p}{(d+e\,x)^2}\,dx$$

Optimal (type 6, 238 leaves, 8 steps):

$$\frac{x\,(g\,x)^m\left(a+c\,x^2\right)^p\left(1+\frac{c\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{1+m}{2},-p,2,\frac{3+m}{2},-\frac{c\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d^2\,(1+m)}-\frac{1}{d^3\,(2+m)}$$
$$2\,e\,x^2\,(g\,x)^m\left(a+c\,x^2\right)^p\left(1+\frac{c\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{2+m}{2},-p,2,\frac{4+m}{2},-\frac{c\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]+$$
$$\frac{1}{d^4\,(3+m)}e^2\,x^3\,(g\,x)^m\left(a+c\,x^2\right)^p\left(1+\frac{c\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{3+m}{2},-p,2,\frac{5+m}{2},-\frac{c\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]$$

Result (type 8, 24 leaves):

$$\int\frac{(g\,x)^m\left(a+c\,x^2\right)^p}{(d+e\,x)^2}\,dx$$

Problem 436: Unable to integrate problem.

$$\int\frac{(g\,x)^m\left(a+c\,x^2\right)^p}{(d+e\,x)^3}\,dx$$

Optimal (type 6, 321 leaves, 10 steps):

$$\frac{x\,(g\,x)^m\left(a+c\,x^2\right)^p\left(1+\frac{c\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{1+m}{2},-p,3,\frac{3+m}{2},-\frac{c\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]}{d^3\,(1+m)}-\frac{1}{d^4\,(2+m)}$$
$$3\,e\,x^2\,(g\,x)^m\left(a+c\,x^2\right)^p\left(1+\frac{c\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{2+m}{2},-p,3,\frac{4+m}{2},-\frac{c\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]+\frac{1}{d^5\,(3+m)}$$
$$3\,e^2\,x^3\,(g\,x)^m\left(a+c\,x^2\right)^p\left(1+\frac{c\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{3+m}{2},-p,3,\frac{5+m}{2},-\frac{c\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]-$$
$$\frac{1}{d^6\,(4+m)}e^3\,x^4\,(g\,x)^m\left(a+c\,x^2\right)^p\left(1+\frac{c\,x^2}{a}\right)^{-p}\text{AppellF1}\left[\frac{4+m}{2},-p,3,\frac{6+m}{2},-\frac{c\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]$$

Result (type 8, 24 leaves):

$$\int \frac{(g\,x)^m \left(a + c\,x^2\right)^p}{\left(d + e\,x\right)^3}\,dx$$

Problem 489: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 170 leaves, 4 steps):

$$\frac{6}{55}x\sqrt{1+x}\,\sqrt{1-x+x^2} + \frac{2}{11}x^4\sqrt{1+x}\,\sqrt{1-x+x^2} - \left(4\times 3^{3/4}\sqrt{2+\sqrt{3}}\,(1+x)^{3/2}\sqrt{1-x+x^2}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right], -7-4\sqrt{3}\right]\right) \Big/ \left(55\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\,\left(1+x^3\right)\right)$$

Result (type 4, 221 leaves):

$$\frac{1}{55\sqrt{1-x+x^2}}2\left(x\sqrt{1+x}\,\left(3-3x+3x^2+5x^3-5x^4+5x^5\right) + \sqrt{-\frac{6i}{3i+\sqrt{3}}}\,\left(3i+\sqrt{3}\right)(1+x)\sqrt{\frac{3i+\sqrt{3}+\left(-3i+\sqrt{3}\right)x}{\left(-3i+\sqrt{3}\right)(1+x)}}\right.$$

$$\left.\sqrt{\frac{-3i+\sqrt{3}+\left(3i+\sqrt{3}\right)x}{\left(3i+\sqrt{3}\right)(1+x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right], \frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)$$

Problem 491: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 294 leaves, 5 steps):

$$\frac{2}{7} x^2 \sqrt{1+x}\, \sqrt{1-x+x^2} + \frac{6\sqrt{1+x}\, \sqrt{1-x+x^2}}{7\left(1+\sqrt{3}+x\right)} -$$

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

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right], -7-4\sqrt{3}\right]\right) \Big/ \left(7\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\, \left(1+x^3\right)\right) +$$

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

$$\left(7\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\, \left(1+x^3\right)\right)$$

Result (type 4, 347 leaves):

$$\left(\sqrt{1+x}\, \left(4x^2 \sqrt{-\frac{i\,(1+x)}{3i+\sqrt{3}}}\, \left(1-x+x^2\right) - 3\sqrt{2}\, \left(-3i+\sqrt{3}\right) \sqrt{\frac{i+\sqrt{3}-2ix}{3i+\sqrt{3}}}\right.\right.$$

$$\sqrt{\frac{-i+\sqrt{3}+2ix}{-3i+\sqrt{3}}}\, \text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{2}\, \sqrt{-\frac{i\,(1+x)}{3i+\sqrt{3}}}\right], \frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right] +$$

$$3\sqrt{2}\, \left(-i+\sqrt{3}\right) \sqrt{\frac{i+\sqrt{3}-2ix}{3i+\sqrt{3}}}\, \sqrt{\frac{-i+\sqrt{3}+2ix}{-3i+\sqrt{3}}}$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\, \sqrt{-\frac{i\,(1+x)}{3i+\sqrt{3}}}\right], \frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)\right) \Big/ \left(14\sqrt{-\frac{i\,(1+x)}{3i+\sqrt{3}}}\, \sqrt{1-x+x^2}\right)$$

Problem 492: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 144 leaves, 3 steps):

$$\frac{2}{5} x \sqrt{1+x} \sqrt{1-x+x^2} + \left(2 \times 3^{3/4} \sqrt{2+\sqrt{3}} (1+x)^{3/2} \sqrt{1-x+x^2} \sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\right.$$

$$\left. \text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right], -7-4\sqrt{3}\right]\right) \Big/ \left(5 \sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}} \left(1+x^3\right)\right)$$

Result (type 4, 169 leaves):

$$\frac{1}{5\sqrt{1-x+x^2}}$$

$$\left(2x\sqrt{1+x}\left(1-x+x^2\right) + \frac{1}{\sqrt{-\frac{i}{3i+\sqrt{3}}}} i (1+x) \sqrt{1+\frac{6i}{\left(-3i+\sqrt{3}\right)(1+x)}} \sqrt{6-\frac{36i}{\left(3i+\sqrt{3}\right)(1+x)}}\right.$$

$$\left. \text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right], \frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)$$

Problem 493: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 66 leaves, 5 steps):

$$\frac{2}{3}\sqrt{1+x}\sqrt{1-x+x^2} - \frac{2\sqrt{1+x}\sqrt{1-x+x^2}\,\text{ArcTanh}\left[\sqrt{1+x^3}\right]}{3\sqrt{1+x^3}}$$

Result (type 4, 197 leaves):

$$\frac{1}{3\sqrt{1-x+x^2}}\sqrt{1+x}\left(2\left(1-x+x^2\right) + \frac{1}{\sqrt{-\frac{i(1+x)}{3i+\sqrt{3}}}} 3i\sqrt{2} \sqrt{\frac{i+\sqrt{3}-2ix}{3i+\sqrt{3}}}\right.$$

$$\left.\sqrt{\frac{-i+\sqrt{3}+2ix}{-3i+\sqrt{3}}}\,\text{EllipticPi}\left[\frac{3}{2}-\frac{i\sqrt{3}}{2}, i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{-\frac{i(1+x)}{3i+\sqrt{3}}}\right], \frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)$$

Problem 494: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 287 leaves, 5 steps):

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

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

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/\left(2\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\,\left(1+x^3\right)\right)+$$

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

$$\left(\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\,\left(1+x^3\right)\right)$$

Result (type 4, 349 leaves):

$$-\frac{\sqrt{1+x}\ \sqrt{1-x+x^2}}{x}+$$

$$\left(3\sqrt{1+\frac{2\,i\,(1+x)}{-3\,i+\sqrt{3}}}\ \sqrt{1-\frac{2\,i\,(1+x)}{3\,i+\sqrt{3}}}\left(-\frac{1}{\sqrt{-\frac{i\,(1+x)}{3\,i+\sqrt{3}}}}\left(-3\,i+\sqrt{3}\right)\sqrt{-\frac{i}{3\,i+\sqrt{3}}}\right.\right.$$

$$\sqrt{1+x}\ \text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{2}\ \sqrt{-\frac{i\,(1+x)}{3\,i+\sqrt{3}}}\ \right],\ \frac{3\,i+\sqrt{3}}{3\,i-\sqrt{3}}\right]+\frac{1}{\sqrt{-\frac{i\,(1+x)}{3\,i+\sqrt{3}}}}$$

$$\left.\left.\left(-i+\sqrt{3}\right)\sqrt{-\frac{i}{3\,i+\sqrt{3}}}\ \sqrt{1+x}\ \text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\ \sqrt{-\frac{i\,(1+x)}{3\,i+\sqrt{3}}}\ \right],\ \frac{3\,i+\sqrt{3}}{3\,i-\sqrt{3}}\right]\right)\right)\Big/$$

$$\left(2\sqrt{2}\ \sqrt{-\frac{i}{3\,i+\sqrt{3}}}\ \sqrt{3-3\,(1+x)+(1+x)^2}\right)$$

Problem 495: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 146 leaves, 3 steps):

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

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

Result (type 4, 185 leaves):

$$\frac{1}{4\sqrt{1-x+x^2}}\sqrt{1+x}\left(-\frac{2\left(1-x+x^2\right)}{x^2}-\frac{1}{\sqrt{-\frac{i\,(1+x)}{3\,i+\sqrt{3}}}}3\,i\,\sqrt{2}\,\sqrt{\frac{i+\sqrt{3}-2\,i\,x}{3\,i+\sqrt{3}}}\right.$$

$$\left.\sqrt{\frac{-i+\sqrt{3}+2\,i\,x}{-3\,i+\sqrt{3}}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{-\frac{i\,(1+x)}{3\,i+\sqrt{3}}}\right],\frac{3\,i+\sqrt{3}}{3\,i-\sqrt{3}}\right]\right)$$

Problem 496: Result unnecessarily involves imaginary or complex numbers.

$$\int x^3\left(1+x\right)^{3/2}\left(1-x+x^2\right)^{3/2}dx$$

Optimal (type 4, 201 leaves, 5 steps):

$$\frac{54}{935}x\sqrt{1+x}\,\sqrt{1-x+x^2}+\frac{18}{187}x^4\sqrt{1+x}\,\sqrt{1-x+x^2}+$$

$$\frac{2}{17}x^4\sqrt{1+x}\,\sqrt{1-x+x^2}\left(1+x^3\right)-\left(36\times 3^{3/4}\sqrt{2+\sqrt{3}}\left(1+x\right)^{3/2}\sqrt{1-x+x^2}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/\left(935\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\left(1+x^3\right)\right)$$

Result (type 4, 235 leaves):

$$\frac{1}{935\sqrt{1-x+x^2}}$$

$$2\left(x\sqrt{1+x}\left(27-27\,x+27\,x^2+100\,x^3-100\,x^4+100\,x^5+55\,x^6-55\,x^7+55\,x^8\right)-\frac{1}{\sqrt{-\frac{i}{3\,i+\sqrt{3}}}}\right.$$

$$9\,i\,\sqrt{6}\left(1+x\right)\sqrt{\frac{3\,i+\sqrt{3}+\left(-3\,i+\sqrt{3}\right)x}{\left(-3\,i+\sqrt{3}\right)\left(1+x\right)}}\,\sqrt{\frac{-3\,i+\sqrt{3}+\left(3\,i+\sqrt{3}\right)x}{\left(3\,i+\sqrt{3}\right)\left(1+x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6\,i}{3\,i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3\,i+\sqrt{3}}{3\,i-\sqrt{3}}\right]\right)$$

Problem 498: Result unnecessarily involves imaginary or complex numbers.

$$\int x\,(1+x)^{3/2}\,\left(1-x+x^2\right)^{3/2}\,dx$$

Optimal (type 4, 325 leaves, 6 steps):

$$\frac{18}{91}x^2\sqrt{1+x}\,\sqrt{1-x+x^2}+\frac{54\sqrt{1+x}\,\sqrt{1-x+x^2}}{91\left(1+\sqrt{3}+x\right)}+\frac{2}{13}x^2\sqrt{1+x}\,\sqrt{1-x+x^2}\,\left(1+x^3\right)-$$

$$\left(27\times 3^{1/4}\sqrt{2-\sqrt{3}}\,(1+x)^{3/2}\sqrt{1-x+x^2}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/\left(91\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\left(1+x^3\right)\right)+$$

$$\left(18\sqrt{2}\,3^{3/4}\,(1+x)^{3/2}\sqrt{1-x+x^2}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(91\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\left(1+x^3\right)\right)$$

Result (type 4, 244 leaves):

$$\frac{1}{182\sqrt{1-x+x^2}}\sqrt{1+x}\left(4x^2\left(1-x+x^2\right)\left(16+7x^3\right)-\frac{1}{\sqrt{-\frac{i\,(1+x)}{i+\sqrt{3}-2ix}}}\right.$$

$$27\sqrt{2}\,\sqrt{\frac{-i+\sqrt{3}+2ix}{-3i+\sqrt{3}}}\left(\left(-3i+\sqrt{3}\right)\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{-\frac{i\,(1+x)}{3i+\sqrt{3}}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]-\right.$$

$$\left.\left.\left(-i+\sqrt{3}\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{-\frac{i\,(1+x)}{3i+\sqrt{3}}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)\right)$$

Problem 499: Result unnecessarily involves imaginary or complex numbers.

$$\int (1+x)^{3/2}\,\left(1-x+x^2\right)^{3/2}\,dx$$

Optimal (type 4, 173 leaves, 4 steps):

$$\frac{18}{55} x \sqrt{1+x} \sqrt{1-x+x^2} + \frac{2}{11} x \sqrt{1+x} \sqrt{1-x+x^2} \left(1+x^3\right) +$$
$$\left(18 \times 3^{3/4} \sqrt{2+\sqrt{3}} \left(1+x\right)^{3/2} \sqrt{1-x+x^2} \sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\right.$$
$$\left. \text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right], -7-4\sqrt{3}\right]\right) \Big/ \left(55 \sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}} \left(1+x^3\right)\right)$$

Result (type 4, 176 leaves):

$$\frac{1}{55\sqrt{1-x+x^2}} \left(2x\sqrt{1+x}\left(1-x+x^2\right)\left(14+5x^3\right) + \frac{1}{\sqrt{-\frac{i}{3i+\sqrt{3}}}} 9i\left(1+x\right) \sqrt{1+\frac{6i}{\left(-3i+\sqrt{3}\right)\left(1+x\right)}}\right.$$
$$\left. \sqrt{6-\frac{36i}{\left(3i+\sqrt{3}\right)\left(1+x\right)}} \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right], \frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)$$

Problem 500: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 94 leaves, 6 steps):

$$\frac{2}{3}\sqrt{1+x}\sqrt{1-x+x^2} + \frac{2}{9}\sqrt{1+x}\sqrt{1-x+x^2}\left(1+x^3\right) - \frac{2\sqrt{1+x}\sqrt{1-x+x^2}\,\text{ArcTanh}\left[\sqrt{1+x^3}\right]}{3\sqrt{1+x^3}}$$

Result (type 4, 201 leaves):

$$\frac{1}{\sqrt{1-x+x^2}}\sqrt{1+x}\left(\frac{2}{9}\left(1-x+x^2\right)\left(4+x^3\right) + \frac{1}{\sqrt{-\frac{i\,(1+x)}{3i+\sqrt{3}}}} i\sqrt{2} \sqrt{\frac{i+\sqrt{3}-2ix}{3i+\sqrt{3}}}\right.$$
$$\left. \sqrt{\frac{-i+\sqrt{3}+2ix}{-3i+\sqrt{3}}}\,\text{EllipticPi}\left[\frac{3}{2}-\frac{i\sqrt{3}}{2}, i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{-\frac{i\left(1+x\right)}{3i+\sqrt{3}}}\right], \frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)$$

Problem 501: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 323 leaves, 6 steps):

$$\frac{9}{7}x^2\sqrt{1+x}\,\sqrt{1-x+x^2}+\frac{27\sqrt{1+x}\,\sqrt{1-x+x^2}}{7\left(1+\sqrt{3}+x\right)}-\frac{\sqrt{1+x}\,\sqrt{1-x+x^2}\,\left(1+x^3\right)}{x}-$$

$$\left(27\times 3^{1/4}\sqrt{2-\sqrt{3}}\,(1+x)^{3/2}\sqrt{1-x+x^2}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/\left(14\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\left(1+x^3\right)\right)+$$

$$\left(9\sqrt{2}\,3^{3/4}\,(1+x)^{3/2}\sqrt{1-x+x^2}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(7\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\left(1+x^3\right)\right)$$

Result (type 4, 244 leaves):

$$\frac{1}{28\sqrt{1-x+x^2}}\sqrt{1+x}\left(\frac{4\left(1-x+x^2\right)\left(-7+2x^3\right)}{x}-\frac{1}{\sqrt{-\frac{i\,(1+x)}{i+\sqrt{3}-2ix}}}\right.$$

$$27\sqrt{2}\sqrt{\frac{-i+\sqrt{3}+2ix}{-3i+\sqrt{3}}}\left(\left(-3i+\sqrt{3}\right)\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{-\frac{i\,(1+x)}{3i+\sqrt{3}}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]-\right.$$

$$\left.\left.\left(-i+\sqrt{3}\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{-\frac{i\,(1+x)}{3i+\sqrt{3}}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)\right)$$

Problem 502: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 175 leaves, 4 steps):

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

$$\left(9 \times 3^{3/4} \sqrt{2+\sqrt{3}}\, (1+x)^{3/2} \sqrt{1-x+x^2}\, \sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\right.$$

$$\left. \text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right], -7-4\sqrt{3}\right]\right) \Big/ \left(10 \sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\, \left(1+x^3\right)\right)$$

Result (type 4, 192 leaves):

$$\frac{1}{20\sqrt{1-x+x^2}}$$

$$\sqrt{1+x} \left(\frac{2\left(1-x+x^2\right)\left(-5+4x^3\right)}{x^2} - \frac{1}{\sqrt{-\frac{i(1+x)}{3i+\sqrt{3}}}} 27 i \sqrt{2} \sqrt{\frac{i+\sqrt{3}-2ix}{3i+\sqrt{3}}} \sqrt{\frac{-i+\sqrt{3}+2ix}{-3i+\sqrt{3}}}\right.$$

$$\left. \text{EllipticF}\left[i\, \text{ArcSinh}\left[\sqrt{2}\, \sqrt{-\frac{i(1+x)}{3i+\sqrt{3}}}\right], \frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)$$

Problem 503: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 142 leaves, 3 steps):

$$\frac{2x\left(1+x^3\right)}{5\sqrt{1+x}\, \sqrt{1-x+x^2}} -$$

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

$$\left(5 \times 3^{1/4} \sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\, \sqrt{1-x+x^2}\right)$$

Result (type 4, 169 leaves):

$$\frac{1}{15\sqrt{1-x+x^2}}$$

$$\left(6x\sqrt{1+x}\left(1-x+x^2\right)-\frac{1}{\sqrt{-\frac{i}{3i+\sqrt{3}}}}2i\left(1+x\right)\sqrt{1+\frac{6i}{\left(-3i+\sqrt{3}\right)\left(1+x\right)}}\sqrt{6-\frac{36i}{\left(3i+\sqrt{3}\right)\left(1+x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)$$

Problem 505: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 253 leaves, 4 steps):

$$\frac{2\left(1+x^3\right)}{\sqrt{1+x}\,\left(1+\sqrt{3}+x\right)\sqrt{1-x+x^2}}-$$

$$\left(3^{1/4}\sqrt{2-\sqrt{3}}\,\sqrt{1+x}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\,\sqrt{1-x+x^2}\right)+$$

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

Result (type 4, 375 leaves):

$$\left((1+x)^{3/2}\left(\frac{12\sqrt{-\frac{i}{3i+\sqrt{3}}}\left(1-x+x^2\right)}{(1+x)^2}+\frac{1}{\sqrt{1+x}}3\sqrt{2}\left(1-i\sqrt{3}\right)\sqrt{\frac{3i+\sqrt{3}-\frac{6i}{1+x}}{3i+\sqrt{3}}}\right.\right.$$

$$\sqrt{\frac{-3i+\sqrt{3}+\frac{6i}{1+x}}{-3i+\sqrt{3}}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]+$$

$$\frac{1}{\sqrt{1+x}}i\sqrt{2}\left(3i+\sqrt{3}\right)\sqrt{\frac{3i+\sqrt{3}-\frac{6i}{1+x}}{3i+\sqrt{3}}}\sqrt{\frac{-3i+\sqrt{3}+\frac{6i}{1+x}}{-3i+\sqrt{3}}}$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)\right)\Big/\left(6\sqrt{-\frac{i}{3i+\sqrt{3}}}\sqrt{1-x+x^2}\right)$$

Problem 506: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 110 leaves, 2 steps):

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

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

Result (type 4, 148 leaves):

$$\left(i\left(1+x\right)\sqrt{1+\frac{6i}{\left(-3i+\sqrt{3}\right)(1+x)}}\sqrt{\frac{2}{3}-\frac{4i}{\left(3i+\sqrt{3}\right)(1+x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)\Big/\left(\sqrt{-\frac{i}{3i+\sqrt{3}}}\sqrt{1-x+x^2}\right)$$

Problem 507: Result unnecessarily involves higher level functions.

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

Optimal (type 3, 42 leaves, 4 steps):

$$-\frac{2\sqrt{1+x^3}\,\text{ArcTanh}\left[\sqrt{1+x^3}\right]}{3\sqrt{1+x}\,\sqrt{1-x+x^2}}$$

Result (type 4, 68 leaves):

$$-\frac{2\sqrt{1+x}\,\text{EllipticPi}\left[1+(-1)^{1/3},\text{ArcSin}\left[\sqrt{\frac{1+(-1)^{2/3}x}{1+(-1)^{1/3}}}\right],(-1)^{1/3}\right]}{\sqrt{3}\,\sqrt{\frac{1+x}{1+(-1)^{1/3}}}}$$

Problem 508: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 282 leaves, 5 steps):

$$-\frac{1+x^3}{x\sqrt{1+x}\,\sqrt{1-x+x^2}}+\frac{1+x^3}{\sqrt{1+x}\,\left(1+\sqrt{3}+x\right)\sqrt{1-x+x^2}}-$$

$$\left(3^{1/4}\sqrt{2-\sqrt{3}}\,\sqrt{1+x}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(2\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\,\sqrt{1-x+x^2}\right)+$$

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

Result (type 4, 400 leaves):

$$-\frac{\sqrt{1+x}\,\sqrt{1-x+x^2}}{x}+$$

$$\left((1+x)^{3/2}\left(\frac{12\sqrt{-\frac{i}{3\,i+\sqrt{3}}}\,\left(1-x+x^2\right)}{(1+x)^2}+\frac{1}{\sqrt{1+x}}3\sqrt{2}\,\left(1-i\sqrt{3}\right)\sqrt{\frac{3\,i+\sqrt{3}-\frac{6\,i}{1+x}}{3\,i+\sqrt{3}}}\right.\right.$$

$$\sqrt{\frac{-3\,i+\sqrt{3}+\frac{6\,i}{1+x}}{-3\,i+\sqrt{3}}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6\,i}{3\,i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3\,i+\sqrt{3}}{3\,i-\sqrt{3}}\right]+$$

$$\frac{1}{\sqrt{1+x}}i\sqrt{2}\,\left(3\,i+\sqrt{3}\right)\sqrt{\frac{3\,i+\sqrt{3}-\frac{6\,i}{1+x}}{3\,i+\sqrt{3}}}\,\sqrt{\frac{-3\,i+\sqrt{3}+\frac{6\,i}{1+x}}{-3\,i+\sqrt{3}}}$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6\,i}{3\,i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3\,i+\sqrt{3}}{3\,i-\sqrt{3}}\right]\right)\right/\left(12\sqrt{-\frac{i}{3\,i+\sqrt{3}}}\,\sqrt{1-x+x^2}\right)$$

Problem 509: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 144 leaves, 3 steps):

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

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

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

Result (type 4, 171 leaves):

$$\frac{1}{12\sqrt{1-x+x^2}}\left(-\frac{6\sqrt{1+x}\,\left(1-x+x^2\right)}{x^2}-\frac{1}{\sqrt{-\frac{i}{3i+\sqrt{3}}}}i\,(1+x)\sqrt{1+\frac{6i}{\left(-3i+\sqrt{3}\right)(1+x)}}\sqrt{6-\frac{36i}{\left(3i+\sqrt{3}\right)(1+x)}}\right.$$
$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)$$

Problem 510: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 137 leaves, 3 steps):

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

Result (type 4, 161 leaves):

$$\frac{1}{9\sqrt{1-x+x^2}}\left(-\frac{6x}{\sqrt{1+x}}+\frac{1}{\sqrt{-\frac{i}{3i+\sqrt{3}}}}2i\,(1+x)\sqrt{1+\frac{6i}{\left(-3i+\sqrt{3}\right)(1+x)}}\sqrt{6-\frac{36i}{\left(3i+\sqrt{3}\right)(1+x)}}\right.$$
$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)$$

Problem 512: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 282 leaves, 5 steps):

$$\frac{2x^2}{3\sqrt{1+x}\,\sqrt{1-x+x^2}} - \frac{2\left(1+x^3\right)}{3\sqrt{1+x}\,\left(1+\sqrt{3}+x\right)\sqrt{1-x+x^2}} +$$

$$\left(\sqrt{2-\sqrt{3}}\,\sqrt{1+x}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],\,-7-4\sqrt{3}\right]\right)\Big/$$

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

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

Result (type 4, 402 leaves):

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

$$\left((1+x)^{3/2}\left(\frac{12\sqrt{-\frac{i}{3i+\sqrt{3}}}\,\left(1-x+x^2\right)}{(1+x)^2} + \frac{1}{\sqrt{1+x}}3\sqrt{2}\,\left(1-i\sqrt{3}\right)\sqrt{\frac{3i+\sqrt{3}-\frac{6i}{1+x}}{3i+\sqrt{3}}}\right.\right.$$

$$\sqrt{\frac{-3i+\sqrt{3}+\frac{6i}{1+x}}{-3i+\sqrt{3}}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right],\,\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right] +$$

$$\frac{1}{\sqrt{1+x}}i\sqrt{2}\,\left(3i+\sqrt{3}\right)\sqrt{\frac{3i+\sqrt{3}-\frac{6i}{1+x}}{3i+\sqrt{3}}}\,\sqrt{\frac{-3i+\sqrt{3}+\frac{6i}{1+x}}{-3i+\sqrt{3}}}$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right],\,\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)\right)\Big/\left(18\sqrt{-\frac{i}{3i+\sqrt{3}}}\,\sqrt{1-x+x^2}\right)$$

Problem 513: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 137 leaves, 3 steps):

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

Result (type 4, 216 leaves):

$$\sqrt{3-3\,(1+x)+(1+x)^2}\left(-\frac{2}{9\sqrt{1+x}}+\frac{2\,(1+x)^{3/2}}{9\left(3-3\,(1+x)+(1+x)^2\right)}\right) + \left(i\sqrt{\frac{2}{3}}\,(1+x)\sqrt{1-\frac{6}{\left(3-i\sqrt{3}\right)(1+x)}}\,\sqrt{1-\frac{6}{\left(3+i\sqrt{3}\right)(1+x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6}{3-i\sqrt{3}}}}{\sqrt{1+x}}\right], \frac{3-i\sqrt{3}}{3+i\sqrt{3}}\right]\right) \Big/ \left(3\sqrt{-\frac{1}{3-i\sqrt{3}}}\,\sqrt{3-3\,(1+x)+(1+x)^2}\right)$$

Problem 514: Result unnecessarily involves higher level functions.

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

Optimal (type 3, 66 leaves, 5 steps):

$$\frac{2}{3\sqrt{1+x}\,\sqrt{1-x+x^2}} - \frac{2\sqrt{1+x^3}\,\text{ArcTanh}\left[\sqrt{1+x^3}\right]}{3\sqrt{1+x}\,\sqrt{1-x+x^2}}$$

Result (type 4, 88 leaves):

$$\frac{2\left(\frac{1}{\sqrt{1-x+x^2}}-\frac{\sqrt{3}\ (1+x)\ \text{EllipticPi}\left[1+(-1)^{1/3},\text{ArcSin}\left[\sqrt{\frac{1+(-1)^{2/3}x}{1+(-1)^{1/3}}}\right],(-1)^{1/3}\right]}{\sqrt{\frac{1+x}{1+(-1)^{1/3}}}}\right)}{3\sqrt{1+x}}$$

Problem 515: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 316 leaves, 6 steps):

$$\frac{2}{3x\sqrt{1+x}\ \sqrt{1-x+x^2}}-\frac{5\left(1+x^3\right)}{3x\sqrt{1+x}\ \sqrt{1-x+x^2}}+\frac{5\left(1+x^3\right)}{3\sqrt{1+x}\ \left(1+\sqrt{3}+x\right)\sqrt{1-x+x^2}}-$$

$$\left(5\sqrt{2-\sqrt{3}}\ \sqrt{1+x}\ \sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(2\times 3^{3/4}\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\ \sqrt{1-x+x^2}\right)+$$

$$\frac{5\sqrt{2}\ \sqrt{1+x}\ \sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]}{3\times 3^{1/4}\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\ \sqrt{1-x+x^2}}$$

Result (type 4, 409 leaves):

$$-\frac{3+5x^3}{3x\sqrt{1+x}\,\sqrt{1-x+x^2}}+$$

$$\left(5(1+x)^{3/2}\left(\frac{12\sqrt{-\frac{i}{3i+\sqrt{3}}}\,(1-x+x^2)}{(1+x)^2}+\frac{1}{\sqrt{1+x}}3\sqrt{2}\,(1-i\sqrt{3})\sqrt{\frac{3i+\sqrt{3}-\frac{6i}{1+x}}{3i+\sqrt{3}}}\right.\right.$$

$$\sqrt{\frac{-3i+\sqrt{3}+\frac{6i}{1+x}}{-3i+\sqrt{3}}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]+$$

$$\frac{1}{\sqrt{1+x}}i\sqrt{2}\,(3i+\sqrt{3})\sqrt{\frac{3i+\sqrt{3}-\frac{6i}{1+x}}{3i+\sqrt{3}}}\sqrt{\frac{-3i+\sqrt{3}+\frac{6i}{1+x}}{-3i+\sqrt{3}}}$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)\right/\left(36\sqrt{-\frac{i}{3i+\sqrt{3}}}\,\sqrt{1-x+x^2}\right)$$

Problem 516: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 170 leaves, 4 steps):

$$\frac{2}{3x^2\sqrt{1+x}\,\sqrt{1-x+x^2}}-\frac{7(1+x^3)}{6x^2\sqrt{1+x}\,\sqrt{1-x+x^2}}-$$

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

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

Result (type 4, 170 leaves):

$$\frac{1}{36\sqrt{1-x+x^2}}\left(-\frac{6\left(3+7x^3\right)}{x^2\sqrt{1+x}}-\frac{1}{\sqrt{-\frac{i}{3i+\sqrt{3}}}}7i\left(1+x\right)\sqrt{1+\frac{6i}{\left(-3i+\sqrt{3}\right)\left(1+x\right)}}\sqrt{6-\frac{36i}{\left(3i+\sqrt{3}\right)\left(1+x\right)}}\right.$$
$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)$$

Problem 517: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{x^3}{\left(1+x\right)^{5/2}\left(1-x+x^2\right)^{5/2}}\,dx$$

Optimal (type 4, 168 leaves, 4 steps):

$$\frac{4x}{27\sqrt{1+x}\sqrt{1-x+x^2}}-\frac{2x}{9\sqrt{1+x}\sqrt{1-x+x^2}\left(1+x^3\right)}+$$
$$\left(4\sqrt{2+\sqrt{3}}\sqrt{1+x}\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/$$
$$\left(27\times 3^{1/4}\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\sqrt{1-x+x^2}\right)$$

Result (type 4, 178 leaves):

$$\frac{1}{81\sqrt{1-x+x^2}}\left(\frac{6x\left(-1+2x^3\right)}{\left(1+x\right)^{3/2}\left(1-x+x^2\right)}+\frac{1}{\sqrt{-\frac{i}{3i+\sqrt{3}}}}2i\left(1+x\right)\sqrt{1+\frac{6i}{\left(-3i+\sqrt{3}\right)\left(1+x\right)}}\sqrt{6-\frac{36i}{\left(3i+\sqrt{3}\right)\left(1+x\right)}}\right.$$
$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6i}{3i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3i+\sqrt{3}}{3i-\sqrt{3}}\right]\right)$$

Problem 519: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{x}{(1+x)^{5/2}\,(1-x+x^2)^{5/2}}\,dx$$

Optimal (type 4, 318 leaves, 6 steps):

$$\frac{10\,x^2}{27\sqrt{1+x}\,\sqrt{1-x+x^2}}+\frac{2\,x^2}{9\sqrt{1+x}\,\sqrt{1-x+x^2}\,(1+x^3)}-\frac{10\,(1+x^3)}{27\sqrt{1+x}\,\left(1+\sqrt{3}+x\right)\sqrt{1-x+x^2}}+$$

$$\left(5\sqrt{2-\sqrt{3}}\,\sqrt{1+x}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(9\times 3^{3/4}\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\,\sqrt{1-x+x^2}\right)-$$

$$\frac{10\sqrt{2}\,\sqrt{1+x}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]}{27\times 3^{1/4}\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\,\sqrt{1-x+x^2}}$$

Result (type 4, 409 leaves):

$$\frac{2\,x^2\,(8+5\,x^3)}{27\,(1+x)^{3/2}\,(1-x+x^2)^{3/2}}-$$

$$\left(5\,(1+x)^{3/2}\left(\frac{12\sqrt{-\frac{i}{3\,i+\sqrt{3}}}\,(1-x+x^2)}{(1+x)^2}+\frac{1}{\sqrt{1+x}}3\sqrt{2}\,\left(1-i\sqrt{3}\right)\sqrt{\frac{3\,i+\sqrt{3}-\frac{6\,i}{1+x}}{3\,i+\sqrt{3}}}\right.\right.$$

$$\sqrt{\frac{-3\,i+\sqrt{3}+\frac{6\,i}{1+x}}{-3\,i+\sqrt{3}}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6\,i}{3\,i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3\,i+\sqrt{3}}{3\,i-\sqrt{3}}\right]+$$

$$\frac{1}{\sqrt{1+x}}i\sqrt{2}\,\left(3\,i+\sqrt{3}\right)\sqrt{\frac{3\,i+\sqrt{3}-\frac{6\,i}{1+x}}{3\,i+\sqrt{3}}}\,\sqrt{\frac{-3\,i+\sqrt{3}+\frac{6\,i}{1+x}}{-3\,i+\sqrt{3}}}$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6\,i}{3\,i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3\,i+\sqrt{3}}{3\,i-\sqrt{3}}\right]\right)\right)\Big/\left(162\sqrt{-\frac{i}{3\,i+\sqrt{3}}}\,\sqrt{1-x+x^2}\right)$$

Problem 520: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(1+x)^{5/2}\,(1-x+x^2)^{5/2}}\,dx$$

Optimal (type 4, 168 leaves, 4 steps):

$$\frac{14\,x}{27\,\sqrt{1+x}\,\sqrt{1-x+x^2}}+\frac{2\,x}{9\,\sqrt{1+x}\,\sqrt{1-x+x^2}\,\left(1+x^3\right)}+$$

$$\left(14\,\sqrt{2+\sqrt{3}}\,\sqrt{1+x}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],\,-7-4\,\sqrt{3}\right]\right)\Big/$$

$$\left(27\times 3^{1/4}\,\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\,\sqrt{1-x+x^2}\right)$$

Result (type 4, 178 leaves):

$$\frac{1}{81\,\sqrt{1-x+x^2}}$$

$$\left(\frac{6\,x\,\left(10+7\,x^3\right)}{(1+x)^{3/2}\,\left(1-x+x^2\right)}+\frac{1}{\sqrt{-\frac{i}{3\,i+\sqrt{3}}}}7\,i\,(1+x)\,\sqrt{1+\frac{6\,i}{\left(-3\,i+\sqrt{3}\right)\,(1+x)}}\,\sqrt{6-\frac{36\,i}{\left(3\,i+\sqrt{3}\right)\,(1+x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6\,i}{3\,i+\sqrt{3}}}}{\sqrt{1+x}}\right],\,\frac{3\,i+\sqrt{3}}{3\,i-\sqrt{3}}\right]\right)$$

Problem 521: Result unnecessarily involves higher level functions.

$$\int \frac{1}{x\,(1+x)^{5/2}\,(1-x+x^2)^{5/2}}\,dx$$

Optimal (type 3, 96 leaves, 6 steps):

$$\frac{2}{3\,\sqrt{1+x}\,\sqrt{1-x+x^2}}+\frac{2}{9\,\sqrt{1+x}\,\sqrt{1-x+x^2}\,\left(1+x^3\right)}-\frac{2\,\sqrt{1+x^3}\,\text{ArcTanh}\left[\sqrt{1+x^3}\right]}{3\,\sqrt{1+x}\,\sqrt{1-x+x^2}}$$

Result (type 4, 98 leaves):

$$2\left(\frac{4+3x^3}{\left(1-x+x^2\right)^{3/2}}-\frac{3\sqrt{3}\ (1+x)^2\ \text{EllipticPi}\left[1+(-1)^{1/3},\text{ArcSin}\left[\sqrt{\frac{1+(-1)^{2/3}x}{1+(-1)^{1/3}}}\right],(-1)^{1/3}\right]}{\sqrt{\frac{1+x}{1+(-1)^{1/3}}}}\right)\Big/\left(9\left(1+x\right)^{3/2}\right)$$

Problem 522: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{x^2\left(1+x\right)^{5/2}\left(1-x+x^2\right)^{5/2}}\,dx$$

Optimal (type 4, 349 leaves, 7 steps):

$$\frac{22}{27x\sqrt{1+x}\ \sqrt{1-x+x^2}}+\frac{2}{9x\sqrt{1+x}\ \sqrt{1-x+x^2}\ \left(1+x^3\right)}-$$

$$\frac{55\left(1+x^3\right)}{27x\sqrt{1+x}\ \sqrt{1-x+x^2}}+\frac{55\left(1+x^3\right)}{27\sqrt{1+x}\ \left(1+\sqrt{3}+x\right)\sqrt{1-x+x^2}}-$$

$$\left(55\sqrt{2-\sqrt{3}}\ \sqrt{1+x}\ \sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/$$

$$\left(18\times 3^{3/4}\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\ \sqrt{1-x+x^2}\right)+$$

$$\frac{55\sqrt{2}\ \sqrt{1+x}\ \sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]}{27\times 3^{1/4}\sqrt{\frac{1+x}{\left(1+\sqrt{3}+x\right)^2}}\ \sqrt{1-x+x^2}}$$

Result (type 4, 414 leaves):

$$-\frac{27+88\,x^3+55\,x^6}{27\,x\,(1+x)^{3/2}\,(1-x+x^2)^{3/2}}+$$

$$\left(55\,(1+x)^{3/2}\left(\frac{12\sqrt{-\frac{i}{3\,i+\sqrt{3}}}\,(1-x+x^2)}{(1+x)^2}+\frac{1}{\sqrt{1+x}}3\sqrt{2}\,\left(1-i\sqrt{3}\right)\sqrt{\frac{3\,i+\sqrt{3}-\frac{6\,i}{1+x}}{3\,i+\sqrt{3}}}\right.\right.$$

$$\left.\sqrt{\frac{-3\,i+\sqrt{3}+\frac{6\,i}{1+x}}{-3\,i+\sqrt{3}}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6\,i}{3\,i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3\,i+\sqrt{3}}{3\,i-\sqrt{3}}\right]+\right.$$

$$\frac{1}{\sqrt{1+x}}i\sqrt{2}\,\left(3\,i+\sqrt{3}\right)\sqrt{\frac{3\,i+\sqrt{3}-\frac{6\,i}{1+x}}{3\,i+\sqrt{3}}}\,\sqrt{\frac{-3\,i+\sqrt{3}+\frac{6\,i}{1+x}}{-3\,i+\sqrt{3}}}$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6\,i}{3\,i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3\,i+\sqrt{3}}{3\,i-\sqrt{3}}\right]\right)\right/\left(324\sqrt{-\frac{i}{3\,i+\sqrt{3}}}\,\sqrt{1-x+x^2}\right)$$

Problem 523: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{x^3\,(1+x)^{5/2}\,(1-x+x^2)^{5/2}}\,dx$$

Optimal (type 4, 203 leaves, 5 steps):

$$\frac{26}{27\,x^2\sqrt{1+x}\,\sqrt{1-x+x^2}}+\frac{2}{9\,x^2\sqrt{1+x}\,\sqrt{1-x+x^2}\,(1+x^3)}-\frac{91\,(1+x^3)}{54\,x^2\sqrt{1+x}\,\sqrt{1-x+x^2}}-$$

$$\left(91\sqrt{2+\sqrt{3}}\,\sqrt{1+x}\,\sqrt{\frac{1-x+x^2}{\left(1+\sqrt{3}+x\right)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1-\sqrt{3}+x}{1+\sqrt{3}+x}\right],-7-4\sqrt{3}\right]\right)\Big/$$

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

Result (type 4, 183 leaves):

$$\left(-\frac{6\left(27+130\,x^3+91\,x^6\right)}{x^2\left(1+x\right)^{3/2}}-\frac{1}{\sqrt{-\frac{i}{3\,i+\sqrt{3}}}}\right.$$

$$91\,i\,\left(1+x\right)\left(1-x+x^2\right)\sqrt{6+\frac{36\,i}{\left(-3\,i+\sqrt{3}\right)\left(1+x\right)}}\sqrt{1-\frac{6\,i}{\left(3\,i+\sqrt{3}\right)\left(1+x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{6\,i}{3\,i+\sqrt{3}}}}{\sqrt{1+x}}\right],\frac{3\,i+\sqrt{3}}{3\,i-\sqrt{3}}\right]\right)\Big/\left(324\left(1-x+x^2\right)^{3/2}\right)$$

Problem 541: Unable to integrate problem.

$$\int\frac{x^m\left(e+f\,x\right)^n}{a+b\,x+c\,x^2}\,dx$$

Optimal (type 6, 201 leaves, 6 steps):

$$\left(2\,c\,x^{1+m}\left(e+f\,x\right)^n\left(1+\frac{f\,x}{e}\right)^{-n}\text{AppellF1}\left[1+m,-n,1,2+m,-\frac{f\,x}{e},-\frac{2\,c\,x}{b-\sqrt{b^2-4\,a\,c}}\right]\right)\Big/$$
$$\left(\sqrt{b^2-4\,a\,c}\left(b-\sqrt{b^2-4\,a\,c}\right)\left(1+m\right)\right)-$$
$$\left(2\,c\,x^{1+m}\left(e+f\,x\right)^n\left(1+\frac{f\,x}{e}\right)^{-n}\text{AppellF1}\left[1+m,-n,1,2+m,-\frac{f\,x}{e},-\frac{2\,c\,x}{b+\sqrt{b^2-4\,a\,c}}\right]\right)\Big/$$
$$\left(\sqrt{b^2-4\,a\,c}\left(b+\sqrt{b^2-4\,a\,c}\right)\left(1+m\right)\right)$$

Result (type 8, 25 leaves):

$$\int\frac{x^m\left(e+f\,x\right)^n}{a+b\,x+c\,x^2}\,dx$$

Problem 586: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\left(d+e\,x\right)^3}{\left(f+g\,x\right)^2\left(d^2-e^2\,x^2\right)^{7/2}}\,dx$$

Optimal (type 3, 311 leaves, 6 steps):

$$\frac{4\,d\,e\,(d+e\,x)}{5\,(e\,f+d\,g)^2\,(d^2-e^2\,x^2)^{5/2}}-\frac{e\,(5\,d\,(e\,f-3\,d\,g)-e\,(e\,f+21\,d\,g)\,x)}{15\,d\,(e\,f+d\,g)^3\,(d^2-e^2\,x^2)^{3/2}}+$$
$$\frac{e\,(45\,d^3\,g^2+e\,(2\,e^2\,f^2+14\,d\,e\,f\,g+57\,d^2\,g^2)\,x)}{15\,d^3\,(e\,f+d\,g)^4\,\sqrt{d^2-e^2\,x^2}}+$$
$$\frac{g^4\,\sqrt{d^2-e^2\,x^2}}{(e\,f-d\,g)\,(e\,f+d\,g)^4\,(f+g\,x)}+\frac{e\,g^3\,(4\,e\,f-3\,d\,g)\,\text{ArcTan}\left[\frac{d^2\,g+e^2\,f\,x}{\sqrt{e^2\,f^2-d^2\,g^2}\,\sqrt{d^2-e^2\,x^2}}\right]}{(e\,f-d\,g)\,(e\,f+d\,g)^4\,\sqrt{e^2\,f^2-d^2\,g^2}}$$

Result (type 3, 308 leaves):

$$\frac{1}{15\,(e\,f+d\,g)^4}$$
$$\left(\sqrt{d^2-e^2\,x^2}\,\left(\frac{3\,e\,(e\,f+d\,g)^2}{d\,(d-e\,x)^3}+\frac{2\,e\,(e\,f+d\,g)\,(e\,f+6\,d\,g)}{d^2\,(d-e\,x)^2}+\frac{e\,(2\,e^2\,f^2+14\,d\,e\,f\,g+57\,d^2\,g^2)}{d^3\,(d-e\,x)}+\right.\right.$$
$$\left.\frac{15\,g^4}{(e\,f-d\,g)\,(f+g\,x)}\right)-\left(15\,i\,e\,g^3\,(4\,e\,f-3\,d\,g)\right.$$
$$\text{Log}\left[\left(2\,(e\,f-d\,g)\,(e\,f+d\,g)^4\,\left(i\,d^2\,g+i\,e^2\,f\,x+\sqrt{e^2\,f^2-d^2\,g^2}\,\sqrt{d^2-e^2\,x^2}\right)\right)\Big/\right.$$
$$\left.\left.\left(e\,g^2\,(4\,e\,f-3\,d\,g)\,\sqrt{e^2\,f^2-d^2\,g^2}\,(f+g\,x)\right)\right]\right)\Big/\left((e\,f-d\,g)\,\sqrt{e^2\,f^2-d^2\,g^2}\right)\Big)$$

Problem 587: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{(d+e\,x)^3}{(f+g\,x)^3\,(d^2-e^2\,x^2)^{7/2}}\,dx$$

Optimal (type 3, 398 leaves, 7 steps):

$$\frac{4\,d\,e^2\,(d+e\,x)}{5\,(e\,f+d\,g)^3\,(d^2-e^2\,x^2)^{5/2}}-\frac{e^2\,(5\,d\,(e\,f-5\,d\,g)-e\,(e\,f+31\,d\,g)\,x)}{15\,d\,(e\,f+d\,g)^4\,(d^2-e^2\,x^2)^{3/2}}+$$
$$\frac{e^2\,(90\,d^3\,g^2+e\,(2\,e^2\,f^2+19\,d\,e\,f\,g+107\,d^2\,g^2)\,x)}{15\,d^3\,(e\,f+d\,g)^5\,\sqrt{d^2-e^2\,x^2}}+\frac{g^4\,\sqrt{d^2-e^2\,x^2}}{2\,(e\,f-d\,g)\,(e\,f+d\,g)^4\,(f+g\,x)^2}+$$
$$\frac{3\,e\,g^4\,(3\,e\,f-2\,d\,g)\,\sqrt{d^2-e^2\,x^2}}{2\,(e\,f-d\,g)^2\,(e\,f+d\,g)^5\,(f+g\,x)}+\frac{e^2\,g^3\,(20\,e^2\,f^2-30\,d\,e\,f\,g+13\,d^2\,g^2)\,\text{ArcTan}\left[\frac{d^2\,g+e^2\,f\,x}{\sqrt{e^2\,f^2-d^2\,g^2}\,\sqrt{d^2-e^2\,x^2}}\right]}{2\,(e\,f-d\,g)^2\,(e\,f+d\,g)^5\,\sqrt{e^2\,f^2-d^2\,g^2}}$$

Result (type 3, 387 leaves):

$$\frac{1}{30\,(e\,f+d\,g)^5}\left(\sqrt{d^2-e^2\,x^2}\,\left(\frac{6\,e^2\,(e\,f+d\,g)^2}{d\,(d-e\,x)^3}+\frac{2\,e^2\,(e\,f+d\,g)\,(2\,e\,f+17\,d\,g)}{d^2\,(d-e\,x)^2}+\frac{2\,e^2\,(2\,e^2\,f^2+19\,d\,e\,f\,g+107\,d^2\,g^2)}{d^3\,(d-e\,x)}+\frac{15\,g^4\,(e\,f+d\,g)}{(e\,f-d\,g)\,(f+g\,x)^2}+\frac{45\,e\,g^4\,(3\,e\,f-2\,d\,g)}{(e\,f-d\,g)^2\,(f+g\,x)}\right)-\left(15\,i\,e^2\,g^3\,(20\,e^2\,f^2-30\,d\,e\,f\,g+13\,d^2\,g^2)\right.\right.$$
$$\left.\left.\text{Log}\left[\left(4\,(e\,f-d\,g)^2\,(e\,f+d\,g)^5\left(i\,d^2\,g+i\,e^2\,f\,x+\sqrt{e^2\,f^2-d^2\,g^2}\,\sqrt{d^2-e^2\,x^2}\right)\right)\Big/\left(e^2\,g^2\right.\right.\right.$$
$$\left.\left.\left.\sqrt{e^2\,f^2-d^2\,g^2}\,(20\,e^2\,f^2-30\,d\,e\,f\,g+13\,d^2\,g^2)\,(f+g\,x)\right)\right]\right)\Big/\left((e\,f-d\,g)^2\sqrt{e^2\,f^2-d^2\,g^2}\right)\right)$$

Problem 605: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 411 leaves, 11 steps):

$$\frac{e\sqrt{d+e\,x}\,\sqrt{f+g\,x}}{c}+\frac{\sqrt{e}\,(e\,f+3\,d\,g)\,\text{ArcTanh}\left[\frac{\sqrt{g}\,\sqrt{d+e\,x}}{\sqrt{e}\,\sqrt{f+g\,x}}\right]}{c\sqrt{g}}+$$
$$\left(\left(\frac{a\,(a\,e^2\,g-c\,d\,(2\,e\,f+d\,g))}{\sqrt{c}}-\sqrt{-a}\,(c\,d^2\,f-a\,e\,(e\,f+2\,d\,g))\right)\right.$$
$$\left.\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]\right)\Big/\left(a\,c\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\right)+$$
$$\left(\left(\frac{a\,(a\,e^2\,g-c\,d\,(2\,e\,f+d\,g))}{\sqrt{c}}+\sqrt{-a}\,(c\,d^2\,f-a\,e\,(e\,f+2\,d\,g))\right)\right.$$
$$\left.\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]\right)\Big/\left(a\,c\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\right)$$

Result (type 3, 575 leaves):

$$\frac{1}{2c^2}\left(2ce\sqrt{d+ex}\,\sqrt{f+gx}+\frac{1}{\sqrt{g}}\right.$$
$$c\sqrt{e}\,(ef+3dg)\,\text{Log}\left[ef+dg+2egx+2\sqrt{e}\,\sqrt{g}\,\sqrt{d+ex}\,\sqrt{f+gx}\right]+$$
$$\frac{1}{\sqrt{a}}i\sqrt{c}\,\left(\sqrt{c}\,d+i\sqrt{a}\,e\right)^{3/2}\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}$$
$$\text{Log}\left[\left(i\sqrt{a}\,c^{3/2}\left(2\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\,\sqrt{d+ex}\,\sqrt{f+gx}+\right.\right.\right.$$
$$\left.\left.\left.\sqrt{c}\,(2df+efx+dgx)+i\sqrt{a}\,(ef+dg+2egx)\right)\right)\Big/$$
$$\left.\left.\left(\left(\sqrt{c}\,d+i\sqrt{a}\,e\right)^{5/2}\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)^{3/2}\left(-i\sqrt{a}+\sqrt{c}\,x\right)\right)\right]-$$
$$\frac{1}{\sqrt{a}}i\sqrt{c}\,\left(\sqrt{c}\,d-i\sqrt{a}\,e\right)^{3/2}\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}$$
$$\text{Log}\left[-\left(\left(\sqrt{a}\,c^{3/2}\left(2i\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\,\sqrt{d+ex}\,\sqrt{f+gx}+\right.\right.\right.$$
$$\left.\left.\left.i\sqrt{c}\,(2df+efx+dgx)+\sqrt{a}\,(ef+dg+2egx)\right)\right)\Big/$$
$$\left.\left.\left.\left(\left(\sqrt{c}\,d-i\sqrt{a}\,e\right)^{5/2}\left(\sqrt{c}\,f-i\sqrt{a}\,g\right)^{3/2}\left(i\sqrt{a}+\sqrt{c}\,x\right)\right)\right)\right]\right)$$

Problem 606: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\sqrt{d+ex}\,\sqrt{f+gx}}{a+cx^2}\,dx$$

Optimal (type 3, 342 leaves, 10 steps):

$$\frac{2\sqrt{e}\,\sqrt{g}\,\text{ArcTanh}\left[\frac{\sqrt{g}\,\sqrt{d+ex}}{\sqrt{e}\,\sqrt{f+gx}}\right]}{c}+\frac{\left(cdf-aeg-\sqrt{-a}\,\sqrt{c}\,(ef+dg)\right)\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\sqrt{d+ex}}{\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{f+gx}}\right]}{\sqrt{-a}\,c\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}}-$$
$$\frac{\left(cdf-aeg+\sqrt{-a}\,\sqrt{c}\,(ef+dg)\right)\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\sqrt{d+ex}}{\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{f+gx}}\right]}{\sqrt{-a}\,c\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}}$$

Result (type 3, 524 leaves):

$$\frac{1}{2\sqrt{a}\,c}\left(2\sqrt{a}\,\sqrt{e}\,\sqrt{g}\,\text{Log}\left[e\,f+d\,g+2\,e\,g\,x+2\sqrt{e}\,\sqrt{g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}\right]-\right.$$
$$i\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}$$
$$\text{Log}\left[-\left(\left(\sqrt{a}\,c\left(2\,i\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+i\sqrt{c}\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\left(2\,d\,f+e\,f\,x+d\,g\,x\right)+\sqrt{a}\,\left(e\,f+d\,g+2\,e\,g\,x\right)\right)\right)\Big/\right.$$
$$\left.\left.\left.\left(\left(\sqrt{c}\,d-i\sqrt{a}\,e\right)^{3/2}\left(\sqrt{c}\,f-i\sqrt{a}\,g\right)^{3/2}\left(i\sqrt{a}+\sqrt{c}\,x\right)\right)\right)\right]+$$
$$i\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\,\text{Log}\left[\left(-a\,c\left(d\,g+e\left(f+2\,g\,x\right)\right)+i\sqrt{a}\right.\right.$$
$$\left.\left.\left(2\,c\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+c^{3/2}\left(2\,d\,f+e\,f\,x+d\,g\,x\right)\right)\right)\Big/$$
$$\left.\left.\left(\left(\sqrt{c}\,d+i\sqrt{a}\,e\right)^{3/2}\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)^{3/2}\left(-i\sqrt{a}+\sqrt{c}\,x\right)\right)\right]\right)$$

Problem 607: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{f+g\,x}}{\sqrt{d+e\,x}\,\left(a+c\,x^2\right)}\,dx$$

Optimal (type 3, 240 leaves, 6 steps):

$$\frac{\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\,\sqrt{c}\,\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}}-\frac{\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\,\sqrt{c}\,\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}}$$

Result (type 3, 496 leaves):

$$\frac{1}{2\sqrt{a}\,c}\,i\left(\left(\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\text{Log}\left[\left(i\sqrt{a}\,\sqrt{c}\,\left(2\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+\sqrt{c}\,\left(2\,d\,f+e\,f\,x+d\,g\,x\right)+i\sqrt{a}\,\left(d\,g+e\,\left(f+2\,g\,x\right)\right)\right)\right)\Big/\left(\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)^{3/2}\left(-i\sqrt{a}+\sqrt{c}\,x\right)\right)\right]\Big)\Big/\left(\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\right)-\left(\sqrt{c}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\,\text{Log}\left[-\left(\left(\sqrt{a}\,\sqrt{c}\,\left(2\,i\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+i\sqrt{c}\,\left(2\,d\,f+e\,f\,x+d\,g\,x\right)+\sqrt{a}\,\left(d\,g+e\,\left(f+2\,g\,x\right)\right)\right)\right)\Big/\left(\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\left(\sqrt{c}\,f-i\sqrt{a}\,g\right)^{3/2}\left(i\sqrt{a}+\sqrt{c}\,x\right)\right)\right)\right]\Big)\Big/\left(\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\right)\right)$$

Problem 608: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 351 leaves, 8 steps):

$$-\frac{2\,e\,\sqrt{f+g\,x}}{\left(c\,d^2+a\,e^2\right)\sqrt{d+e\,x}}+\frac{\left(c\,d\,f+a\,e\,g+\sqrt{-a}\,\sqrt{c}\,\left(e\,f-d\,g\right)\right)\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\,\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\left(c\,d^2+a\,e^2\right)\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}}-\frac{\left(c\,d\,f+a\,e\,g-\sqrt{-a}\,\sqrt{c}\,\left(e\,f-d\,g\right)\right)\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\,\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\left(c\,d^2+a\,e^2\right)\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}}$$

Result (type 3, 531 leaves):

$$\frac{1}{2\left(c\,d^2+a\,e^2\right)}\left(-\frac{4\,e\,\sqrt{f+g\,x}}{\sqrt{d+e\,x}}+\left(\left(i\,\sqrt{c}\,d+\sqrt{a}\,e\right)\sqrt{\sqrt{c}\,f+i\,\sqrt{a}\,g}\right.\right.$$
$$\text{Log}\left[\left(i\,\sqrt{a}\,\sqrt{\sqrt{c}\,d+i\,\sqrt{a}\,e}\,\left(2\,\sqrt{\sqrt{c}\,d+i\,\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\,\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+\right.\right.\right.$$
$$\left.\left.\left.\sqrt{c}\,\left(2\,d\,f+e\,f\,x+d\,g\,x\right)+i\,\sqrt{a}\,\left(e\,f+d\,g+2\,e\,g\,x\right)\right)\right)\Big/$$
$$\left.\left.\left(\left(\sqrt{c}\,f+i\,\sqrt{a}\,g\right)^{3/2}\left(-i\,\sqrt{a}+\sqrt{c}\,x\right)\right)\right]\right)\Big/$$
$$\left(\sqrt{a}\,\sqrt{\sqrt{c}\,d+i\,\sqrt{a}\,e}\right)+\left(\left(-i\,\sqrt{c}\,d+\sqrt{a}\,e\right)\sqrt{\sqrt{c}\,f-i\,\sqrt{a}\,g}\right.$$
$$\text{Log}\left[-\left(\left(i\,\sqrt{a}\,\sqrt{\sqrt{c}\,d-i\,\sqrt{a}\,e}\,\left(2\,\sqrt{\sqrt{c}\,d-i\,\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\,\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+\right.\right.\right.\right.$$
$$\left.\left.\left.\sqrt{c}\,\left(2\,d\,f+e\,f\,x+d\,g\,x\right)-i\,\sqrt{a}\,\left(d\,g+e\,\left(f+2\,g\,x\right)\right)\right)\right)\Big/$$
$$\left.\left.\left.\left(\left(\sqrt{c}\,f-i\,\sqrt{a}\,g\right)^{3/2}\left(i\,\sqrt{a}+\sqrt{c}\,x\right)\right)\right)\right]\right)\Big/\left(\sqrt{a}\,\sqrt{\sqrt{c}\,d-i\,\sqrt{a}\,e}\right)\Bigg)$$

Problem 609: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\sqrt{f+g\,x}}{\left(d+e\,x\right)^{5/2}\left(a+c\,x^2\right)}\,dx$$

Optimal (type 3, 613 leaves, 11 steps):

$$-\frac{2\,e\,\sqrt{f+g\,x}}{3\left(c\,d^2+a\,e^2\right)\left(d+e\,x\right)^{3/2}}+\frac{4\,e\,g\,\sqrt{f+g\,x}}{3\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{d+e\,x}}+$$
$$\frac{e\left(c\,d\,f+a\,e\,g-\sqrt{-a}\,\sqrt{c}\,\left(e\,f-d\,g\right)\right)\sqrt{f+g\,x}}{\sqrt{-a}\,\left(\sqrt{c}\,d+\sqrt{-a}\,e\right)\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{d+e\,x}}-$$
$$\frac{e\left(c\,d\,f+a\,e\,g+\sqrt{-a}\,\sqrt{c}\,\left(e\,f-d\,g\right)\right)\sqrt{f+g\,x}}{\sqrt{-a}\,\left(\sqrt{c}\,d-\sqrt{-a}\,e\right)\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{d+e\,x}}+$$
$$\frac{\sqrt{c}\,\left(c\,d\,f+a\,e\,g+\sqrt{-a}\,\sqrt{c}\,\left(e\,f-d\,g\right)\right)\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\,\left(\sqrt{c}\,d-\sqrt{-a}\,e\right)^{3/2}\left(c\,d^2+a\,e^2\right)\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}}+$$
$$\left(\sqrt{c}\,\left(\sqrt{-a}\,c\,d\,f+\sqrt{-a}\,a\,e\,g+a\,\sqrt{c}\,\left(e\,f-d\,g\right)\right)\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]\right)\Big/$$
$$\left(a\left(\sqrt{c}\,d+\sqrt{-a}\,e\right)^{3/2}\left(c\,d^2+a\,e^2\right)\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\right)$$

Result (type 3, 600 leaves):

$$\frac{1}{2}\left(-\left(\left(4\,e\,\sqrt{f+g\,x}\,\left(a\,e^3\,\left(f+g\,x\right)+c\,d\,\left(-6\,d^2\,g+6\,e^2\,f\,x+d\,e\,\left(7\,f-5\,g\,x\right)\right)\right)\right)\right)\Big/\left(3\,\left(c\,d^2+a\,e^2\right)^2\,\left(e\,f-d\,g\right)\,\left(d+e\,x\right)^{3/2}\right)\right)-\left(i\,\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\text{Log}\left[-\left(\left(i\,\sqrt{a}\,\left(\sqrt{c}\,d-i\,\sqrt{a}\,e\right)^{3/2}\left(2\,\sqrt{\sqrt{c}\,d-i\,\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\,\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+\sqrt{c}\,\left(2\,d\,f+e\,f\,x+d\,g\,x\right)-i\,\sqrt{a}\,\left(e\,f+d\,g+2\,e\,g\,x\right)\right)\right)\Big/\left(\sqrt{c}\,\left(\sqrt{c}\,f-i\,\sqrt{a}\,g\right)^{3/2}\left(i\,\sqrt{a}+\sqrt{c}\,x\right)\right)\right)\right]\right)\Big/\left(\sqrt{a}\,\left(\sqrt{c}\,d-i\,\sqrt{a}\,e\right)^{5/2}\sqrt{\sqrt{c}\,f-i\,\sqrt{a}\,g}\right)+\left(i\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\text{Log}\left[\left(i\,\sqrt{a}\,\left(\sqrt{c}\,d+i\,\sqrt{a}\,e\right)^{3/2}\left(2\,\sqrt{\sqrt{c}\,d+i\,\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\,\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+\sqrt{c}\,\left(2\,d\,f+e\,f\,x+d\,g\,x\right)+i\,\sqrt{a}\,\left(e\,f+d\,g+2\,e\,g\,x\right)\right)\right)\Big/\left(\sqrt{c}\,\left(\sqrt{c}\,f+i\,\sqrt{a}\,g\right)^{3/2}\left(-i\,\sqrt{a}+\sqrt{c}\,x\right)\right)\right]\right)\Big/\left(\sqrt{a}\,\left(\sqrt{c}\,d+i\,\sqrt{a}\,e\right)^{5/2}\sqrt{\sqrt{c}\,f+i\,\sqrt{a}\,g}\right)\right)$$

Problem 610: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 337 leaves, 11 steps):

$$\frac{2\,e^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{g}\,\sqrt{d+e\,x}}{\sqrt{e}\,\sqrt{f+g\,x}}\right]}{c\,\sqrt{g}}+\frac{\left(c\,d^2-2\,\sqrt{-a}\,\sqrt{c}\,d\,e-a\,e^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\,c\,\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}}-\frac{\left(c\,d^2+2\,\sqrt{-a}\,\sqrt{c}\,d\,e-a\,e^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\,c\,\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}}$$

Result (type 3, 527 leaves):

$$\frac{1}{2c}\left(\frac{2e^{3/2}\,\text{Log}\left[e f+d g+2 e g x+2\sqrt{e}\,\sqrt{g}\,\sqrt{d+e x}\,\sqrt{f+g x}\right]}{\sqrt{g}}+\left(i\left(\sqrt{c}\,d+i\sqrt{a}\,e\right)^{3/2}\text{Log}\left[\left(i\sqrt{a}\,c\left(2\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\,\sqrt{d+e x}\,\sqrt{f+g x}+\sqrt{c}\,\left(2 d f+e f x+d g x\right)+i\sqrt{a}\,\left(e f+d g+2 e g x\right)\right)\right)\Big/\left(\left(\sqrt{c}\,d+i\sqrt{a}\,e\right)^{5/2}\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\,\left(-i\sqrt{a}+\sqrt{c}\,x\right)\right)\right]\right)\Big/\left(\sqrt{a}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\right)-\left(i\left(\sqrt{c}\,d-i\sqrt{a}\,e\right)^{3/2}\text{Log}\left[-\left(\left(\sqrt{a}\,c\left(2 i\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\,\sqrt{d+e x}\,\sqrt{f+g x}+i\sqrt{c}\,\left(2 d f+e f x+d g x\right)+\sqrt{a}\,\left(e f+d g+2 e g x\right)\right)\right)\Big/\left(\left(\sqrt{c}\,d-i\sqrt{a}\,e\right)^{5/2}\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\,\left(i\sqrt{a}+\sqrt{c}\,x\right)\right)\right)\right]\right)\Big/\left(\sqrt{a}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\right)\right)$$

Problem 611: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{d+e x}}{\sqrt{f+g x}\,\left(a+c x^2\right)}\,dx$$

Optimal (type 3, 240 leaves, 6 steps):

$$\frac{\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\;\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\sqrt{d+e x}}{\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{f+g x}}\right]}{\sqrt{-a}\,\sqrt{c}\,\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}}-\frac{\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\;\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\sqrt{d+e x}}{\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{f+g x}}\right]}{\sqrt{-a}\,\sqrt{c}\,\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}}$$

Result (type 3, 496 leaves):

$$\frac{1}{2\sqrt{a}\,c}i\left(\left(\left(c d+i\sqrt{a}\,\sqrt{c}\,e\right)\text{Log}\left[\left(i\sqrt{a}\,\sqrt{c}\,\left(2\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\,\sqrt{d+e x}\,\sqrt{f+g x}+\sqrt{c}\,\left(2 d f+e f x+d g x\right)+i\sqrt{a}\,\left(d g+e\left(f+2 g x\right)\right)\right)\right)\Big/\left(\left(\sqrt{c}\,d+i\sqrt{a}\,e\right)^{3/2}\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\,\left(-i\sqrt{a}+\sqrt{c}\,x\right)\right)\right]\right)\Big/\left(\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\right)-\left(\sqrt{c}\,\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\right.$$
$$\left.\text{Log}\left[-\left(\left(\sqrt{a}\,\sqrt{c}\,\left(2 i\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\,\sqrt{d+e x}\,\sqrt{f+g x}+i\sqrt{c}\,\left(2 d f+e f x+d g x\right)+\sqrt{a}\,\left(d g+e\left(f+2 g x\right)\right)\right)\right)\Big/\left(\left(\sqrt{c}\,d-i\sqrt{a}\,e\right)^{3/2}\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\,\left(i\sqrt{a}+\sqrt{c}\,x\right)\right)\right)\right]\Big/\left(\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\right)\right)$$

Problem 612: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{\sqrt{d+e\,x}\,\sqrt{f+g\,x}\,\left(a+c\,x^2\right)}\,dx$$

Optimal (type 3, 230 leaves, 6 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\,\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\,\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}}$$

Result (type 3, 451 leaves):

$$-\frac{1}{2\sqrt{a}}$$
$$i\left(\text{Log}\left[\left(-a\left(d\,g+e\left(f+2\,g\,x\right)\right)-i\sqrt{a}\left(2\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+\sqrt{c}\left(2\,d\,f+e\,f\,x+d\,g\,x\right)\right)\right)\Big/\left(\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\left(i\sqrt{a}+\sqrt{c}\,x\right)\right)\right]\Big/$$
$$\left(\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\right)-\text{Log}\left[\left(-a\left(d\,g+e\left(f+2\,g\,x\right)\right)+i\sqrt{a}\left(2\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+\sqrt{c}\left(2\,d\,f+e\,f\,x+d\,g\,x\right)\right)\right)\Big/\left(\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\left(-i\sqrt{a}+\sqrt{c}\,x\right)\right)\right]\Big/$$
$$\left(\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\right)\Bigg)$$

Problem 613: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 354 leaves, 8 steps):

$$-\frac{e\sqrt{f+g\,x}}{\sqrt{-a}\left(\sqrt{c}\,d-\sqrt{-a}\,e\right)\left(e\,f-d\,g\right)\sqrt{d+e\,x}}+\frac{e\sqrt{f+g\,x}}{\sqrt{-a}\left(\sqrt{c}\,d+\sqrt{-a}\,e\right)\left(e\,f-d\,g\right)\sqrt{d+e\,x}}+$$
$$\frac{\sqrt{c}\,\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\left(\sqrt{c}\,d-\sqrt{-a}\,e\right)^{3/2}\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}}-\frac{\sqrt{c}\,\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\left(\sqrt{c}\,d+\sqrt{-a}\,e\right)^{3/2}\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}}$$

Result (type 3, 555 leaves):

$$\frac{1}{2\left(c\,d^2+a\,e^2\right)}\left(-\frac{4\,e^2\sqrt{f+g\,x}}{(e\,f-d\,g)\sqrt{d+e\,x}}+\left(\left(-i\,c\,d+\sqrt{a}\,\sqrt{c}\,e\right)\text{Log}\left[-\left(\left(i\sqrt{a}\,\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\left(2\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+\sqrt{c}\,\left(2\,d\,f+e\,f\,x+d\,g\,x\right)-i\sqrt{a}\,\left(e\,f+d\,g+2\,e\,g\,x\right)\right)\right)\Big/\left(\sqrt{c}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\,\left(i\sqrt{a}+\sqrt{c}\,x\right)\right)\right)\right]\right)\Big/\left(\sqrt{a}\,\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\right)+\left(\left(i\,c\,d+\sqrt{a}\,\sqrt{c}\,e\right)\text{Log}\left[\left(i\sqrt{a}\,\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\left(2\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+\sqrt{c}\,\left(2\,d\,f+e\,f\,x+d\,g\,x\right)+i\sqrt{a}\,\left(e\,f+d\,g+2\,e\,g\,x\right)\right)\right)\Big/\left(\sqrt{c}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\,\left(-i\sqrt{a}+\sqrt{c}\,x\right)\right)\right]\right)\Big/\left(\sqrt{a}\,\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\right)\right)$$

Problem 614: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 625 leaves, 21 steps):

$$\frac{2\,(e\,f-d\,g)\,\sqrt{d+e\,x}}{\left(c\,f^2+a\,g^2\right)\sqrt{f+g\,x}}-\frac{2\sqrt{e}\,(e\,f-d\,g)\,\text{ArcTanh}\left[\frac{\sqrt{g}\,\sqrt{d+e\,x}}{\sqrt{e}\,\sqrt{f+g\,x}}\right]}{\sqrt{g}\,\left(c\,f^2+a\,g^2\right)}-\frac{\sqrt{e}\,\left(c\,d\,f+a\,e\,g-\sqrt{-a}\,\sqrt{c}\,(e\,f-d\,g)\right)\text{ArcTanh}\left[\frac{\sqrt{g}\,\sqrt{d+e\,x}}{\sqrt{e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\,\sqrt{c}\,\sqrt{g}\,\left(c\,f^2+a\,g^2\right)}+\frac{\sqrt{e}\,\left(c\,d\,f+a\,e\,g+\sqrt{-a}\,\sqrt{c}\,(e\,f-d\,g)\right)\text{ArcTanh}\left[\frac{\sqrt{g}\,\sqrt{d+e\,x}}{\sqrt{e}\,\sqrt{f+g\,x}}\right]}{\sqrt{-a}\,\sqrt{c}\,\sqrt{g}\,\left(c\,f^2+a\,g^2\right)}+\left(\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\left(c\,d\,f+a\,e\,g-\sqrt{-a}\,\sqrt{c}\,(e\,f-d\,g)\right)\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]\right)\Big/\left(\sqrt{-a}\,\sqrt{c}\,\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\left(c\,f^2+a\,g^2\right)\right)-\left(\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\left(c\,d\,f+a\,e\,g+\sqrt{-a}\,\sqrt{c}\,(e\,f-d\,g)\right)\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\sqrt{d+e\,x}}{\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{f+g\,x}}\right]\right)\Big/\left(\sqrt{-a}\,\sqrt{c}\,\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\left(c\,f^2+a\,g^2\right)\right)$$

Result (type 3, 558 leaves):

$$\frac{1}{2\left(c f^2+a g^2\right)}\left(\frac{4\left(e f-d g\right)\sqrt{d+e x}}{\sqrt{f+g x}}+\left(\left(\sqrt{c}\,d-i\sqrt{a}\,e\right)^{3/2}\left(-i\sqrt{c}\,f+\sqrt{a}\,g\right)\text{Log}\left[-\left(\left(i\sqrt{a}\,\sqrt{c}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\left(2\sqrt{\sqrt{c}\,d-i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\,\sqrt{d+e x}\,\sqrt{f+g x}+\sqrt{c}\left(2 d f+e f x+d g x\right)-i\sqrt{a}\left(e f+d g+2 e g x\right)\right)\right)\Big/\left(\left(\sqrt{c}\,d-i\sqrt{a}\,e\right)^{5/2}\left(i\sqrt{a}+\sqrt{c}\,x\right)\right)\right)\right]\Big/\left(\sqrt{a}\,\sqrt{c}\,\sqrt{\sqrt{c}\,f-i\sqrt{a}\,g}\right)+\left(\left(\sqrt{c}\,d+i\sqrt{a}\,e\right)^{3/2}\left(i\sqrt{c}\,f+\sqrt{a}\,g\right)\text{Log}\left[\left(i\sqrt{a}\,\sqrt{c}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\left(2\sqrt{\sqrt{c}\,d+i\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\,\sqrt{d+e x}\,\sqrt{f+g x}+\sqrt{c}\left(2 d f+e f x+d g x\right)+i\sqrt{a}\left(e f+d g+2 e g x\right)\right)\right)\Big/\left(\left(\sqrt{c}\,d+i\sqrt{a}\,e\right)^{5/2}\left(-i\sqrt{a}+\sqrt{c}\,x\right)\right)\right]\Big/\left(\sqrt{a}\,\sqrt{c}\,\sqrt{\sqrt{c}\,f+i\sqrt{a}\,g}\right)\right)$$

Problem 615: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 351 leaves, 8 steps):

$$-\frac{2 g\sqrt{d+e x}}{\left(c f^2+a g^2\right)\sqrt{f+g x}}+\frac{\left(c d f+a e g-\sqrt{-a}\,\sqrt{c}\,\left(e f-d g\right)\right)\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\,\sqrt{d+e x}}{\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{f+g x}}\right]}{\sqrt{-a}\,\sqrt{\sqrt{c}\,d-\sqrt{-a}\,e}\,\sqrt{\sqrt{c}\,f-\sqrt{-a}\,g}\left(c f^2+a g^2\right)}-$$

$$\frac{\left(c d f+a e g+\sqrt{-a}\,\sqrt{c}\,\left(e f-d g\right)\right)\text{ArcTanh}\left[\frac{\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\,\sqrt{d+e x}}{\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{f+g x}}\right]}{\sqrt{-a}\,\sqrt{\sqrt{c}\,d+\sqrt{-a}\,e}\,\sqrt{\sqrt{c}\,f+\sqrt{-a}\,g}\left(c f^2+a g^2\right)}$$

Result (type 3, 531 leaves):

$$\frac{1}{2\left(c f^2+a g^2\right)}\left(-\frac{4 g \sqrt{d+e x}}{\sqrt{f+g x}}+\left(\sqrt{\sqrt{c} d+i \sqrt{a} e}\left(i \sqrt{c} f+\sqrt{a} g\right)\right.\right.$$
$$\text{Log}\left[\left(i \sqrt{a} \sqrt{\sqrt{c} f+i \sqrt{a} g}\left(2 \sqrt{\sqrt{c} d+i \sqrt{a} e} \sqrt{\sqrt{c} f+i \sqrt{a} g} \sqrt{d+e x} \sqrt{f+g x}+\right.\right.\right.$$
$$\left.\left.\left.\sqrt{c}\left(2 d f+e f x+d g x\right)+i \sqrt{a}\left(e f+d g+2 e g x\right)\right)\right)\Big/$$
$$\left.\left.\left.\left(\sqrt{c} d+i \sqrt{a} e\right)^{3/2}\left(-i \sqrt{a}+\sqrt{c} x\right)\right)\right]\Big/$$
$$\left(\sqrt{a} \sqrt{\sqrt{c} f+i \sqrt{a} g}\right)+\left(\sqrt{\sqrt{c} d-i \sqrt{a} e}\left(-i \sqrt{c} f+\sqrt{a} g\right)\right.$$
$$\text{Log}\left[-\left(\left(i \sqrt{a} \sqrt{\sqrt{c} f-i \sqrt{a} g}\left(2 \sqrt{\sqrt{c} d-i \sqrt{a} e} \sqrt{\sqrt{c} f-i \sqrt{a} g} \sqrt{d+e x} \sqrt{f+g x}+\right.\right.\right.\right.$$
$$\left.\left.\left.\sqrt{c}\left(2 d f+e f x+d g x\right)-i \sqrt{a}\left(d g+e\left(f+2 g x\right)\right)\right)\right)\Big/$$
$$\left.\left.\left.\left.\left(\sqrt{c} d-i \sqrt{a} e\right)^{3/2}\left(i \sqrt{a}+\sqrt{c} x\right)\right)\right)\right]\Big/\left(\sqrt{a} \sqrt{\sqrt{c} f-i \sqrt{a} g}\right)\Bigg)$$

Problem 616: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 354 leaves, 8 steps):

$$\frac{g \sqrt{d+e x}}{\sqrt{-a}\left(\sqrt{c} f-\sqrt{-a} g\right)(e f-d g) \sqrt{f+g x}}-\frac{g \sqrt{d+e x}}{\sqrt{-a}\left(\sqrt{c} f+\sqrt{-a} g\right)(e f-d g) \sqrt{f+g x}}+$$
$$\frac{\sqrt{c}\ \text{ArcTanh}\left[\frac{\sqrt{\sqrt{c} f-\sqrt{-a} g} \sqrt{d+e x}}{\sqrt{\sqrt{c} d-\sqrt{-a} e} \sqrt{f+g x}}\right]}{\sqrt{-a} \sqrt{\sqrt{c} d-\sqrt{-a} e}\left(\sqrt{c} f-\sqrt{-a} g\right)^{3/2}}-\frac{\sqrt{c}\ \text{ArcTanh}\left[\frac{\sqrt{\sqrt{c} f+\sqrt{-a} g} \sqrt{d+e x}}{\sqrt{\sqrt{c} d+\sqrt{-a} e} \sqrt{f+g x}}\right]}{\sqrt{-a} \sqrt{\sqrt{c} d+\sqrt{-a} e}\left(\sqrt{c} f+\sqrt{-a} g\right)^{3/2}}$$

Result (type 3, 555 leaves):

$$\frac{1}{2\left(c f^2+a g^2\right)}\left(\frac{4 g^2 \sqrt{d+e x}}{(e f-d g) \sqrt{f+g x}}+\left(\left(i c f+\sqrt{a} \sqrt{c} g\right) \text{Log}\left[\left(i \sqrt{a} \sqrt{\sqrt{c} f+i \sqrt{a} g}\left(2 \sqrt{\sqrt{c} d+i \sqrt{a} e} \sqrt{\sqrt{c} f+i \sqrt{a} g}\right.\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\left.\sqrt{d+e x} \sqrt{f+g x}+\sqrt{c}\left(2 d f+e f x+d g x\right)+i \sqrt{a}\left(e f+d g+2 e g x\right)\right)\right)\right/$$
$$\left.\left.\left.\left(\sqrt{c} \sqrt{\sqrt{c} d+i \sqrt{a} e}\left(-i \sqrt{a}+\sqrt{c} x\right)\right)\right]\right)\Big/\left(\sqrt{a} \sqrt{\sqrt{c} d+i \sqrt{a} e} \sqrt{\sqrt{c} f+i \sqrt{a} g}\right)+$$
$$\left(\left(-i c f+\sqrt{a} \sqrt{c} g\right) \text{Log}\left[-\left(\left(i \sqrt{a} \sqrt{\sqrt{c} f-i \sqrt{a} g}\left(2 \sqrt{\sqrt{c} d-i \sqrt{a} e} \sqrt{\sqrt{c} f-i \sqrt{a} g}\right.\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\left.\sqrt{d+e x} \sqrt{f+g x}+\sqrt{c}\left(2 d f+e f x+d g x\right)-i \sqrt{a}\left(d g+e\left(f+2 g x\right)\right)\right)\right)\right/$$
$$\left.\left.\left.\left(\sqrt{c} \sqrt{\sqrt{c} d-i \sqrt{a} e}\left(i \sqrt{a}+\sqrt{c} x\right)\right)\right)\right]\right)\Big/\left(\sqrt{a} \sqrt{\sqrt{c} d-i \sqrt{a} e} \sqrt{\sqrt{c} f-i \sqrt{a} g}\right)\Bigg)$$

Problem 617: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 549 leaves, 12 steps):

$$-\frac{e}{\sqrt{-a}\left(\sqrt{c} d-\sqrt{-a} e\right)(e f-d g) \sqrt{d+e x} \sqrt{f+g x}}+$$
$$\frac{e}{\sqrt{-a}\left(\sqrt{c} d+\sqrt{-a} e\right)(e f-d g) \sqrt{d+e x} \sqrt{f+g x}}+$$
$$\frac{g\left(2 \sqrt{-a} e g-\sqrt{c}(e f+d g)\right) \sqrt{d+e x}}{\sqrt{-a}\left(\sqrt{c} d-\sqrt{-a} e\right)\left(\sqrt{c} f-\sqrt{-a} g\right)(e f-d g)^2 \sqrt{f+g x}}+$$
$$\frac{g\left(2 \sqrt{-a} e g+\sqrt{c}(e f+d g)\right) \sqrt{d+e x}}{\sqrt{-a}\left(\sqrt{c} d+\sqrt{-a} e\right)\left(\sqrt{c} f+\sqrt{-a} g\right)(e f-d g)^2 \sqrt{f+g x}}+$$
$$\frac{c \text{ArcTanh}\left[\frac{\sqrt{\sqrt{c} f-\sqrt{-a} g} \sqrt{d+e x}}{\sqrt{\sqrt{c} d-\sqrt{-a} e} \sqrt{f+g x}}\right]}{\sqrt{-a}\left(\sqrt{c} d-\sqrt{-a} e\right)^{3/2}\left(\sqrt{c} f-\sqrt{-a} g\right)^{3/2}}-\frac{c \text{ArcTanh}\left[\frac{\sqrt{\sqrt{c} f+\sqrt{-a} g} \sqrt{d+e x}}{\sqrt{\sqrt{c} d+\sqrt{-a} e} \sqrt{f+g x}}\right]}{\sqrt{-a}\left(\sqrt{c} d+\sqrt{-a} e\right)^{3/2}\left(\sqrt{c} f+\sqrt{-a} g\right)^{3/2}}$$

Result (type 3, 548 leaves):

$$\frac{1}{2}\left(\frac{4\left(-\frac{g^3\,(d+e\,x)}{c\,f^2+a\,g^2}-\frac{e^3\,(f+g\,x)}{c\,d^2+a\,e^2}\right)}{(e\,f-d\,g)^2\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}}-\right.$$
$$\left(i\,c\,\text{Log}\left[-\frac{1}{i\,\sqrt{a}\,c+c^{3/2}\,x}i\,\sqrt{a}\,\sqrt{\sqrt{c}\,d-i\,\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\,\sqrt{a}\,g}\right.\right.$$
$$\left(2\,\sqrt{\sqrt{c}\,d-i\,\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f-i\,\sqrt{a}\,g}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+\sqrt{c}\,(2\,d\,f+e\,f\,x+d\,g\,x)-\right.$$
$$\left.\left.i\,\sqrt{a}\,(e\,f+d\,g+2\,e\,g\,x)\right)\right]\Big)\Big/\left(\sqrt{a}\,\left(\sqrt{c}\,d-i\,\sqrt{a}\,e\right)^{3/2}\left(\sqrt{c}\,f-i\,\sqrt{a}\,g\right)^{3/2}\right)+$$
$$\left(i\,c\,\text{Log}\left[\left(i\,\sqrt{a}\,\sqrt{\sqrt{c}\,d+i\,\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\,\sqrt{a}\,g}\,\left(2\,\sqrt{\sqrt{c}\,d+i\,\sqrt{a}\,e}\,\sqrt{\sqrt{c}\,f+i\,\sqrt{a}\,g}\right.\right.\right.\right.$$
$$\left.\left.\sqrt{d+e\,x}\,\sqrt{f+g\,x}+\sqrt{c}\,(2\,d\,f+e\,f\,x+d\,g\,x)+i\,\sqrt{a}\,(e\,f+d\,g+2\,e\,g\,x)\right)\right)\Big/$$
$$\left.\left.\left.\left.\left(-i\,\sqrt{a}\,c+c^{3/2}\,x\right)\right]\right)\Big/\left(\sqrt{a}\,\left(\sqrt{c}\,d+i\,\sqrt{a}\,e\right)^{3/2}\left(\sqrt{c}\,f+i\,\sqrt{a}\,g\right)^{3/2}\right)\right)$$

Problem 620: Result unnecessarily involves imaginary or complex numbers.

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

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

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

Result (type 3, 148 leaves):

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

Problem 621: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 107 leaves, 5 steps):

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

Result (type 3, 148 leaves):

$$-\frac{1}{d^2}\left(d\sqrt{1-a^2x^2}+(ac-2d)\,\text{ArcSin}[ax]+\frac{i\,(-ac+d)^2\,\text{Log}\left[\frac{2d^3\left(id+ia^2cx+\sqrt{a^2c^2-d^2}\,\sqrt{1-a^2x^2}\right)}{(-ac+d)^2\sqrt{a^2c^2-d^2}\,(c+dx)}\right]}{\sqrt{a^2c^2-d^2}}\right)$$

Problem 622: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int (d+ex)^3\sqrt{f+gx}\,\sqrt{a+cx^2}\,dx$$

Optimal (type 4, 851 leaves, 10 steps):

$$-\frac{1}{3465\,c^2\,e\,g^4}2\left(150\,a^2\,e^4\,g^4-6\,a\,c\,e^2\,g^2\left(2\,e^2\,f^2-33\,d\,e\,f\,g+165\,d^2\,g^2\right)+\right.$$
$$\left.c^2\left(187\,e^4\,f^4-732\,d\,e^3\,f^3\,g+1098\,d^2\,e^2\,f^2\,g^2-798\,d^3\,e\,f\,g^3+315\,d^4\,g^4\right)\right)$$
$$\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}+\frac{2\left(d+e\,x\right)^4\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{11\,e}-\frac{1}{3465\,c\,g^4}$$
$$2\left(2\,a\,e^2\,g^2\left(74\,e\,f-231\,d\,g\right)-c\left(233\,e^3\,f^3-843\,d\,e^2\,f^2\,g+1107\,d^2\,e\,f\,g^2-567\,d^3\,g^3\right)\right)$$
$$\left(f+g\,x\right)^{3/2}\sqrt{a+c\,x^2}+\frac{1}{693\,c\,g^4}$$
$$2\,e\left(18\,a\,e^2\,g^2-c\left(29\,e^2\,f^2-96\,d\,e\,f\,g+81\,d^2\,g^2\right)\right)\left(f+g\,x\right)^{5/2}\sqrt{a+c\,x^2}+$$
$$\frac{2\,e^2\left(e\,f-3\,d\,g\right)\left(f+g\,x\right)^{7/2}\sqrt{a+c\,x^2}}{99\,g^4}+$$
$$\left(4\sqrt{-a}\,\left(3\,a^2\,e^2\,g^4\left(26\,e\,f+231\,d\,g\right)-c^2\,f^2\left(64\,e^3\,f^3-264\,d\,e^2\,f^2\,g+396\,d^2\,e\,f\,g^2-231\,d^3\,g^3\right)-\right.\right.$$
$$\left.\left.9\,a\,c\,g^2\left(6\,e^3\,f^3-33\,d\,e^2\,f^2\,g+88\,d^2\,e\,f\,g^2+77\,d^3\,g^3\right)\right)\sqrt{f+g\,x}\right.$$
$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$
$$\left(3465\,c^{3/2}\,g^5\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)-$$
$$\left(4\sqrt{-a}\,\left(c\,f^2+a\,g^2\right)\left(75\,a^2\,e^3\,g^4-3\,a\,c\,e\,g^2\left(2\,e^2\,f^2-33\,d\,e\,f\,g+165\,d^2\,g^2\right)-\right.\right.$$
$$\left.\left.c^2\,f\left(64\,e^3\,f^3-264\,d\,e^2\,f^2\,g+396\,d^2\,e\,f\,g^2-231\,d^3\,g^3\right)\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$
$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(3465\,c^{5/2}\,g^5\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 6884 leaves) :

$$\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}$$
$$\left(\frac{1}{3465\,c^2\,g^4}2\left(-64\,c^2\,e^3\,f^4+264\,c^2\,d\,e^2\,f^3\,g-396\,c^2\,d^2\,e\,f^2\,g^2-46\,a\,c\,e^3\,f^2\,g^2+231\,c^2\,d^3\,f\,g^3+\right.\right.$$

$$264\,a\,c\,d\,e^2\,f\,g^3 + 990\,a\,c\,d^2\,e\,g^4 - 150\,a^2\,e^3\,g^4\Big) + \frac{1}{3465\,c\,g^3}$$
$$2\left(48\,c\,e^3\,f^3 - 198\,c\,d\,e^2\,f^2\,g + 297\,c\,d^2\,e\,f\,g^2 + 32\,a\,e^3\,f\,g^2 + 693\,c\,d^3\,g^3 + 462\,a\,d\,e^2\,g^3\right)x +$$
$$\frac{2\,e\left(-8\,c\,e^2\,f^2 + 33\,c\,d\,e\,f\,g + 297\,c\,d^2\,g^2 + 18\,a\,e^2\,g^2\right)x^2}{693\,c\,g^2} + \frac{2\,e^2\left(e\,f + 33\,d\,g\right)x^3}{99\,g} + \frac{2\,e^3\,x^4}{11}\Bigg) -$$

$$\frac{1}{3465\,c^2\,g^6}\,4\Bigg(\Bigg(\Big(-64\,c^2\,e^3\,f^5 + 264\,c^2\,d\,e^2\,f^4\,g - 396\,c^2\,d^2\,e\,f^3\,g^2 - 54\,a\,c\,e^3\,f^3\,g^2 + 231\,c^2\,d^3\,f^2\,g^3 +$$
$$297\,a\,c\,d\,e^2\,f^2\,g^3 - 792\,a\,c\,d^2\,e\,f\,g^4 + 78\,a^2\,e^3\,f\,g^4 - 693\,a\,c\,d^3\,g^5 + 693\,a^2\,d\,e^2\,g^5\Big)\left(f + g\,x\right)^{3/2}$$
$$\left(c + \frac{c\,f^2}{\left(f + g\,x\right)^2} + \frac{a\,g^2}{\left(f + g\,x\right)^2} - \frac{2\,c\,f}{f + g\,x}\right)\Bigg)\Bigg/\left(\sqrt{a + \frac{c\left(f + g\,x\right)^2\left(-1 + \frac{f}{f+g\,x}\right)^2}{g^2}}\right) +$$
$$\frac{1}{\sqrt{a + \frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}\left(c\,f^2 + a\,g^2\right)\left(f + g\,x\right)\sqrt{c + \frac{c\,f^2}{\left(f + g\,x\right)^2} + \frac{a\,g^2}{\left(f + g\,x\right)^2} - \frac{2\,c\,f}{f + g\,x}}$$
$$\Bigg(\Bigg(\Bigg(64\,i\,c^2\,e^3\,f^5\left(c\,f + i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1 - \frac{c\,f^2 + a\,g^2}{\left(c\,f - i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f + g\,x\right)}}$$
$$\sqrt{1 - \frac{c\,f^2 + a\,g^2}{\left(c\,f + i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f + g\,x\right)}}$$
$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f + g\,x}}\Big], \frac{c\,f - i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f + i\,\sqrt{a}\,\sqrt{c}\,g}\Big] -$$
$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f + g\,x}}\Big], \frac{c\,f - i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f + i\,\sqrt{a}\,\sqrt{c}\,g}\Big]\Bigg)\Bigg)\Bigg/$$
$$\left(\left(c\,f^2 + a\,g^2\right)\sqrt{-\frac{c\,f^2 + a\,g^2}{c\,f - i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c + \frac{c\,f^2 + a\,g^2}{\left(f + g\,x\right)^2} - \frac{2\,c\,f}{f + g\,x}}\right) - \Bigg(264\,i\,c^2\,d\,e^2\,f^4\,g\left(c\,f +\right.$$

$$i\sqrt{a}\sqrt{c}\,g\Big)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\sqrt{c}\,g\right)(f+g\,x)}}\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\sqrt{c}\,g\right)(f+g\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\sqrt{a}\sqrt{c}\,g}{c\,f+i\sqrt{a}\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\sqrt{a}\sqrt{c}\,g}{c\,f+i\sqrt{a}\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\sqrt{c}\,g}}\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(396\,i\,c^2\,d^2\,e\,f^3\,g^2\left(c\,f+i\sqrt{a}\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\sqrt{a}\sqrt{c}\,g}{c\,f+i\sqrt{a}\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\sqrt{a}\sqrt{c}\,g}{c\,f+i\sqrt{a}\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\sqrt{c}\,g}}\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(54\,i\,a\,c\,e^3\,f^3\,g^2\left(c\,f+i\sqrt{a}\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(231\,i\,c^2\,d^3\,f^2\,g^3\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(297\,i\,a\,c\,d\,e^2\,f^2\,g^3\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(792\,i\,a\,c\,d^2\,e\,f\,g^4\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(78\,i\,a^2\,e^3\,f\,g^4\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(693\,i\,a\,c\,d^3\,g^5\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(693\,i\,a^2\,d\,e^2\,g^5\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(64\,i\,c^2\,e^3\,f^4\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(264\,i\,c^2\,d\,e^2\,f^3\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(396\,i\,c^2\,d^2\,e\,f^2\,g^2\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(6\,i\,a\,c\,e^3\,f^2\,g^2\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(231\,i\,c^2\,d^3\,f\,g^3\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(99\,i\,a\,c\,d\,e^2\,f\,g^3\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(495\,i\,a\,c\,d^2\,e\,g^4\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(75\,i\,a^2\,e^3\,g^4\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right/$$

$$\left.\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)\right)$$

Problem 623: Result unnecessarily involves complex numbers and more than

twice size of optimal antiderivative.

$$\int (d+e\,x)^2 \sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\,dx$$

Optimal (type 4, 635 leaves, 9 steps):

$$-\frac{1}{315\,c\,e\,g^3}2\left(6\,a\,e^2\,g^2\,(e\,f-10\,d\,g)-c\left(19\,e^3\,f^3-57\,d\,e^2\,f^2\,g+63\,d^2\,e\,f\,g^2-35\,d^3\,g^3\right)\right)$$
$$\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}+\frac{2\,(d+e\,x)^3\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{9\,e}+$$
$$\frac{4\left(7\,a\,e^2\,g^2-c\left(8\,e^2\,f^2-24\,d\,e\,f\,g+21\,d^2\,g^2\right)\right)(f+g\,x)^{3/2}\sqrt{a+c\,x^2}}{315\,c\,g^3}+$$
$$\frac{2\,e\,(e\,f-3\,d\,g)\,(f+g\,x)^{5/2}\sqrt{a+c\,x^2}}{63\,g^3}+$$
$$\left(4\sqrt{-a}\,\left(21\,a^2\,e^2\,g^4+3\,a\,c\,g^2\left(3\,e^2\,f^2-16\,d\,e\,f\,g-21\,d^2\,g^2\right)+c^2\,f^2\left(8\,e^2\,f^2-24\,d\,e\,f\,g+21\,d^2\,g^2\right)\right)\right.$$
$$\left.\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Bigg/$$
$$\left(315\,c^{3/2}\,g^4\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)-\left(4\sqrt{-a}\,\left(c\,f^2+a\,g^2\right)\right.$$
$$\left(3\,a\,e\,g^2\,(e\,f-10\,d\,g)+c\,f\left(8\,e^2\,f^2-24\,d\,e\,f\,g+21\,d^2\,g^2\right)\right)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}$$
$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Bigg/\left(315\,c^{3/2}\,g^4\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 4647 leaves):

$$\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\left(\frac{2\left(8\,c\,e^2\,f^3-24\,c\,d\,e\,f^2\,g+21\,c\,d^2\,f\,g^2+8\,a\,e^2\,f\,g^2+60\,a\,d\,e\,g^3\right)}{315\,c\,g^3}+\right.$$
$$\left.\frac{2\left(-6\,c\,e^2\,f^2+18\,c\,d\,e\,f\,g+63\,c\,d^2\,g^2+14\,a\,e^2\,g^2\right)x}{315\,c\,g^2}+\frac{2\,e\,(e\,f+18\,d\,g)\,x^2}{63\,g}+\frac{2\,e^2\,x^3}{9}\right)+$$

$$\frac{1}{315\,c\,g^5}\,2\left(-\left(\left(\left(2\left(8\,c^2\,e^2\,f^4-24\,c^2\,d\,e\,f^3\,g+21\,c^2\,d^2\,f^2\,g^2+9\,a\,c\,e^2\,f^2\,g^2-48\,a\,c\,d\,e\,f\,g^3-63\,a\,c\,d^2\,g^4+21\,a^2\,e^2\,g^4\right)\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}\right)\right)\Big/\left(c\sqrt{a+\frac{c\left(f+g\,x\right)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}\right)\right)+\frac{1}{c\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}\right)$$

$$2\left(c\,f^2+a\,g^2\right)\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\left(\left(\left(8\,i\,c^2\,e^2\,f^4\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/\left(\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\left(24\,i\,c^2\,d\,e\,f^3\,g\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right)$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left(\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(21\,i\,c^2\,d^2\,f^2\,g^2\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left.\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left(\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(9\,i\,a\,c\,e^2\,f^2\,g^2\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left.\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left(\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(48\,i\,a\,c\,d\,e\,f\,g^3\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left.\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left(\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(63\,i\,a\,c\,d^2\,g^4\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left.\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left(\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(21\,i\,a^2\,e^2\,g^4\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left.\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left(\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(8\,i\,c^2\,e^2\,f^3\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(24\,i\,c^2\,d\,e\,f^2\,g\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(21\,i\,c^2\,d^2\,f\,g^2\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(3\,i\,a\,c\,e^2\,f\,g^2\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(30\,i\,a\,c\,d\,e\,g^3\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left.\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)\right)$$

Problem 624: Result unnecessarily involves imaginary or complex numbers.

$$\int (d+e\,x)\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\,dx$$

Optimal (type 4, 434 leaves, 7 steps):

$$-\frac{1}{105\,c\,g^2}2\sqrt{f+g\,x}\,\left(5\,a\,e\,g^2+c\,f\,\left(4\,e\,f-7\,d\,g\right)-3\,c\,g\,\left(e\,f+7\,d\,g\right)\,x\right)\sqrt{a+c\,x^2}+\frac{2\,e\,\sqrt{f+g\,x}\,\left(a+c\,x^2\right)^{3/2}}{7\,c}-$$

$$\left(4\sqrt{-a}\,\left(c\,f^2\,\left(4\,e\,f-7\,d\,g\right)+a\,g^2\,\left(8\,e\,f+21\,d\,g\right)\right)\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(105\sqrt{c}\,g^3\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)+$$

$$\left(4\sqrt{-a}\,\left(c\,f^2+a\,g^2\right)\,\left(5\,a\,e\,g^2+c\,f\,\left(4\,e\,f-7\,d\,g\right)\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(105\,c^{3/2}\,g^3\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 610 leaves):

$$\frac{1}{105\sqrt{a+c\,x^2}}\sqrt{f+g\,x}\left(\frac{1}{c\,g^2}2\left(a+c\,x^2\right)\left(10\,a\,e\,g^2+7\,c\,d\,g\left(f+3\,g\,x\right)+c\,e\left(-4\,f^2+3\,f\,g\,x+15\,g^2\,x^2\right)\right)+\right.$$

$$\frac{1}{c\,g^4\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\left(f+g\,x\right)}$$

$$4\left(g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\left(c\,f^2\left(4\,e\,f-7\,d\,g\right)+a\,g^2\left(8\,e\,f+21\,d\,g\right)\right)\left(a+c\,x^2\right)+\right.$$

$$i\sqrt{c}\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\left(c\,f^2\left(-4\,e\,f+7\,d\,g\right)-a\,g^2\left(8\,e\,f+21\,d\,g\right)\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}$$

$$\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\left(f+g\,x\right)^{3/2}\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\sqrt{a}\,g\left(i\sqrt{c}\,f-\sqrt{a}\,g\right)\left(5\,i\,a\,e\,g^2+i\,c\,f\left(4\,e\,f-7\,d\,g\right)+3\sqrt{a}\,\sqrt{c}\,g\left(e\,f+7\,d\,g\right)\right)$$

$$\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\left(f+g\,x\right)^{3/2}$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)\right)$$

Problem 625: Result unnecessarily involves imaginary or complex numbers.

$$\int\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\,dx$$

Optimal (type 4, 362 leaves, 7 steps):

$$-\frac{4\,f\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{15\,g}+\frac{2\,(f+g\,x)^{3/2}\,\sqrt{a+c\,x^2}}{5\,g}+$$

$$\left(4\sqrt{-a}\,\left(c\,f^2-3\,a\,g^2\right)\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(15\sqrt{c}\,g^2\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)-\left(4\sqrt{-a}\,f\,\left(c\,f^2+a\,g^2\right)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(15\sqrt{c}\,g^2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 536 leaves) :

$$\frac{1}{15\sqrt{a+c\,x^2}}$$

$$\sqrt{f+g\,x}\left(\frac{2\,(f+3\,g\,x)\,(a+c\,x^2)}{g}-\left(4\left(g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,\left(-3\,a^2\,g^2+c^2\,f^2\,x^2+a\,c\,\left(f^2-3\,g^2\,x^2\right)\right)+\right.\right.\right.$$

$$\sqrt{c}\,\left(-i\,c^{3/2}\,f^3+\sqrt{a}\,c\,f^2\,g+3\,i\,a\,\sqrt{c}\,f\,g^2-3\,a^{3/2}\,g^3\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\,\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}$$

$$(f+g\,x)^{3/2}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-\sqrt{a}\,\sqrt{c}\,g$$

$$\left(c\,f^2+4\,i\,\sqrt{a}\,\sqrt{c}\,f\,g-3\,a\,g^2\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\,\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,(f+g\,x)^{3/2}\,\text{EllipticF}\left[\right.$$

$$\left.\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)\right)\Big/\left(c\,g^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,(f+g\,x)\right)\Bigg)$$

Problem 626: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\sqrt{f+g\,x}\ \sqrt{a+c\,x^2}}{d+e\,x}\,dx$$

Optimal (type 4, 683 leaves, 14 steps):

$$\frac{2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{3\,e}-\left(2\sqrt{-a}\,\sqrt{c}\,\left(e\,f-3\,d\,g\right)\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right/\left(3\,e^2\,g\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)+$$

$$\left(2\sqrt{-a}\,\sqrt{c}\,f\,\left(e\,f-3\,d\,g\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right/\left(3\,e^2\,g\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(2\sqrt{-a}\,\left(2\,a\,e^2\,g-3\,c\,d\,\left(e\,f-d\,g\right)\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right/\left(3\sqrt{c}\,e^3\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(2\,\left(c\,d^2+a\,e^2\right)\,\left(e\,f-d\,g\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right/\left(e^3\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 1216 leaves) :

$$\frac{2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{3\,e}+\frac{1}{3\,e^3\,g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}$$

$$(f+g\,x)^{3/2}\left(2\,c\,e^2\,f\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}-6\,c\,d\,e\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}+\right.$$

$$\frac{2\,c\,e^2\,f^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}-\frac{6\,c\,d\,e\,f^2\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}+\frac{2\,a\,e^2\,f\,g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}-$$

$$\frac{6\,a\,d\,e\,g^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}-\frac{4\,c\,e^2\,f^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{f+g\,x}+\frac{12\,c\,d\,e\,f\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{f+g\,x}+$$

$$\frac{1}{\sqrt{f+g\,x}}2\sqrt{c}\,e\left(-i\sqrt{c}\,f+\sqrt{a}\,g\right)(e\,f-3\,d\,g)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g\,x}}2\,e\left(3\sqrt{c}\,d-i\sqrt{a}\,e\right)g\left(-i\sqrt{c}\,f+\sqrt{a}\,g\right)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g\,x}}6\,i\,c\,d^2\,g^2\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\,\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g\,x}}6\,i\,a\,e^2\,g^2\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\,\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\ (e f - d g)}{e\left(\sqrt{c}\ f + i\sqrt{a}\ g\right)}, i\ \text{ArcSinh}\left[\frac{\sqrt{-f - \frac{i\sqrt{a}\ g}{\sqrt{c}}}}{\sqrt{f + g x}}\right], \frac{\sqrt{c}\ f - i\sqrt{a}\ g}{\sqrt{c}\ f + i\sqrt{a}\ g}\right]$$

Problem 627: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{f + g x}\ \sqrt{a + c x^2}}{(d + e x)^2}\, dx$$

Optimal (type 4, 650 leaves, 14 steps):

$$-\frac{\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{e\,(d+e\,x)}-\left(3\sqrt{-a}\,\sqrt{c}\,\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(e^2\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)+\left(3\sqrt{-a}\,\sqrt{c}\,f\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(e^2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(\sqrt{-a}\,\sqrt{c}\,(2\,e\,f-3\,d\,g)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(e^3\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-$$

$$\left((a\,e^2\,g-c\,d\,(2\,e\,f-3\,d\,g))\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/\left(e^3\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 1446 leaves):

$$-\frac{\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{e\,(d+e\,x)}-\frac{1}{e^3\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,(e\,f-d\,g)\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}$$

$$(f+g\,x)^{3/2}\left(-3\,c\,e^2\,f\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}+3\,c\,d\,e\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}-\right.$$

$$\frac{3\,c\,e^2\,f^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}+\frac{3\,c\,d\,e\,f^2\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}-\frac{3\,a\,e^2\,f\,g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}+$$

$$\frac{3\,a\,d\,e\,g^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}+\frac{6\,c\,e^2\,f^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{f+g\,x}-\frac{6\,c\,d\,e\,f\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{f+g\,x}+$$

$$\frac{1}{\sqrt{f+g\,x}}3\,i\sqrt{c}\,e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)(e\,f-d\,g)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\;\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g\,x}}e\left(-i\sqrt{c}\,f+\sqrt{a}\,g\right)\left(i\sqrt{a}\,e\,g+\sqrt{c}\,(2\,e\,f-3\,d\,g)\right)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\;\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g\,x}}2\,i\,c\,d\,e\,f\,g\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-$$

$$\frac{1}{\sqrt{f+g\,x}}3\,i\,c\,d^2\,g^2\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-$$

$$\frac{1}{\sqrt{f+g\,x}}\,i\,a\,e^2\,g^2\,\sqrt{1-\frac{f}{f+g\,x}-\frac{i\,\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\,\sqrt{1-\frac{f}{f+g\,x}+\frac{i\,\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\,\left(\sqrt{c}\,f+i\,\sqrt{a}\,g\right)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\,\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\,\frac{\sqrt{c}\,f-i\,\sqrt{a}\,g}{\sqrt{c}\,f+i\,\sqrt{a}\,g}\right]$$

Problem 628: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{(d+e\,x)^3}\,dx$$

Optimal (type 4, 1205 leaves, 23 steps):

$$-\frac{\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{2\,e\,(d+e\,x)^2}-\frac{(a\,e^2\,g-c\,d\,(2\,e\,f-3\,d\,g))\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{4\,e\,(c\,d^2+a\,e^2)\,(e\,f-d\,g)\,(d+e\,x)}-$$

$$\left(\sqrt{-a}\,\sqrt{c}\,(a\,e^2\,g-c\,d\,(2\,e\,f-3\,d\,g))\,\sqrt{f+g\,x}\right.$$

$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\,-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(4\,e^2\,(c\,d^2+a\,e^2)\,(e\,f-d\,g)\,\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(3\,\sqrt{-a}\,\sqrt{c}\,g\,\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\,-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(2\,e^3\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)+$$

$$\left(\sqrt{-a}\,\sqrt{c}\,f\left(a\,e^2\,g-c\,d\left(2\,e\,f-3\,d\,g\right)\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(4\,e^2\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(\sqrt{-a}\,\sqrt{c}\,d\,g\left(a\,e^2\,g-c\,d\left(2\,e\,f-3\,d\,g\right)\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(4\,e^3\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-\left(c\left(e\,f-3\,d\,g\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\right.$$

$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/$$

$$\left(e^3\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)+\left(\left(a\,e^2\,g-c\,d\left(2\,e\,f-3\,d\,g\right)\right)^2\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\right.$$

$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/$$

$$\left(4\,e^3\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 12 364 leaves) :

$$\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\left(-\frac{1}{2\,e\,(d+e\,x)^2}+\frac{2\,c\,d\,e\,f-3\,c\,d^2\,g-a\,e^2\,g}{4\,e\,\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)(d+e\,x)}\right)+$$

$$\frac{1}{4\,e\,\left(c\,d^2+a\,e^2\right)g\,\left(e\,f-d\,g\right)}$$

$$\left(\left(\left(-2\,c\,d\,e\,f+3\,c\,d^2\,g+a\,e^2\,g\right)(f+g\,x)^{3/2}\left(c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}\right)\right)\Big/\right.$$

$$\left(e\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}\right)+\frac{1}{e\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}$$

$$\left(e\,f-d\,g\right)(f+g\,x)\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\left(\left(2\,i\,c^2\,d\,e\,f^3\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(3\,i\,c^2\,d^2\,f^2\,g\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,a\,c\,e^2\,f^2\,g\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(2\,i\,a\,c\,d\,e\,f\,g^2\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(3\,i\,a\,c\,d^2\,g^3\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,a^2\,e^2\,g^3\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right/$$

$$\left(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(2\,i\,c^2\,d\,e^2\,f^3\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(3\,i\,c^2\,d^2\,e\,f^2\,g\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(i\,a\,c\,e^3\,f^2\,g\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(2\,i\,a\,c\,d\,e^2\,f\,g^2\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(3\,i\,a\,c\,d^2\,e\,g^3\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Big/\right.$$

$$\left.\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+\right.$$

$$\left(i\,a^2\,e^3\,g^3\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Big/\right)$$

$$\left.\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+\right.$$

$$\left(4\,i\,c^2\,d\,e\,f^2\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Big/\right)$$

$$\left.\left((e\,f-d\,g)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+\right.$$

$$\left(4\,i\,a\,c\,d\,e\,g^2\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left((e\,f-d\,g)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+\frac{1}{(e\,f-d\,g)^3}$$

$$2\,c^2\,d\,e^3\,f^3\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g)\,(f+g\,x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g)\,(e\,f-d\,g)}{e\,(c\,f^2+a\,g^2)},\ i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\right.$$

$$\left.\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g)\,(f+g\,x)}}\ \text{EllipticPi}\left[\frac{(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g)\,(e\,f-d\,g)}{e\,(c\,f^2+a\,g^2)},\ i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left.\left.\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\right.\right.$$

$$\frac{1}{(e f-d g)^3} 3 c^2 d^2 e^2 f^2 g \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) \Bigg/ \left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}\right.$$

$$\left.\sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right) - \left(\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}\ \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right) -$$

$$\frac{1}{(e f-d g)^3} a c e^4 f^2 g \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)+$$

$$\frac{1}{(e f-d g)^3} 2 a c d e^3 f g^2 \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\frac{1}{\left(e\,f-d\,g\right)^3}3\,a\,c\,d^2\,e^2\,g^3\left(\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-\frac{1}{(e f-d g)^3}$$

$$a^2 e^4 g^3 \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\frac{1}{(e f-d g)^2} 4 c^2 d e^2 f^2 \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\left.\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) /$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) /$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\frac{1}{(e f-d g)^2} 4 a c d e^2 g^2 \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\left.\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)+\frac{1}{e f-d g}$$

$$2 c^2 d e f\left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+\frac{1}{e\,f-d\,g}$$

$$3\,c^2\,d^2\,g\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg] \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)+\frac{1}{e f-d g}$$

$$5 a c e^2 g \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg] \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg] \Bigg/$$

$$\left.\left.\left.\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)\right)\right)\right)$$

Problem 629: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(d+e\,x)^3\sqrt{a+c\,x^2}}{\sqrt{f+g\,x}}\,dx$$

Optimal (type 4, 666 leaves, 9 steps):

$$-\frac{1}{315\,c\,g^4}\Big(4\left(9\,a\,e^2\,g^2\left(2\,e\,f-5\,d\,g\right)+c\left(76\,e^3\,f^3-204\,d\,e^2\,f^2\,g+168\,d^2\,e\,f\,g^2-35\,d^3\,g^3\right)\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}+\frac{2\,(d+e\,x)^3\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{9\,g}+\frac{1}{315\,c\,g^4}4\,e\left(7\,a\,e^2\,g^2+c\left(64\,e^2\,f^2-111\,d\,e\,f\,g+42\,d^2\,g^2\right)\right)(f+g\,x)^{3/2}\sqrt{a+c\,x^2}-\frac{4\,e^2\left(4\,e\,f-3\,d\,g\right)(f+g\,x)^{5/2}\sqrt{a+c\,x^2}}{63\,g^4}+\Bigg(4\sqrt{-a}\left(21\,a^2\,e^3\,g^4-3\,a\,c\,e\,g^2\left(10\,e^2\,f^2-39\,d\,e\,f\,g+63\,d^2\,g^2\right)-c^2\,f\left(64\,e^3\,f^3-216\,d\,e^2\,f^2\,g+252\,d^2\,e\,f\,g^2-105\,d^3\,g^3\right)\right)\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\Bigg)\Bigg/\left(315\,c^{3/2}\,g^5\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)-\Bigg(4\sqrt{-a}\left(c\,f^2+a\,g^2\right)\left(9\,a\,e^2\,g^2\left(2\,e\,f-5\,d\,g\right)-c\left(64\,e^3\,f^3-216\,d\,e^2\,f^2\,g+252\,d^2\,e\,f\,g^2-105\,d^3\,g^3\right)\right)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\Bigg)\Bigg/\left(315\,c^{3/2}\,g^5\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 5379 leaves):

$$\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\left(\frac{1}{315\,c\,g^4}2\left(-64\,c\,e^3\,f^3+216\,c\,d\,e^2\,f^2\,g-252\,c\,d^2\,e\,f\,g^2-22\,a\,e^3\,f\,g^2+105\,c\,d^3\,g^3+90\,a\,d\,e^2\,g^3\right)+\frac{2\,e\left(48\,c\,e^2\,f^2-162\,c\,d\,e\,f\,g+189\,c\,d^2\,g^2+14\,a\,e^2\,g^2\right)x}{315\,c\,g^3}-\frac{2\,e^2\left(8\,e\,f-27\,d\,g\right)x^2}{63\,g^2}+\frac{2\,e^3\,x^3}{9\,g}\right)+\frac{1}{315\,c\,g^6}4\left(\left(\left(64\,c^2\,e^3\,f^4-216\,c^2\,d\,e^2\,f^3\,g+252\,c^2\,d^2\,e\,f^2\,g^2+30\,a\,c\,e^3\,f^2\,g^2-105\,c^2\,d^3\,f\,g^3-117\,a\,c\,d\,e^2\,f\,g^3+189\,a\,c\,d^2\,e\,g^4-21\,a^2\,e^3\,g^4\right)\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}\right)\right)\Big/\left(c\sqrt{a+\frac{c\left(f+g\,x\right)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}\right)-\frac{1}{c\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}\left(c\,f^2+a\,g^2\right)\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\left(\left(64\,i\,c^2\,e^3\,f^4\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/\left(\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\left(216\,i\,c^2\,d\,e^2\,f^3\,g\left(c\,f+\right.\right.\right.$$

$$\left(i\sqrt{a}\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\sqrt{c}\,g\right)\left(f+g\,x\right)}}\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\sqrt{a}\sqrt{c}\,g}{c\,f+i\sqrt{a}\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\sqrt{a}\sqrt{c}\,g}{c\,f+i\sqrt{a}\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\sqrt{c}\,g}}\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(252\,i\,c^2\,d^2\,e\,f^2\,g^2\left(c\,f+i\sqrt{a}\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\sqrt{a}\sqrt{c}\,g}{c\,f+i\sqrt{a}\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\sqrt{a}\sqrt{c}\,g}{c\,f+i\sqrt{a}\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\sqrt{c}\,g}}\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(30\,i\,a\,c\,e^3\,f^2\,g^2\left(c\,f+i\sqrt{a}\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(105\,i\,c^2\,d^3\,f\,g^3\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(117\,i\,a\,c\,d\,e^2\,f\,g^3\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(189\,i\,a\,c\,d^2\,e\,g^4\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(21\,i\,a^2\,e^3\,g^4\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(64\,i\,c^2\,e^3\,f^3\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(216\,i\,c^2\,d\,e^2\,f^2\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(252\,i\,c^2\,d^2\,e\,f\,g^2\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(18\,i\,a\,c\,e^3\,f\,g^2\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(105\,i\,c^2\,d^3\,g^3\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(45\,i\,a\,c\,d\,e^2\,g^3\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right/$$

$$\left.\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)\right)$$

Problem 630: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\left(d+e\,x\right)^2\sqrt{a+c\,x^2}}{\sqrt{f+g\,x}}\,dx$$

Optimal (type 4, 508 leaves, 8 steps):

$$\frac{4\left(5\,a\,e^2\,g^2+c\left(21\,e^2\,f^2-34\,d\,e\,f\,g+10\,d^2\,g^2\right)\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{105\,c\,g^3}+$$

$$\frac{2\,(d+e\,x)^2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{7\,g}-\frac{4\,e\,(3\,e\,f-2\,d\,g)\,(f+g\,x)^{3/2}\sqrt{a+c\,x^2}}{35\,g^3}+$$

$$\left(4\sqrt{-a}\,\left(a\,e\,g^2\,(13\,e\,f-42\,d\,g)+c\,f\left(24\,e^2\,f^2-56\,d\,e\,f\,g+35\,d^2\,g^2\right)\right)\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Bigg/\left(105\sqrt{c}\,g^4\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)+$$

$$\left(4\sqrt{-a}\,\left(c\,f^2+a\,g^2\right)\left(5\,a\,e^2\,g^2-c\left(24\,e^2\,f^2-56\,d\,e\,f\,g+35\,d^2\,g^2\right)\right)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Bigg/\left(105\,c^{3/2}\,g^4\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 712 leaves) :

$$\frac{1}{105\,c\,g^5\sqrt{a+c\,x^2}}\,2\sqrt{f+g\,x}\left(g^2\left(a+c\,x^2\right)\left(10\,a\,e^2\,g^2+c\left(35\,d^2\,g^2+14\,d\,e\,g\left(-4\,f+3\,g\,x\right)+3\,e^2\left(8\,f^2-6\,f\,g\,x+5\,g^2\,x^2\right)\right)\right)-\right.$$

$$\frac{1}{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\left(f+g\,x\right)}$$

$$2\left(g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\left(a^2\,e\,g^2\left(13\,e\,f-42\,d\,g\right)+c^2\,f\left(24\,e^2\,f^2-56\,d\,e\,f\,g+35\,d^2\,g^2\right)x^2+\right.\right.$$

$$a\,c\left(35\,d^2\,f\,g^2-14\,d\,e\,g\left(4\,f^2+3\,g^2\,x^2\right)+e^2\left(24\,f^3+13\,f\,g^2\,x^2\right)\right)\Big)-$$

$$i\sqrt{c}\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\left(a\,e\,g^2\left(13\,e\,f-42\,d\,g\right)+c\,f\left(24\,e^2\,f^2-56\,d\,e\,f\,g+35\,d^2\,g^2\right)\right)$$

$$\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\left(f+g\,x\right)^{3/2}\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+\sqrt{a}\,g\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\left(5\,a\,e^2\,g^2+6\,i\sqrt{a}\,\sqrt{c}\,e\,g\left(3\,e\,f-7\,d\,g\right)+\right.$$

$$c\left(-24\,e^2\,f^2+56\,d\,e\,f\,g-35\,d^2\,g^2\right)\Big)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}$$

$$\left.\left.\left(f+g\,x\right)^{3/2}\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)\right)$$

Problem 631: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\left(d+e\,x\right)\sqrt{a+c\,x^2}}{\sqrt{f+g\,x}}\,dx$$

Optimal (type 4, 364 leaves, 6 steps):

$$-\frac{2\sqrt{f+g\,x}\,\left(4\,e\,f-5\,d\,g-3\,e\,g\,x\right)\sqrt{a+c\,x^2}}{15\,g^2}-$$

$$\left(4\sqrt{-a}\,\left(3\,a\,e\,g^2+c\,f\,\left(4\,e\,f-5\,d\,g\right)\right)\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(15\sqrt{c}\,g^3\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)+$$

$$\left(4\sqrt{-a}\,\left(4\,e\,f-5\,d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(15\sqrt{c}\,g^3\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 545 leaves) :

$$\frac{1}{15\sqrt{a+c\,x^2}}\sqrt{f+g\,x}\left(\frac{2\left(-4\,e\,f+5\,d\,g+3\,e\,g\,x\right)\left(a+c\,x^2\right)}{g^2}+\right.$$

$$\frac{1}{c\,g^4\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\left(f+g\,x\right)}4\left(g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\left(3\,a\,e\,g^2+c\,f\left(4\,e\,f-5\,d\,g\right)\right)\left(a+c\,x^2\right)-\right.$$

$$\sqrt{c}\left(i\sqrt{c}\,f-\sqrt{a}\,g\right)\left(3\,a\,e\,g^2+c\,f\left(4\,e\,f-5\,d\,g\right)\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}$$

$$\left(f+g\,x\right)^{3/2}\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\sqrt{a}\,\sqrt{c}\,g\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\left(3\,i\sqrt{a}\,e\,g+\sqrt{c}\,\left(-4\,e\,f+5\,d\,g\right)\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}$$

$$\left.\left.\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\left(f+g\,x\right)^{3/2}\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)\right)$$

Problem 632: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\sqrt{a+c\,x^2}}{\sqrt{f+g\,x}}\,dx$$

Optimal (type 4, 322 leaves, 6 steps):

$$\frac{2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{3\,g}+$$

$$\left(4\sqrt{-a}\,\sqrt{c}\,f\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(3\,g^2\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)-\left(4\sqrt{-a}\,\left(c\,f^2+a\,g^2\right)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

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

Result (type 4, 456 leaves):

$$\frac{1}{3\,g^3\sqrt{a+c\,x^2}}2\sqrt{f+g\,x}$$

$$\left(g^2\left(a+c\,x^2\right)-\left(2\left(f\,g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,\left(a+c\,x^2\right)+\sqrt{c}\,f\left(-i\sqrt{c}\,f+\sqrt{a}\,g\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\right.\right.\right.$$

$$\left.\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,\left(f+g\,x\right)^{3/2}\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-\right.$$

$$\left.\sqrt{a}\,g\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\,\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,\left(f+g\,x\right)^{3/2}\right.$$

$$\left.\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)\right)\Big/\left(\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,\left(f+g\,x\right)\right)\right)$$

Problem 633: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+c\,x^2}}{(d+e\,x)\,\sqrt{f+g\,x}}\,dx$$

Optimal (type 4, 473 leaves, 10 steps):

$$-\left(\left(2\sqrt{-a}\,\sqrt{c}\,\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(e\,g\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)\right)+\left(2\sqrt{-a}\,\sqrt{c}\,(e\,f+d\,g)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(e^2\,g\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-\left(2\,(c\,d^2+a\,e^2)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/\left(e^2\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 1096 leaves):

$$-\frac{1}{e^2 g^2 \sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,(e f-d g)\,\sqrt{f+g x}\,\sqrt{a+c x^2}}$$

$$2\left(-c e^2 f^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}+c d e f^2 g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}-a e^2 f g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}+\right.$$

$$a d e g^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}+2 c e^2 f^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,(f+g x)-$$

$$2 c d e f g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,(f+g x)-c e^2 f\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,(f+g x)^2+$$

$$c d e g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,(f+g x)^2+\sqrt{c}\,e\left(-i\sqrt{c}\,f+\sqrt{a}\,g\right)(-e f+d g)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g x}}$$

$$\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g x}{f+g x}}\,(f+g x)^{3/2}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$e\left(i\sqrt{c}\,d+\sqrt{a}\,e\right)g\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g x}}\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g x}{f+g x}}$$

$$(f+g x)^{3/2}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-$$

$$i c d^2 g^2\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g x}}\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g x}{f+g x}}\,(f+g x)^{3/2}\,\text{EllipticPi}\left[\frac{\sqrt{c}\,(e f-d g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\Big]-i a e^2 g^2\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g x}}\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g x}{f+g x}}$$

$$\left.(f+g x)^{3/2}\,\text{EllipticPi}\left[\frac{\sqrt{c}\,(e f-d g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)$$

Problem 634: Result unnecessarily involves complex numbers and more than

twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+c\,x^2}}{(d+e\,x)^2\,\sqrt{f+g\,x}}\,dx$$

Optimal (type 4, 694 leaves, 14 steps):

$$-\frac{\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{(e\,f-d\,g)\,(d+e\,x)}-$$

$$\left(\sqrt{-a}\,\sqrt{c}\,\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(e\,(e\,f-d\,g)\,\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)+$$

$$\left(\sqrt{-a}\,\sqrt{c}\,f\,\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(e\,(e\,f-d\,g)\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-\left(\sqrt{-a}\,\sqrt{c}\,(2\,e\,f-d\,g)\,\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(e^2\,(e\,f-d\,g)\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)+$$

$$\left((a\,e^2\,g+c\,d\,(2\,e\,f-d\,g))\,\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/\left(e^2\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)(e\,f-d\,g)\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 1456 leaves):

$$\frac{\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{(-e\,f+d\,g)\,(d+e\,x)}-\frac{1}{e^2\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,(e\,f-d\,g)\,(-e\,f+d\,g)\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}$$

$$(f+g\,x)^{3/2}\left(c\,e^2\,f\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}-c\,d\,e\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}+\right.$$

$$\frac{c\,e^2\,f^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}-\frac{c\,d\,e\,f^2\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}+\frac{a\,e^2\,f\,g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}-$$

$$\frac{a\,d\,e\,g^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}-\frac{2\,c\,e^2\,f^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{f+g\,x}+\frac{2\,c\,d\,e\,f\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{f+g\,x}+$$

$$\frac{1}{\sqrt{f+g\,x}}\sqrt{c}\,e\left(-i\sqrt{c}\,f+\sqrt{a}\,g\right)(e\,f-d\,g)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\;\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g\,x}}e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\left(\sqrt{a}\,e\,g+i\sqrt{c}\,(2\,e\,f-d\,g)\right)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\;\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-$$

$$\frac{1}{\sqrt{f+g\,x}}2\,i\,c\,d\,e\,f\,g\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g\,x}}i\,c\,d^2\,g^2\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\ (e f-d g)}{e\left(\sqrt{c}\ f+i \sqrt{a}\ g\right)}, i\ \text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i \sqrt{a}\ g}{\sqrt{c}}}}{\sqrt{f+g x}}\right], \frac{\sqrt{c}\ f-i \sqrt{a}\ g}{\sqrt{c}\ f+i \sqrt{a}\ g}\right]-$$

$$\frac{1}{\sqrt{f+g x}} i\ a e^2 g^2 \sqrt{1-\frac{f}{f+g x}-\frac{i \sqrt{a}\ g}{\sqrt{c}\ (f+g x)}} \sqrt{1-\frac{f}{f+g x}+\frac{i \sqrt{a}\ g}{\sqrt{c}\ (f+g x)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\ (e f-d g)}{e\left(\sqrt{c}\ f+i \sqrt{a}\ g\right)}, i\ \text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i \sqrt{a}\ g}{\sqrt{c}}}}{\sqrt{f+g x}}\right], \frac{\sqrt{c}\ f-i \sqrt{a}\ g}{\sqrt{c}\ f+i \sqrt{a}\ g}\right]\Bigg)$$

Problem 635: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+c x^2}}{(d+e x)^3 \sqrt{f+g x}}\, dx$$

Optimal (type 4, 1241 leaves, 23 steps):

$$-\frac{\sqrt{f+g x}\ \sqrt{a+c x^2}}{2 (e f-d g)\ (d+e x)^2}+\frac{\left(3 a e^2 g+c d\ (2 e f+d g)\right) \sqrt{f+g x}\ \sqrt{a+c x^2}}{4\left(c d^2+a e^2\right)(e f-d g)^2 (d+e x)}+$$

$$\Bigg(\sqrt{-a}\ \sqrt{c}\ \left(3 a e^2 g+c d\ (2 e f+d g)\right) \sqrt{f+g x}$$

$$\sqrt{1+\frac{c x^2}{a}}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\ x}{\sqrt{-a}}}}{\sqrt{2}}\right], -\frac{2 a g}{\sqrt{-a}\ \sqrt{c}\ f-a g}\right]\Bigg)\Bigg/$$

$$\Bigg(4 e\left(c d^2+a e^2\right)(e f-d g)^2 \sqrt{\frac{\sqrt{c}\ (f+g x)}{\sqrt{c}\ f+\sqrt{-a}\ g}}\ \sqrt{a+c x^2}\Bigg)+$$

$$\Bigg(\sqrt{-a}\ \sqrt{c}\ g \sqrt{\frac{\sqrt{c}\ (f+g x)}{\sqrt{c}\ f+\sqrt{-a}\ g}}\ \sqrt{1+\frac{c x^2}{a}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\ x}{\sqrt{-a}}}}{\sqrt{2}}\right], -\frac{2 a g}{\sqrt{-a}\ \sqrt{c}\ f-a g}\right]\Bigg)\Bigg/$$

$$\left(2 e^2 (e f-d g) \sqrt{f+g x}\ \sqrt{a+c x^2}\right)-$$

$$\left(\sqrt{-a}\,\sqrt{c}\,f\,\left(3\,a\,e^2\,g+c\,d\,\left(2\,e\,f+d\,g\right)\right)\,\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(4\,e\,\left(c\,d^2+a\,e^2\right)\,\left(e\,f-d\,g\right)^2\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)+\left(\sqrt{-a}\,\sqrt{c}\,d\,g\,\left(3\,a\,e^2\,g+c\,d\,\left(2\,e\,f+d\,g\right)\right)\right.$$

$$\left.\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(4\,e^2\,\left(c\,d^2+a\,e^2\right)\,\left(e\,f-d\,g\right)^2\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-\left(c\,\left(e\,f+d\,g\right)\,\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\right.$$

$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/$$

$$\left(e^2\,\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\,\left(e\,f-d\,g\right)\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(\left(a\,e^2\,g-c\,d\,\left(2\,e\,f-3\,d\,g\right)\right)\,\left(3\,a\,e^2\,g+c\,d\,\left(2\,e\,f+d\,g\right)\right)\,\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\right.$$

$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/$$

$$\left(4\,e^2\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)^2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 12 365 leaves) :

$$\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\left(\frac{1}{2\left(-e\,f+d\,g\right)\left(d+e\,x\right)^2}+\frac{2\,c\,d\,e\,f+c\,d^2\,g+3\,a\,e^2\,g}{4\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)^2\left(d+e\,x\right)}\right)+$$

$$\frac{1}{4\left(c\,d^2+a\,e^2\right)g\left(-e\,f+d\,g\right)^2}$$

$$\left(\left(\left(-2\,c\,d\,e\,f-c\,d^2\,g-3\,a\,e^2\,g\right)\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}\right)\right)\Big/\right.$$

$$\left(e\sqrt{a+\frac{c\left(f+g\,x\right)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}\right)-$$

$$\frac{1}{e\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}\left(e\,f-d\,g\right)\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}$$

$$\left(-\left(\left(\left(2\,i\,c^2\,d\,e\,f^3\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.\right.\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\right.\right.$$

$$\left.\left.\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\right.\right.$$

$$\left.\left.\left.\left.\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/\left(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\right.$$

$$\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\Bigg)\Bigg)-\Bigg(i\,c^2\,d^2\,f^2\,g\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\Big],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\Big],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Big]\Bigg)\Bigg/$$

$$\Bigg(\left(e\,f-d\,g\right)\,\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\Bigg)-$$

$$\Bigg(3\,i\,a\,c\,e^2\,f^2\,g\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\Big],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\Big],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Big]\Bigg)\Bigg/$$

$$\Bigg(\left(e\,f-d\,g\right)\,\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\Bigg)-$$

$$\left(2\,i\,a\,c\,d\,e\,f\,g^2\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,a\,c\,d^2\,g^3\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(3\,i\,a^2\,e^2\,g^3\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right/$$

$$\left(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(2\,i\,c^2\,d\,e^2\,f^3\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(i\,c^2\,d^2\,e\,f^2\,g\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(3\,i\,a\,c\,e^3\,f^2\,g\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(2\,i\,a\,c\,d\,e^2\,f\,g^2\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(i\,a\,c\,d^2\,e\,g^3\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(3\,i\,a^2\,e^3\,g^3\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(4\,i\,c^2\,d\,e\,f^2\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left((e\,f-d\,g)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(4\,i\,a\,c\,d\,e\,g^2\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left((e\,f-d\,g)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\frac{1}{(e\,f-d\,g)^3}$$

$$2\,c^2\,d\,e^3\,f^3\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g)\,(f+g\,x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g)\,(e\,f-d\,g)}{e\,(c\,f^2+a\,g^2)},\ i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\right.$$

$$\left.\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g)\,(f+g\,x)}}\ \text{EllipticPi}\left[\frac{(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g)\,(e\,f-d\,g)}{e\,(c\,f^2+a\,g^2)},\ i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left.\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\right.$$

$$\frac{1}{(e f-d g)^3} c^2 d^2 e^2 f^2 g \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) \Bigg/ \left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}\right.$$

$$\left.\sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right) - \left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}\ \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right) -$$

$$\frac{1}{(e f-d g)^3} 3 a c e^4 f^2 g \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\frac{1}{(e f-d g)^3} 2 a c d e^3 f g^2 \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\frac{1}{\left(e\,f-d\,g\right)^3}a\,c\,d^2\,e^2\,g^3\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-\frac{1}{(e f-d g)^3}$$

$$3 a^2 e^4 g^3 \Bigg(\Bigg(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\Bigg(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)+$$

$$\frac{1}{(e f-d g)^2} 4 c^2 d e^2 f^2 \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\left.\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) /$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) /$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)+$$

$$\frac{1}{(e f-d g)^2} 4 a c d e^2 g^2 \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\left.\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-\frac{1}{e f-d g}$$

$$2 c^2 d e f\left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+\frac{1}{e\,f-d\,g}$$

$$c^2\,d^2\,g\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg] \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-\frac{1}{e f-d g}$$

$$a c e^2 g \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg] \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg] \Bigg/ \right.\right.$$

$$\left.\left.\left.\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)\right)\right)\right)$$

Problem 636: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{(d+e\,x)^3\sqrt{f+g\,x}}{\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 531 leaves, 8 steps):

$$-\frac{2\,e\,\left(25\,a\,e^2\,g^2+c\,\left(7\,e^2\,f^2+12\,d\,e\,f\,g-90\,d^2\,g^2\right)\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{105\,c^2\,g^2}+$$

$$\frac{2\,e\,(d+e\,x)^2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{7\,c}+\frac{2\,e^2\,(e\,f+11\,d\,g)\,(f+g\,x)^{3/2}\sqrt{a+c\,x^2}}{35\,c\,g^2}+$$

$$\left(2\sqrt{-a}\,\left(a\,e^2\,g^2\,(19\,e\,f+189\,d\,g)-c\,\left(8\,e^3\,f^3-42\,d\,e^2\,f^2\,g+105\,d^2\,e\,f\,g^2+105\,d^3\,g^3\right)\right)\right.$$

$$\left.\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(105\,c^{3/2}\,g^3\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(2\sqrt{-a}\,e\,\left(c\,f^2+a\,g^2\right)\,\left(25\,a\,e^2\,g^2-c\,\left(8\,e^2\,f^2-42\,d\,e\,f\,g+105\,d^2\,g^2\right)\right)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(105\,c^{5/2}\,g^3\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 959 leaves):

$$\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\left(-\frac{2\,e\left(4\,c\,e^2\,f^2-21\,c\,d\,e\,f\,g-105\,c\,d^2\,g^2+25\,a\,e^2\,g^2\right)}{105\,c^2\,g^2}+\frac{2\,e^2\left(e\,f+21\,d\,g\right)x}{35\,c\,g}+\frac{2\,e^3\,x^2}{7\,c}\right)-$$

$$\frac{1}{105\,c^2\,g^4\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}$$

$$2\left(f+g\,x\right)^{3/2}\left(\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\left(\frac{a^2e^2g^4\left(19\,e\,f+189\,d\,g\right)}{\left(f+g\,x\right)^2}-\right.\right.$$

$$c^2\left(8\,e^3\,f^3-42\,d\,e^2\,f^2\,g+105\,d^2\,e\,f\,g^2+105\,d^3\,g^3\right)\left(-1+\frac{f}{f+g\,x}\right)^2+a\,c\,g^2\left(-\frac{105\,d^2\,e\,f\,g^2}{\left(f+g\,x\right)^2}-\right.$$

$$\left.\left.\left.\frac{105\,d^3\,g^3}{\left(f+g\,x\right)^2}+e^3\,f\left(19+\frac{11\,f^2}{\left(f+g\,x\right)^2}-\frac{38\,f}{f+g\,x}\right)+21\,d\,e^2\,g\left(9+\frac{11\,f^2}{\left(f+g\,x\right)^2}-\frac{18\,f}{f+g\,x}\right)\right)\right)+$$

$$\frac{1}{\sqrt{f+g\,x}}\sqrt{c}\left(-i\,a\sqrt{c}\,e^2\,f\,g^2\left(19\,e\,f+189\,d\,g\right)+a^{3/2}e^2g^3\left(19\,e\,f+189\,d\,g\right)+\right.$$

$$i\,c^{3/2}\,f\left(8\,e^3\,f^3-42\,d\,e^2\,f^2\,g+105\,d^2\,e\,f\,g^2+105\,d^3\,g^3\right)-$$

$$\left.\sqrt{a}\,c\,g\left(8\,e^3\,f^3-42\,d\,e^2\,f^2\,g+105\,d^2\,e\,f\,g^2+105\,d^3\,g^3\right)\right)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,\left(f+g\,x\right)}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g\,x}}g\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\left(-105\,i\,c^{3/2}\,d^3\,g^2-25\,a^{3/2}\,e^3\,g^2-3\,i\,a\sqrt{c}\,e^2\,g\left(2\,e\,f-63\,d\,g\right)+\right.$$

$$\left.\sqrt{a}\,c\,e\left(8\,e^2\,f^2-42\,d\,e\,f\,g+105\,d^2\,g^2\right)\right)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,\left(f+g\,x\right)}}$$

$$\left.\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,\left(f+g\,x\right)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)$$

Problem 637: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\left(d+e\,x\right)^2\sqrt{f+g\,x}}{\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 410 leaves, 7 steps):

$$\frac{2\,e\,(e\,f+7\,d\,g)\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{15\,c\,g}+\frac{2\,e\,(d+e\,x)\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{5\,c}+$$

$$\left(2\sqrt{-a}\,\left(9\,a\,e^2\,g^2+c\,\left(2\,e^2\,f^2-10\,d\,e\,f\,g-15\,d^2\,g^2\right)\right)\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(15\,c^{3/2}\,g^2\,\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(4\sqrt{-a}\,e\,(e\,f-5\,d\,g)\,\left(c\,f^2+a\,g^2\right)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(15\,c^{3/2}\,g^2\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 596 leaves):

$$\frac{1}{15\,c^2\,g^3\,\sqrt{a+c\,x^2}}\,2\,\sqrt{f+g\,x}$$

$$\left(c\,e\,g^2\,\left(a+c\,x^2\right)\,\left(10\,d\,g+e\,\left(f+3\,g\,x\right)\right)+\frac{1}{f+g\,x}g^2\,\left(-9\,a^2\,e^2\,g^2+c^2\,\left(-2\,e^2\,f^2+10\,d\,e\,f\,g+15\,d^2\,g^2\right)\right.\right.$$

$$\left.\left.x^2+a\,c\,\left(10\,d\,e\,f\,g+15\,d^2\,g^2-e^2\,\left(2\,f^2+9\,g^2\,x^2\right)\right)\right)\right)-$$

$$i\,c\,\sqrt{-f-\frac{i\,\sqrt{a}\,g}{\sqrt{c}}}\,\left(9\,a\,e^2\,g^2+c\,\left(2\,e^2\,f^2-10\,d\,e\,f\,g-15\,d^2\,g^2\right)\right)\,\sqrt{\frac{g\,\left(\frac{i\,\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\,\sqrt{-\frac{\frac{i\,\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}$$

$$\sqrt{f+g\,x}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\,\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\,\frac{\sqrt{c}\,f-i\,\sqrt{a}\,g}{\sqrt{c}\,f+i\,\sqrt{a}\,g}\right]+\frac{1}{\sqrt{-f-\frac{i\,\sqrt{a}\,g}{\sqrt{c}}}}$$

$$\sqrt{c}\,g\,\left(\sqrt{c}\,f+i\,\sqrt{a}\,g\right)\,\left(15\,i\,c\,d^2\,g-9\,i\,a\,e^2\,g+2\,\sqrt{a}\,\sqrt{c}\,e\,\left(e\,f-5\,d\,g\right)\right)\,\sqrt{\frac{g\,\left(\frac{i\,\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}$$

$$\left.\sqrt{-\frac{\frac{i\,\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,\sqrt{f+g\,x}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\,\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\,\frac{\sqrt{c}\,f-i\,\sqrt{a}\,g}{\sqrt{c}\,f+i\,\sqrt{a}\,g}\right]\right)$$

Problem 638: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\left(d+e\,x\right)\,\sqrt{f+g\,x}}{\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 331 leaves, 6 steps):

$$\frac{2\,e\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{3\,c}$$

$$\left(2\sqrt{-a}\,\left(e\,f+3\,d\,g\right)\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(3\sqrt{c}\,g\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)+\left(2\sqrt{-a}\,e\,\left(c\,f^2+a\,g^2\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

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

Result (type 4, 464 leaves):

$$\frac{1}{3\,c\,\sqrt{a+c\,x^2}}$$

$$2\sqrt{f+g\,x}\left(e\left(a+c\,x^2\right)+\frac{\left(e\,f+3\,d\,g\right)\left(a+c\,x^2\right)}{f+g\,x}+\frac{1}{g^2}i\,c\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,\left(e\,f+3\,d\,g\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\right.$$

$$\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,\sqrt{f+g\,x}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}i\,\left(3\sqrt{c}\,d+i\sqrt{a}\,e\right)\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}$$

$$\left.\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,\sqrt{f+g\,x}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)$$

Problem 639: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{f+g\,x}}{\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 136 leaves, 2 steps):

$$-\left(\left(2\sqrt{-a}\,\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(\sqrt{c}\,\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)\right)$$

Result (type 4, 294 leaves):

$$\left(2\,i\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\sqrt{\frac{g\left(\sqrt{a}+i\sqrt{c}\,x\right)}{-i\sqrt{c}\,f+\sqrt{a}\,g}}\,\sqrt{f+g\,x}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f-i\sqrt{a}\,g}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f-i\sqrt{a}\,g}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)\Big/\left(\sqrt{c}\,g\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{g\left(i\sqrt{a}+\sqrt{c}\,x\right)}}\,\sqrt{a+c\,x^2}\right)\right)$$

Problem 640: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\sqrt{f+g\,x}}{(d+e\,x)\,\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 319 leaves, 7 steps):

$$-\left(\left(2\sqrt{-a}\,g\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(\sqrt{c}\,e\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-\left(2\,(e\,f-d\,g)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/\left(e\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 300 leaves):

$$-\left(\left(2\,i\sqrt{\frac{g\left(\sqrt{a}+i\sqrt{c}\,x\right)}{-i\sqrt{c}\,f+\sqrt{a}\,g}}\sqrt{f+g\,x}\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f-i\sqrt{a}\,g}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-\text{EllipticPi}\left[\frac{e\left(f-\frac{i\sqrt{a}\,g}{\sqrt{c}}\right)}{e\,f-d\,g},i\,\text{ArcSinh}\left[\sqrt{-\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f-i\sqrt{a}\,g}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)\right)\Big/\left(e\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{g\left(i\sqrt{a}+\sqrt{c}\,x\right)}}\sqrt{a+c\,x^2}\right)\right)$$

Problem 641: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{f+g\,x}}{(d+e\,x)^2\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 698 leaves, 14 steps):

$$-\frac{e\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{\left(c\,d^2+a\,e^2\right)\left(d+e\,x\right)}-$$

$$\left(\sqrt{-a}\,\sqrt{c}\,\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(\left(c\,d^2+a\,e^2\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)+$$

$$\left(\sqrt{-a}\,\sqrt{c}\,f\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(\left(c\,d^2+a\,e^2\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-\left(\sqrt{-a}\,\sqrt{c}\,d\,g\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(e\left(c\,d^2+a\,e^2\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(\left(a\,e^2\,g+c\,d\left(2\,e\,f-d\,g\right)\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/\left(e\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\left(c\,d^2+a\,e^2\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 1459 leaves):

$$-\frac{e\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{\left(c\,d^2+a\,e^2\right)\left(d+e\,x\right)}-\frac{1}{e\left(c\,d^2+a\,e^2\right)g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\left(e\,f-d\,g\right)\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}$$

$$(f+g\,x)^{3/2}\left(-c\,e^2\,f\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}+c\,d\,e\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}-\right.$$

$$\frac{c\,e^2\,f^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}+\frac{c\,d\,e\,f^2\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}-\frac{a\,e^2\,f\,g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}+$$

$$\frac{a\,d\,e\,g^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}+\frac{2\,c\,e^2\,f^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{f+g\,x}-\frac{2\,c\,d\,e\,f\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{f+g\,x}+$$

$$\frac{1}{\sqrt{f+g\,x}}i\sqrt{c}\,e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)(e\,f-d\,g)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\;\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g\,x}}e\left(i\sqrt{c}\,d+\sqrt{a}\,e\right)g\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\;\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-$$

$$\frac{1}{\sqrt{f+g\,x}}2\,i\,c\,d\,e\,f\,g\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g\,x}}i\,c\,d^2\,g^2\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-$$

$$\frac{1}{\sqrt{f+g\,x}}\,i\,a\,e^2\,g^2\,\sqrt{1-\frac{f}{f+g\,x}-\frac{i\,\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\,\sqrt{1-\frac{f}{f+g\,x}+\frac{i\,\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\,\sqrt{a}\,g\right)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\,\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\,\frac{\sqrt{c}\,f-i\,\sqrt{a}\,g}{\sqrt{c}\,f+i\,\sqrt{a}\,g}\right]$$

Problem 642: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{f+g\,x}}{(d+e\,x)^3\,\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 1246 leaves, 23 steps):

$$-\frac{e\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{2\,(c\,d^2+a\,e^2)\,(d+e\,x)^2}-\frac{e\,(a\,e^2\,g+c\,d\,(6\,e\,f-5\,d\,g))\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{4\,(c\,d^2+a\,e^2)^2\,(e\,f-d\,g)\,(d+e\,x)}-$$

$$\left(\sqrt{-a}\,\sqrt{c}\,(a\,e^2\,g+c\,d\,(6\,e\,f-5\,d\,g))\,\sqrt{f+g\,x}\right.$$

$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\,-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(4\,(c\,d^2+a\,e^2)^2\,(e\,f-d\,g)\,\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)+$$

$$\left(\sqrt{-a}\,\sqrt{c}\,g\,\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\,-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(2\,e\,(c\,d^2+a\,e^2)\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)+$$

$$\left(\sqrt{-a}\,\sqrt{c}\,f\left(a\,e^2\,g+c\,d\left(6\,e\,f-5\,d\,g\right)\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(4\left(c\,d^2+a\,e^2\right)^2\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-\left(\sqrt{-a}\,\sqrt{c}\,d\,g\left(a\,e^2\,g+c\,d\left(6\,e\,f-5\,d\,g\right)\right)\right.$$

$$\left.\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(4\,e\left(c\,d^2+a\,e^2\right)^2\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)+\left(c\left(e\,f-3\,d\,g\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\right.$$

$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/$$

$$\left(e\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\left(c\,d^2+a\,e^2\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)+$$

$$\left(\left(a\,e^2\,g+c\,d\left(6\,e\,f-5\,d\,g\right)\right)\left(a\,e^2\,g-c\,d\left(2\,e\,f-3\,d\,g\right)\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\right.$$

$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/$$

$$\left(4\,e\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\left(c\,d^2+a\,e^2\right)^2\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 12 363 leaves) :

$$\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\left(-\frac{e}{2\left(c\,d^2+a\,e^2\right)\left(d+e\,x\right)^2}-\frac{e\left(6\,c\,d\,e\,f-5\,c\,d^2\,g+a\,e^2\,g\right)}{4\left(c\,d^2+a\,e^2\right)^2\left(e\,f-d\,g\right)\left(d+e\,x\right)}\right)-$$

$$\frac{1}{4\left(c\,d^2+a\,e^2\right)^2 g\left(-e\,f+d\,g\right)}$$

$$\left(\frac{\left(6\,c\,d\,e\,f-5\,c\,d^2\,g+a\,e^2\,g\right)\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}\right)}{\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}+\frac{1}{\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}\right.$$

$$\left(e\,f-d\,g\right)\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\left(-\left(\left(\left(6\,i\,c^2\,d\,e\,f^3\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\right.\right.\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left.\left(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+\right.$$

$$\left(5\,i\,c^2\,d^2\,f^2\,g\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,a\,c\,e^2\,f^2\,g\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(6\,i\,a\,c\,d\,e\,f\,g^2\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(5\,i\,a\,c\,d^2\,g^3\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,a^2\,e^2\,g^3\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(6\,i\,c^2\,d\,e^2\,f^3\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)^2\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(5\,i\,c^2\,d^2\,e\,f^2\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)^2\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(i\,a\,c\,e^3\,f^2\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)^2\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(6\,i\,a\,c\,d\,e^2\,f\,g^2\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)^2\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(5\,i\,a\,c\,d^2\,e\,g^3\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)^2\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(i\, a^2\, e^3\, g^3 \sqrt{1 - \frac{c\, f^2 + a\, g^2}{\left(c\, f - i\, \sqrt{a}\, \sqrt{c}\, g\right)\, (f + g\, x)}}\, \sqrt{1 - \frac{c\, f^2 + a\, g^2}{\left(c\, f + i\, \sqrt{a}\, \sqrt{c}\, g\right)\, (f + g\, x)}} \right.$$

$$\left. \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{c\, f^2 + a\, g^2}{c\, f - i\, \sqrt{a}\, \sqrt{c}\, g}}}{\sqrt{f + g\, x}} \right], \frac{c\, f - i\, \sqrt{a}\, \sqrt{c}\, g}{c\, f + i\, \sqrt{a}\, \sqrt{c}\, g} \right] \right) /$$

$$\left((e\, f - d\, g)^2 \sqrt{-\frac{c\, f^2 + a\, g^2}{c\, f - i\, \sqrt{a}\, \sqrt{c}\, g}}\, \sqrt{c + \frac{c\, f^2 + a\, g^2}{(f + g\, x)^2} - \frac{2\, c\, f}{f + g\, x}} \right) -$$

$$\left(12\, i\, c^2\, d\, e\, f^2 \sqrt{1 - \frac{c\, f^2 + a\, g^2}{\left(c\, f - i\, \sqrt{a}\, \sqrt{c}\, g\right)\, (f + g\, x)}}\, \sqrt{1 - \frac{c\, f^2 + a\, g^2}{\left(c\, f + i\, \sqrt{a}\, \sqrt{c}\, g\right)\, (f + g\, x)}} \right.$$

$$\left. \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{c\, f^2 + a\, g^2}{c\, f - i\, \sqrt{a}\, \sqrt{c}\, g}}}{\sqrt{f + g\, x}} \right], \frac{c\, f - i\, \sqrt{a}\, \sqrt{c}\, g}{c\, f + i\, \sqrt{a}\, \sqrt{c}\, g} \right] \right) /$$

$$\left((e\, f - d\, g) \sqrt{-\frac{c\, f^2 + a\, g^2}{c\, f - i\, \sqrt{a}\, \sqrt{c}\, g}}\, \sqrt{c + \frac{c\, f^2 + a\, g^2}{(f + g\, x)^2} - \frac{2\, c\, f}{f + g\, x}} \right) -$$

$$\left(12\, i\, a\, c\, d\, e\, g^2 \sqrt{1 - \frac{c\, f^2 + a\, g^2}{\left(c\, f - i\, \sqrt{a}\, \sqrt{c}\, g\right)\, (f + g\, x)}}\, \sqrt{1 - \frac{c\, f^2 + a\, g^2}{\left(c\, f + i\, \sqrt{a}\, \sqrt{c}\, g\right)\, (f + g\, x)}} \right.$$

$$\left. \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{-\frac{c\, f^2 + a\, g^2}{c\, f - i\, \sqrt{a}\, \sqrt{c}\, g}}}{\sqrt{f + g\, x}} \right], \frac{c\, f - i\, \sqrt{a}\, \sqrt{c}\, g}{c\, f + i\, \sqrt{a}\, \sqrt{c}\, g} \right] \right) /$$

$$\left((e\, f - d\, g) \sqrt{-\frac{c\, f^2 + a\, g^2}{c\, f - i\, \sqrt{a}\, \sqrt{c}\, g}}\, \sqrt{c + \frac{c\, f^2 + a\, g^2}{(f + g\, x)^2} - \frac{2\, c\, f}{f + g\, x}} \right) - \frac{1}{(e\, f - d\, g)^3}$$

$$6\,c^2\,d\,e^3\,f^3\left(\left(i\,f\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\right.$$

$$\left.\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\left(i\,d\,g\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left.\left.\left(e\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+\right.\right.$$

$$\frac{1}{\left(e\,f-d\,g\right)^3}5\,c^2\,d^2\,e^2\,f^2\,g\left(\left(i\,f\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.$$

$$\left.\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\Bigg) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\frac{1}{(e f-d g)^3} a c e^4 f^2 g \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(\text{i}\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-\text{i}\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+\text{i}\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-\text{i}\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,\text{i}\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-\text{i}\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-\text{i}\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+\text{i}\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-\text{i}\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\frac{1}{\left(e\,f-d\,g\right)^3}6\,a\,c\,d\,e^3\,f\,g^2\left(\left(\left(\text{i}\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-\text{i}\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+\text{i}\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\text{EllipticPi}\left[\frac{\left(c\,f-\text{i}\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,\text{i}\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-\text{i}\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-\text{i}\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+\text{i}\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-\text{i}\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(\text{i}\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-\text{i}\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+\text{i}\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-\text{i}\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,\text{i}\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg] \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)+$$

$$\frac{1}{(e f-d g)^3} 5 a c d^2 e^2 g^3 \left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg] \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg] \Bigg/$$

$$\left(e\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\frac{1}{(e\,f-d\,g)^3}$$

$$a^2\,e^4\,g^3\left(\left(i\,f\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(e\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\frac{1}{(e\,f-d\,g)^2}12\,c^2\,d\,e^2\,f^2\left(\left(i\,f\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\Big],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Big]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\;\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\Bigg(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\;\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\Big[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\Big],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Big]\Bigg/$$

$$\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\;\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\frac{1}{\left(e\,f-d\,g\right)^2}12\,a\,c\,d\,e^2\,g^2\Bigg(\Bigg(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\Big],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Big]\Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) /$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-\frac{1}{e f-d g}$$

$$6 c^2 d e f\left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) /$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+\frac{1}{e\,f-d\,g}$$

$$3\,c^2\,d^2\,g\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/\right)$$

$$\left(e\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\frac{1}{e\,f-d\,g}$$

$$3\,a\,c\,e^2\,g\left(\left(i\,f\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\Big/$$

$$\left.\left.\left.\left(e\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)\right)\right)\right)$$

Problem 643: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(f+g\,x)^{5/2}}{(d+e\,x)\,\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 600 leaves, 16 steps):

$$\frac{2\,g^2\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{3\,c\,e} -$$

$$\left(2\sqrt{-a}\,g\,(7\,e\,f-3\,d\,g)\,\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1+\frac{a\sqrt{c}\,x}{(-a)^{3/2}}}}{\sqrt{2}}\right],\right.\right.$$

$$\left.\left.\frac{2\,a\,g}{-\sqrt{-a}\,\sqrt{c}\,f+a\,g}\right]\right)\Big/\left(3\sqrt{c}\,e^2\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)+$$

$$\left(2\sqrt{-a}\,g\,(a\,e^2\,g^2+c\,(-2\,e^2\,f^2+6\,d\,e\,f\,g-3\,d^2\,g^2))\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1+\frac{a\sqrt{c}\,x}{(-a)^{3/2}}}}{\sqrt{2}}\right],\frac{2\,a\,g}{-\sqrt{-a}\,\sqrt{c}\,f+a\,g}\right]\right)\Big/\left(3\,c^{3/2}\,e^3\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(2\,(e\,f-d\,g)^2\sqrt{\frac{g\left(\sqrt{-a}-\sqrt{c}\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{-\frac{g\left(\sqrt{-a}+\sqrt{c}\,x\right)}{\sqrt{c}\,f-\sqrt{-a}\,g}}\,\text{EllipticPi}\left[\frac{e\left(f+\frac{\sqrt{-a}\,g}{\sqrt{c}}\right)}{e\,f-d\,g},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\sqrt{\frac{c}{c\,f+\sqrt{-a}\,\sqrt{c}\,g}}\,\sqrt{f+g\,x}\right],\frac{\sqrt{c}\,f+\sqrt{-a}\,g}{\sqrt{c}\,f-\sqrt{-a}\,g}\right]\right)\Big/\left(e^3\sqrt{\frac{c}{c\,f+\sqrt{-a}\,\sqrt{c}\,g}}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 1440 leaves):

$$\frac{2\,g^2\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{3\,c\,e}+\frac{1}{3\,c\,e^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}$$

$$2\,(f+g\,x)^{3/2}\left(7\,c\,e^2\,f\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}-3\,c\,d\,e\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}+\right.$$

$$\frac{7\,c\,e^2\,f^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}-\frac{3\,c\,d\,e\,f^2\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}+\frac{7\,a\,e^2\,f\,g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}-$$

$$\frac{3\,a\,d\,e\,g^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{(f+g\,x)^2}-\frac{14\,c\,e^2\,f^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{f+g\,x}+\frac{6\,c\,d\,e\,f\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{f+g\,x}+$$

$$\frac{1}{\sqrt{f+g\,x}}\sqrt{c}\,e\left(-i\sqrt{c}\,f+\sqrt{a}\,g\right)(7\,e\,f-3\,d\,g)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\;\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\Big],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\Big]+$$

$$\frac{1}{\sqrt{f+g\,x}}i\,e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\left(i\sqrt{a}\,e\,g+\sqrt{c}\,(6\,e\,f-3\,d\,g)\right)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\;\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\Big],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\Big]+$$

$$\frac{1}{\sqrt{f+g\,x}}3\,i\,c\,e^2\,f^2\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\text{EllipticPi}\Big[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},i\,\text{ArcSinh}\Big[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\Big],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\Big]-$$

$$\frac{1}{\sqrt{f+g\,x}}6\,i\,c\,d\,e\,f\,g\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$

$$\text{EllipticPi}\Big[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},i\,\text{ArcSinh}\Big[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\Big],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\Big]+$$

$$\frac{1}{\sqrt{f+g\,x}}3\,i\,c\,d^2\,g^2\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g\,x)}}$$
$$\text{EllipticPi}\left[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},\,i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\,\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]$$

Problem 644: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 469 leaves, 10 steps):

$$-\left(\left(2\sqrt{-a}\,g\sqrt{f+g\,x}\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\right.$$
$$\left(\sqrt{c}\,e\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\sqrt{a+c\,x^2}\right)-\left(2\sqrt{-a}\,g\,(e\,f-d\,g)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\sqrt{1+\frac{c\,x^2}{a}}\right.$$
$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(\sqrt{c}\,e^2\sqrt{f+g\,x}\sqrt{a+c\,x^2}\right)-$$
$$\left(2\,(e\,f-d\,g)^2\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\right.\right.$$
$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/\left(e^2\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\sqrt{f+g\,x}\sqrt{a+c\,x^2}\right)$$

Result (type 4, 927 leaves):

$$\frac{1}{\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}$$

$$2\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f-i\sqrt{a}\,g}}\left(\frac{2\,i\,\sqrt{a}\,f\,g\sqrt{1+\frac{c\,x^2}{a}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{i\sqrt{c}\,x}{\sqrt{a}}}}{\sqrt{2}}\right],\frac{2\sqrt{a}\,g}{i\sqrt{c}\,f+\sqrt{a}\,g}\right]}{\sqrt{c}\,e}-\right.$$

$$\frac{i\sqrt{a}\,d\,g^2\sqrt{1+\frac{c\,x^2}{a}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{i\sqrt{c}\,x}{\sqrt{a}}}}{\sqrt{2}}\right],\frac{2\sqrt{a}\,g}{i\sqrt{c}\,f+\sqrt{a}\,g}\right]}{\sqrt{c}\,e^2}+$$

$$\left(g\sqrt{\frac{g\left(\sqrt{a}+i\sqrt{c}\,x\right)}{-i\sqrt{c}\,f+\sqrt{a}\,g}}\;\left(i\sqrt{a}+\sqrt{c}\,x\right)\right.$$

$$\left(\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f-i\sqrt{a}\,g}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-\right.$$

$$\left.i\sqrt{a}\,g\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f-i\sqrt{a}\,g}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)\Bigg/$$

$$\left(c\,e\sqrt{\frac{g\left(\sqrt{a}-i\sqrt{c}\,x\right)}{i\sqrt{c}\,f+\sqrt{a}\,g}}\right)-\frac{1}{i\sqrt{c}\,d+\sqrt{a}\,e}\sqrt{a}\,f^2\sqrt{1+\frac{c\,x^2}{a}}$$

$$\text{EllipticPi}\left[\frac{2\sqrt{a}\,e}{i\sqrt{c}\,d+\sqrt{a}\,e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{i\sqrt{c}\,x}{\sqrt{a}}}}{\sqrt{2}}\right],\frac{2\sqrt{a}\,g}{i\sqrt{c}\,f+\sqrt{a}\,g}\right]+$$

$$\left(2\sqrt{a}\,d\,f\,g\sqrt{1+\frac{c\,x^2}{a}}\;\text{EllipticPi}\left[\frac{2\sqrt{a}\,e}{i\sqrt{c}\,d+\sqrt{a}\,e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{i\sqrt{c}\,x}{\sqrt{a}}}}{\sqrt{2}}\right],\right.\right.$$

$$\left.\left.\frac{2\sqrt{a}\,g}{i\sqrt{c}\,f+\sqrt{a}\,g}\right]\right)\Big/\left(i\sqrt{c}\,d\,e+\sqrt{a}\,e^2\right)-$$

$$\left(\sqrt{a}\ d^2\ g^2\ \sqrt{1+\frac{c\ x^2}{a}}\ \text{EllipticPi}\left[\frac{2\sqrt{a}\ e}{i\sqrt{c}\ d+\sqrt{a}\ e},\ \text{ArcSin}\left[\frac{\sqrt{1-\frac{i\sqrt{c}\ x}{\sqrt{a}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a}\ g}{i\sqrt{c}\ f+\sqrt{a}\ g}\right]\Big/\left(e^2\left(i\sqrt{c}\ d+\sqrt{a}\ e\right)\right)\right)$$

Problem 645: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{(d+e\,x)^3}{\sqrt{f+g\,x}\ \sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 457 leaves, 7 steps):

$$-\frac{8\,e^2\,(e\,f-3\,d\,g)\,\sqrt{f+g\,x}\ \sqrt{a+c\,x^2}}{15\,c\,g^2}+\frac{2\,e^2\,(d+e\,x)\,\sqrt{f+g\,x}\ \sqrt{a+c\,x^2}}{5\,c\,g}+$$

$$\left(2\sqrt{-a}\ e\,\left(9\,a\,e^2\,g^2-c\,\left(8\,e^2\,f^2-30\,d\,e\,f\,g+45\,d^2\,g^2\right)\right)\sqrt{f+g\,x}\ \sqrt{1+\frac{c\,x^2}{a}}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\ x}{\sqrt{-a}}}}{\sqrt{2}}\right],\ -\frac{2\,a\,g}{\sqrt{-a}\ \sqrt{c}\ f-a\,g}\right]\right)\Big/\left(15\,c^{3/2}\,g^3\,\sqrt{\frac{\sqrt{c}\ (f+g\,x)}{\sqrt{c}\ f+\sqrt{-a}\ g}}\ \sqrt{a+c\,x^2}\right)-$$

$$\left(2\sqrt{-a}\ \left(a\,e^2\,g^2\,\left(7\,e\,f-15\,d\,g\right)-c\,\left(8\,e^3\,f^3-30\,d\,e^2\,f^2\,g+45\,d^2\,e\,f\,g^2-15\,d^3\,g^3\right)\right)\sqrt{\frac{\sqrt{c}\ (f+g\,x)}{\sqrt{c}\ f+\sqrt{-a}\ g}}\ \sqrt{1+\frac{c\,x^2}{a}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\ x}{\sqrt{-a}}}}{\sqrt{2}}\right],\ -\frac{2\,a\,g}{\sqrt{-a}\ \sqrt{c}\ f-a\,g}\right]\right)\Big/\left(15\,c^{3/2}\,g^3\,\sqrt{f+g\,x}\ \sqrt{a+c\,x^2}\right)$$

Result (type 4, 625 leaves):

$$\frac{1}{15\,c^2\,g^4\,\sqrt{a+c\,x^2}}\,2\sqrt{f+g\,x}\left(c\,e^2\,g^2\left(-4\,e\,f+15\,d\,g+3\,e\,g\,x\right)\left(a+c\,x^2\right)+\frac{1}{f+g\,x}e\,g^2\left(-9\,a^2\,e^2\,g^2+\right.\right.$$

$$\left.c^2\left(8\,e^2\,f^2-30\,d\,e\,f\,g+45\,d^2\,g^2\right)x^2+a\,c\left(-30\,d\,e\,f\,g+45\,d^2\,g^2+e^2\left(8\,f^2-9\,g^2\,x^2\right)\right)\right)+$$

$$i\,c\,e\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\left(-9\,a\,e^2\,g^2+c\left(8\,e^2\,f^2-30\,d\,e\,f\,g+45\,d^2\,g^2\right)\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}$$

$$\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,\sqrt{f+g\,x}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}\sqrt{c}\,g\left(15\,i\,c^{3/2}\,d^3\,g^2+9\,a^{3/2}\,e^3\,g^2-i\,a\sqrt{c}\,e^2\,g\left(2\,e\,f+15\,d\,g\right)+\right.$$

$$\sqrt{a}\,c\,e\left(-8\,e^2\,f^2+30\,d\,e\,f\,g-45\,d^2\,g^2\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\,\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}$$

$$\left.\sqrt{f+g\,x}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)$$

Problem 646: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{(d+e\,x)^2}{\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 356 leaves, 7 steps):

$$\frac{2\,e^2\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{3\,c\,g}+$$

$$\left(4\sqrt{-a}\,e\,(e\,f-3\,d\,g)\,\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(3\sqrt{c}\,g^2\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(2\sqrt{-a}\,\left(\left(3\,c\,d^2-a\,e^2\right)g^2+2\,c\,e\,f\,(e\,f-3\,d\,g)\right)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

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

Result (type 4, 473 leaves):

$$\frac{1}{3\,c\,g^3\sqrt{a+c\,x^2}}2\sqrt{f+g\,x}$$

$$\left(e^2\,g^2\,\left(a+c\,x^2\right)-\frac{2\,e\,g^2\,\left(e\,f-3\,d\,g\right)\,\left(a+c\,x^2\right)}{f+g\,x}-2\,i\,c\,e\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,\left(e\,f-3\,d\,g\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\right.$$

$$\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,\sqrt{f+g\,x}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}g\left(3\,i\,c\,d^2\,g-i\,a\,e^2\,g+2\sqrt{a}\,\sqrt{c}\,e\,(e\,f-3\,d\,g)\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}$$

$$\left.\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,\sqrt{f+g\,x}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)$$

Problem 647: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{d+e\,x}{\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 288 leaves, 5 steps):

$$-\left(\left(2\sqrt{-a}\,e\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(\sqrt{c}\,g\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)\right)+\left(2\sqrt{-a}\,(e\,f-d\,g)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\left(\sqrt{c}\,g\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 439 leaves):

$$-\left(\left(\left(2\left(-e\,g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,\left(a+c\,x^2\right)+i\sqrt{c}\,e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\,\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\right.\right.\right.\right.$$

$$\left.\left(f+g\,x\right)^{3/2}\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+\right.$$

$$\left.\sqrt{c}\,\left(-i\sqrt{c}\,d+\sqrt{a}\,e\right)g\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\,\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,\left(f+g\,x\right)^{3/2}\right.$$

$$\left.\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)\right)\Big/$$

$$\left.\left(c\,g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)\right)$$

Problem 648: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 136 leaves, 2 steps):

$$-\left(\left(2\sqrt{-a}\,\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/\right.$$

$$\left.\left(\sqrt{c}\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)\right)$$

Result (type 4, 186 leaves):

$$\left(2\,i\,\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\,\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,(f+g\,x)\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\,\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)\Big/\left(g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,\sqrt{a+c\,x^2}\right)$$

Problem 649: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{(d+e\,x)\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 167 leaves, 4 steps):

$$-\left(\left(2\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\,\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/\right.$$

$$\left.\left(\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)\right)$$

Result (type 4, 311 leaves):

$$-\left(\left(2\,i\,\sqrt{\frac{g\left(\frac{i\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\,\sqrt{-\frac{\frac{i\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,(f+g\,x)\right.\right.$$

$$\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\,\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-\text{EllipticPi}\left[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},\right.\right.$$

$$\left.\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\,\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\right)\right)\Big/\left(\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,(e\,f-d\,g)\,\sqrt{a+c\,x^2}\right)\right)$$

Problem 650: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(d+e\,x)^2\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 746 leaves, 14 steps) :

$$-\frac{e^2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\left(d+e\,x\right)}-$$

$$\left(\sqrt{-a}\,\sqrt{c}\,e\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)+\left(\sqrt{-a}\,\sqrt{c}\,e\,f\right.$$

$$\left.\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-\left(\sqrt{-a}\,\sqrt{c}\,d\,g\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\right.$$

$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)+\left(\left(a\,e^2\,g-c\,d\left(2\,e\,f-3\,d\,g\right)\right)\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\right.$$

$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/$$

$$\left(\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 1491 leaves) :

$$-\frac{e^2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}{\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\left(d+e\,x\right)}+$$

$$\left(\left(f+g\,x\right)^{3/2}\left(-2\,c\,e^2\,f\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}+2\,c\,d\,e\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}-\right.\right.$$

$$\frac{2\,c\,e^2\,f^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\left(f+g\,x\right)^2}+\frac{2\,c\,d\,e\,f^2\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\left(f+g\,x\right)^2}-\frac{2\,a\,e^2\,f\,g^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\left(f+g\,x\right)^2}+$$

$$\frac{2\,a\,d\,e\,g^3\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\left(f+g\,x\right)^2}+\frac{4\,c\,e^2\,f^2\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{f+g\,x}-\frac{4\,c\,d\,e\,f\,g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{f+g\,x}+$$

$$\frac{1}{\sqrt{f+g\,x}}2\,i\sqrt{c}\,e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)\left(e\,f-d\,g\right)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,\left(f+g\,x\right)}}\;\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g\,x}}2\left(\sqrt{c}\,d-i\sqrt{a}\,e\right)g\left(\sqrt{a}\,e\,g+i\sqrt{c}\,\left(e\,f-2\,d\,g\right)\right)\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,\left(f+g\,x\right)}}\;\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]-$$

$$\frac{1}{\sqrt{f+g\,x}}4\,i\,c\,d\,e\,f\,g\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,\left(f+g\,x\right)}}\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\,\left(e\,f-d\,g\right)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g\,x}}6\,i\,c\,d^2\,g^2\sqrt{1-\frac{f}{f+g\,x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,\left(f+g\,x\right)}}\sqrt{1-\frac{f}{f+g\,x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\,(e f-d g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},\, i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g x}}\right],\, \frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]+$$

$$\frac{1}{\sqrt{f+g x}}2 i a e^2 g^2\sqrt{1-\frac{f}{f+g x}-\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g x)}}\sqrt{1-\frac{f}{f+g x}+\frac{i\sqrt{a}\,g}{\sqrt{c}\,(f+g x)}}$$

$$\text{EllipticPi}\left[\frac{\sqrt{c}\,(e f-d g)}{e\left(\sqrt{c}\,f+i\sqrt{a}\,g\right)},\, i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g x}}\right],\, \frac{\sqrt{c}\,f-i\sqrt{a}\,g}{\sqrt{c}\,f+i\sqrt{a}\,g}\right]\Bigg)\Bigg/$$

$$\left(2\left(c d^2+a e^2\right) g\sqrt{-f-\frac{i\sqrt{a}\,g}{\sqrt{c}}}\,(e f-d g)\,(-e f+d g)\sqrt{a+\frac{c\,(f+g x)^2\left(-1+\frac{f}{f+g x}\right)^2}{g^2}}\right)$$

Problem 651: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{(d+e x)^3\sqrt{f+g x}\,\sqrt{a+c x^2}}\,dx$$

Optimal (type 4, 1257 leaves, 23 steps):

$$-\frac{e^2\sqrt{f+g x}\,\sqrt{a+c x^2}}{2\left(c d^2+a e^2\right)(e f-d g)(d+e x)^2}+$$

$$\frac{3 e^2\left(a e^2 g-c d\left(2 e f-3 d g\right)\right)\sqrt{f+g x}\,\sqrt{a+c x^2}}{4\left(c d^2+a e^2\right)^2(e f-d g)^2(d+e x)}+\Bigg(3\sqrt{-a}\,\sqrt{c}\,e\left(a e^2 g-c d\left(2 e f-3 d g\right)\right)$$

$$\sqrt{f+g x}\sqrt{1+\frac{c x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2 a g}{\sqrt{-a}\,\sqrt{c}\,f-a g}\right]\Bigg)\Bigg/$$

$$\left(4\left(c d^2+a e^2\right)^2(e f-d g)^2\sqrt{\frac{\sqrt{c}\,(f+g x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c x^2}\right)+$$

$$\left(\sqrt{-a}\,\sqrt{c}\,g\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(2\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(3\sqrt{-a}\,\sqrt{c}\,e\,f\left(a\,e^2\,g-c\,d\left(2\,e\,f-3\,d\,g\right)\right)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\right.$$

$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(4\left(c\,d^2+a\,e^2\right)^2\left(e\,f-d\,g\right)^2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)+\left(3\sqrt{-a}\,\sqrt{c}\,d\,g\left(a\,e^2\,g-c\,d\left(2\,e\,f-3\,d\,g\right)\right)\right.$$

$$\left.\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left(4\left(c\,d^2+a\,e^2\right)^2\left(e\,f-d\,g\right)^2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)+\left(c\left(e\,f-3\,d\,g\right)\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\right.$$

$$\left.\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/$$

$$\left(\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(3\left(a\,e^2\,g-c\,d\left(2\,e\,f-3\,d\,g\right)\right)^2\sqrt{\frac{\sqrt{c}\,\left(f+g\,x\right)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\right.$$

$$\left.\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/$$

$$\left(4\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\left(c\,d^2+a\,e^2\right)^2\left(e\,f-d\,g\right)^2\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 15233 leaves):

$$\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\left(-\frac{e^2}{2\left(c\,d^2+a\,e^2\right)\left(e\,f-d\,g\right)\left(d+e\,x\right)^2}+\frac{3\,e^2\left(-2\,c\,d\,e\,f+3\,c\,d^2\,g+a\,e^2\,g\right)}{4\left(c\,d^2+a\,e^2\right)^2\left(e\,f-d\,g\right)^2\left(d+e\,x\right)}\right)-$$

$$\frac{1}{4\left(c\,d^2+a\,e^2\right)^2 g\left(-e\,f+d\,g\right)^2}$$

$$\left(\left(3\,e\left(-2\,c\,d\,e\,f+3\,c\,d^2\,g+a\,e^2\,g\right)\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}\right)\right)\Big/\right.$$

$$\left(\sqrt{a+\frac{c\left(f+g\,x\right)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}\right)+\frac{1}{\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}$$

$$\left(e\,f-d\,g\right)\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\left(\left(6\,i\,c^2\,d\,e^2\,f^3\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\ -$$

$$\Bigg(9\,i\,c^2\,d^2\,e\,f^2\,g\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\ -$$

$$\Bigg(3\,i\,a\,c\,e^3\,f^2\,g\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\Bigg)+$$

$$\Bigg(6\,i\,a\,c\,d\,e^2\,f\,g^2\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\Bigg)-$$

$$\Bigg(9\,i\,a\,c\,d^2\,e\,g^3\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\ -$$

$$\Bigg(3\,i\,a^2\,e^3\,g^3\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(e\,f-d\,g\right)\left(c\,f^2+a\,g^2\right)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\ -$$

$$\Bigg(6\,i\,c^2\,d\,e^3\,f^3\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg)\Bigg/$$

$$\Bigg(\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\ +$$

$$\left(9\,i\,c^2\,d^2\,e^2\,f^2\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)^2\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(3\,i\,a\,c\,e^4\,f^2\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)^2\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(6\,i\,a\,c\,d\,e^3\,f\,g^2\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)^2\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(9\,i\,a\,c\,d^2\,e^2\,g^3\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)^2\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(3\,i\,a^2\,e^4\,g^3\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)^2\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(12\,i\,c^2\,d\,e^2\,f^2\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(8\,i\,c^2\,d^2\,e\,f\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(8\,i\,a\,c\,e^3\,f\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(8\,i\,c^2\,d^3\,g^2\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(4\,i\,a\,c\,d\,e^2\,g^2\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+\frac{1}{\left(e\,f-d\,g\right)^3}$$

$$6\,c^2\,d\,e^4\,f^3\left(\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\right.$$

$$\left.\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(e\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\frac{1}{(e\,f-d\,g)^3}9\,c^2\,d^2\,e^3\,f^2\,g\left(\left(i\,f\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\;\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\right.$$

$$\left.\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\left(i\,d\,g\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\;\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left(e\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\frac{1}{(e\,f-d\,g)^3}3\,a\,c\,e^5\,f^2\,g\left(\left(i\,f\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\Big],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Big]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\;\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\Bigg(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\;\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\Big[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\Big],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Big]\Bigg/$$

$$\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\;\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\frac{1}{\left(e\,f-d\,g\right)^3}6\,a\,c\,d\,e^4\,f\,g^2\Bigg(\Bigg(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\,\text{ArcSinh}\Big[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\Big],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Big]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\frac{1}{(e\,f-d\,g)^3}9\,a\,c\,d^2\,e^3\,g^3\left(\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\;\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\frac{1}{\left(e\,f-d\,g\right)^3}$$

$$3\,a^2\,e^5\,g^3\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/\right)$$

$$\left(e\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\frac{1}{(e\,f-d\,g)^2}12\,c^2\,d\,e^3\,f^2\left(\left(i\,f\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\;\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left(e\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\frac{1}{(e f-d g)^2} 8 c^2 d^2 e^2 f g \left(\left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.\right.$$

$$\left.\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \text{ EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) /$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) /$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)+$$

$$\frac{1}{(e f-d g)^2} 8 a c e^4 f g \left(\left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.\right.$$

$$\left.\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \text{ EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)+$$

$$\frac{1}{(e f-d g)^2} 8 c^2 d^3 e g^2 \left(\left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\Bigg]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right) \Big/$$

$$\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\frac{1}{\left(e\,f-d\,g\right)^2}4\,a\,c\,d\,e^3\,g^2\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right) \Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}, \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\Bigg) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)+\frac{1}{e f-d g}$$

$$6 c^2 d e^2 f\left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}, \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}, \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) \Bigg/$$

$$\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-\frac{1}{e f-d g}$$

$$7\,c^2\,d^2\,e\,g\left(\left(i\,f\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(i\,d\,g\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\frac{1}{e\,f-d\,g}$$

$$a\,c\,e^3\,g\left(\left(i\,f\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\,i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}, \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\Bigg) \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}} \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)}, i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}, \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\Bigg) \Bigg/$$

$$\left.\left.\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}} \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)\right)\right)$$

Problem 652: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(d+e x)(f+g x)^{3/2} \sqrt{a+c x^2}} dx$$

Optimal (type 4, 387 leaves, 10 steps):

$$\frac{2\,g^2\,\sqrt{a+c\,x^2}}{(e\,f-d\,g)\,(c\,f^2+a\,g^2)\,\sqrt{f+g\,x}}+$$

$$\left(2\,\sqrt{-a}\,\sqrt{c}\,g\,\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\,\sqrt{c}\,f-a\,g}\right]\right)\Big/$$

$$\left((e\,f-d\,g)\,(c\,f^2+a\,g^2)\,\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(2\,e\,\sqrt{\frac{\sqrt{c}\,(f+g\,x)}{\sqrt{c}\,f+\sqrt{-a}\,g}}\,\sqrt{1+\frac{c\,x^2}{a}}\,\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{-a}\,g}{\sqrt{c}\,f+\sqrt{-a}\,g}\right]\right)\Big/$$

$$\left(\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)(e\,f-d\,g)\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 468 leaves):

$$\left(2\,i\,\sqrt{\frac{g\left(\frac{i\,\sqrt{a}}{\sqrt{c}}+x\right)}{f+g\,x}}\,\sqrt{-\frac{\frac{i\,\sqrt{a}\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,(f+g\,x)\right.$$

$$\left(\sqrt{c}\,(e\,f-d\,g)\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\,\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\,\sqrt{a}\,g}{\sqrt{c}\,f+i\,\sqrt{a}\,g}\right]+\right.$$

$$\left(i\,\sqrt{a}\,e\,g+\sqrt{c}\,(-2\,e\,f+d\,g)\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\,\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\,\sqrt{a}\,g}{\sqrt{c}\,f+i\,\sqrt{a}\,g}\right]+$$

$$e\left(\sqrt{c}\,f-i\,\sqrt{a}\,g\right)$$

$$\left.\left.\text{EllipticPi}\left[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\,\sqrt{a}\,g\right)},i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\,\sqrt{a}\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\frac{\sqrt{c}\,f-i\,\sqrt{a}\,g}{\sqrt{c}\,f+i\,\sqrt{a}\,g}\right]\right)\right)\Big/$$

$$\left.\left(\left(\sqrt{c}\,f-i\,\sqrt{a}\,g\right)\sqrt{-f-\frac{i\,\sqrt{a}\,g}{\sqrt{c}}}\,(e\,f-d\,g)^2\,\sqrt{a+c\,x^2}\right)\right)$$

Problem 653: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{(d+e\,x)\,(f+g\,x)^{5/2}\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 818 leaves, 17 steps):

$$\frac{2\,g^2\,\sqrt{a+c\,x^2}}{3\,(e\,f-d\,g)\,(c\,f^2+a\,g^2)\,(f+g\,x)^{3/2}}+$$

$$\frac{8\,c\,f\,g^2\,\sqrt{a+c\,x^2}}{3\,(e\,f-d\,g)\,(c\,f^2+a\,g^2)^2\,\sqrt{f+g\,x}}+\frac{2\,e\,g^2\,\sqrt{a+c\,x^2}}{(e\,f-d\,g)^2\,(c\,f^2+a\,g^2)\,\sqrt{f+g\,x}}+$$

$$\left(8\,\sqrt{-a}\;c^{3/2}\,f\,g\,\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\;\sqrt{c}\;f-a\,g}\right]\right)\Big/$$

$$\left(3\,(e\,f-d\,g)\,(c\,f^2+a\,g^2)^2\,\sqrt{\frac{\sqrt{c}\;(f+g\,x)}{\sqrt{c}\;f+\sqrt{-a}\;g}}\;\sqrt{a+c\,x^2}\right)+$$

$$\left(2\,\sqrt{-a}\;\sqrt{c}\;e\,g\,\sqrt{f+g\,x}\,\sqrt{1+\frac{c\,x^2}{a}}\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],-\frac{2\,a\,g}{\sqrt{-a}\;\sqrt{c}\;f-a\,g}\right]\right)\Big/$$

$$\left((e\,f-d\,g)^2\,(c\,f^2+a\,g^2)\,\sqrt{\frac{\sqrt{c}\;(f+g\,x)}{\sqrt{c}\;f+\sqrt{-a}\;g}}\;\sqrt{a+c\,x^2}\right)-$$

$$\left(2\,\sqrt{-a}\;\sqrt{c}\;g\,\sqrt{\frac{\sqrt{c}\;(f+g\,x)}{\sqrt{c}\;f+\sqrt{-a}\;g}}\,\sqrt{1+\frac{c\,x^2}{a}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\right.\right.$$

$$\left.\left.-\frac{2\,a\,g}{\sqrt{-a}\;\sqrt{c}\;f-a\,g}\right]\right)\Big/\left(3\,(e\,f-d\,g)\,(c\,f^2+a\,g^2)\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)-$$

$$\left(2\,e^2\,\sqrt{\frac{\sqrt{c}\;(f+g\,x)}{\sqrt{c}\;f+\sqrt{-a}\;g}}\,\sqrt{1+\frac{c\,x^2}{a}}\;\text{EllipticPi}\left[\frac{2\,e}{\frac{\sqrt{c}\,d}{\sqrt{-a}}+e},\text{ArcSin}\left[\frac{\sqrt{1-\frac{\sqrt{c}\,x}{\sqrt{-a}}}}{\sqrt{2}}\right],\right.\right.$$

$$\left.\left.\frac{2\,\sqrt{-a}\;g}{\sqrt{c}\;f+\sqrt{-a}\;g}\right]\right)\Big/\left(\left(\frac{\sqrt{c}\,d}{\sqrt{-a}}+e\right)\,(e\,f-d\,g)^2\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\right)$$

Result (type 4, 6926 leaves) :

$$\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}\left(\frac{2\,g^2}{3\,(e\,f-d\,g)\,(c\,f^2+a\,g^2)\,(f+g\,x)^2}+\frac{2\,g^2\,\left(7\,c\,e\,f^2-4\,c\,d\,f\,g+3\,a\,e\,g^2\right)}{3\,(e\,f-d\,g)^2\,(c\,f^2+a\,g^2)^2\,(f+g\,x)}\right)-$$

$$\frac{1}{3\,(-e\,f+d\,g)^2\,(c\,f^2+a\,g^2)^2}$$

$$2\left(\left(\left(7\,c\,e\,f^2-4\,c\,d\,f\,g+3\,a\,e\,g^2\right)\,(f+g\,x)^{3/2}\left(c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}\right)\right)\Big/\right.$$

$$\left(\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}\right)+$$

$$\frac{1}{\sqrt{a+\frac{c\,(f+g\,x)^2\left(-1+\frac{f}{f+g\,x}\right)^2}{g^2}}}\,(e\,f-d\,g)\,(c\,f^2+a\,g^2)\,(f+g\,x)\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}$$

$$\left(-\left(\left(\left(7\,i\,c\,e\,f^2\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.\right.\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\right.\right.$$

$$\left.\left.\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\right.\right.$$

$$\left.\left.\left.\left.\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\right)\Big/\left((e\,f-d\,g)\,(c\,f^2+a\,g^2)\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\right.$$

$$\left.\left.\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)\right)+\left(4\,i\,c\,d\,f\,g\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(3\,i\,a\,e\,g^2\,\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\,\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\left(c\,f^2+a\,g^2\right)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(7\,i\,c\,e^2\,f^2\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(4\,i\,c\,d\,e\,f\,g\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(3\,i\,a\,e^2\,g^2\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left((e\,f-d\,g)^2\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\left(5\,i\,c\,e\,f\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\ \sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/$$

$$\left((e\,f-d\,g)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\left(i\,c\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/$$

$$\left((e\,f-d\,g)\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2+a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\frac{1}{(e\,f-d\,g)^3}$$

$$7\,c\,e^3\,f^2\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\ i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\left.\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right)\Bigg/\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\right.$$

$$\left.\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(f+g\,x)}}\ \text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,(e\,f-d\,g)}{e\,\left(c\,f^2+a\,g^2\right)},\right.\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Bigg]\Bigg/$$

$$\left(e\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)+$$

$$\frac{1}{(e\,f-d\,g)^3}4\,c\,d\,e^2\,f\,g\left(\left(i\,f\sqrt{1-\frac{c\,f^2+a\,g^2}{(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g)\ (f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g)\ (f+g\,x)}}\ \text{EllipticPi}\left[\frac{(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g)\ (e\,f-d\,g)}{e\,(c\,f^2+a\,g^2)},\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Bigg]\Bigg/\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\right.$$

$$\left.\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\left(i\,d\,g\sqrt{1-\frac{c\,f^2+a\,g^2}{(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g)\ (f+g\,x)}}\right.$$

$$\sqrt{1-\frac{c\,f^2+a\,g^2}{(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g)\ (f+g\,x)}}\ \text{EllipticPi}\left[\frac{(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g)\ (e\,f-d\,g)}{e\,(c\,f^2+a\,g^2)},\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\Bigg]\Bigg/$$

$$\left(e\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\ \sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-$$

$$\frac{1}{(e f-d g)^3} 3 a e^3 g^2 \left(\left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)},\right.$$

$$\left.\left.\left.i\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) /$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}\ \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)},\right.$$

$$\left.\left.i\ \text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a} \sqrt{c} g}{c f+i \sqrt{a} \sqrt{c} g}\right]\right) /$$

$$\left.\left(e \sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a} \sqrt{c} g}}\ \sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)\right)+$$

$$\frac{1}{(e f-d g)^2} 5 c e^2 f \left(\left(\left(i f \sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\right.\right.\right.$$

$$\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a} \sqrt{c} g\right)(f+g x)}}\ \text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a} \sqrt{c} g\right)(e f-d g)}{e\left(c f^2+a g^2\right)},\right.$$

$$\left. i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a}\,\sqrt{c}\,g}{c f+i \sqrt{a}\,\sqrt{c}\,g}\right] \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i d g\sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a}\,\sqrt{c}\,g\right)(f+g x)}}\,\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a}\,\sqrt{c}\,g\right)(f+g x)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a}\,\sqrt{c}\,g\right)(e f-d g)}{e\left(c f^2+a g^2\right)},\right.$$

$$\left. i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a}\,\sqrt{c}\,g}{c f+i \sqrt{a}\,\sqrt{c}\,g}\right] \Bigg/$$

$$\left.\left(e\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)\right)-\frac{1}{(e f-d g)^2}$$

$$c d e g\left(\left(i f\sqrt{1-\frac{c f^2+a g^2}{\left(c f-i \sqrt{a}\,\sqrt{c}\,g\right)(f+g x)}}\,\sqrt{1-\frac{c f^2+a g^2}{\left(c f+i \sqrt{a}\,\sqrt{c}\,g\right)(f+g x)}}\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c f-i \sqrt{a}\,\sqrt{c}\,g\right)(e f-d g)}{e\left(c f^2+a g^2\right)},\right.$$

$$\left. i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g x}}\right], \frac{c f-i \sqrt{a}\,\sqrt{c}\,g}{c f+i \sqrt{a}\,\sqrt{c}\,g}\right] \Bigg/$$

$$\left(\sqrt{-\frac{c f^2+a g^2}{c f-i \sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c f^2}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right/$$

$$\left.\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)\right]-\frac{1}{e\,f-d\,g}$$

$$c\,e\left(\left(\left(i\,f\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}}\right],\frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\right/$$

$$\left.\left(\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}}\right)-\right.$$

$$\left(i\,d\,g\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\,\sqrt{1-\frac{c\,f^2+a\,g^2}{\left(c\,f+i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(f+g\,x\right)}}\right.$$

$$\text{EllipticPi}\left[\frac{\left(c\,f-i\,\sqrt{a}\,\sqrt{c}\,g\right)\,\left(e\,f-d\,g\right)}{e\,\left(c\,f^2+a\,g^2\right)},\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}}{\sqrt{f+g\,x}},\ \frac{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}{c\,f+i\,\sqrt{a}\,\sqrt{c}\,g}\right]\Bigg/\left(e\,\sqrt{-\frac{c\,f^2+a\,g^2}{c\,f-i\,\sqrt{a}\,\sqrt{c}\,g}}\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}}\right)\Bigg)\Bigg)\Bigg)$$

Problem 654: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{(d+e\,x)\,\sqrt{f+g\,x}\,\sqrt{1+c\,x^2}}\,dx$$

Optimal (type 4, 110 leaves, 4 steps):

$$-\frac{2\,\sqrt{\frac{\sqrt{-c}\,(f+g\,x)}{\sqrt{-c}\,f+g}}\,\text{EllipticPi}\left[\frac{2\,e}{\sqrt{-c}\,d+e},\ \text{ArcSin}\left[\frac{\sqrt{1-\sqrt{-c}\,x}}{\sqrt{2}}\right],\ \frac{2\,g}{\sqrt{-c}\,f+g}\right]}{\left(\sqrt{-c}\,d+e\right)\sqrt{f+g\,x}}$$

Result (type 4, 261 leaves):

$$-\Bigg(\Bigg(2\,i\,\sqrt{\frac{g\left(\frac{i}{\sqrt{c}}+x\right)}{f+g\,x}}\,\sqrt{-\frac{\frac{i\,g}{\sqrt{c}}-g\,x}{f+g\,x}}\,(f+g\,x)\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\ \frac{\sqrt{c}\,f-i\,g}{\sqrt{c}\,f+i\,g}\right]-\text{EllipticPi}\left[\frac{\sqrt{c}\,(e\,f-d\,g)}{e\left(\sqrt{c}\,f+i\,g\right)},\ i\,\text{ArcSinh}\left[\frac{\sqrt{-f-\frac{i\,g}{\sqrt{c}}}}{\sqrt{f+g\,x}}\right],\ \frac{\sqrt{c}\,f-i\,g}{\sqrt{c}\,f+i\,g}\right]\right)\Bigg)\Bigg/\left(\sqrt{-f-\frac{i\,g}{\sqrt{c}}}\,(e\,f-d\,g)\,\sqrt{1+c\,x^2}\right)\Bigg)$$

Problem 655: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{\sqrt{d+e\,x}\,\sqrt{f+g\,x}\,\sqrt{a+c\,x^2}}\,dx$$

Optimal (type 4, 454 leaves, 2 steps):

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

$$\left.\left.\left.\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{(c d^2+a e^2)^{1/4}\sqrt{f+g x}}{(c f^2+a g^2)^{1/4}\sqrt{d+e x}}\right],\frac{1}{2}\left(1+\frac{c d f+a e g}{\sqrt{c d^2+a e^2}\sqrt{c f^2+a g^2}}\right)\right]\right)\Big/\right.$$

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

Result (type 4, 344 leaves):

$$\left(\sqrt{2}\left(i\sqrt{a}+\sqrt{c}\,x\right)\sqrt{d+e x}\sqrt{\frac{d-\frac{i\sqrt{a}\,e}{\sqrt{c}}+\frac{i\sqrt{c}\,d x}{\sqrt{a}}+e x}{d+e x}}\sqrt{\frac{\left(i\sqrt{c}\,d+\sqrt{a}\,e\right)(f+g x)}{\left(i\sqrt{c}\,f+\sqrt{a}\,g\right)(d+e x)}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(e f-d g)\left(i\sqrt{a}+\sqrt{c}\,x\right)}{\left(\sqrt{c}\,f-i\sqrt{a}\,g\right)(d+e x)}}\right],-\frac{\frac{i\sqrt{c}\,d f}{\sqrt{a}}-e f+d g+\frac{i\sqrt{a}\,e g}{\sqrt{c}}}{2 e f-2 d g}\right]\right)\Big/$$

$$\left(\left(\sqrt{c}\,d-i\sqrt{a}\,e\right)\sqrt{\frac{(e f-d g)\left(i\sqrt{a}+\sqrt{c}\,x\right)}{\left(\sqrt{c}\,f-i\sqrt{a}\,g\right)(d+e x)}}\sqrt{f+g x}\sqrt{a+c x^2}\right)$$

Problem 656: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 52 leaves, 4 steps):

$$\frac{\sqrt{1-2x^2}\ \sqrt{1-x^2}\ \text{EllipticF}[\text{ArcSin}[x],2]}{\sqrt{-1+x}\ \sqrt{1+x}\ \sqrt{-1+2x^2}}$$

Result (type 4, 107 leaves):

$$-\left(\left(2(-1+x)^{3/2}\sqrt{\frac{1+x}{1-x}}\sqrt{\frac{1-2x^2}{(-1+x)^2}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{2+\sqrt{2}+\frac{1}{-1+x}}}{2^{3/4}}\right],4\left(-4+3\sqrt{2}\right)\right]\right)\Big/\left(\sqrt{3+2\sqrt{2}}\ \sqrt{1+x}\ \sqrt{-1+2x^2}\right)\right)$$

Problem 773: Unable to integrate problem.

$$\int\frac{(d+ex)^m\left(ade+\left(cd^2+ae^2\right)x+cdex^2\right)^{-m}}{(f+gx)^2}\,dx$$

Optimal (type 5, 101 leaves, 2 steps):

$$\left(cd(ae+cdx)(d+ex)^m\left(ade+\left(cd^2+ae^2\right)x+cdex^2\right)^{-m}\text{Hypergeometric2F1}\left[2,1-m,2-m,-\frac{g(ae+cdx)}{cdf-aeg}\right]\right)\Big/\left((cdf-aeg)^2(1-m)\right)$$

Result (type 8, 46 leaves):

$$\int\frac{(d+ex)^m\left(ade+\left(cd^2+ae^2\right)x+cdex^2\right)^{-m}}{(f+gx)^2}\,dx$$

Problem 774: Unable to integrate problem.

$$\int\frac{(d+ex)^m\left(ade+\left(cd^2+ae^2\right)x+cdex^2\right)^{-m}}{(f+gx)^3}\,dx$$

Optimal (type 5, 105 leaves, 2 steps):

$$\left(c^2d^2(ae+cdx)(d+ex)^m\left(ade+\left(cd^2+ae^2\right)x+cdex^2\right)^{-m}\text{Hypergeometric2F1}\left[3,1-m,2-m,-\frac{g(ae+cdx)}{cdf-aeg}\right]\right)\Big/\left((cdf-aeg)^3(1-m)\right)$$

Result (type 8, 46 leaves):

$$\int\frac{(d+ex)^m\left(ade+\left(cd^2+ae^2\right)x+cdex^2\right)^{-m}}{(f+gx)^3}\,dx$$

Problem 775: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (d+e\,x)^m\,(f+g\,x)^{3/2}\,\left(a\,d\,e+\left(c\,d^2+a\,e^2\right)\,x+c\,d\,e\,x^2\right)^{-m}\,dx$$

Optimal (type 5, 105 leaves, 3 steps):

$$\frac{1}{5\,g}2\left(-\frac{g\,(a\,e+c\,d\,x)}{c\,d\,f-a\,e\,g}\right)^m\,(d+e\,x)^m\,(f+g\,x)^{5/2}$$
$$\left(a\,d\,e+\left(c\,d^2+a\,e^2\right)\,x+c\,d\,e\,x^2\right)^{-m}\,\text{Hypergeometric2F1}\left[\frac{5}{2},\,m,\,\frac{7}{2},\,\frac{c\,d\,(f+g\,x)}{c\,d\,f-a\,e\,g}\right]$$

Result (type 6, 234 leaves):

$$\frac{1}{3\,g}f\,(d+e\,x)^m\,\left((a\,e+c\,d\,x)\,(d+e\,x)\right)^{-m}\,\sqrt{f+g\,x}$$
$$\left(\left(9\,a\,e\,g^2\,x^2\,\text{AppellF1}\left[2,\,m,\,-\frac{1}{2},\,3,\,-\frac{c\,d\,x}{a\,e},\,-\frac{g\,x}{f}\right]\right)\Big/\right.$$
$$\left(6\,a\,e\,f\,\text{AppellF1}\left[2,\,m,\,-\frac{1}{2},\,3,\,-\frac{c\,d\,x}{a\,e},\,-\frac{g\,x}{f}\right]+a\,e\,g\,x\,\text{AppellF1}\left[3,\,m,\,\frac{1}{2},\,4,\,-\frac{c\,d\,x}{a\,e},\,-\frac{g\,x}{f}\right]-\right.$$
$$\left.2\,c\,d\,f\,m\,x\,\text{AppellF1}\left[3,\,1+m,\,-\frac{1}{2},\,4,\,-\frac{c\,d\,x}{a\,e},\,-\frac{g\,x}{f}\right]\right)+$$
$$\left.2\left(\frac{g\,(a\,e+c\,d\,x)}{-c\,d\,f+a\,e\,g}\right)^m\,(f+g\,x)\,\text{Hypergeometric2F1}\left[\frac{3}{2},\,m,\,\frac{5}{2},\,\frac{c\,d\,(f+g\,x)}{c\,d\,f-a\,e\,g}\right]\right)$$

Problem 802: Result more than twice size of optimal antiderivative.

$$\int (1-e\,x)^m\,(1+e\,x)^m\,\left(a+c\,x^2\right)^p\,dx$$

Optimal (type 6, 54 leaves, 3 steps):

$$x\,\left(a+c\,x^2\right)^p\,\left(1+\frac{c\,x^2}{a}\right)^{-p}\,\text{AppellF1}\left[\frac{1}{2},\,-p,\,-m,\,\frac{3}{2},\,-\frac{c\,x^2}{a},\,e^2\,x^2\right]$$

Result (type 6, 167 leaves):

$$\left(3\,a\,x\,\left(a+c\,x^2\right)^p\,\left(1-e^2\,x^2\right)^m\,\text{AppellF1}\left[\frac{1}{2},\,-p,\,-m,\,\frac{3}{2},\,-\frac{c\,x^2}{a},\,e^2\,x^2\right]\right)\Big/$$
$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\,-p,\,-m,\,\frac{3}{2},\,-\frac{c\,x^2}{a},\,e^2\,x^2\right]+2\,x^2\,\left(c\,p\,\text{AppellF1}\left[\frac{3}{2},\,1-p,\,-m,\,\frac{5}{2},\,-\frac{c\,x^2}{a},\,e^2\,x^2\right]-\right.\right.$$
$$\left.\left.a\,e^2\,m\,\text{AppellF1}\left[\frac{3}{2},\,-p,\,1-m,\,\frac{5}{2},\,-\frac{c\,x^2}{a},\,e^2\,x^2\right]\right)\right)$$

Problem 803: Unable to integrate problem.

$$\int (d-e\,x)^m\,(d+e\,x)^m\,\left(a+c\,x^2\right)^p\,dx$$

Optimal (type 6, 89 leaves, 4 steps):

$$x\,(d-e\,x)^m\,(d+e\,x)^m\,(a+c\,x^2)^p\left(1+\frac{c\,x^2}{a}\right)^{-p}\left(1-\frac{e^2\,x^2}{d^2}\right)^{-m}\text{AppellF1}\left[\frac{1}{2},-p,-m,\frac{3}{2},-\frac{c\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]$$

Result (type 8, 27 leaves):

$$\int (d-e\,x)^m\,(d+e\,x)^m\,(a+c\,x^2)^p\,dx$$

Problem 804: Unable to integrate problem.

$$\int (d+e\,x)^m\,(d\,f-e\,f\,x)^m\,(a+c\,x^2)^p\,dx$$

Optimal (type 6, 92 leaves, 4 steps):

$$x\,(d+e\,x)^m\,(d\,f-e\,f\,x)^m\,(a+c\,x^2)^p\left(1+\frac{c\,x^2}{a}\right)^{-p}\left(1-\frac{e^2\,x^2}{d^2}\right)^{-m}\text{AppellF1}\left[\frac{1}{2},-p,-m,\frac{3}{2},-\frac{c\,x^2}{a},\frac{e^2\,x^2}{d^2}\right]$$

Result (type 8, 30 leaves):

$$\int (d+e\,x)^m\,(d\,f-e\,f\,x)^m\,(a+c\,x^2)^p\,dx$$

Problem 805: Result more than twice size of optimal antiderivative.

$$\int (d+e\,x)^3\,(f+g\,x)^n\,(a+2\,c\,d\,x+c\,e\,x^2)\,dx$$

Optimal (type 3, 275 leaves, 2 steps):

$$-\frac{(e\,f-d\,g)^3\,(a\,g^2+c\,f\,(e\,f-2\,d\,g))\,(f+g\,x)^{1+n}}{g^6\,(1+n)}+$$
$$\frac{(e\,f-d\,g)^2\,(3\,a\,e\,g^2+c\,(5\,e^2\,f^2-10\,d\,e\,f\,g+2\,d^2\,g^2))\,(f+g\,x)^{2+n}}{g^6\,(2+n)}-$$
$$\frac{e\,(e\,f-d\,g)\,(3\,a\,e\,g^2+c\,(10\,e^2\,f^2-20\,d\,e\,f\,g+7\,d^2\,g^2))\,(f+g\,x)^{3+n}}{g^6\,(3+n)}+$$
$$\frac{e^2\,(a\,e\,g^2+c\,(10\,e^2\,f^2-20\,d\,e\,f\,g+9\,d^2\,g^2))\,(f+g\,x)^{4+n}}{g^6\,(4+n)}-$$
$$\frac{5\,c\,e^3\,(e\,f-d\,g)\,(f+g\,x)^{5+n}}{g^6\,(5+n)}+\frac{c\,e^4\,(f+g\,x)^{6+n}}{g^6\,(6+n)}$$

Result (type 3, 577 leaves):

$$\frac{1}{g^6 (1+n)(2+n)(3+n)(4+n)(5+n)(6+n)} (f+g x)^{1+n}$$
$$\left(a g^2 \left(30+11 n+n^2\right)\left(d^3 g^3 \left(24+26 n+9 n^2+n^3\right)+3 d^2 e g^2 \left(12+7 n+n^2\right)(-f+g(1+n)x)+3 d e^2 g (4+n)\left(2 f^2-2 f g (1+n) x+g^2\left(2+3 n+n^2\right)x^2\right)+e^3\left(-6 f^3+6 f^2 g (1+n) x-3 f g^2\left(2+3 n+n^2\right)x^2+g^3\left(6+11 n+6 n^2+n^3\right)x^3\right)\right)+c\left(2 d^4 g^4\left(360+342 n+119 n^2+18 n^3+n^4\right)(-f+g(1+n)x)+7 d^3 e g^3\left(120+74 n+15 n^2+n^3\right)\left(2 f^2-2 f g(1+n)x+g^2\left(2+3 n+n^2\right)x^2\right)+9 d^2 e^2 g^2\left(30+11 n+n^2\right)\left(-6 f^3+6 f^2 g(1+n)x-3 f g^2\left(2+3 n+n^2\right)x^2+g^3\left(6+11 n+6 n^2+n^3\right)x^3\right)+5 d e^3 g (6+n)\left(24 f^4-24 f^3 g(1+n)x+12 f^2 g^2\left(2+3 n+n^2\right)x^2-4 f g^3\left(6+11 n+6 n^2+n^3\right)x^3+g^4\left(24+50 n+35 n^2+10 n^3+n^4\right)x^4\right)-e^4\left(120 f^5-120 f^4 g(1+n)x+60 f^3 g^2\left(2+3 n+n^2\right)x^2-20 f^2 g^3\left(6+11 n+6 n^2+n^3\right)x^3+5 f g^4\left(24+50 n+35 n^2+10 n^3+n^4\right)x^4-g^5\left(120+274 n+225 n^2+85 n^3+15 n^4+n^5\right)x^5\right)\right)\right)$$

Problem 810: Unable to integrate problem.

$$\int \frac{(f+g x)^n (a+2 c d x+c e x^2)}{(d+e x)^2} dx$$

Optimal (type 5, 88 leaves, 3 steps):

$$\frac{c (f+g x)^{1+n}}{e g (1+n)} - \frac{(c d^2-a e) g (f+g x)^{1+n} \text{Hypergeometric2F1}\left[2, 1+n, 2+n, \frac{e (f+g x)}{e f-d g}\right]}{e (e f-d g)^2 (1+n)}$$

Result (type 8, 30 leaves):

$$\int \frac{(f+g x)^n (a+2 c d x+c e x^2)}{(d+e x)^2} dx$$

Problem 811: Unable to integrate problem.

$$\int \frac{(f+g x)^n (a+2 c d x+c e x^2)}{(d+e x)^3} dx$$

Optimal (type 5, 193 leaves, 3 steps):

$$-\frac{\left(a-\frac{c d^2}{e}\right)(f+g x)^{1+n}}{2 (e f-d g)(d+e x)^2} - \frac{(c d^2-a e) g (1-n)(f+g x)^{1+n}}{2 e (e f-d g)^2 (d+e x)} +$$
$$\left((a e g^2 (1-n) n - c\left(2 e^2 f^2-4 d e f g+d^2 g^2\left(2+n-n^2\right)\right))(f+g x)^{1+n}\right.$$
$$\left.\text{Hypergeometric2F1}\left[1, 1+n, 2+n, \frac{e (f+g x)}{e f-d g}\right]\right) \Big/ \left(2 e (e f-d g)^3 (1+n)\right)$$

Result (type 8, 30 leaves):

$$\int \frac{(f+g x)^n (a+2 c d x+c e x^2)}{(d+e x)^3} dx$$

Problem 812: Unable to integrate problem.

$$\int \frac{(f+g\,x)^n\,(a+2\,c\,d\,x+c\,e\,x^2)}{(d+e\,x)^4}\,dx$$

Optimal (type 5, 197 leaves, 3 steps):

$$-\frac{\left(a-\frac{c\,d^2}{e}\right)\,(f+g\,x)^{1+n}}{3\,(e\,f-d\,g)\,(d+e\,x)^3}-\frac{(c\,d^2-a\,e)\,g\,(2-n)\,(f+g\,x)^{1+n}}{6\,e\,(e\,f-d\,g)^2\,(d+e\,x)^2}+$$
$$\left(g\,\left(a\,e\,g^2\,\left(2-3\,n+n^2\right)+c\,\left(6\,e^2\,f^2-12\,d\,e\,f\,g+d^2\,g^2\,\left(4+3\,n-n^2\right)\right)\right)\,(f+g\,x)^{1+n}\right.$$
$$\left.\text{Hypergeometric2F1}\left[2,\,1+n,\,2+n,\,\frac{e\,(f+g\,x)}{e\,f-d\,g}\right]\right)\Big/\left(6\,e\,(e\,f-d\,g)^4\,(1+n)\right)$$

Result (type 8, 30 leaves):

$$\int \frac{(f+g\,x)^n\,(a+2\,c\,d\,x+c\,e\,x^2)}{(d+e\,x)^4}\,dx$$

Problem 813: Result unnecessarily involves higher level functions.

$$\int (d+e\,x)^m\,(f+g\,x)^n\,(a+2\,c\,d\,x+c\,e\,x^2)\,dx$$

Optimal (type 5, 231 leaves, 4 steps):

$$-\frac{c\,(e\,f-d\,g)\,(2+m)\,(d+e\,x)^{1+m}\,(f+g\,x)^{1+n}}{e\,g^2\,(2+m+n)\,(3+m+n)}+$$
$$\frac{c\,(d+e\,x)^{2+m}\,(f+g\,x)^{1+n}}{e\,g\,(3+m+n)}+\left(\left(c\,(e\,f-d\,g)\,(2+m)\,(e\,f\,(1+m)+d\,g\,(1+n)\right)+\right.$$
$$\left.g\,(2+m+n)\,(a\,e\,g\,(3+m+n)-c\,d\,(e\,f\,(2+m)+d\,g\,(1+n))\right)\,(d+e\,x)^{1+m}$$
$$(f+g\,x)^n\left(\frac{e\,(f+g\,x)}{e\,f-d\,g}\right)^{-n}\text{Hypergeometric2F1}\left[1+m,\,-n,\,2+m,\,-\frac{g\,(d+e\,x)}{e\,f-d\,g}\right]\Big)\Big/$$
$$\left(e^2\,g^2\,(1+m)\,(2+m+n)\,(3+m+n)\right)$$

Result (type 6, 328 leaves):

$$\frac{1}{3}(d+e\,x)^m(f+g\,x)^n\left(\left(9\,c\,d^2\,f\,x^2\,\text{AppellF1}\left[2,-m,-n,3,-\frac{e\,x}{d},-\frac{g\,x}{f}\right]\right)\Big/\left(3\,d\,f\,\text{AppellF1}\left[2,-m,-n,3,-\frac{e\,x}{d},-\frac{g\,x}{f}\right]+e\,f\,m\,x\,\text{AppellF1}\left[3,1-m,-n,4,-\frac{e\,x}{d},-\frac{g\,x}{f}\right]+d\,g\,n\,x\,\text{AppellF1}\left[3,-m,1-n,4,-\frac{e\,x}{d},-\frac{g\,x}{f}\right]\right)+\left(4\,c\,d\,e\,f\,x^3\,\text{AppellF1}\left[3,-m,-n,4,-\frac{e\,x}{d},-\frac{g\,x}{f}\right]\right)\Big/\left(4\,d\,f\,\text{AppellF1}\left[3,-m,-n,4,-\frac{e\,x}{d},-\frac{g\,x}{f}\right]+e\,f\,m\,x\,\text{AppellF1}\left[4,1-m,-n,5,-\frac{e\,x}{d},-\frac{g\,x}{f}\right]+d\,g\,n\,x\,\text{AppellF1}\left[4,-m,1-n,5,-\frac{e\,x}{d},-\frac{g\,x}{f}\right]\right)+\frac{1}{g\,(1+n)}\right)$$

$$3\,a\left(\frac{g\,(d+e\,x)}{-e\,f+d\,g}\right)^{-m}(f+g\,x)\,\text{Hypergeometric2F1}\left[-m,1+n,2+n,\frac{e\,(f+g\,x)}{e\,f-d\,g}\right]\Bigg)$$

Problem 850: Result more than twice size of optimal antiderivative.

$$\int\frac{(d+e\,x)^{3/2}}{\sqrt{f+g\,x}\,\left(a+b\,x+c\,x^2\right)}\,\mathbb{d}x$$

Optimal (type 3, 417 leaves, 11 steps):

$$\frac{2\,e^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{g}\,\sqrt{d+e\,x}}{\sqrt{e}\,\sqrt{f+g\,x}}\right]}{c\,\sqrt{g}} - \left(2\left(e\left(2\,c\,d-b\,e\right)+\frac{2\,c^2\,d^2+b^2\,e^2-2\,c\,e\left(b\,d+a\,e\right)}{\sqrt{b^2-4\,a\,c}}\right)\right.$$

$$\left.\text{ArcTanh}\left[\frac{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}\,\sqrt{d+e\,x}}{\sqrt{2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)\,e}\,\sqrt{f+g\,x}}\right]\right) \Big/$$

$$\left(c\,\sqrt{2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)\,e}\,\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}\right) -$$

$$\left(2\left(e\left(2\,c\,d-b\,e\right)-\frac{2\,c^2\,d^2+b^2\,e^2-2\,c\,e\left(b\,d+a\,e\right)}{\sqrt{b^2-4\,a\,c}}\right)\right.$$

$$\left.\text{ArcTanh}\left[\frac{\sqrt{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}\,\sqrt{d+e\,x}}{\sqrt{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e}\,\sqrt{f+g\,x}}\right]\right) \Big/$$

$$\left(c\,\sqrt{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e}\,\sqrt{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}\right)$$

Result (type 3, 1164 leaves) :

$$\frac{1}{2c}\left(\left(\sqrt{2}\left(2c^2d^2+b\left(b-\sqrt{b^2-4ac}\right)e^2-2ce\left(bd-\sqrt{b^2-4ac}\,d+ae\right)\right)\right.\right.$$
$$\left.\left.\text{Log}\left[-b+\sqrt{b^2-4ac}-2cx\right]\right)\Big/\left(\sqrt{b^2-4ac}\sqrt{\left(2c^2df+b\left(b-\sqrt{b^2-4ac}\right)eg+\right.\right.\right.$$
$$\left.\left.\left.c\left(\sqrt{b^2-4ac}\,ef+\sqrt{b^2-4ac}\,dg-2aeg-b\left(ef+dg\right)\right)\right)\right)-$$
$$\left(\sqrt{2}\left(2c^2d^2+b\left(b+\sqrt{b^2-4ac}\right)e^2-2ce\left(bd+\sqrt{b^2-4ac}\,d+ae\right)\right)\right.$$
$$\left.\text{Log}\left[b+\sqrt{b^2-4ac}+2cx\right]\right)\Big/\left(\sqrt{b^2-4ac}\sqrt{\left(2c^2df+b\left(b+\sqrt{b^2-4ac}\right)eg-\right.\right.$$
$$\left.\left.c\left(bef+\sqrt{b^2-4ac}\,ef+bdg+\sqrt{b^2-4ac}\,dg+2aeg\right)\right)\right)+$$
$$\frac{2e^{3/2}\,\text{Log}\left[ef+dg+2egx+2\sqrt{e}\sqrt{g}\sqrt{d+ex}\sqrt{f+gx}\right]}{\sqrt{g}}+$$
$$\left(\sqrt{2}\left(-2c^2d^2+b\left(-b+\sqrt{b^2-4ac}\right)e^2+2ce\left(bd-\sqrt{b^2-4ac}\,d+ae\right)\right)\right.$$
$$\text{Log}\left[2\sqrt{2}\sqrt{b^2-4ac}\sqrt{\left(2c^2df+b\left(b-\sqrt{b^2-4ac}\right)eg+\right.\right.$$
$$\left.\left.c\left(\sqrt{b^2-4ac}\,ef+\sqrt{b^2-4ac}\,dg-2aeg-b\left(ef+dg\right)\right)\right)}\sqrt{d+ex}\sqrt{f+gx}+$$
$$b^2\left(dg+e\left(f+2gx\right)\right)-b\sqrt{b^2-4ac}\left(dg+e\left(f+2gx\right)\right)+$$
$$\left.2c\left(\sqrt{b^2-4ac}\,efx-2ae\left(f+2gx\right)+d\left(2\sqrt{b^2-4ac}\,f-2ag+\sqrt{b^2-4ac}\,gx\right)\right)\right]\Big)\Big/$$
$$\left(\sqrt{b^2-4ac}\sqrt{\left(2c^2df+b\left(b-\sqrt{b^2-4ac}\right)eg+\right.\right.$$
$$\left.\left.c\left(\sqrt{b^2-4ac}\,ef+\sqrt{b^2-4ac}\,dg-2aeg-b\left(ef+dg\right)\right)\right)\right)+$$
$$\left(\sqrt{2}\left(2c^2d^2+b\left(b+\sqrt{b^2-4ac}\right)e^2-2ce\left(bd+\sqrt{b^2-4ac}\,d+ae\right)\right)\right.$$
$$\text{Log}\left[2\sqrt{2}\sqrt{b^2-4ac}\sqrt{\left(2c^2df+b\left(b+\sqrt{b^2-4ac}\right)eg-\right.\right.$$
$$\left.\left.c\left(bef+\sqrt{b^2-4ac}\,ef+bdg+\sqrt{b^2-4ac}\,dg+2aeg\right)\right)}\sqrt{d+ex}\sqrt{f+gx}-$$
$$b^2\left(dg+e\left(f+2gx\right)\right)-b\sqrt{b^2-4ac}\left(dg+e\left(f+2gx\right)\right)+$$
$$\left.2c\left(\sqrt{b^2-4ac}\,efx+2ae\left(f+2gx\right)+d\left(2\sqrt{b^2-4ac}\,f+2ag+\sqrt{b^2-4ac}\,gx\right)\right)\right]\Big)\Big/$$
$$\left(\sqrt{b^2-4ac}\sqrt{\left(2c^2df+b\left(b+\sqrt{b^2-4ac}\right)eg-\right.\right.$$
$$\left.\left.\left.c\left(bef+\sqrt{b^2-4ac}\,ef+bdg+\sqrt{b^2-4ac}\,dg+2aeg\right)\right)\right)\right)$$

Problem 851: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{d+e\,x}}{\sqrt{f+g\,x}\,\left(a+b\,x+c\,x^2\right)}\,dx$$

Optimal (type 3, 285 leaves, 6 steps):

$$-\frac{2\sqrt{2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)e}\;\text{ArcTanh}\left[\frac{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}\;\sqrt{d+e\,x}}{\sqrt{2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)e}\;\sqrt{f+g\,x}}\right]}{\sqrt{b^2-4\,a\,c}\;\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}}+$$

$$\frac{2\sqrt{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)e}\;\text{ArcTanh}\left[\frac{\sqrt{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\;\sqrt{d+e\,x}}{\sqrt{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)e}\;\sqrt{f+g\,x}}\right]}{\sqrt{b^2-4\,a\,c}\;\sqrt{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}$$

Result (type 3, 925 leaves):

$$\frac{1}{\sqrt{2}\,\sqrt{b^2-4ac}}$$
$$\left(\left(\left(2cd+\left(-b+\sqrt{b^2-4ac}\right)e\right)\text{Log}\left[-b+\sqrt{b^2-4ac}-2cx\right]\right)\Big/\left(\sqrt{\left(2c^2df+b\left(b-\sqrt{b^2-4ac}\right)eg+c\left(\sqrt{b^2-4ac}\,ef+\sqrt{b^2-4ac}\,dg-2aeg-b\left(ef+dg\right)\right)\right)}\right)-$$
$$\left(\left(2cd-\left(b+\sqrt{b^2-4ac}\right)e\right)\text{Log}\left[b+\sqrt{b^2-4ac}+2cx\right]\right)\Big/\left(\sqrt{\left(2c^2df+b\left(b+\sqrt{b^2-4ac}\right)eg-c\left(bef+\sqrt{b^2-4ac}\,ef+bdg+\sqrt{b^2-4ac}\,dg+2aeg\right)\right)}\right)-$$
$$\left(\left(2cd+\left(-b+\sqrt{b^2-4ac}\right)e\right)\text{Log}\left[2\sqrt{2}\,\sqrt{b^2-4ac}\,\sqrt{\left(2c^2df+b\left(b-\sqrt{b^2-4ac}\right)eg+c\left(\sqrt{b^2-4ac}\,ef+\sqrt{b^2-4ac}\,dg-2aeg-b\left(ef+dg\right)\right)\right)}\,\sqrt{d+ex}\,\sqrt{f+gx}+b^2\left(dg+e\left(f+2gx\right)\right)-b\sqrt{b^2-4ac}\left(dg+e\left(f+2gx\right)\right)+2c\left(\sqrt{b^2-4ac}\,efx-2ae\left(f+2gx\right)+d\left(2\sqrt{b^2-4ac}\,f-2ag+\sqrt{b^2-4ac}\,gx\right)\right)\right]\right)\Big/$$
$$\left(\sqrt{\left(2c^2df+b\left(b-\sqrt{b^2-4ac}\right)eg+c\left(\sqrt{b^2-4ac}\,ef+\sqrt{b^2-4ac}\,dg-2aeg-b\left(ef+dg\right)\right)\right)}\right)+$$
$$\left(\left(2cd-\left(b+\sqrt{b^2-4ac}\right)e\right)\text{Log}\left[2\sqrt{2}\,\sqrt{b^2-4ac}\,\sqrt{\left(2c^2df+b\left(b+\sqrt{b^2-4ac}\right)eg-c\left(bef+\sqrt{b^2-4ac}\,ef+bdg+\sqrt{b^2-4ac}\,dg+2aeg\right)\right)}\,\sqrt{d+ex}\,\sqrt{f+gx}-b^2\left(dg+e\left(f+2gx\right)\right)-b\sqrt{b^2-4ac}\left(dg+e\left(f+2gx\right)\right)+2c\left(\sqrt{b^2-4ac}\,efx+2ae\left(f+2gx\right)+d\left(2\sqrt{b^2-4ac}\,f+2ag+\sqrt{b^2-4ac}\,gx\right)\right)\right]\right)\Big/$$
$$\left(\sqrt{\left(2c^2df+b\left(b+\sqrt{b^2-4ac}\right)eg-c\left(bef+\sqrt{b^2-4ac}\,ef+bdg+\sqrt{b^2-4ac}\,dg+2aeg\right)\right)}\right)\Bigg)$$

Problem 852: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{d+ex}\,\sqrt{f+gx}\,\left(a+bx+cx^2\right)}\,dx$$

Optimal (type 3, 287 leaves, 6 steps) :

$$-\left(\left(4\,c\,\text{ArcTanh}\left[\frac{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}\,\sqrt{d+e\,x}}{\sqrt{2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)\,e}\,\sqrt{f+g\,x}}\right]\Big/\left(\sqrt{b^2-4\,a\,c}\,\sqrt{2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)\,e}\,\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}\right)\right)+$$

$$\frac{4\,c\,\text{ArcTanh}\left[\frac{\sqrt{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}\,\sqrt{d+e\,x}}{\sqrt{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e}\,\sqrt{f+g\,x}}\right]}{\sqrt{b^2-4\,a\,c}\,\sqrt{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e}\,\sqrt{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}}$$

Result (type 3, 836 leaves) :

$$\frac{1}{\sqrt{b^2-4ac}}\sqrt{2}\,c\left(\text{Log}\left[-b+\sqrt{b^2-4ac}-2cx\right]\Big/\left(\sqrt{\left(2c^2df+b\left(b-\sqrt{b^2-4ac}\right)eg+c\left(\sqrt{b^2-4ac}\,ef+\sqrt{b^2-4ac}\,dg-2aeg-b\left(ef+dg\right)\right)\right)}\right)-\text{Log}\left[b+\sqrt{b^2-4ac}+2cx\right]\Big/\left(\sqrt{\left(2c^2df+b\left(b+\sqrt{b^2-4ac}\right)eg-c\left(bef+\sqrt{b^2-4ac}\,ef+bdg+\sqrt{b^2-4ac}\,dg+2aeg\right)\right)}\right)-\text{Log}\left[2\sqrt{2}\,\sqrt{b^2-4ac}\,\sqrt{\left(2c^2df+b\left(b-\sqrt{b^2-4ac}\right)eg+c\left(\sqrt{b^2-4ac}\,ef+\sqrt{b^2-4ac}\,dg-2aeg-b\left(ef+dg\right)\right)\right)}\,\sqrt{d+ex}\,\sqrt{f+gx}+b^2\left(dg+e\left(f+2gx\right)\right)-b\sqrt{b^2-4ac}\left(dg+e\left(f+2gx\right)\right)+2c\left(\sqrt{b^2-4ac}\,efx-2ae\left(f+2gx\right)+d\left(2\sqrt{b^2-4ac}\,f-2ag+\sqrt{b^2-4ac}\,gx\right)\right)\right]\Big/\left(\sqrt{\left(2c^2df+b\left(b-\sqrt{b^2-4ac}\right)eg+c\left(\sqrt{b^2-4ac}\,ef+\sqrt{b^2-4ac}\,dg-2aeg-b\left(ef+dg\right)\right)\right)}\right)+\text{Log}\left[2\sqrt{2}\,\sqrt{b^2-4ac}\,\sqrt{\left(2c^2df+b\left(b+\sqrt{b^2-4ac}\right)eg-c\left(bef+\sqrt{b^2-4ac}\,ef+bdg+\sqrt{b^2-4ac}\,dg+2aeg\right)\right)}\,\sqrt{d+ex}\,\sqrt{f+gx}-b^2\left(dg+e\left(f+2gx\right)\right)-b\sqrt{b^2-4ac}\left(dg+e\left(f+2gx\right)\right)+2c\left(\sqrt{b^2-4ac}\,efx+2ae\left(f+2gx\right)+d\left(2\sqrt{b^2-4ac}\,f+2ag+\sqrt{b^2-4ac}\,gx\right)\right)\right]\Big/\left(\sqrt{\left(2c^2df+b\left(b+\sqrt{b^2-4ac}\right)eg-c\left(bef+\sqrt{b^2-4ac}\,ef+bdg+\sqrt{b^2-4ac}\,dg+2aeg\right)\right)}\right)\right)$$

Problem 853: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\left(d+ex\right)^{3/2}\sqrt{f+gx}\,\left(a+bx+cx^2\right)}\,\mathbb{d}x$$

Optimal (type 3, 429 leaves, 8 steps):

$$\frac{4\,c\,e\,\sqrt{f+g\,x}}{\sqrt{b^2-4\,a\,c}\,\left(2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)\,e\right)\,(e\,f-d\,g)\,\sqrt{d+e\,x}}-$$

$$\frac{4\,c\,e\,\sqrt{f+g\,x}}{\sqrt{b^2-4\,a\,c}\,\left(2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e\right)\,(e\,f-d\,g)\,\sqrt{d+e\,x}}-$$

$$\left(8\,c^2\,\text{ArcTanh}\left[\frac{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}\,\sqrt{d+e\,x}}{\sqrt{2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)\,e}\,\sqrt{f+g\,x}}\right]\Big/\right.$$

$$\left.\left(\sqrt{b^2-4\,a\,c}\,\left(2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)\,e\right)^{3/2}\,\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}\right)+\right.$$

$$\left(8\,c^2\,\text{ArcTanh}\left[\frac{\sqrt{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}\,\sqrt{d+e\,x}}{\sqrt{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e}\,\sqrt{f+g\,x}}\right]\Big/\right.$$

$$\left.\left(\sqrt{b^2-4\,a\,c}\,\left(2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e\right)^{3/2}\,\sqrt{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}\right)\right.$$

Result (type 3, 1011 leaves) :

$$-\frac{2\,e^2\,\sqrt{f+g\,x}}{\left(c\,d^2+e\,\left(-b\,d+a\,e\right)\right)\,\left(e\,f-d\,g\right)\,\sqrt{d+e\,x}}+$$
$$\left(c\,\left(-2\,c\,d+\left(b+\sqrt{b^2-4\,a\,c}\right)\,e\right)\,\text{Log}\left[-b+\sqrt{b^2-4\,a\,c}-2\,c\,x\right]\right)\Big/$$
$$\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(-c\,d^2+e\,\left(b\,d-a\,e\right)\right)\,\sqrt{\left(2\,c^2\,d\,f+b\,\left(b-\sqrt{b^2-4\,a\,c}\right)\,e\,g+\right.\right.$$
$$\left.\left.c\,\left(\sqrt{b^2-4\,a\,c}\,e\,f+\sqrt{b^2-4\,a\,c}\,d\,g-2\,a\,e\,g-b\,\left(e\,f+d\,g\right)\right)\right)}\right)+$$
$$\left(c\,\left(2\,c\,d+\left(-b+\sqrt{b^2-4\,a\,c}\right)\,e\right)\,\text{Log}\left[b+\sqrt{b^2-4\,a\,c}+2\,c\,x\right]\right)\Big/$$
$$\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(-c\,d^2+e\,\left(b\,d-a\,e\right)\right)\,\sqrt{\left(2\,c^2\,d\,f+b\,\left(b+\sqrt{b^2-4\,a\,c}\right)\,e\,g-\right.\right.$$
$$\left.\left.c\,\left(b\,e\,f+\sqrt{b^2-4\,a\,c}\,e\,f+b\,d\,g+\sqrt{b^2-4\,a\,c}\,d\,g+2\,a\,e\,g\right)\right)}\right)-$$
$$\left(c\,\left(2\,c\,d+\left(-b+\sqrt{b^2-4\,a\,c}\right)\,e\right)\,\text{Log}\left[b\,e\,f+\sqrt{b^2-4\,a\,c}\,e\,f+b\,d\,g+\sqrt{b^2-4\,a\,c}\,d\,g+2\,b\,e\,g\,x+\right.\right.$$
$$2\,\sqrt{b^2-4\,a\,c}\,e\,g\,x-2\,\sqrt{\left(4\,c^2\,d\,f+2\,b\,\left(b+\sqrt{b^2-4\,a\,c}\right)\,e\,g-2\,c\,\left(b\,e\,f+\sqrt{b^2-4\,a\,c}\,e\,f+\right.\right.}$$
$$\left.\left.\left.\left.b\,d\,g+\sqrt{b^2-4\,a\,c}\,d\,g+2\,a\,e\,g\right)\right)\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}-2\,c\,\left(2\,d\,f+e\,f\,x+d\,g\,x\right)\right]\right)\Big/$$
$$\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(-c\,d^2+e\,\left(b\,d-a\,e\right)\right)\,\sqrt{\left(2\,c^2\,d\,f+b\,\left(b+\sqrt{b^2-4\,a\,c}\right)\,e\,g-\right.\right.$$
$$\left.\left.c\,\left(b\,e\,f+\sqrt{b^2-4\,a\,c}\,e\,f+b\,d\,g+\sqrt{b^2-4\,a\,c}\,d\,g+2\,a\,e\,g\right)\right)}\right)-$$
$$\left(c\,\left(-2\,c\,d+\left(b+\sqrt{b^2-4\,a\,c}\right)\,e\right)\,\text{Log}\left[-b\,e\,f+\sqrt{b^2-4\,a\,c}\,e\,f-b\,d\,g+\sqrt{b^2-4\,a\,c}\,d\,g-\right.\right.$$
$$2\,b\,e\,g\,x+2\,\sqrt{b^2-4\,a\,c}\,e\,g\,x+2\,\sqrt{2}\,\sqrt{\left(2\,c^2\,d\,f+b\,\left(b-\sqrt{b^2-4\,a\,c}\right)\,e\,g+\right.}$$
$$\left.\left.\left.c\,\left(\sqrt{b^2-4\,a\,c}\,e\,f+\sqrt{b^2-4\,a\,c}\,d\,g-2\,a\,e\,g-b\,\left(e\,f+d\,g\right)\right)\right)}\,\sqrt{d+e\,x}\,\sqrt{f+g\,x}+\right.$$
$$\left.2\,c\,\left(2\,d\,f+e\,f\,x+d\,g\,x\right)\right]\Big/\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(-c\,d^2+e\,\left(b\,d-a\,e\right)\right)\right.$$
$$\left.\sqrt{\left(2\,c^2\,d\,f+b\,\left(b-\sqrt{b^2-4\,a\,c}\right)\,e\,g+c\,\left(\sqrt{b^2-4\,a\,c}\,e\,f+\sqrt{b^2-4\,a\,c}\,d\,g-2\,a\,e\,g-b\,\left(e\,f+d\,g\right)\right)\right)}\right)$$

Problem 886: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\left(d+e\,x\right)^3\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\,\text{d}x$$

Optimal (type 4, 1551 leaves, 10 steps):

$$-\frac{1}{3465\,c^4\,e\,g^4}2\left(64\,b^4\,e^4\,g^4+4\,b^2\,c\,e^3\,g^3\left(7\,b\,e\,f-66\,b\,d\,g-69\,a\,e\,g\right)+c^4\left(187\,e^4\,f^4-732\,d\,e^3\,f^3\,g+1098\,d^2\,e^2\,f^2\,g^2-798\,d^3\,e\,f\,g^3+315\,d^4\,g^4\right)+3\,c^2\,e^2\,g^2\left(50\,a^2\,e^2\,g^2-a\,b\,e\,g\left(29\,e\,f-297\,d\,g\right)+3\,b^2\left(e^2\,f^2-11\,d\,e\,f\,g+44\,d^2\,g^2\right)\right)-c^3\,e\,g\left(6\,a\,e\,g\left(2\,e^2\,f^2-33\,d\,e\,f\,g+165\,d^2\,g^2\right)+b\left(8\,e^3\,f^3-99\,d^2\,e\,f\,g^2+231\,d^3\,g^3\right)\right)\right)\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}+\frac{2\left(d+e\,x\right)^4\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{11\,e}+$$

$$\frac{1}{3465\,c^3\,g^4}2\left(48\,b^3\,e^3\,g^3+b\,c\,e^2\,g^2\left(67\,b\,e\,f-198\,b\,d\,g-157\,a\,e\,g\right)+c^3\left(233\,e^3\,f^3-843\,d\,e^2\,f^2\,g+1107\,d^2\,e\,f\,g^2-567\,d^3\,g^3\right)-c^2\,e\,g\left(2\,a\,e\,g\left(74\,e\,f-231\,d\,g\right)-3\,b\left(24\,e^2\,f^2-88\,d\,e\,f\,g+99\,d^2\,g^2\right)\right)\right)\left(f+g\,x\right)^{3/2}\sqrt{a+b\,x+c\,x^2}-$$

$$\frac{1}{693\,c^2\,g^4}2\,e\left(8\,b^2\,e^2\,g^2+c\,e\,g\left(19\,b\,e\,f-33\,b\,d\,g-18\,a\,e\,g\right)+c^2\left(29\,e^2\,f^2-96\,d\,e\,f\,g+81\,d^2\,g^2\right)\right)\left(f+g\,x\right)^{5/2}\sqrt{a+b\,x+c\,x^2}+\frac{2\,e^2\left(c\,e\,f-3\,c\,d\,g+b\,e\,g\right)\left(f+g\,x\right)^{7/2}\sqrt{a+b\,x+c\,x^2}}{99\,c\,g^4}+$$

$$\frac{1}{3465\,c^5\,g^5\sqrt{\frac{c\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\sqrt{a+b\,x+c\,x^2}}\sqrt{2}\,\sqrt{b^2-4\,a\,c}\left(128\,b^5\,e^3\,g^5-8\,b^3\,c\,e^2\,g^4\left(7\,b\,e\,f+66\,b\,d\,g+87\,a\,e\,g\right)+2\,c^5\,f^2\left(64\,e^3\,f^3-264\,d\,e^2\,f^2\,g+396\,d^2\,e\,f\,g^2-231\,d^3\,g^3\right)+b\,c^2\,e\,g^3\left(771\,a^2\,e^2\,g^2+6\,a\,b\,e\,g\left(43\,e\,f+396\,d\,g\right)-b^2\left(37\,e^2\,f^2-264\,d\,e\,f\,g-792\,d^2\,g^2\right)\right)-c^4\,g\left(b\,f\left(56\,e^3\,f^3-264\,d\,e^2\,f^2\,g+495\,d^2\,e\,f\,g^2-462\,d^3\,g^3\right)-18\,a\,g\left(6\,e^3\,f^3-33\,d\,e^2\,f^2\,g+88\,d^2\,e\,f\,g^2+77\,d^3\,g^3\right)\right)-c^3\,g^2\left(6\,a^2\,e^2\,g^2\left(26\,e\,f+231\,d\,g\right)-9\,a\,b\,e\,g\left(15\,e^2\,f^2-110\,d\,e\,f\,g-319\,d^2\,g^2\right)+b^2\left(37\,e^3\,f^3-198\,d\,e^2\,f^2\,g+495\,d^2\,e\,f\,g^2+462\,d^3\,g^3\right)\right)\right)\sqrt{f+g\,x}$$

$$\sqrt{-\frac{c\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]+$$

$$\frac{1}{3465\,c^5\,g^5\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(64\,b^4\,e^3\,g^4+4\,b^2\,c\,e^2\,g^3\left(7\,b\,e\,f-66\,b\,d\,g-69\,a\,e\,g\right)-2\,c^4\,f\left(64\,e^3\,f^3-264\,d\,e^2\,f^2\,g+396\,d^2\,e\,f\,g^2-231\,d^3\,g^3\right)+3\,c^2\,e\,g^2\left(50\,a^2\,e^2\,g^2-a\,b\,e\,g\left(29\,e\,f-297\,d\,g\right)+3\,b^2\left(e^2\,f^2-11\,d\,e\,f\,g+44\,d^2\,g^2\right)\right)-c^3\,g\left(6\,a\,e\,g\left(2\,e^2\,f^2-33\,d\,e\,f\,g+165\,d^2\,g^2\right)+b\left(8\,e^3\,f^3-99\,d^2\,e\,f\,g^2+231\,d^3\,g^3\right)\right)\right)$$

$$\sqrt{\frac{c\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{-\frac{c\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right], -\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]$$

Result (type 4, 26 600 leaves) : Display of huge result suppressed !

Problem 887: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int (d+ex)^2\sqrt{f+gx}\,\sqrt{a+bx+cx^2}\,dx$$

Optimal (type 4, 1015 leaves, 9 steps) :

$$\frac{1}{315\,c^3\,e\,g^3}$$
$$2\left(8\,b^3\,e^3\,g^3+3\,b\,c\,e^2\,g^2\left(b\,e\,f-8\,b\,d\,g-9\,a\,e\,g\right)+c^3\left(19\,e^3\,f^3-57\,d\,e^2\,f^2\,g+63\,d^2\,e\,f\,g^2-35\,d^3\,g^3\right)-\right.$$
$$\left.3\,c^2\,e\,g^2\left(2\,a\,e\left(e\,f-10\,d\,g\right)+b\,d\left(2\,e\,f-7\,d\,g\right)\right)\right)$$
$$\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}+\frac{2\left(d+e\,x\right)^3\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{9\,e}-\frac{1}{315\,c^2\,g^3}$$
$$4\left(3\,b^2\,e^2\,g^2+c\,e\,g\left(4\,b\,e\,f-9\,b\,d\,g-7\,a\,e\,g\right)+c^2\left(8\,e^2\,f^2-24\,d\,e\,f\,g+21\,d^2\,g^2\right)\right)$$
$$\left(f+g\,x\right)^{3/2}\sqrt{a+b\,x+c\,x^2}+\frac{2\,e\left(c\,e\,f-3\,c\,d\,g+b\,e\,g\right)\left(f+g\,x\right)^{5/2}\sqrt{a+b\,x+c\,x^2}}{63\,c\,g^3}-$$
$$\frac{1}{315\,c^4\,g^4\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}}\,2\sqrt{2}\,\sqrt{b^2-4\,a\,c}$$
$$\left(8\,b^4\,e^2\,g^4-4\,b^2\,c\,e\,g^3\left(b\,e\,f+6\,b\,d\,g+9\,a\,e\,g\right)+c^4\,f^2\left(8\,e^2\,f^2-24\,d\,e\,f\,g+21\,d^2\,g^2\right)+\right.$$
$$3\,c^2\,g^2\left(7\,a^2\,e^2\,g^2+a\,b\,e\,g\left(5\,e\,f+29\,d\,g\right)-b^2\left(e^2\,f^2-5\,d\,e\,f\,g-7\,d^2\,g^2\right)\right)+$$
$$\left.c^3\,g\left(3\,a\,g\left(3\,e^2\,f^2-16\,d\,e\,f\,g-21\,d^2\,g^2\right)-b\,f\left(4\,e^2\,f^2-15\,d\,e\,f\,g+21\,d^2\,g^2\right)\right)\right)\sqrt{f+g\,x}$$
$$\sqrt{-\frac{c\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]-$$
$$\left(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(8\,b^3\,e^2\,g^3+3\,b\,c\,e\,g^2\left(b\,e\,f-8\,b\,d\,g-9\,a\,e\,g\right)-\right.\right.$$
$$\left.2\,c^3\,f\left(8\,e^2\,f^2-24\,d\,e\,f\,g+21\,d^2\,g^2\right)-3\,c^2\,g^2\left(2\,a\,e\left(e\,f-10\,d\,g\right)+b\,d\left(2\,e\,f-7\,d\,g\right)\right)\right)$$
$$\sqrt{\frac{c\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{-\frac{c\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],\right.$$
$$\left.\left.-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/\left(315\,c^4\,g^4\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 15781 leaves):

$$\sqrt{f+g\,x}$$
$$\left(\frac{1}{315\,c^3\,g^3}2\left(8\,c^3\,e^2\,f^3-24\,c^3\,d\,e\,f^2\,g-3\,b\,c^2\,e^2\,f^2\,g+21\,c^3\,d^2\,f\,g^2+12\,b\,c^2\,d\,e\,f\,g^2-3\,b^2\,c\,e^2\,f\,g^2+\right.\right.$$

$$8\,a\,c^2\,e^2\,f\,g^2+21\,b\,c^2\,d^2\,g^3-24\,b^2\,c\,d\,e\,g^3+60\,a\,c^2\,d\,e\,g^3+8\,b^3\,e^2\,g^3-27\,a\,b\,c\,e^2\,g^3\Big)+\frac{1}{315\,c^2\,g^2}$$
$$2\left(-6\,c^2\,e^2\,f^2+18\,c^2\,d\,e\,f\,g+2\,b\,c\,e^2\,f\,g+63\,c^2\,d^2\,g^2+18\,b\,c\,d\,e\,g^2-6\,b^2\,e^2\,g^2+14\,a\,c\,e^2\,g^2\right)x+$$
$$\frac{2\,e\left(c\,e\,f+18\,c\,d\,g+b\,e\,g\right)x^2}{63\,c\,g}+\frac{2\,e^2\,x^3}{9}\Bigg)$$
$$\sqrt{a+x\left(b+c\,x\right)}-\frac{1}{315\,c^3\,g^5\sqrt{a+b\,x+c\,x^2}}2\sqrt{a+x\left(b+c\,x\right)}$$
$$\left(\frac{1}{c\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}2\left(8\,c^4\,e^2\,f^4-24\,c^4\,d\,e\,f^3\,g-4\,b\,c^3\,e^2\,f^3\,g+21\,c^4\,d^2\,f^2\,g^2+\right.\right.$$
$$15\,b\,c^3\,d\,e\,f^2\,g^2-3\,b^2\,c^2\,e^2\,f^2\,g^2+9\,a\,c^3\,e^2\,f^2\,g^2-21\,b\,c^3\,d^2\,f\,g^3+15\,b^2\,c^2\,d\,e\,f\,g^3-$$
$$48\,a\,c^3\,d\,e\,f\,g^3-4\,b^3\,c\,e^2\,f\,g^3+15\,a\,b\,c^2\,e^2\,f\,g^3+21\,b^2\,c^2\,d^2\,g^4-63\,a\,c^3\,d^2\,g^4-$$
$$24\,b^3\,c\,d\,e\,g^4+87\,a\,b\,c^2\,d\,e\,g^4+8\,b^4\,e^2\,g^4-36\,a\,b^2\,c\,e^2\,g^4+21\,a^2\,c^2\,e^2\,g^4\Big)$$
$$\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)-$$
$$\frac{1}{c\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(f+g\,x\right)$$
$$\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}\left(\left(\left(4\,i\,\sqrt{2}\;c^4\,e^2\,f^4\right.\right.\right.$$
$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$
$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$
$$\left.\left.\left.\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(12\,i\,\sqrt{2}\ c^4\,d\,e\,f^3\,g$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.$$

$$\left.\left.\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(2\,i\,\sqrt{2}\ b\,c^3\,e^2\,f^3\,g$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(21\,i\,c^4$$

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

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\left.\left.\left.\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(15\,i\,b\,c^3\,d\,e\,f^2\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.$$

$$\left.\left.\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(3\,i\,b^2\,c^2\,e^2\,f^2\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+\left(9\,i\,a\,c^3\,e^2\,f^2\,g^2\right.$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\ \left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(21\,i\,b\,c^3\,d^2\,f\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.$$

$$\left.\left.\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\ \left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(15\,i\,b^2\,c^2\,d\,e\,f\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-\left(24\,\text{i}\,\sqrt{2}\,a\,c^3\,d\,e\,f\,g^3\right.$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(2\,i\,\sqrt{2}\;b^3\,c\,e^2\,f\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\;\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\;\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(15\,i\,a\,b\,c^2\,e^2\,f\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\sqrt{2}\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+\Bigg(21\,i\,b^2\,c^2\,d^2\,g^4$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right], \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg)\Bigg) \Bigg/$$

$$\left(\sqrt{2}\left(c f^2-b f g+a g^2\right)\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\right.$$

$$\left.\sqrt{c+\frac{c f^2-b f g+a g^2}{(f+g x)^2}+\frac{-2 c f+b g}{f+g x}}\right)-\Bigg(63 i a c^3 d^2 g^4$$

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

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

$$\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right], \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]-$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\right.$$

$$\left.\left.\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\right)\Bigg) \Bigg/ \Bigg(\sqrt{2}\left(c f^2-b f g+a g^2\right)$$

$$\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{c+\frac{c f^2-b f g+a g^2}{(f+g x)^2}+\frac{-2 c f+b g}{f+g x}}\Bigg)-$$

$$\Bigg(12 i \sqrt{2} b^3 c d e g^4\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(87\,i\,a\,b\,c^2\,d\,e\,g^4\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\left.\left.\left.\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(4\,i\,\sqrt{2}\,b^4\,e^2\,g^4$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(18\,i\,\sqrt{2}\,a\,b^2\,c\,e^2\,g^4\,\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(21\,i\,a^2\,c^2\,e^2\,g^4\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg/\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(8\,i\,\sqrt{2}\,c^4\,e^2\,f^3\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(24\,i\,\sqrt{2}\,c^4\,d\,e\,f^2\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(21\,i\,\sqrt{2}\;c^4\,d^2\,f\,g^2\;\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\;\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(3\,i\,\sqrt{2}\;b\,c^3\,d\,e\,f\,g^2\;\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\;\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(3\,i\,b^2\,c^2\,e^2\,f\,g^2\;\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(3\,i\,\sqrt{2}\,a\,c^3\,e^2\,f\,g^2\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(21\,i\,b\,c^3\,d^2\,g^3\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(12\,i\,\sqrt{2}\,b^2\,c^2\,d\,e\,g^3\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(30\,i\,\sqrt{2}\,a\,c^3\,d\,e\,g^3\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(4\,i\,\sqrt{2}\,b^3\,c\,e^2\,g^3\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(27\,i\,a\,b\,c^2\,e^2\,g^3\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left.\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)\right)$$

Problem 888: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\left(d+e\,x\right)\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\,\text{d}x$$

Optimal (type 4, 652 leaves, 7 steps):

$$-\frac{1}{105\,c^2\,g^2}2\sqrt{f+g\,x}\,\left(4\,b^2\,e\,g^2+c^2\,f\,\left(4\,e\,f-7\,d\,g\right)-c\,g\,\left(2\,b\,e\,f+7\,b\,d\,g-5\,a\,e\,g\right)-3\,c\,g\,\left(c\,e\,f+7\,c\,d\,g-4\,b\,e\,g\right)x\right)\sqrt{a+b\,x+c\,x^2}+\frac{2\,e\,\sqrt{f+g\,x}\,\left(a+b\,x+c\,x^2\right)^{3/2}}{7\,c}+$$

$$\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(\left(c\,e\,f+7\,c\,d\,g-4\,b\,e\,g\right)\left(8\,c^2\,f^2-2\,b^2\,g^2-3\,c\,g\,\left(b\,f-2\,a\,g\right)\right)-5\,c\,g\,\left(2\,c\,f-b\,g\right)\left(7\,c\,d\,f-e\,\left(3\,b\,f+a\,g\right)\right)\right)\sqrt{f+g\,x}\,\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\,\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(105\,c^3\,g^3\,\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)+$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(4\,b^2\,e\,g^2-2\,c^2\,f\,\left(4\,e\,f-7\,d\,g\right)+c\,g\,\left(b\,e\,f-7\,b\,d\,g-10\,a\,e\,g\right)\right)\right.$$

$$\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.-\frac{2\,\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/\left(105\,c^3\,g^3\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 8432 leaves) :

$$\sqrt{f+g\,x}\left(\frac{1}{105\,c^2\,g^2}2\left(-4\,c^2\,e\,f^2+7\,c^2\,d\,f\,g+2\,b\,c\,e\,f\,g+7\,b\,c\,d\,g^2-4\,b^2\,e\,g^2+10\,a\,c\,e\,g^2\right)+\frac{2\left(c\,e\,f+7\,c\,d\,g+b\,e\,g\right)x}{35\,c\,g}+\frac{2\,e\,x^2}{7}\right)\sqrt{a+x\left(b+c\,x\right)}+$$

$$\frac{1}{105\,c^2\,g^4\sqrt{a+b\,x+c\,x^2}}\sqrt{a+x\left(b+c\,x\right)}\left(\left(2\left(8\,c^3\,e\,f^3-14\,c^3\,d\,f^2\,g-5\,b\,c^2\,e\,f^2\,g+14\,b\,c^2\,d\,f\,g^2-5\,b^2\,c\,e\,f\,g^2+16\,a\,c^2\,e\,f\,g^2-14\,b^2\,c\,d\,g^3+42\,a\,c^2\,d\,g^3+8\,b^3\,e\,g^3-29\,a\,b\,c\,e\,g^3\right)\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\right)\Bigg/\left(c\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)-\frac{1}{c\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}2\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(f+g\,x\right)$$

$$\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}\left(\left(2\,i\sqrt{2}\,c^3\,e\,f^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.\right.$$

$$\left.\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

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

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(5\,i\,b\,c^2\,e\,f^2\,g$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+\Bigg(7\,i\,b\,c^2\,d\,f\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(5\,i\,b^2\,c\,e\,f\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.$$

$$\left.\left.\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.$$

$$\left.\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(2\,\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(4\,i\,\sqrt{2}\,a\,c^2\,e\,f\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \left.\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(7\,i\,b^2\,c\,d\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\left.\left.\left.\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}},\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(21\,i\,a\,c^2\,d\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.$$

$$\left.\left.\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}},\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}},\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(2\,i\,\sqrt{2}\,b^3\,e\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(29\,i$$

$$a\,b\,c\,e\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\left(4\,i\,\sqrt{2}\,c^3\,e\,f^2\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(7\,i\,\sqrt{2}\,c^3\,d\,f\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(i\, b\, c^2\, e\, f\, g \sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)\left(f + g\, x\right)}} \right.$$

$$\sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)\left(f + g\, x\right)}}$$

$$\left. \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{2}\ \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}}{\sqrt{f + g\, x}} \right], \frac{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}{2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}} \right] \right) /$$

$$\left(\sqrt{2}\ \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}\ \sqrt{c + \frac{c\, f^2 - b\, f\, g + a\, g^2}{\left(f + g\, x\right)^2} + \frac{-2\, c\, f + b\, g}{f + g\, x}} \right) +$$

$$\left(7\, i\, b\, c^2\, d\, g^2 \sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)\left(f + g\, x\right)}} \right.$$

$$\sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)\left(f + g\, x\right)}}$$

$$\left. \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{2}\ \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}}{\sqrt{f + g\, x}} \right], \frac{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}{2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}} \right] \right) /$$

$$\left(\sqrt{2}\ \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}\ \sqrt{c + \frac{c\, f^2 - b\, f\, g + a\, g^2}{\left(f + g\, x\right)^2} + \frac{-2\, c\, f + b\, g}{f + g\, x}} \right) -$$

$$\left(2\, i\, \sqrt{2}\ b^2\, c\, e\, g^2 \sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)\left(f + g\, x\right)}} \right.$$

$$\left. \sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)\left(f + g\, x\right)}} \right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(5\,i\,\sqrt{2}\,a\,c^2\,e\,g^2\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left.\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)\right)$$

Problem 889: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\sqrt{f+g\,x}\ \sqrt{a+b\,x+c\,x^2}\ dx$$

Optimal (type 4, 513 leaves, 7 steps) :

$$-\frac{2\,(2\,c\,f-b\,g)\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{15\,c\,g}+\frac{2\,(f+g\,x)^{3/2}\,\sqrt{a+b\,x+c\,x^2}}{5\,g}-$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(c^2\,f^2+b^2\,g^2-c\,g\,(b\,f+3\,a\,g)\right)\sqrt{f+g\,x}\,\sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(15\,c^2\,g^2\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)+$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,(2\,c\,f-b\,g)\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\right.$$

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

$$\left(15\,c^2\,g^2\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 3384 leaves):

$$\left(\frac{2\,(c\,f+b\,g)}{15\,c\,g}+\frac{2\,x}{5}\right)\sqrt{f+g\,x}\,\sqrt{a+x\,(b+c\,x)}\;+$$

$$\frac{1}{15\,c\,g^3\sqrt{a+b\,x+c\,x^2}}\sqrt{a+x\,(b+c\,x)}\left(-\left(\left(4\left(c^2\,f^2-b\,c\,f\,g+b^2\,g^2-3\,a\,c\,g^2\right)\right.\right.\right.$$

$$\left.\left.\left.(f+g\,x)^{3/2}\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\right)\Big/\right.$$

$$\left.\left(c\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)\right)+\frac{1}{c\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}$$

$$2\left(c\,f^2-b\,f\,g+a\,g^2\right)(f+g\,x)\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\left(\left(\left(i\,c^2\,f^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.\right.$$

$$\left.\left.\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.\right.$$

$$\left.\left.\left.\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.\right.\right.$$

$$\left.\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\Big/\left(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.\right.$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(i\,b\,c\,f\,g\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Big/\Bigg(\sqrt{2}\;\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(i\,b^2\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg/\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(3\,i\,a\,c\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg/\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(i\,\sqrt{2}\,c^2\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(i\,b\,c\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left.\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)\right)$$

Problem 890: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{d+e\,x}\,dx$$

Optimal (type 4, 764 leaves, 15 steps):

$$\frac{2\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{3\,e}+\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(c\,e\,f-3\,c\,d\,g+b\,e\,g\right)\sqrt{f+g\,x}\,\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(3\,c\,e^2\,g\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)+$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(e\,g\,\left(b\,e\,f-3\,b\,d\,g+2\,a\,e\,g\right)+c\,\left(-e^2\,f^2+3\,d^2\,g^2\right)\right)\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\right.$$

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

$$\left(3\,c\,e^3\,g\sqrt{f+g\,x}\,\sqrt{a+x\,\left(b+c\,x\right)}\right)-$$

$$\left(\sqrt{2}\,\left(c\,d^2-b\,d\,e+a\,e^2\right)\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}\,\sqrt{1-\frac{2\,c\,\left(f+g\,x\right)}{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}}\right.$$

$$\left.\sqrt{1-\frac{2\,c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\text{EllipticPi}\left[\frac{e\,\left(2\,c\,f-b\,g+\sqrt{b^2-4\,a\,c}\,g\right)}{2\,c\,\left(e\,f-d\,g\right)},\right.\right.$$

$$\text{ArcSin}\left[\frac{\sqrt{2}\ \sqrt{c}\ \sqrt{f+g\,x}}{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}}\right],\ \frac{b-\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}{b+\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}\Bigg]\Bigg/\left(\sqrt{c}\ e^3\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 35 245 leaves) : Display of huge result suppressed!

Problem 891: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{f+g\,x}\ \sqrt{a+b\,x+c\,x^2}}{(d+e\,x)^2}\,\mathbb{d}x$$

Optimal (type 4, 743 leaves, 15 steps) :

$$-\frac{\sqrt{f+g\,x}\ \sqrt{a+b\,x+c\,x^2}}{e\,(d+e\,x)}+\Bigg(3\sqrt{b^2-4\,a\,c}\ \sqrt{f+g\,x}\ \sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}$$

$$\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],\ -\frac{2\sqrt{b^2-4\,a\,c}\ g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}\right]\Bigg/$$

$$\Bigg(\sqrt{2}\ e^2\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}}\ \sqrt{a+b\,x+c\,x^2}\Bigg)+$$

$$\Bigg(\sqrt{2}\ \sqrt{b^2-4\,a\,c}\ \left(2\,b\,e\,g-c\,(e\,f+3\,d\,g)\right)\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}}\ \sqrt{\frac{c\,(a+x\,(b+c\,x))}{-b^2+4\,a\,c}}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{b^2-4\,a\,c}\ g}{-2\,c\,f+\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}\right]\Bigg/$$

$$\left(c\,e^3\,\sqrt{f+g\,x}\,\sqrt{a+x\,(b+c\,x)}\right)+$$

$$\left(\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}\,\left(c\,d\,(2\,e\,f-3\,d\,g)-e\,(b\,e\,f-2\,b\,d\,g+a\,e\,g)\right)\right.$$

$$\sqrt{1-\frac{2\,c\,(f+g\,x)}{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}}\,\sqrt{1-\frac{2\,c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}}$$

$$\text{EllipticPi}\left[\frac{e\,\left(2\,c\,f-b\,g+\sqrt{b^2-4\,a\,c}\,g\right)}{2\,c\,(e\,f-d\,g)},\,\text{ArcSin}\left[\frac{\sqrt{2}\,\sqrt{c}\,\sqrt{f+g\,x}}{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}}\right],\right.$$

$$\left.\left.\frac{b-\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}{b+\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}\right]\right)\Big/\left(\sqrt{2}\,\sqrt{c}\,e^3\,(e\,f-d\,g)\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 16571 leaves):

$$-\frac{\sqrt{f+g\,x}\,\sqrt{a+x\,(b+c\,x)}}{e\,(d+e\,x)}-\frac{1}{e\,g\,\sqrt{a+b\,x+c\,x^2}}\sqrt{a+x\,(b+c\,x)}$$

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

$$(f+g\,x)\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\left(\left(\left(3\,i\,c\,f^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.\right.\right.$$

$$\left.\left.\left.\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\left(3\,i\,b\,f\,g\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\left(3\,i\,a\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/\left(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(3\,i\,c\,e^2\,f^3\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticF}\left[\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big/\left(\sqrt{2}\right.$$

$$\left.\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(3\,i\,c\,d\,e\,f^2\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticF}\Big[$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big/\Big(\sqrt{2}$$

$$\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Big)+$$

$$\left(3\,i\,b\,e^2\,f^2\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticF}\Big[$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big/\Big(\sqrt{2}$$

$$\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Big)-$$

$$\left(3\,i\,b\,d\,e\,f\,g^2\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticF}\Big[$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\Bigg(\sqrt{2}$$

$$(e\,f-d\,g)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(3\,i\,a\,e^2\,f\,g^2\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\ \text{EllipticF}\Bigg[$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\Bigg(\sqrt{2}$$

$$(e\,f-d\,g)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(3\,i\,a\,d\,e\,g^3\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\ \text{EllipticF}\Bigg[$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\Bigg(\sqrt{2}$$

$$(e\,f-d\,g)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\left(2\,i\,\sqrt{2}\;c\,e\,f^2\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(2\,i\,\sqrt{2}\;b\,e\,f\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(2\,i\,\sqrt{2}\;a\,e\,g^2\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\text{EllipticF}\left[\text{i ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right], \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right] \Bigg/$$

$$\left((e f-d g)\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{c+\frac{c f^2-b f g+a g^2}{(f+g x)^2}+\frac{-2 c f+b g}{f+g x}}\right)+$$

$$\frac{1}{(e f-d g)^3}3 c e^3 f^3\left(\left(\text{i f}\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.\right.$$

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

$$\text{EllipticPi}\left[\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.\text{i ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right], \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\right.\right.$$

$$\left.\left.\frac{2 c f}{f+g x}+\frac{b g}{f+g x}\right)\right)-\left(\text{i d g}\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.$$

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\ \text{EllipticPi}\left[\right.$$

$$\left.\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-$$

$$\frac{1}{(e\,f-d\,g)^3}3\,c\,d\,e^2\,f^2\,g\left(\left(i\,f\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\,(c\,f^2-b\,f\,g+a\,g^2)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(i\,d\,g\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\left[\right.$$

$$\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e \left(c f^2 - b f g + a g^2\right)},$$

$$i \operatorname{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}\right],$$

$$\left.\frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\right] \Bigg/ \left(\sqrt{2}\, e \sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}\right.$$

$$\left.\sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \frac{2 c f}{f + g x} + \frac{b g}{f + g x}\right)}\right) -$$

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

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

$$\operatorname{EllipticPi}\left[\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e \left(c f^2 - b f g + a g^2\right)},\right.$$

$$\left.i \operatorname{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}\right], \frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\right] \Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}\sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \right.\right.$$

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

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg/\Bigg(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)+$$

$$\frac{1}{\left(e\,f-d\,g\right)^3}3\,b\,d\,e^2\,f\,g^2\Bigg(\Bigg(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\right.$$

$$\left(\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\Bigg)-\Bigg(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/\Bigg(\sqrt{2}\;e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)+$$

$$\frac{1}{\left(e\,f-d\,g\right)^3}3\,a\,e^3\,f\,g^2\Bigg(\Bigg(\Bigg(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(i\,d\,g\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\;\text{EllipticPi}\Big[$$

$$\frac{(e\,f-d\,g)\,\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\,(c\,f^2-b\,f\,g+a\,g^2)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\right)\Big/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-$$

$$\frac{1}{(e\,f-d\,g)^3}\,3\,a\,d\,e^2\,g^3\left(\left(i\,f\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\text{EllipticPi}\Big[\frac{(e\,f-d\,g)\,\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\,(c\,f^2-b\,f\,g+a\,g^2)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\right)-\left(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\ \text{EllipticPi}\Bigg[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-$$

$$\frac{1}{(e\,f-d\,g)^2}4\,c\,e^2\,f^2\left(\left(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\right.\right.$$

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

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\,\text{EllipticPi}\left[\right.$$

$$\left.\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\right.$$

$$\left.\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg/\left(\sqrt{2}\,e\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}+\frac{b g}{f+g x}\right)}\right)+$$

$$\frac{1}{(e f-d g)^2}4 b e^2 f g\left(\left(i f\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Big/$$

$$\Bigg(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}-\Bigg(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Big/\Bigg(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-$$

$$\frac{1}{(e f-d g)^2}\,4 a e^2 g^2 \left(\left(\left(i f \sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.\right.\right.$$

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

$$\text{EllipticPi}\left[\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\right.\right.$$

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

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\;\text{EllipticPi}\left[\right.$$

$$\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],$$

$$\left.\left.\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\right)\Bigg/\left(\sqrt{2}\,e\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\right.$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}+$$

$$\frac{1}{e\,f-d\,g}\,c\,e\,f\left(\left(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg)\Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}-\left(i\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\left[\right.$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg/\Bigg(\sqrt{2}\;e\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)+$$

$$\frac{1}{e\,f-d\,g}3\,c\,d\,g\left(\left(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\Big[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.$$

$$\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}-\left(i\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\Big[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-$$

$$\frac{1}{e\,f-d\,g}\,2\,b\,e\,g\left(\left(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\ \text{EllipticPi}\left[\right.\right.$$

$$\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e \left(c f^2 - b f g + a g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}\right],$$

$$\frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\Bigg] \Bigg/ \Bigg(\sqrt{2}\, e \sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}$$

$$\sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \frac{2 c f}{f + g x} + \frac{b g}{f + g x}\right)}\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 892: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 1034 leaves, 25 steps):

$$-\frac{\sqrt{f + g x}\,\sqrt{a + b x + c x^2}}{2 e (d + e x)^2} + \frac{(c d (2 e f - 3 d g) - e (b e f - 2 b d g + a e g))\,\sqrt{f + g x}\,\sqrt{a + b x + c x^2}}{4 e (c d^2 - b d e + a e^2)(e f - d g)(d + e x)} -$$

$$\Bigg(\sqrt{b^2 - 4 a c}\,(c d (2 e f - 3 d g) - e (b e f - 2 b d g + a e g))\,\sqrt{f + g x}\,\sqrt{-\frac{c (a + b x + c x^2)}{b^2 - 4 a c}}$$

$$\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b + \sqrt{b^2 - 4 a c} + 2 c x}{\sqrt{b^2 - 4 a c}}}}{\sqrt{2}}\right], -\frac{2\sqrt{b^2 - 4 a c}\, g}{2 c f - (b + \sqrt{b^2 - 4 a c})\, g}\right] \Bigg/$$

$$\left(4\sqrt{2}\,e^2\left(c\,d^2-b\,d\,e+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{\frac{c\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\,-\right.$$

$$\left(\sqrt{b^2-4\,a\,c}\,\left(-c\,d\left(2\,e\,f+3\,d\,g\right)+e\left(b\,e\,f+4\,b\,d\,g-5\,a\,e\,g\right)\right)\sqrt{\frac{c\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\right.$$

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

$$\left(2\sqrt{2}\,e^3\left(c\,d^2+e\left(-b\,d+a\,e\right)\right)\sqrt{f+g\,x}\,\sqrt{a+x\left(b+c\,x\right)}\right)+$$

$$\left(\sqrt{2\,c\,f-b\,g+\sqrt{b^2-4\,a\,c}\,g}\,\left(b^2\,e^4\,f^2+a^2\,e^4\,g^2+c^2\,d^3\,g\left(4\,e\,f-3\,d\,g\right)-\right.\right.$$

$$\left.\left.2\,a\,c\,e^2\left(2\,e^2\,f^2-6\,d\,e\,f\,g+3\,d^2\,g^2\right)-2\,b\,e\,g\left(a\,e^3\,f+c\,d^2\left(3\,e\,f-2\,d\,g\right)\right)\right)\right.$$

$$\sqrt{\frac{g\left(-b+\sqrt{b^2-4\,a\,c}-2\,c\,x\right)}{2\,c\,f+\left(-b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{\frac{g\left(b+\sqrt{b^2-4\,a\,c}+2\,c\,x\right)}{-2\,c\,f+\left(b+\sqrt{b^2-4\,a\,c}\right)g}}$$

$$\text{EllipticPi}\left[\frac{2\,c\,e\,f-b\,e\,g+\sqrt{b^2-4\,a\,c}\,e\,g}{2\,c\,e\,f-2\,c\,d\,g},\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{2}\,\sqrt{c}\,\sqrt{f+g\,x}}{\sqrt{2\,c\,f-b\,g+\sqrt{b^2-4\,a\,c}\,g}}\right],\frac{2\,c\,f+\left(-b+\sqrt{b^2-4\,a\,c}\right)g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(4\sqrt{2}\,\sqrt{c}\,e^3\left(c\,d^2+e\left(-b\,d+a\,e\right)\right)\left(e\,f-d\,g\right)^2\sqrt{a+x\left(b+c\,x\right)}\right)$$

Result (type 4, 33 765 leaves) : Display of huge result suppressed!

Problem 893: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 1098 leaves, 9 steps) :

$$\frac{1}{315\,c^3\,g^4}2\left(8\,b^3\,e^3\,g^3+3\,b\,c\,e^2\,g^2\left(5\,b\,e\,f-12\,b\,d\,g-9\,a\,e\,g\right)-\right.$$
$$c^3\left(152\,e^3\,f^3-408\,d\,e^2\,f^2\,g+336\,d^2\,e\,f\,g^2-70\,d^3\,g^3\right)-$$
$$\left.3\,c^2\,e\,g\left(6\,a\,e\,g\left(2\,e\,f-5\,d\,g\right)-b\left(8\,e^2\,f^2-24\,d\,e\,f\,g+21\,d^2\,g^2\right)\right)\right)$$
$$\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}+\frac{2\left(d+e\,x\right)^3\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{9\,g}-\frac{1}{315\,c^2\,g^4}$$
$$2\,e\left(6\,b^2\,e^2\,g^2+c\,e\,g\left(17\,b\,e\,f-27\,b\,d\,g-14\,a\,e\,g\right)-2\,c^2\left(64\,e^2\,f^2-111\,d\,e\,f\,g+42\,d^2\,g^2\right)\right)$$
$$\left(f+g\,x\right)^{3/2}\sqrt{a+b\,x+c\,x^2}-\frac{2\,e^2\left(8\,c\,e\,f-6\,c\,d\,g-b\,e\,g\right)\left(f+g\,x\right)^{5/2}\sqrt{a+b\,x+c\,x^2}}{63\,c\,g^4}-$$
$$\frac{1}{315\,c^4\,g^5\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\sqrt{a+b\,x+c\,x^2}}\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(16\,b^4\,e^3\,g^4+\right.$$
$$8\,b^2\,c\,e^2\,g^3\left(2\,b\,e\,f-9\,b\,d\,g-9\,a\,e\,g\right)-2\,c^4\,f\left(64\,e^3\,f^3-216\,d\,e^2\,f^2\,g+252\,d^2\,e\,f\,g^2-105\,d^3\,g^3\right)+$$
$$3\,c^2\,e\,g^2\left(14\,a^2\,e^2\,g^2-a\,b\,e\,g\left(19\,e\,f-87\,d\,g\right)+b^2\left(7\,e^2\,f^2-27\,d\,e\,f\,g+42\,d^2\,g^2\right)\right)-c^3\,g$$
$$\left.\left(6\,a\,e\,g\left(10\,e^2\,f^2-39\,d\,e\,f\,g+63\,d^2\,g^2\right)-b\left(40\,e^3\,f^3-144\,d\,e^2\,f^2\,g+189\,d^2\,e\,f\,g^2-105\,d^3\,g^3\right)\right)\right)$$
$$\sqrt{f+g\,x}\,\sqrt{-\frac{c\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],\right.$$
$$\left.-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]-$$
$$\frac{1}{315\,c^4\,g^5\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(8\,b^3\,e^3\,g^3+\right.$$
$$3\,b\,c\,e^2\,g^2\left(5\,b\,e\,f-12\,b\,d\,g-9\,a\,e\,g\right)+2\,c^3\left(64\,e^3\,f^3-216\,d\,e^2\,f^2\,g+252\,d^2\,e\,f\,g^2-105\,d^3\,g^3\right)-$$
$$\left.3\,c^2\,e\,g\left(6\,a\,e\,g\left(2\,e\,f-5\,d\,g\right)-b\left(8\,e^2\,f^2-24\,d\,e\,f\,g+21\,d^2\,g^2\right)\right)\right)\sqrt{\frac{c\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}$$
$$\sqrt{-\frac{c\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]$$

Result (type 4, 17771 leaves):

$$\sqrt{f+g\,x}$$
$$\left(\frac{1}{315\,c^3\,g^4}2\left(-64\,c^3\,e^3\,f^3+216\,c^3\,d\,e^2\,f^2\,g+12\,b\,c^2\,e^3\,f^2\,g-252\,c^3\,d^2\,e\,f\,g^2-45\,b\,c^2\,d\,e^2\,f\,g^2+9\right.\right.$$
$$b^2\,c\,e^3\,f\,g^2-22\,a\,c^2\,e^3\,f\,g^2+105\,c^3\,d^3\,g^3+63\,b\,c^2\,d^2\,e\,g^3-36\,b^2\,c\,d\,e^2\,g^3+$$
$$\left.90\,a\,c^2\,d\,e^2\,g^3+8\,b^3\,e^3\,g^3-27\,a\,b\,c\,e^3\,g^3\right)+\frac{1}{315\,c^2\,g^3}$$
$$2\,e\left(48\,c^2\,e^2\,f^2-162\,c^2\,d\,e\,f\,g-7\,b\,c\,e^2\,f\,g+189\,c^2\,d^2\,g^2+27\,b\,c\,d\,e\,g^2-6\,b^2\,e^2\,g^2+14\,a\,c\,e^2\,g^2\right)x+$$

$$\left(\frac{2\,e^2\,\left(-8\,c\,e\,f+27\,c\,d\,g+b\,e\,g\right)\,x^2}{63\,c\,g^2}+\frac{2\,e^3\,x^3}{9\,g}\right)\,\sqrt{a+x\,\left(b+c\,x\right)}\;-$$

$$\frac{1}{315\,c^3\,g^6\,\sqrt{a+b\,x+c\,x^2}}\,2\,\sqrt{a+x\,\left(b+c\,x\right)}\,\left(\frac{1}{c\,\sqrt{\frac{\left(f+g\,x\right)^2\,\left(c\,\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\,\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}\right.$$

$$\left(-128\,c^4\,e^3\,f^4+432\,c^4\,d\,e^2\,f^3\,g+40\,b\,c^3\,e^3\,f^3\,g-504\,c^4\,d^2\,e\,f^2\,g^2-144\,b\,c^3\,d\,e^2\,f^2\,g^2+\right.$$
$$21\,b^2\,c^2\,e^3\,f^2\,g^2-60\,a\,c^3\,e^3\,f^2\,g^2+210\,c^4\,d^3\,f\,g^3+189\,b\,c^3\,d^2\,e\,f\,g^3-81\,b^2\,c^2\,d\,e^2\,f\,g^3+$$
$$234\,a\,c^3\,d\,e^2\,f\,g^3+16\,b^3\,c\,e^3\,f\,g^3-57\,a\,b\,c^2\,e^3\,f\,g^3-105\,b\,c^3\,d^3\,g^4+126\,b^2\,c^2\,d^2\,e\,g^4-$$
$$\left.378\,a\,c^3\,d^2\,e\,g^4-72\,b^3\,c\,d\,e^2\,g^4+261\,a\,b\,c^2\,d\,e^2\,g^4+16\,b^4\,e^3\,g^4-72\,a\,b^2\,c\,e^3\,g^4+42\,a^2\,c^2\,e^3\,g^4\right)$$
$$\left(f+g\,x\right)^{3/2}\,\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)+$$
$$\frac{1}{c\,\sqrt{\frac{\left(f+g\,x\right)^2\,\left(c\,\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\,\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\,\left(f+g\,x\right)$$

$$\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}\,\left(\left(\right.\right.\left.\left.32\,i\,\sqrt{2}\,c^4\,e^3\,f^4\right.\right.$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}\,\left(\right.\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.$$

$$\left.\left.\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\,\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.$$

$$\left.\left.\left.\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\,\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\Big/$$

$$\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-\left(108\,i\,\sqrt{2}\;c^4\,d\,e^2\,f^3\,g\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\Big/$$

$$\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-\left(10\,i\,\sqrt{2}\;b\,c^3\,e^3\,f^3\,g\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+\Bigg(126\,i\,\sqrt{2}\,c^4\,d^2\,e\,f^2\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+\left(36\,i\,\sqrt{2}\;b\,c^3\,d\,e^2\,f^2\,g^2\right.$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\Big/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-\left(21\,i\,b^2\,c^2\right.$$

$$e^3\,f^2\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(15\,i\,\sqrt{2}\,a\,c^3\,e^3\,f^2\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/\Big(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(105\,i\,c^4\,d^3\,f\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Bigg/\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(189\,i\,b\,c^3\,d^2\,e\,f\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(81\,i\,b^2\,c^2\,d\,e^2\,f\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(117\,i\,a\,c^3\,d\,e^2\,f\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i$$

$$\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(4\,i\,\sqrt{2}\,b^3\,c\,e^3\,f\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\left(57\,i\,a\,b\,c^2\,e^3\,f\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\left.\left.\left.\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg)\Bigg/$$

$$\left(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+\left(105\,i\,b\,c^3\,d^3\,g^4\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\Bigg/\left(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-\left(63\,i\,b^2\,c^2\,d^2\,e\,g^4\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(189\,i\,a\,c^3\,d^2\,e\,g^4\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(18\,i\,\sqrt{2}\;b^3\,c\,d\,e^2\,g^4\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Big/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(261\,i\,a\,b\,c^2\,d\,e^2\,g^4\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(2\sqrt{2}\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-\left(4\,i\,\sqrt{2}\,b^4\,e^3\,g^4\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.\right.\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(18\,i\,\sqrt{2}\;a\,b^2\,c\,e^3\,g^4\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\;\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\;\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(21\,i\,a^2\,c^2\,e^3\,g^4\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(64\,i\,\sqrt{2}\,c^4\,e^3\,f^3\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(216\,i\,\sqrt{2}\,c^4\,d\,e^2\,f^2\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(12\,i\,\sqrt{2}\,b\,c^3\,e^3\,f^2\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(252\,i\,\sqrt{2}\,c^4\,d^2\,e\,f\,g^2\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(36\,i\,\sqrt{2}\,b\,c^3\,d\,e^2\,f\,g^2\ \sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2})\,(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2})\,(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(15\,i\,b^2\,c^2\,e^3\,f\,g^2\ \sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2})\,(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2})\,(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(18\,i\,\sqrt{2}\;a\,c^3\,e^3\,f\,g^2\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(105\,i\,\sqrt{2}\;c^4\,d^3\,g^3\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(63\,i\,b\,c^3\,d^2\,e\,g^3\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(18\,i\,\sqrt{2}\,b^2\,c^2\,d\,e^2\,g^3\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(45\,i\,\sqrt{2}\,a\,c^3\,d\,e^2\,g^3\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(4\,i\,\sqrt{2}\,b^3\,c\,e^3\,g^3\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(27\,i\,a\,b\,c^2\,e^3\,g^3\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right/$$

$$\left.\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)\right)$$

Problem 894: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(d+e\,x)^2\,\sqrt{a+b\,x+c\,x^2}}{\sqrt{f+g\,x}}\,dx$$

Optimal (type 4, 755 leaves, 8 steps):

$$-\frac{1}{105\,c^2\,g^3}4\left(2\,b^2\,e^2\,g^2+c\,e\,g\left(4\,b\,e\,f-7\,b\,d\,g-5\,a\,e\,g\right)-c^2\left(21\,e^2\,f^2-34\,d\,e\,f\,g+10\,d^2\,g^2\right)\right)$$

$$\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}+\frac{2\left(d+e\,x\right)^2\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{7\,g}-$$

$$\frac{2\,e\left(6\,c\,e\,f-4\,c\,d\,g-b\,e\,g\right)\left(f+g\,x\right)^{3/2}\sqrt{a+b\,x+c\,x^2}}{35\,c\,g^3}+\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\right.$$

$$\left(8\,b^3\,e^2\,g^3+b\,c\,e\,g^2\left(9\,b\,e\,f-28\,b\,d\,g-29\,a\,e\,g\right)-2\,c^3\,f\left(24\,e^2\,f^2-56\,d\,e\,f\,g+35\,d^2\,g^2\right)-\right.$$
$$\left.c^2\,g\left(2\,a\,e\,g\left(13\,e\,f-42\,d\,g\right)-b\left(16\,e^2\,f^2-42\,d\,e\,f\,g+35\,d^2\,g^2\right)\right)\right)\sqrt{f+g\,x}$$

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

$$\left(105\,c^3\,g^4\sqrt{\frac{c\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\;\sqrt{a+b\,x+c\,x^2}\right)+$$

$$\left(4\sqrt{2}\,\sqrt{b^2-4\,a\,c}\;\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left(2\,b^2\,e^2\,g^2+c\,e\,g\left(4\,b\,e\,f-7\,b\,d\,g-5\,a\,e\,g\right)+c^2\left(24\,e^2\,f^2-56\,d\,e\,f\,g+35\,d^2\,g^2\right)\right)$$

$$\sqrt{\frac{c\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\;\sqrt{-\frac{c\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],\right.$$

$$\left.-\frac{2\sqrt{b^2-4\,a\,c}\;g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\Bigg)\Bigg/\left(105\,c^3\,g^4\sqrt{f+g\,x}\;\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 10 030 leaves) :

$$\sqrt{f+g\,x}\left(\frac{1}{105\,c^2\,g^3}\right.$$
$$2\left(24\,c^2\,e^2\,f^2-56\,c^2\,d\,e\,f\,g-5\,b\,c\,e^2\,f\,g+35\,c^2\,d^2\,g^2+14\,b\,c\,d\,e\,g^2-4\,b^2\,e^2\,g^2+10\,a\,c\,e^2\,g^2\right)+$$
$$\left.\frac{2\,e\left(-6\,c\,e\,f+14\,c\,d\,g+b\,e\,g\right)x}{35\,c\,g^2}+\frac{2\,e^2\,x^2}{7\,g}\right)$$
$$\sqrt{a+x\left(b+c\,x\right)}+\frac{1}{105\,c^2\,g^5\,\sqrt{a+b\,x+c\,x^2}}\,2\sqrt{a+x\left(b+c\,x\right)}$$
$$\left(\left(-48\,c^3\,e^2\,f^3+112\,c^3\,d\,e\,f^2\,g+16\,b\,c^2\,e^2\,f^2\,g-70\,c^3\,d^2\,f\,g^2-42\,b\,c^2\,d\,e\,f\,g^2+9\,b^2\,c\,e^2\,f\,g^2-\right.\right.$$
$$\left.\left.26\,a\,c^2\,e^2\,f\,g^2+35\,b\,c^2\,d^2\,g^3-28\,b^2\,c\,d\,e\,g^3+84\,a\,c^2\,d\,e\,g^3+8\,b^3\,e^2\,g^3-29\,a\,b\,c\,e^2\,g^3\right)$$
$$\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\Bigg)\Bigg/$$
$$\left(c\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)+$$
$$\frac{1}{c\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(f+g\,x\right)$$
$$\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}\left(\left(12\,i\,\sqrt{2}\;c^3\,e^2\,f^3\right.\right.$$
$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$
$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big/$$

$$\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(28\,i\,\sqrt{2}\,c^3\,d\,e\,f^2\,g$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(4\,i\,\sqrt{2}\,b\,c^2\,e^2\,f^2\,g$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Big/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(35\,i$$

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

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\Big], \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\Big] - \text{EllipticF}\Big[i$$

$$\text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\Big], \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\Big]\Big)\Big) /$$

$$\Bigg(\sqrt{2}\left(c f^2-b f g+a g^2\right)\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}$$

$$\sqrt{c+\frac{c f^2-b f g+a g^2}{(f+g x)^2}+\frac{-2 c f+b g}{f+g x}}\Bigg) + \Bigg(21 i b c^2 d e f g^2$$

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

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\Big], \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\Big] - \text{EllipticF}\Big[i$$

$$\text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\Big], \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\Big]\Big)\Big) /$$

$$\Bigg(\sqrt{2}\left(c f^2-b f g+a g^2\right)\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(9\,i\,b^2\,c\,e^2\,f\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i$$

$$\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(13\,i\,a\,c^2\,e^2\,f\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(35\,i\,b\,c^2\,d^2\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(7\,i\,\sqrt{2}\;b^2\,c\,d\,e\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Big/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(21\,i\,\sqrt{2}\;a\,c^2\,d\,e\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(2\,i\,\sqrt{2}\ b^3\,e^2\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(29\,i\,a\,b\,c\,e^2\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Big/\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(24\,i\,\sqrt{2}\,c^3\,e^2\,f^2\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(56\,i\,\sqrt{2}\,c^3\,d\,e\,f\,g\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(4\,i\,\sqrt{2}\,b\,c^2\,e^2\,f\,g\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(35\,i\,\sqrt{2}\,c^3\,d^2\,g^2\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(7\,i\,\sqrt{2}\,b\,c^2\,d\,e\,g^2\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(2\,i\,\sqrt{2}\,b^2\,c\,e^2\,g^2\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(5\,i\,\sqrt{2}\ a\,c^2\,e^2\,g^2\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left.\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)\right)$$

Problem 895: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(d+e\,x)\,\sqrt{a+b\,x+c\,x^2}}{\sqrt{f+g\,x}}\,dx$$

Optimal (type 4, 519 leaves, 6 steps):

$$-\frac{2\sqrt{f+g\,x}\,\left(4\,c\,e\,f-5\,c\,d\,g-b\,e\,g-3\,c\,e\,g\,x\right)\sqrt{a+b\,x+c\,x^2}}{15\,c\,g^2}-$$

$$\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(2\,b^2\,e\,g^2-2\,c^2\,f\,\left(4\,e\,f-5\,d\,g\right)+c\,g\,\left(3\,b\,e\,f-5\,b\,d\,g-6\,a\,e\,g\right)\right)\sqrt{f+g\,x}\right.$$

$$\left.\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(15\,c^2\,g^3\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(8\,c\,e\,f-10\,c\,d\,g+b\,e\,g\right)\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\right.$$

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

$$\left(15\,c^2\,g^3\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 4921 leaves):

$$\left(\frac{2\,\left(-4\,c\,e\,f+5\,c\,d\,g+b\,e\,g\right)}{15\,c\,g^2}+\frac{2\,e\,x}{5\,g}\right)\sqrt{f+g\,x}\,\sqrt{a+x\,\left(b+c\,x\right)}+\frac{1}{15\,c\,g^4\,\sqrt{a+b\,x+c\,x^2}}$$

$$2\sqrt{a+x\left(b+c\,x\right)}\left(\left(8\,c^2\,e\,f^2-10\,c^2\,d\,f\,g-3\,b\,c\,e\,f\,g+5\,b\,c\,d\,g^2-2\,b^2\,e\,g^2+6\,a\,c\,e\,g^2\right)\right.$$

$$\left.\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\right)\Bigg/$$

$$\left(c\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)-$$

$$\frac{1}{c\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(f+g\,x\right)$$

$$\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}\left(\left(2\,i\,\sqrt{2}\;c^2\,e\,f^2\right.\right.$$

$$\left.\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.\right.\right.$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(5\,i\,c^2\,d\,f\,g\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(3\,i\,b\,c\,e\,f\,g\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(5\,i\,b\,c\,d\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(i\, b^2\, e\, g^2 \left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right) \sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)(f + g\, x)}}\right.$$

$$\sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)(f + g\, x)}}$$

$$\left(\text{EllipticE}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}}{\sqrt{f + g\, x}}\right], \frac{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}{2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}\right] -\right.$$

$$\text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}}{\sqrt{f + g\, x}}\right],\right.$$

$$\left.\left.\left.\frac{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}{2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}\right]\right)\right) \Bigg/ \left(\sqrt{2}\,\left(c\, f^2 - b\, f\, g + a\, g^2\right)\right.$$

$$\sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}\ \left.\sqrt{c + \frac{c\, f^2 - b\, f\, g + a\, g^2}{(f + g\, x)^2} + \frac{-2\, c\, f + b\, g}{f + g\, x}}\right) +$$

$$\left(3\, i\, a\, c\, e\, g^2 \left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right) \sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)(f + g\, x)}}\right.$$

$$\sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)(f + g\, x)}}$$

$$\left(\text{EllipticE}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}}{\sqrt{f + g\, x}}\right], \frac{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}{2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}\right] -\right.$$

$$\text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}}{\sqrt{f + g\, x}}\right],\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\left.\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(4\,i\,\sqrt{2}\,c^2\,e\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(5\,i\,\sqrt{2}\,c^2\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(i\,b\,c\,e\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right/$$

$$\left.\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)\right)$$

Problem 896: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{a+b\,x+c\,x^2}}{\sqrt{f+g\,x}}\,dx$$

Optimal (type 4, 444 leaves, 6 steps) :

$$\frac{2\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{3\,g}-\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(2\,c\,f-b\,g\right)\sqrt{f+g\,x}\,\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(3\,c\,g^2\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)+$$

$$\left(4\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\,\text{EllipticF}\left[\right.\right.$$

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

Result (type 4, 1847 leaves) :

$$\frac{2\sqrt{f+g\,x}\,\sqrt{a+x\,\left(b+c\,x\right)}}{3\,g}+\frac{1}{3\,g^3\sqrt{a+b\,x+c\,x^2}}\sqrt{a+x\,\left(b+c\,x\right)}$$

$$\left(-\left(\left(2\,\left(2\,c\,f-b\,g\right)\,\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\right)\Big/\right.\right.$$

$$\left(c\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)+\frac{1}{c\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}$$

$$2\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\left(\left(\left(i\,c\,f\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.\right.\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg)\Bigg)\Bigg/\left(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(i\,b\,g\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(i\,\sqrt{2}\,c\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left.\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)\right)$$

Problem 897: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+b\,x+c\,x^2}}{(d+e\,x)\,\sqrt{f+g\,x}}\,dx$$

Optimal (type 4, 700 leaves, 11 steps):

$$\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\sqrt{f+g\,x}\,\sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\,\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(e\,g\,\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(2\,\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,(c\,e\,f+c\,d\,g-b\,e\,g)\,\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}\right.$$

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

$$\left(c\,e^2\,g\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)-\left(\sqrt{2}\,(c\,d^2-b\,d\,e+a\,e^2)\,\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}\right.$$

$$\sqrt{1-\frac{2\,c\,(f+g\,x)}{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}}\;\sqrt{1-\frac{2\,c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}}$$

$$\text{EllipticPi}\left[\frac{e\left(2\,c\,f-b\,g+\sqrt{b^2-4\,a\,c}\;g\right)}{2\,c\,(e\,f-d\,g)},\,\text{ArcSin}\left[\frac{\sqrt{2}\;\sqrt{c}\;\sqrt{f+g\,x}}{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}}\right],\right.$$

$$\left.\frac{b-\sqrt{b^2-4\,a\,c}\;-\frac{2\,c\,f}{g}}{b+\sqrt{b^2-4\,a\,c}\;-\frac{2\,c\,f}{g}}\right]\Bigg/\left(\sqrt{c}\;e^2\,(e\,f-d\,g)\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 16471 leaves):

$$-\frac{1}{\sqrt{a+b\,x+c\,x^2}}\,2\,\sqrt{a+x\,(b+c\,x)}$$

$$\left(-\frac{\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}{e\,\sqrt{f+g\,x}}-\frac{1}{e\,(f+g\,x)\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}}\right.$$

$$\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}$$

$$\left(-\left(\left(\left(i\,c\,f^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.\right.\right.\right.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\left.\left.\left.\frac{\sqrt{2}\;\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\,\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}},\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(i\,b\,f\,g\,\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\left(i\, a\, g^2 \left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right) \sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)(f + g\, x)}} \right.$$

$$\sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)(f + g\, x)}}$$

$$\left(\text{EllipticE}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{2}\, \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}}{\sqrt{f + g\, x}} \right], \frac{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}{2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}} \right] - \right.$$

$$\text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{2}\, \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}}{\sqrt{f + g\, x}} \right], \right.$$

$$\left. \left. \left. \frac{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}{2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}} \right] \right) \Bigg/ \left(2\sqrt{2}\, \left(c\, f^2 - b\, f\, g + a\, g^2\right) \right.$$

$$\left. \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}\, \sqrt{c + \frac{c\, f^2 - b\, f\, g + a\, g^2}{(f + g\, x)^2} + \frac{-2\, c\, f + b\, g}{f + g\, x}} \right) +$$

$$\left(i\, c\, e^2\, f^3 \sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)(f + g\, x)}} \right.$$

$$\sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)(f + g\, x)}}\ \text{EllipticF}\left[\right.$$

$$\left. i\, \text{ArcSinh}\left[\frac{\sqrt{2}\, \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}}{\sqrt{f + g\, x}} \right], \frac{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}{2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}} \right] \Bigg/ \left(\sqrt{2} \right.$$

$$\left. \left(e\, f - d\, g\right)^2 \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}\, \sqrt{c + \frac{c\, f^2 - b\, f\, g + a\, g^2}{(f + g\, x)^2} + \frac{-2\, c\, f + b\, g}{f + g\, x}} \right) -$$

$$\left(i\, c\, d\, e\, f^2\, g \sqrt{1-\frac{2\left(c\, f^2-b\, f\, g+a\, g^2\right)}{\left(2\, c\, f-b\, g-\sqrt{b^2\, g^2-4\, a\, c\, g^2}\right)\left(f+g\, x\right)}} \right.$$

$$\sqrt{1-\frac{2\left(c\, f^2-b\, f\, g+a\, g^2\right)}{\left(2\, c\, f-b\, g+\sqrt{b^2\, g^2-4\, a\, c\, g^2}\right)\left(f+g\, x\right)}}\ \text{EllipticF}\Big[$$

$$i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\, f^2-b\, f\, g+a\, g^2}{2\, c\, f-b\, g-\sqrt{b^2\, g^2-4\, a\, c\, g^2}}}}{\sqrt{f+g\, x}}\Big],\ \frac{2\, c\, f-b\, g-\sqrt{b^2\, g^2-4\, a\, c\, g^2}}{2\, c\, f-b\, g+\sqrt{b^2\, g^2-4\, a\, c\, g^2}}\Big] \Big/ \left(\sqrt{2}\right.$$

$$\left.\left(e\, f-d\, g\right)^2 \sqrt{-\frac{c\, f^2-b\, f\, g+a\, g^2}{2\, c\, f-b\, g-\sqrt{b^2\, g^2-4\, a\, c\, g^2}}}\ \sqrt{c+\frac{c\, f^2-b\, f\, g+a\, g^2}{\left(f+g\, x\right)^2}+\frac{-2\, c\, f+b\, g}{f+g\, x}}\right) -$$

$$\left(i\, b\, e^2\, f^2\, g \sqrt{1-\frac{2\left(c\, f^2-b\, f\, g+a\, g^2\right)}{\left(2\, c\, f-b\, g-\sqrt{b^2\, g^2-4\, a\, c\, g^2}\right)\left(f+g\, x\right)}} \right.$$

$$\sqrt{1-\frac{2\left(c\, f^2-b\, f\, g+a\, g^2\right)}{\left(2\, c\, f-b\, g+\sqrt{b^2\, g^2-4\, a\, c\, g^2}\right)\left(f+g\, x\right)}}\ \text{EllipticF}\Big[$$

$$i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\, f^2-b\, f\, g+a\, g^2}{2\, c\, f-b\, g-\sqrt{b^2\, g^2-4\, a\, c\, g^2}}}}{\sqrt{f+g\, x}}\Big],\ \frac{2\, c\, f-b\, g-\sqrt{b^2\, g^2-4\, a\, c\, g^2}}{2\, c\, f-b\, g+\sqrt{b^2\, g^2-4\, a\, c\, g^2}}\Big] \Big/ \left(\sqrt{2}\right.$$

$$\left.\left(e\, f-d\, g\right)^2 \sqrt{-\frac{c\, f^2-b\, f\, g+a\, g^2}{2\, c\, f-b\, g-\sqrt{b^2\, g^2-4\, a\, c\, g^2}}}\ \sqrt{c+\frac{c\, f^2-b\, f\, g+a\, g^2}{\left(f+g\, x\right)^2}+\frac{-2\, c\, f+b\, g}{f+g\, x}}\right) +$$

$$\left(i\, b\, d\, e\, f\, g^2 \sqrt{1-\frac{2\left(c\, f^2-b\, f\, g+a\, g^2\right)}{\left(2\, c\, f-b\, g-\sqrt{b^2\, g^2-4\, a\, c\, g^2}\right)\left(f+g\, x\right)}} \right.$$

$$\sqrt{1-\frac{2\left(c\, f^2-b\, f\, g+a\, g^2\right)}{\left(2\, c\, f-b\, g+\sqrt{b^2\, g^2-4\, a\, c\, g^2}\right)\left(f+g\, x\right)}}\ \text{EllipticF}\Big[$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\Bigg(\sqrt{2}$$

$$(e\,f-d\,g)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(i\,a\,e^2\,f\,g^2\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\ \text{EllipticF}\Bigg[$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\Bigg(\sqrt{2}$$

$$(e\,f-d\,g)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(i\,a\,d\,e\,g^3\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\ \text{EllipticF}\Bigg[$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\Bigg(\sqrt{2}$$

$$(e\,f-d\,g)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\left(i\sqrt{2}\,c\,e\,f^2\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(i\sqrt{2}\,b\,e\,f\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(i\sqrt{2}\,a\,e\,g^2\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[\text{i ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right], \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right] \Bigg/$$

$$\left((e f-d g)\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{c+\frac{c f^2-b f g+a g^2}{(f+g x)^2}+\frac{-2 c f+b g}{f+g x}}\right) -$$

$$\frac{1}{(e f-d g)^3} c e^3 f^3 \left(\left(\text{i } f\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.\right.$$

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

$$\text{EllipticPi}\left[\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.\text{i ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right], \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg) \Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\right.\right.$$

$$\left.\left.\frac{2 c f}{f+g x}+\frac{b g}{f+g x}\right)\right) - \left(\text{i } d g\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.$$

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\ \text{EllipticPi}\left[\right.$$

$$\left.\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)+$$

$$\frac{1}{(e\,f-d\,g)^3}\,c\,d\,e^2\,f^2\,g\left(\left(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\left[\right.\right.$$

$$\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e \left(c f^2 - b f g + a g^2\right)},$$

$$i \operatorname{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}\right],$$

$$\left.\frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\right] \Bigg/ \left(\sqrt{2}\, e \sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}\right.$$

$$\left.\sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \frac{2 c f}{f + g x} + \frac{b g}{f + g x}\right)}\right) +$$

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

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

$$\operatorname{EllipticPi}\left[\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e \left(c f^2 - b f g + a g^2\right)},\right.$$

$$\left.i \operatorname{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}\right], \frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\right] \Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}\sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \right.\right.$$

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

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg/\Bigg(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-$$

$$\frac{1}{\left(e\,f-d\,g\right)^3}\,b\,d\,e^2\,f\,g^2\Bigg(\Bigg(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\right.$$

$$\left(\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\Bigg)-\Bigg(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Big/\Bigg(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)\Bigg)-$$

$$\frac{1}{\left(e\,f-d\,g\right)^3}\,a\,e^3\,f\,g^2\Bigg(\Bigg(\Bigg(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Big/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(\text{i}\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\Big[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$\text{i}\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\right)\Big/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)+$$

$$\frac{1}{(e\,f-d\,g)^3}\,a\,d\,e^2\,g^3\left(\left(\text{i}\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\Big[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\right)-\left(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\ \text{EllipticPi}\Bigg[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)+$$

$$\frac{1}{(e\,f-d\,g)^2}\,2\,c\,e^2\,f^2\left(\left(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\text{EllipticPi}\left[\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\right.\right.$$

$$\left.\left.\frac{2 c f}{f+g x}+\frac{b g}{f+g x}\right)\right)-\left(i\,d g\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.$$

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\,\text{EllipticPi}\left[\right.$$

$$\left.\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg/\left(\sqrt{2}\,e\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}+\frac{b g}{f+g x}\right)}\right)-$$

$$\frac{1}{(e f-d g)^2}2 b e^2 f g\left(\left(i f\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-\Bigg(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/\Bigg(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)+$$

$$\frac{1}{(e f-d g)^2}\,2 a e^2 g^2 \left(\left(\left(i f \sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.\right.\right.$$

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

$$\text{EllipticPi}\left[\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\right.\right.$$

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

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\;\text{EllipticPi}\left[\right.$$

$$\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],$$

$$\left.\left.\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\right)\Bigg/\left(\sqrt{2}\,e\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\right.$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)\Bigg)-$$

$$\frac{1}{e\,f-d\,g}\,c\,e\,f\left(\left(\left(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.\right.\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\text{EllipticPi}\left[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(i\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\;\text{EllipticPi}\left[\right.$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\Bigg(\sqrt{2}\;e\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-$$

$$\frac{1}{e\,f-d\,g}\,c\,d\,g\left(\left(\left(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\Big[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(i\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\Big[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)+$$

$$\frac{1}{e\,f-d\,g}\,b\,e\,g\left(\left(\left(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\text{EllipticPi}\left[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\ \text{EllipticPi}\left[\right.\right.$$

$$\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e \left(c f^2 - b f g + a g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}\right],$$

$$\frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\Bigg] \Bigg/ \left(\sqrt{2}\, e \sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}\right.$$

$$\left.\sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \frac{2 c f}{f + g x} + \frac{b g}{f + g x}\right)}\right)\Bigg)\Bigg)\Bigg)$$

Problem 898: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a + b x + c x^2}}{(d + e x)^2 \sqrt{f + g x}}\, dx$$

Optimal (type 4, 736 leaves, 15 steps):

$$-\frac{\sqrt{f + g x}\,\sqrt{a + b x + c x^2}}{(e f - d g)(d + e x)} + \left(\sqrt{b^2 - 4 a c}\,\sqrt{f + g x}\,\sqrt{-\frac{c (a + b x + c x^2)}{b^2 - 4 a c}}\right.$$

$$\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b + \sqrt{b^2 - 4 a c} + 2 c x}{\sqrt{b^2 - 4 a c}}}}{\sqrt{2}}\right], -\frac{2\sqrt{b^2 - 4 a c}\, g}{2 c f - \left(b + \sqrt{b^2 - 4 a c}\right) g}\right]\Bigg) \Bigg/$$

$$\left(\sqrt{2}\, e (e f - d g)\sqrt{\frac{c (f + g x)}{2 c f - \left(b + \sqrt{b^2 - 4 a c}\right) g}}\,\sqrt{a + b x + c x^2}\right) +$$

$$\left(\sqrt{2}\,\sqrt{b^2-4ac}\,\sqrt{\frac{c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{\frac{c\,(a+x\,(b+cx))}{-b^2+4ac}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],\frac{2\sqrt{b^2-4ac}\,g}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}\right]\right/$$

$$\left(e^2\sqrt{f+gx}\,\sqrt{a+x\,(b+cx)}\right)-\left(\sqrt{2cf-\left(b-\sqrt{b^2-4ac}\right)g}\,\left(e^2\,(bf-ag)-cd\,(2ef-dg)\right)\right.$$

$$\sqrt{1-\frac{2c\,(f+gx)}{2cf-\left(b-\sqrt{b^2-4ac}\right)g}}\,\sqrt{1-\frac{2c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}$$

$$\text{EllipticPi}\left[\frac{e\left(2cf-bg+\sqrt{b^2-4ac}\,g\right)}{2c\,(ef-dg)},\text{ArcSin}\left[\frac{\sqrt{2}\,\sqrt{c}\,\sqrt{f+gx}}{\sqrt{2cf-\left(b-\sqrt{b^2-4ac}\right)g}}\right],\right.$$

$$\left.\left.\frac{b-\sqrt{b^2-4ac}-\frac{2cf}{g}}{b+\sqrt{b^2-4ac}-\frac{2cf}{g}}\right]\right/\left(\sqrt{2}\,\sqrt{c}\,e^2\,(ef-dg)^2\sqrt{a+bx+cx^2}\right)$$

Result (type 4, 6911 leaves):

$$\frac{\sqrt{f+gx}\,\sqrt{a+x\,(b+cx)}}{(-ef+dg)\,(d+ex)}+\frac{1}{g\,(-ef+dg)\,\sqrt{a+bx+cx^2}}\sqrt{a+x\,(b+cx)}$$

$$\left(-\frac{(f+gx)^{3/2}\left(c+\frac{cf^2}{(f+gx)^2}-\frac{bfg}{(f+gx)^2}+\frac{ag^2}{(f+gx)^2}-\frac{2cf}{f+gx}+\frac{bg}{f+gx}\right)}{e\sqrt{\frac{(f+gx)^2\left(c\left(-1+\frac{f}{f+gx}\right)^2+\frac{g\left(b-\frac{bf}{f+gx}+\frac{ag}{f+gx}\right)}{f+gx}\right)}{g^2}}}-\frac{1}{e\sqrt{\frac{(f+gx)^2\left(c\left(-1+\frac{f}{f+gx}\right)^2+\frac{g\left(b-\frac{bf}{f+gx}+\frac{ag}{f+gx}\right)}{f+gx}\right)}{g^2}}}\right.$$

$$(e f - d g)\,(f + g x)\sqrt{c + \frac{c f^2}{(f+g x)^2} - \frac{b f g}{(f+g x)^2} + \frac{a g^2}{(f+g x)^2} - \frac{2 c f}{f+g x} + \frac{b g}{f+g x}}$$

$$\left(-\left(\left(\left(i\, c f^2 \left(2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}\right)\right.\right.\right.\right.$$

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

$$\sqrt{1 - \frac{2\left(c f^2 - b f g + a g^2\right)}{\left(2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}\right)(f+g x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\left.\left.\left.\frac{\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f+g x}}\right], \frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\right] - \text{EllipticF}\left[\right.$$

$$\left.\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f+g x}}\right], \frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\right]\right)\right)\Big/$$

$$\left(2\sqrt{2}\,(e f - d g)\left(c f^2 - b f g + a g^2\right)\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}\right.$$

$$\left.\sqrt{c + \frac{c f^2 - b f g + a g^2}{(f+g x)^2} + \frac{-2 c f + b g}{f+g x}}\right) +$$

$$\left(i\, b f g \left(2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}\right)\sqrt{1 - \frac{2\left(c f^2 - b f g + a g^2\right)}{\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)(f+g x)}}\right.$$

$$\sqrt{1 - \frac{2\left(c f^2 - b f g + a g^2\right)}{\left(2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}\right)(f+g x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,(e\,f-d\,g)\,(c\,f^2-b\,f\,g+a\,g^2)\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}-$$

$$i\,a\,g^2\,\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,(e\,f-d\,g)\,(c\,f^2-b\,f\,g+a\,g^2)\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}+$$

$$\left(i\, c\, e\, f^2 \sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)\left(f + g\, x\right)}} \right.$$

$$\sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)\left(f + g\, x\right)}}\ \text{EllipticF}\Big[$$

$$i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}}{\sqrt{f + g\, x}}\Big],\ \frac{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}{2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}\Big] \Big/ \left(\sqrt{2} \right.$$

$$\left.\left.\left(e\, f - d\, g\right)^2 \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}\ \sqrt{c + \frac{c\, f^2 - b\, f\, g + a\, g^2}{\left(f + g\, x\right)^2} + \frac{-2\, c\, f + b\, g}{f + g\, x}}\right) - \right.$$

$$\left(i\, b\, e\, f\, g \sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)\left(f + g\, x\right)}} \right.$$

$$\sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)\left(f + g\, x\right)}}\ \text{EllipticF}\Big[$$

$$i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}}{\sqrt{f + g\, x}}\Big],\ \frac{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}{2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}\Big] \Big/ \left(\sqrt{2} \right.$$

$$\left.\left.\left(e\, f - d\, g\right)^2 \sqrt{-\frac{c\, f^2 - b\, f\, g + a\, g^2}{2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}}}\ \sqrt{c + \frac{c\, f^2 - b\, f\, g + a\, g^2}{\left(f + g\, x\right)^2} + \frac{-2\, c\, f + b\, g}{f + g\, x}}\right) + \right.$$

$$\left(i\, a\, e\, g^2 \sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g - \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)\left(f + g\, x\right)}} \right.$$

$$\sqrt{1 - \frac{2\left(c\, f^2 - b\, f\, g + a\, g^2\right)}{\left(2\, c\, f - b\, g + \sqrt{b^2\, g^2 - 4\, a\, c\, g^2}\right)\left(f + g\, x\right)}}\ \text{EllipticF}\Big[$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\Bigg(\sqrt{2}$$

$$(e\,f-d\,g)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\frac{1}{(e\,f-d\,g)^3}\,c\,e^2\,f^2\Bigg(\Bigg(i\,f\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\,(c\,f^2-b\,f\,g+a\,g^2)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.$$

$$\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-\Bigg(i\,d\,g\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\ \text{EllipticPi}\Bigg[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\,(c\,f^2-b\,f\,g+a\,g^2)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)+$$

$$\frac{1}{(e\,f-d\,g)^3}\,b\,e^2\,f\,g\left(\left(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(i\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\left[\right.$$

$$\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e \left(c f^2 - b f g + a g^2\right)},$$

$$i\, \text{ArcSinh}\left[\frac{\sqrt{2}\ \sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}\right],$$

$$\left.\frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\right] \Bigg/ \left(\sqrt{2}\ e \sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}\right.$$

$$\left.\sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \frac{2 c f}{f + g x} + \frac{b g}{f + g x}\right)}\right) -$$

$$\frac{1}{(e f - d g)^3}\, a e^2 g^2 \left(\left(i f \sqrt{1 - \frac{2\left(c f^2 - b f g + a g^2\right)}{\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)(f + g x)}}\right.\right.$$

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

$$\text{EllipticPi}\left[\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e \left(c f^2 - b f g + a g^2\right)},\right.$$

$$\left.i\, \text{ArcSinh}\left[\frac{\sqrt{2}\ \sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}\right], \frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\right] \Bigg/$$

$$\left(\sqrt{2}\ \sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}\ \sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} -\right.\right.$$

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

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg/\Bigg(\sqrt{2}\,e\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)+$$

$$\frac{1}{e\,f-d\,g}\,c\Bigg(\Bigg(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/\Bigg(\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\right.$$

$$\left(\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\Bigg)-\Bigg(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/\Bigg(\sqrt{2}\;e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 899: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 1049 leaves, 25 steps):

$$-\frac{\sqrt{f+g\,x}\;\sqrt{a+b\,x+c\,x^2}}{2\left(e\,f-d\,g\right)\left(d+e\,x\right)^2}+\frac{\left(c\,d\left(2\,e\,f+d\,g\right)-e\left(b\,e\,f+2\,b\,d\,g-3\,a\,e\,g\right)\right)\sqrt{f+g\,x}\;\sqrt{a+b\,x+c\,x^2}}{4\left(c\,d^2-b\,d\,e+a\,e^2\right)\left(e\,f-d\,g\right)^2\left(d+e\,x\right)}-$$

$$\left(\sqrt{b^2-4ac}\,\left(cd\left(2ef+dg\right)-e\left(bef+2bdg-3aeg\right)\right)\sqrt{f+gx}\,\sqrt{-\frac{c\left(a+bx+cx^2\right)}{b^2-4ac}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(4\sqrt{2}\,e\left(cd^2-bde+ae^2\right)\left(ef-dg\right)^2\sqrt{\frac{c\left(f+gx\right)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{a+bx+cx^2}\right)-$$

$$\left(\sqrt{b^2-4ac}\,\left(e^2\left(bf-ag\right)+cd\left(-2ef+dg\right)\right)\sqrt{\frac{c\left(f+gx\right)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\right.$$

$$\left.\sqrt{\frac{c\left(a+x\left(b+cx\right)\right)}{-b^2+4ac}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],\frac{2\sqrt{b^2-4ac}\,g}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(2\sqrt{2}\,e^2\left(cd^2+e\left(-bd+ae\right)\right)\left(ef-dg\right)\sqrt{f+gx}\,\sqrt{a+x\left(b+cx\right)}\right)-$$

$$\left(\sqrt{2cf-bg+\sqrt{b^2-4ac}\,g}\,\left(3a^2e^4g^2+c^2d^3g\left(4ef-dg\right)+b^2e^3f\left(-ef+4dg\right)+\right.\right.$$

$$\left.\left.2ace^2\left(2e^2f^2-2defg+3d^2g^2\right)-2be^2g\left(3cd^2f+ae\left(ef+2dg\right)\right)\right)\right.$$

$$\sqrt{\frac{g\left(-b+\sqrt{b^2-4ac}-2cx\right)}{2cf+\left(-b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{\frac{g\left(b+\sqrt{b^2-4ac}+2cx\right)}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}}$$

$$\text{EllipticPi}\left[\frac{2cef-beg+\sqrt{b^2-4ac}\,eg}{2cef-2cdg},\right.$$

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

Result (type 4, 36617 leaves): Display of huge result suppressed!

Problem 900: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 774 leaves, 8 steps):

$$\frac{1}{105\,c^3\,g^2}2\,e\left(24\,b^2\,e^2\,g^2+c\,e\,g\left(13\,b\,e\,f-84\,b\,d\,g-25\,a\,e\,g\right)-c^2\left(7\,e^2\,f^2+12\,d\,e\,f\,g-90\,d^2\,g^2\right)\right)$$
$$\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}+\frac{2\,e\left(d+e\,x\right)^2\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{7\,c}+$$
$$\frac{2\,e^2\left(c\,e\,f+11\,c\,d\,g-6\,b\,e\,g\right)\left(f+g\,x\right)^{3/2}\sqrt{a+b\,x+c\,x^2}}{35\,c^2\,g^2}-$$
$$\Bigg(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(48\,b^3\,e^3\,g^3-8\,b\,c\,e^2\,g^2\left(2\,b\,e\,f+21\,b\,d\,g+13\,a\,e\,g\right)-\right.$$
$$\left.c^3\left(8\,e^3\,f^3-42\,d\,e^2\,f^2\,g+105\,d^2\,e\,f\,g^2+105\,d^3\,g^3\right)+\right.$$
$$\left.c^2\,e\,g\left(a\,e\,g\left(19\,e\,f+189\,d\,g\right)-b\left(9\,e^2\,f^2-63\,d\,e\,f\,g-210\,d^2\,g^2\right)\right)\right)\sqrt{f+g\,x}$$
$$\sqrt{-\frac{c\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],\ -\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\Bigg)\Bigg/$$
$$\left(105\,c^4\,g^3\sqrt{\frac{c\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4ac}\;e\left(cf^2-bfg+ag^2\right)\right.$$

$$\left(24b^2e^2g^2+ceg\left(13bef-84bdg-25aeg\right)+c^2\left(8e^2f^2-42def g+105d^2g^2\right)\right)$$

$$\sqrt{\frac{c\left(f+gx\right)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\;\sqrt{-\frac{c\left(a+bx+cx^2\right)}{b^2-4ac}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/\left(105c^4g^3\sqrt{f+gx}\;\sqrt{a+bx+cx^2}\right)$$

Result (type 4, 10649 leaves):

$$\frac{1}{\sqrt{a+x\left(b+cx\right)}}\sqrt{f+gx}\;\left(a+bx+cx^2\right)\left(-\frac{1}{105c^3g^2}\right.$$

$$2e\left(4c^2e^2f^2-21c^2defg+5bce^2fg-105c^2d^2g^2+84bcdeg^2-24b^2e^2g^2+25ace^2g^2\right)-$$

$$\left.\frac{2e^2\left(-cef-21cdg+6beg\right)x}{35c^2g}+\frac{2e^3x^2}{7c}\right)-\frac{1}{105c^3g^4\sqrt{a+x\left(b+cx\right)}}2\sqrt{a+bx+cx^2}$$

$$\left(\left(-8c^3e^3f^3+42c^3de^2f^2g-9bc^2e^3f^2g-105c^3d^2efg^2+63bc^2de^2fg^2-16b^2ce^3fg^2+\right.\right.$$

$$\left.19ac^2e^3fg^2-105c^3d^3g^3+210bc^2d^2eg^3-168b^2cde^2g^3+189ac^2de^2g^3+48b^3e^3g^3-\right.$$

$$\left.\left.104abce^3g^3\right)\left(f+gx\right)^{3/2}\left(c+\frac{cf^2}{\left(f+gx\right)^2}-\frac{bfg}{\left(f+gx\right)^2}+\frac{ag^2}{\left(f+gx\right)^2}-\frac{2cf}{f+gx}+\frac{bg}{f+gx}\right)\right)\Big/$$

$$\left(c\sqrt{\frac{\left(f+gx\right)^2\left(c\left(-1+\frac{f}{f+gx}\right)^2+\frac{g\left(b-\frac{bf}{f+gx}+\frac{ag}{f+gx}\right)}{f+gx}\right)}{g^2}}\right)+\frac{1}{c\sqrt{\frac{\left(f+gx\right)^2\left(c\left(-1+\frac{f}{f+gx}\right)^2+\frac{g\left(b-\frac{bf}{f+gx}+\frac{ag}{f+gx}\right)}{f+gx}\right)}{g^2}}}$$

$$\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\left(\left(2\,i\,\sqrt{2}\;c^3\,e^3\,f^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\Big/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(21\,i\,c^3$$

$$d\,e^2\,f^2\,g\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(9\,i\,b\,c^2\,e^3\,f^2\,g\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(105\,i\,c^3\,d^2\,e\,f\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i$$

$$\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(63\,i\,b\,c^2\,d\,e^2\,f\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\ \left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(4\,i\,\sqrt{2}\ b^2\,c\,e^3\,f\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/\Big(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(19\,i\,a$$

$$c^2\,e^3\,f\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i$$

$$\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(105\,i\,c^3\,d^3\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(105\,i\,b\,c^2\,d^2\,e\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Big/\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\left(42\,i\,\sqrt{2}\,b^2\,c\,d\,e^2\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\Big/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\left(189\,i\,a\,c^2\,d\,e^2\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\ \left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(12\,i\,\sqrt{2}\ b^3\,e^3\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\left(26\,i\,\sqrt{2}\;a\,b\,c\,e^3\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\left(4\,i\,\sqrt{2}\;c^3\,e^3\,f^2\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(21\,i\,\sqrt{2}\;c^3\,d\,e^2\,f\,g\;\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\;\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(13\,i\,b\,c^2\,e^3\,f\,g\;\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\;\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{2}\;\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(105\,i\,c^3\,d^2\,e\,g^2\;\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(42\,i\,\sqrt{2}\,b\,c^2\,d\,e^2\,g^2\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(12\,i\,\sqrt{2}\,b^2\,c\,e^3\,g^2\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(25\,i\,a\,c^2\,e^3\,g^2\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left.\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)\right)$$

Problem 901: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(d+e\,x)^2\sqrt{f+g\,x}}{\sqrt{a+b\,x+c\,x^2}}\,dx$$

Optimal (type 4, 567 leaves, 7 steps):

$$\frac{2\,e\,\left(c\,e\,f+7\,c\,d\,g-4\,b\,e\,g\right)\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{15\,c^2\,g}+$$

$$\frac{2\,e\,\left(d+e\,x\right)\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{5\,c}+\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\right.$$

$$\left(8\,b^2\,e^2\,g^2-c\,e\,g\,\left(3\,b\,e\,f+20\,b\,d\,g+9\,a\,e\,g\right)-c^2\,\left(2\,e^2\,f^2-10\,d\,e\,f\,g-15\,d^2\,g^2\right)\right)\,\sqrt{f+g\,x}$$

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

$$\left(15\,c^3\,g^2\,\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}}\,\sqrt{a+b\,x+c\,x^2}\right)+$$

$$\left(4\,\sqrt{2}\,\sqrt{b^2-4\,a\,c}\;e\,\left(c\,e\,f-5\,c\,d\,g+2\,b\,e\,g\right)\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\,\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}}\right.$$

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

$$\left(15\,c^3\,g^2\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 5536 leaves) :

$$\frac{\left(-\frac{2\,e\,\left(-c\,e\,f-10\,c\,d\,g+4\,b\,e\,g\right)}{15\,c^2\,g}+\frac{2\,e^2\,x}{5\,c}\right)\,\sqrt{f+g\,x}\,\left(a+b\,x+c\,x^2\right)}{\sqrt{a+x\,\left(b+c\,x\right)}}-\frac{1}{15\,c^2\,g^3\,\sqrt{a+x\,\left(b+c\,x\right)}}\,2\,\sqrt{a+b\,x+c\,x^2}$$

$$\left(\left(2\,c^2\,e^2\,f^2-10\,c^2\,d\,e\,f\,g+3\,b\,c\,e^2\,f\,g-15\,c^2\,d^2\,g^2+20\,b\,c\,d\,e\,g^2-8\,b^2\,e^2\,g^2+9\,a\,c\,e^2\,g^2\right)\right.$$

$$\left.\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\right)\Bigg/$$

$$\left(c\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)-\frac{1}{c\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}$$

$$\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\left(\left(\left(i\,c^2\,e^2\,f^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.\right.\right.$$

$$\left.\left.\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\right)\Bigg/$$

$$\left(\sqrt{2}\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(5\,i\,c^2\,d\,e\,f\,g$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i$$

$$\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(3\,i\,b\,c\,e^2\,f\,g$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(15\,i\,c^2\,d^2\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(5\,i\,\sqrt{2}\,b\,c\,d\,e\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(2\,i\,\sqrt{2}$$

$$b^2\,e^2\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\left(9\,i\,a\,c\,e^2\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(2\sqrt{2}\ \left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\left(i\sqrt{2}\, c^2 e^2 f \sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)\left(f+g x\right)}}\right.$$

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

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\right) /$$

$$\left(\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{c+\frac{c f^2-b f g+a g^2}{\left(f+g x\right)^2}+\frac{-2 c f+b g}{f+g x}}\right) -$$

$$\left(5 i\sqrt{2}\, c^2 d e g \sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)\left(f+g x\right)}}\right.$$

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

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\right) /$$

$$\left(\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{c+\frac{c f^2-b f g+a g^2}{\left(f+g x\right)^2}+\frac{-2 c f+b g}{f+g x}}\right) +$$

$$\left(2 i\sqrt{2}\, b c e^2 g \sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)\left(f+g x\right)}}\right.$$

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

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)\Bigg)$$

Problem 902: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{(d+e\,x)\,\sqrt{f+g\,x}}{\sqrt{a+b\,x+c\,x^2}}\,dx$$

Optimal (type 4, 452 leaves, 6 steps) :

$$\frac{2\,e\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{3\,c}+\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(c\,e\,f+3\,c\,d\,g-2\,b\,e\,g\right)\sqrt{f+g\,x}\,\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\,\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(3\,c^2\,g\,\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(2\,\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,e\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\right.$$

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

$$\left(3\,c^2\,g\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 766 leaves) :

$$\frac{2\,e\,\sqrt{f+g\,x}\,\left(a+b\,x+c\,x^2\right)}{3\,c\,\sqrt{a+x\,\left(b+c\,x\right)}}+\frac{1}{3\,c^2\,g^2\,\sqrt{a+x\,\left(b+c\,x\right)}\,\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}$$

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

$$\frac{1}{2\sqrt{2}\,\sqrt{\frac{c\,f^2+g\,\left(-b\,f+a\,g\right)}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}\,\sqrt{f+g\,x}}\,i\,\sqrt{1-\frac{2\left(c\,f^2+g\left(-b\,f+a\,g\right)\right)}{\left(2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1+\frac{2\left(c\,f^2+g\left(-b\,f+a\,g\right)\right)}{\left(-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)\left(f+g\,x\right)}}\left(\left(2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)\right.$$

$$\left(2\,b\,e\,g-c\,\left(e\,f+3\,d\,g\right)\right)\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{\frac{c\,f^2-b\,f\,g+a\,g^2}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.-\frac{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}{2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}\right]+\left(6\,c^2\,d\,f\,g+2\,b\,e\,g\left(b\,g-\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)+\right.$$

$$\left.\left.c\left(-2\,a\,e\,g^2-3\,b\,g\,\left(e\,f+d\,g\right)+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\,\left(e\,f+3\,d\,g\right)\right)\right)$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{\frac{c\,f^2-b\,f\,g+a\,g^2}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}}{\sqrt{f+g\,x}}\right],-\frac{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}{2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}\right]\right)$$

Problem 903: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\sqrt{f+g\,x}}{\sqrt{a+b\,x+c\,x^2}}\,dx$$

Optimal (type 4, 188 leaves, 2 steps):

$$\left(\sqrt{2}\,\sqrt{b^2-4ac}\,\sqrt{f+gx}\,\sqrt{-\frac{c\,(a+bx+cx^2)}{b^2-4ac}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],\,-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(c\sqrt{\frac{c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{a+bx+cx^2}\right)$$

Result (type 4, 365 leaves):

$$\left(i\left(2cf+\left(-b+\sqrt{b^2-4ac}\right)g\right)\sqrt{\frac{g\left(b+\sqrt{b^2-4ac}+2cx\right)}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{1-\frac{2c\,(f+gx)}{2cf+\left(-b+\sqrt{b^2-4ac}\right)g}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{f+gx}\right],\right.\right.$$

$$\left.\frac{2cf-\left(b+\sqrt{b^2-4ac}\right)g}{2cf+\left(-b+\sqrt{b^2-4ac}\right)g}\right]-\text{EllipticF}\left[$$

$$\left.\left.i\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{f+gx}\right],\,\frac{2cf-\left(b+\sqrt{b^2-4ac}\right)g}{2cf+\left(-b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(\sqrt{2}\,cg\sqrt{\frac{c}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{a+x\,(b+cx)}\right)$$

Problem 904: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\sqrt{f+gx}}{(d+ex)\sqrt{a+bx+cx^2}}\,dx$$

Optimal (type 4, 467 leaves, 8 steps):

$$\left(2\sqrt{2}\,\sqrt{b^2-4ac}\,g\sqrt{\frac{c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\sqrt{-\frac{c\,(a+bx+cx^2)}{b^2-4ac}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right/$$

$$\left(ce\sqrt{f+gx}\,\sqrt{a+bx+cx^2}\right)-\left(\sqrt{2}\,\sqrt{2cf-\left(b-\sqrt{b^2-4ac}\right)g}\sqrt{1-\frac{2c\,(f+gx)}{2cf-\left(b-\sqrt{b^2-4ac}\right)g}}\right.$$

$$\sqrt{1-\frac{2c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\,\text{EllipticPi}\left[\frac{e\left(2cf-bg+\sqrt{b^2-4ac}\,g\right)}{2c\,(ef-dg)},\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{2}\,\sqrt{c}\,\sqrt{f+gx}}{\sqrt{2cf-\left(b-\sqrt{b^2-4ac}\right)g}}\right],\frac{b-\sqrt{b^2-4ac}-\frac{2cf}{g}}{b+\sqrt{b^2-4ac}-\frac{2cf}{g}}\right]\right/\left(\sqrt{c}\,e\sqrt{a+bx+cx^2}\right)$$

Result (type 4, 379 leaves) :

$$-\left(\left(i\sqrt{2}\,\sqrt{\frac{g\left(b+\sqrt{b^2-4ac}+2cx\right)}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{1-\frac{2c\left(f+gx\right)}{2cf+\left(-b+\sqrt{b^2-4ac}\right)g}}\right.\right.$$
$$\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{f+gx}\right],\right.\right.$$
$$\left.\frac{2cf-\left(b+\sqrt{b^2-4ac}\right)g}{2cf+\left(-b+\sqrt{b^2-4ac}\right)g}\right]-\text{EllipticPi}\left[\frac{e\left(2cf-\left(b+\sqrt{b^2-4ac}\right)g\right)}{2c\left(ef-dg\right)},\right.$$
$$\left.\left.i\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{f+gx}\right],\frac{2cf-\left(b+\sqrt{b^2-4ac}\right)g}{2cf+\left(-b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$
$$\left.\left(e\,\sqrt{\frac{c}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{a+x\left(b+cx\right)}\right)\right)$$

Problem 905: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{f+gx}}{\left(d+ex\right)^2\sqrt{a+bx+cx^2}}\,dx$$

Optimal (type 4, 994 leaves, 15 steps):

$$-\frac{e\sqrt{f+gx}\,\sqrt{a+bx+cx^2}}{\left(cd^2-bde+ae^2\right)\left(d+ex\right)}+\left(\sqrt{b^2-4ac}\,\sqrt{f+gx}\,\sqrt{-\frac{c\left(a+bx+cx^2\right)}{b^2-4ac}}\right.$$
$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$
$$\left(\sqrt{2}\,\left(cd^2-bde+ae^2\right)\sqrt{\frac{c\left(f+gx\right)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{a+bx+cx^2}\right)-$$

$$\left(\sqrt{2}\,\sqrt{b^2-4ac}\,f\sqrt{\frac{c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\sqrt{-\frac{c\,(a+bx+cx^2)}{b^2-4ac}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right/$$

$$\left(\left(cd^2-bde+ae^2\right)\sqrt{f+gx}\,\sqrt{a+bx+cx^2}\right)+$$

$$\left(\sqrt{2}\,\sqrt{b^2-4ac}\,dg\sqrt{\frac{c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\sqrt{-\frac{c\,(a+bx+cx^2)}{b^2-4ac}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right/$$

$$\left(e\left(cd^2-bde+ae^2\right)\sqrt{f+gx}\,\sqrt{a+bx+cx^2}\right)+$$

$$\left(\sqrt{2cf-\left(b-\sqrt{b^2-4ac}\right)g}\,\left(e^2\left(bf-ag\right)-cd\left(2ef-dg\right)\right)\sqrt{1-\frac{2c\,(f+gx)}{2cf-\left(b-\sqrt{b^2-4ac}\right)g}}\right.$$

$$\sqrt{1-\frac{2c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\,\text{EllipticPi}\left[\frac{e\left(2cf-bg+\sqrt{b^2-4ac}\,g\right)}{2c\,(ef-dg)},\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{2}\,\sqrt{c}\,\sqrt{f+gx}}{\sqrt{2cf-\left(b-\sqrt{b^2-4ac}\right)g}}\right],\frac{b-\sqrt{b^2-4ac}-\frac{2cf}{g}}{b+\sqrt{b^2-4ac}-\frac{2cf}{g}}\right]\right/$$

$$\left(\sqrt{2}\ \sqrt{c}\ e\ \left(c\,d^2-b\,d\,e+a\,e^2\right)\ \left(e\,f-d\,g\right)\ \sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 18 563 leaves) :

$$-\frac{e\sqrt{f+g\,x}\ \left(a+b\,x+c\,x^2\right)}{\left(c\,d^2-b\,d\,e+a\,e^2\right)\ \left(d+e\,x\right)\sqrt{a+x\left(b+c\,x\right)}}-\frac{1}{\left(c\,d^2-b\,d\,e+a\,e^2\right)\ g\sqrt{a+x\left(b+c\,x\right)}}\sqrt{a+b\,x+c\,x^2}$$

$$\left(-\frac{\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}{\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}+\left(\dot{\imath}\,c\,f^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.\right.$$

$$\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[\dot{\imath}\ \text{ArcSinh}\left[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[\dot{\imath}\ \text{ArcSinh}\left[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\Big/$$

$$\left(2\sqrt{2}\ \left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\;\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\Bigg)-$$

$$\Bigg(i\,b\,f\,g\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)$$

$$\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\;\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\Bigg)+$$

$$\left(i\,a\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)\right.$$

$$\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\Big/$$

$$\left(2\sqrt{2}\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}-$$

$$\left(i\,c\,e^2\,f^3\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right.$$

$$\left.\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)+$$

$$\left(\text{i}\,c\,d\,e\,f^2\,g\,\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right.$$

$$\left.\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)+$$

$$\left(i\,b\,e^2\,f^2\,g\,\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{2}\,\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right.$$

$$\left.\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)-$$

$$\left(i\,b\,d\,e\,f\,g^2\,(f+g\,x)\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}\right.$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\,\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{2}\,\left(e\,f-d\,g\right)^2\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right.$$

$$\left.\sqrt{\frac{(f+g\,x)^2\,\left(c\,\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\,\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)\,-$$

$$\left(i\,a\,e^2\,f\,g^2\,(f+g\,x)\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}\right.$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\left(\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\sqrt{2}\,\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right.$$

$$\left.\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)+$$

$$\left(\text{i}\,a\,d\,e\,g^3\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right)$$

$$\left(\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\sqrt{2}\,\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right.$$

$$\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\Bigg)+$$

$$\Bigg(i\sqrt{2}\;c\,e\,f^2\,(f+g\,x)\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg/$$

$$\Bigg((e\,f-d\,g)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}$$

$$\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\Bigg)-$$

$$\Bigg(i\sqrt{2}\;b\,e\,f\,g\,(f+g\,x)\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\left(e\,f-d\,g\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right.$$

$$\left.\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)+$$

$$\left(i\,\sqrt{2}\,a\,e\,g^2\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\left(e\,f-d\,g\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right.$$

$$\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\Bigg)+\frac{1}{(e\,f-d\,g)^3\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}$$

$$c\,e^3\,f^3\,(f+g\,x)\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\Bigg(\Bigg(\Bigg(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\Bigg[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\,i\,\text{ArcSinh}\Bigg[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Bigg],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg)\Bigg/\Bigg(\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-$$

$$\Bigg(i\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\Bigg[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\,i\,\text{ArcSinh}\Bigg[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Bigg],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg)\Bigg/\Bigg(\sqrt{2}\;e\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-$$

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

$$\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\Bigg(\Bigg(\Bigg(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\Bigg[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\;i\,\text{ArcSinh}\Bigg[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Bigg],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg)\Bigg/\Bigg(\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-$$

$$\Bigg(i\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg/\Bigg(\sqrt{2}\ e\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-$$

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

$$\Bigg(\Bigg(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg/\Bigg(\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\Big[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\;i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\right)\Big/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)+$$

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

$$\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\left(\left(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\Big[\right.$$

$$\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e \left(c f^2 - b f g + a g^2\right)}, i \operatorname{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}, \frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\right] \Bigg/ \left(\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}\sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \frac{2 c f}{f + g x} + \frac{b g}{f + g x}\right)}\right) -$$

$$\left(i d g \sqrt{1 - \frac{2\left(c f^2 - b f g + a g^2\right)}{\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)(f + g x)}}\sqrt{1 - \frac{2\left(c f^2 - b f g + a g^2\right)}{\left(2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}\right)(f + g x)}}\ \text{EllipticPi}\left[\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e \left(c f^2 - b f g + a g^2\right)}, i \operatorname{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}, \frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\right] \Bigg/ \left(\sqrt{2}\, e \sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}\sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \frac{2 c f}{f + g x} + \frac{b g}{f + g x}\right)}\right)\right) +$$

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

$$\left(\left(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\;i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\right)\Big/\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.\right.$$

$$\left.\left.\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\;i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\right)\Big/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\left.\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)\right)-$$

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

$$\sqrt{c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}+\frac{b g}{f+g x}}$$

$$\left(\left(i f \sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\ \text{EllipticPi}\Big[$$

$$\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)}, i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\Big],$$

$$\left.\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\Big]\right) \Big/ \left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}+\frac{b g}{f+g x}\right)}\right) -$$

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

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\ \text{EllipticPi}\Big[$$

$$\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)}, i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\Bigg(\sqrt{2}\;e\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-$$

$$\frac{1}{(e\,f-d\,g)^2\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}\,2\,c\,e^2\,f^2\,(f+g\,x)$$

$$\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\Bigg(\Bigg(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\Bigg[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\;i\,\text{ArcSinh}\Bigg[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Bigg],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\Bigg(\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-$$

$$\Bigg(i\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg/\Bigg(\sqrt{2}\ e\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)+$$

$$\frac{1}{\left(e\,f-d\,g\right)^2\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}\,2\,b\,e^2\,f\,g\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\Bigg(\Bigg(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg/\Bigg(\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\Big[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\;i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\right)\Big/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-$$

$$\frac{1}{(e\,f-d\,g)^2\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}\,2\,a\,e^2\,g^2\,(f+g\,x)$$

$$\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\left(\left(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\Big[\right.$$

$$\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e\left(c f^2 - b f g + a g^2\right)}, i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}, \frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\right] \Bigg/ \left(\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}\sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \frac{2 c f}{f + g x} + \frac{b g}{f + g x}\right)}\right) -$$

$$\left(i d g \sqrt{1 - \frac{2\left(c f^2 - b f g + a g^2\right)}{\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)(f + g x)}}\sqrt{1 - \frac{2\left(c f^2 - b f g + a g^2\right)}{\left(2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}\right)(f + g x)}}\,\text{EllipticPi}\left[\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e\left(c f^2 - b f g + a g^2\right)}, i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}, \frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\right] \Bigg/ \left(\sqrt{2}\, e\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}\sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \frac{2 c f}{f + g x} + \frac{b g}{f + g x}\right)}\right) +$$

$$\frac{1}{(e f - d g)\sqrt{\frac{(f + g x)^2\left(c\left(-1 + \frac{f}{f + g x}\right)^2 + \frac{g\left(b - \frac{b f}{f + g x} + \frac{a g}{f + g x}\right)}{f + g x}\right)}{g^2}}}\, c e f (f + g x)\sqrt{c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \frac{2 c f}{f + g x} + \frac{b g}{f + g x}}$$

$$\left(\left(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\;i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\right)\Big/\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.\right.$$

$$\left.\left.\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-$$

$$\left(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\;i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\right)\Big/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.\right.$$

$$\left.\left.\left.\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)\right)-$$

$$\frac{1}{(e f-d g)\sqrt{\frac{(f+g x)^2\left(c\left(-1+\frac{f}{f+g x}\right)^2+\frac{g\left(b-\frac{b f}{f+g x}+\frac{a g}{f+g x}\right)}{f+g x}\right)}{g^2}}}\, c d g (f+g x)$$

$$\sqrt{c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}+\frac{b g}{f+g x}}$$

$$\left(\left(i f\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\ \text{EllipticPi}\Big[$$

$$\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\Big],$$

$$\left.\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\Big]\right)\Big/\left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}+\frac{b g}{f+g x}\right)}\right)-$$

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

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\ \text{EllipticPi}\Big[$$

$$\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\left(\sqrt{2}\;e\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)\Bigg)$$

Problem 906: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 1786 leaves, 25 steps):

$$-\frac{e\sqrt{f+g\,x}\;\sqrt{a+b\,x+c\,x^2}}{2\,(c\,d^2-b\,d\,e+a\,e^2)\,(d+e\,x)^2}-$$

$$\left(e\,(c\,d\,(6\,e\,f-5\,d\,g)-e\,(3\,b\,e\,f-2\,b\,d\,g-a\,e\,g))\sqrt{f+g\,x}\;\sqrt{a+b\,x+c\,x^2}\right)\Big/$$

$$\left(4\,(c\,d^2-b\,d\,e+a\,e^2)^2\,(e\,f-d\,g)\,(d+e\,x)\right)+$$

$$\left(\sqrt{b^2-4\,a\,c}\;(c\,d\,(6\,e\,f-5\,d\,g)-e\,(3\,b\,e\,f-2\,b\,d\,g-a\,e\,g))\sqrt{f+g\,x}\;\sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\;g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(4\sqrt{2}\;(c\,d^2-b\,d\,e+a\,e^2)^2\,(e\,f-d\,g)\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\;\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(\sqrt{b^2-4ac}\,g\sqrt{\frac{c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\sqrt{-\frac{c\,(a+bx+cx^2)}{b^2-4ac}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(\sqrt{2}\,e\,(cd^2-bde+ae^2)\sqrt{f+gx}\sqrt{a+bx+cx^2}\right)-$$

$$\left(\sqrt{b^2-4ac}\,f\,(cd\,(6ef-5dg)-e\,(3bef-2bdg-aeg))\sqrt{\frac{c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\right.$$

$$\left.\sqrt{-\frac{c\,(a+bx+cx^2)}{b^2-4ac}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(2\sqrt{2}\,(cd^2-bde+ae^2)^2\,(ef-dg)\sqrt{f+gx}\sqrt{a+bx+cx^2}\right)+$$

$$\left(\sqrt{b^2-4ac}\,dg\,(cd\,(6ef-5dg)-e\,(3bef-2bdg-aeg))\sqrt{\frac{c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\right.$$

$$\left.\sqrt{-\frac{c\,(a+bx+cx^2)}{b^2-4ac}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(2\sqrt{2}\ e\left(c\,d^2-b\,d\,e+a\,e^2\right)^2\left(e\,f-d\,g\right)\sqrt{f+g\,x}\ \sqrt{a+b\,x+c\,x^2}\right)+$$

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

$$\sqrt{1-\frac{2\,c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\ \text{EllipticPi}\left[\frac{e\left(2\,c\,f-b\,g+\sqrt{b^2-4\,a\,c}\ g\right)}{2\,c\,\left(e\,f-d\,g\right)},\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{2}\ \sqrt{c}\ \sqrt{f+g\,x}}{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}}\right],\frac{b-\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}{b+\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}\right]\right)\Big/$$

$$\left(\sqrt{2}\ \sqrt{c}\ e\left(c\,d^2-b\,d\,e+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}\ \left(c\,d\left(6\,e\,f-5\,d\,g\right)-e\left(3\,b\,e\,f-2\,b\,d\,g-a\,e\,g\right)\right)\right.$$

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

$$\sqrt{1-\frac{2\,c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\ \text{EllipticPi}\left[\frac{e\left(2\,c\,f-b\,g+\sqrt{b^2-4\,a\,c}\ g\right)}{2\,c\,\left(e\,f-d\,g\right)},\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{2}\ \sqrt{c}\ \sqrt{f+g\,x}}{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}}\right],\frac{b-\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}{b+\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}\right]\right)\Big/$$

$$\left(4\sqrt{2}\ \sqrt{c}\ e\left(c\,d^2-b\,d\,e+a\,e^2\right)^2\left(e\,f-d\,g\right)^2\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 36 634 leaves) : Display of huge result suppressed!

Problem 907: Result more than twice size of optimal antiderivative.

$$\int\frac{\left(f+g\,x\right)^{3/2}}{\left(d+e\,x\right)\sqrt{a+b\,x+c\,x^2}}\,\mathbb{d}x$$

Optimal (type 4, 675 leaves, 11 steps) :

$$\left(\sqrt{2}\,\sqrt{b^2-4ac}\,g\sqrt{f+gx}\,\sqrt{-\frac{c\left(a+bx+cx^2\right)}{b^2-4ac}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(ce\sqrt{\frac{c\left(f+gx\right)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\sqrt{a+bx+cx^2}\right)+$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4ac}\,g\left(ef-dg\right)\sqrt{\frac{c\left(f+gx\right)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\sqrt{-\frac{c\left(a+bx+cx^2\right)}{b^2-4ac}}\,\text{EllipticF}\left[\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/\left(ce^2\sqrt{f+gx}\,\sqrt{a+bx+cx^2}\right)-$$

$$\left(\sqrt{2}\,\sqrt{2cf-\left(b-\sqrt{b^2-4ac}\right)g}\,\left(ef-dg\right)\sqrt{1-\frac{2c\left(f+gx\right)}{2cf-\left(b-\sqrt{b^2-4ac}\right)g}}\right.$$

$$\sqrt{1-\frac{2c\left(f+gx\right)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\,\text{EllipticPi}\left[\frac{e\left(2cf-bg+\sqrt{b^2-4ac}\,g\right)}{2c\left(ef-dg\right)},\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{2}\,\sqrt{c}\,\sqrt{f+gx}}{\sqrt{2cf-\left(b-\sqrt{b^2-4ac}\right)g}}\right],\frac{b-\sqrt{b^2-4ac}-\frac{2cf}{g}}{b+\sqrt{b^2-4ac}-\frac{2cf}{g}}\right]\right)\Big/\left(\sqrt{c}\,e^2\sqrt{a+bx+cx^2}\right)$$

Result (type 4, 2358 leaves) :

$$\frac{1}{\sqrt{f+g\,x}\,\sqrt{a+x\,(b+c\,x)}}$$

$$\sqrt{(f+g\,x)\,(a+b\,x+c\,x^2)}\left(\left(4\,f\,g\sqrt{\frac{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}}}\left(-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x\right)\right.\right.$$

$$\left.\sqrt{\frac{\frac{f}{g}+x}{\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+\frac{f}{g}}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{-b+\sqrt{b^2-4\,a\,c}-2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-b\,g+\sqrt{b^2-4\,a\,c}\,g}\right]\right)\Big/$$

$$\left(e\sqrt{\frac{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x}{\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}}}\sqrt{(f+g\,x)\,(a+b\,x+c\,x^2)}\right)-$$

$$\left(2\,d\,g^2\sqrt{\frac{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}}}\left(-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x\right)\sqrt{\frac{\frac{f}{g}+x}{\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+\frac{f}{g}}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{-b+\sqrt{b^2-4\,a\,c}-2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-b\,g+\sqrt{b^2-4\,a\,c}\,g}\right]\right)\Big/$$

$$\left(e^2\sqrt{\frac{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x}{\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}}}\sqrt{(f+g\,x)\,(a+b\,x+c\,x^2)}\right)+$$

$$\left(2\sqrt{2}\ g^2\sqrt{-\frac{c\,g\left(-\frac{-b-\sqrt{b^2-4ac}}{2c}+x\right)}{2cf-bg-\sqrt{b^2-4ac}\ g}}\left(-\frac{-b+\sqrt{b^2-4ac}}{2c}+x\right)\sqrt{\frac{\frac{f}{g}+x}{\frac{-b+\sqrt{b^2-4ac}}{2c}+\frac{f}{g}}}\right.$$

$$\left(\frac{1}{2cg}\left(2cf-bg-\sqrt{b^2-4ac}\ g\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{2}\sqrt{\frac{c\left(f+gx\right)}{2cf-bg+\sqrt{b^2-4ac}\ g}}\right],\right.\right.$$

$$\left.\left.\frac{2cf-bg+\sqrt{b^2-4ac}\ g}{2cf-bg-\sqrt{b^2-4ac}\ g}\right]-\frac{1}{2c}\left(-b-\sqrt{b^2-4ac}\right)\right.$$

$$\left.\left.\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{2}\sqrt{\frac{c\left(f+gx\right)}{2cf-bg+\sqrt{b^2-4ac}\ g}}\right],\frac{2cf-bg+\sqrt{b^2-4ac}\ g}{2cf-bg-\sqrt{b^2-4ac}\ g}\right]\right)\right/$$

$$\left(e\sqrt{\frac{-\frac{-b+\sqrt{b^2-4ac}}{2c}+x}{-\frac{-b+\sqrt{b^2-4ac}}{2c}-\frac{f}{g}}}\sqrt{\left(f+gx\right)\left(a+bx+cx^2\right)}\right)+$$

$$\left(2\left(-\frac{-b-\sqrt{b^2-4ac}}{2c}+\frac{-b+\sqrt{b^2-4ac}}{2c}\right)f^2\sqrt{-\frac{\left(-\frac{-b-\sqrt{b^2-4ac}}{2c}+x\right)\left(-\frac{-b+\sqrt{b^2-4ac}}{2c}+x\right)}{\left(-\frac{-b-\sqrt{b^2-4ac}}{2c}+\frac{-b+\sqrt{b^2-4ac}}{2c}\right)^2}}\right.$$

$$\sqrt{\frac{\frac{f}{g}+x}{\frac{-b+\sqrt{b^2-4ac}}{2c}+\frac{f}{g}}}\ \text{EllipticPi}\left[\frac{2\sqrt{b^2-4ac}\ e}{2cd-be+\sqrt{b^2-4ac}\ e},\text{ArcSin}\left[\frac{\sqrt{\frac{-b+\sqrt{b^2-4ac}-2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\frac{2\sqrt{b^2-4ac}\ g}{2cf-bg+\sqrt{b^2-4ac}\ g}\right]\right)\Big/\left(\left(\left(-d-\frac{\left(-b+\sqrt{b^2-4ac}\right)e}{2c}\right)\sqrt{\left(f+gx\right)\left(a+bx+cx^2\right)}\right)-\right.$$

$$\left(4\left(-\frac{-b-\sqrt{b^2-4ac}}{2c}+\frac{-b+\sqrt{b^2-4ac}}{2c}\right)dfg\sqrt{-\frac{\left(-\frac{-b-\sqrt{b^2-4ac}}{2c}+x\right)\left(-\frac{-b+\sqrt{b^2-4ac}}{2c}+x\right)}{\left(-\frac{-b-\sqrt{b^2-4ac}}{2c}+\frac{-b+\sqrt{b^2-4ac}}{2c}\right)^2}}\sqrt{\frac{\frac{f}{g}+x}{\frac{-b+\sqrt{b^2-4ac}}{2c}+\frac{f}{g}}}\,\text{EllipticPi}\left[\frac{2\sqrt{b^2-4ac}\,e}{2cd-be+\sqrt{b^2-4ac}\,e},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{-b+\sqrt{b^2-4ac}-2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],\frac{2\sqrt{b^2-4ac}\,g}{2cf-bg+\sqrt{b^2-4ac}\,g}\right]\right)\Bigg/$$

$$\left(e\left(-d-\frac{\left(-b+\sqrt{b^2-4ac}\right)e}{2c}\right)\sqrt{(f+gx)\left(a+bx+cx^2\right)}\right)+$$

$$\left(2\left(-\frac{-b-\sqrt{b^2-4ac}}{2c}+\frac{-b+\sqrt{b^2-4ac}}{2c}\right)d^2g^2\sqrt{-\frac{\left(-\frac{-b-\sqrt{b^2-4ac}}{2c}+x\right)\left(-\frac{-b+\sqrt{b^2-4ac}}{2c}+x\right)}{\left(-\frac{-b-\sqrt{b^2-4ac}}{2c}+\frac{-b+\sqrt{b^2-4ac}}{2c}\right)^2}}\sqrt{\frac{\frac{f}{g}+x}{\frac{-b+\sqrt{b^2-4ac}}{2c}+\frac{f}{g}}}\,\text{EllipticPi}\left[\frac{2\sqrt{b^2-4ac}\,e}{2cd-be+\sqrt{b^2-4ac}\,e},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{-b+\sqrt{b^2-4ac}-2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],\frac{2\sqrt{b^2-4ac}\,g}{2cf-bg+\sqrt{b^2-4ac}\,g}\right]\right)\Bigg/$$

$$\left(e^2\left(-d-\frac{\left(-b+\sqrt{b^2-4ac}\right)e}{2c}\right)\sqrt{(f+gx)\left(a+bx+cx^2\right)}\right)$$

Problem 908: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(f+gx)^{5/2}}{(d+ex)\sqrt{a+bx+cx^2}}\,dx$$

Optimal (type 4, 1138 leaves, 17 steps):

$$\frac{2g^2\sqrt{f+gx}\,\sqrt{a+bx+cx^2}}{3ce}+\left(2\sqrt{2}\,\sqrt{b^2-4ac}\,g\,(2cf-bg)\,\sqrt{f+gx}\,\sqrt{-\frac{c\left(a+bx+cx^2\right)}{b^2-4ac}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(3c^2e\sqrt{\frac{c(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{a+bx+cx^2}\right)+$$

$$\left(\sqrt{2}\,\sqrt{b^2-4ac}\,g\,(ef-dg)\,\sqrt{f+gx}\,\sqrt{-\frac{c\left(a+bx+cx^2\right)}{b^2-4ac}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(c\,e^2\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)+$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,g\,(e\,f-d\,g)^2\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}\,\text{EllipticF}\left[\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/\left(c\,e^3\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,g\,(c\,f^2-b\,f\,g+a\,g^2)\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}\right.$$

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

$$\left(3\,c^2\,e\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(\sqrt{2}\,\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}\,(e\,f-d\,g)^2\sqrt{1-\frac{2\,c\,(f+g\,x)}{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}}\right.$$

$$\left.\sqrt{1-\frac{2\,c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\text{EllipticPi}\left[\frac{e\left(2\,c\,f-b\,g+\sqrt{b^2-4\,a\,c}\,g\right)}{2\,c\,(e\,f-d\,g)},\right.\right.$$

$$\left.\text{ArcSin}\left[\frac{\sqrt{2}\,\sqrt{c}\,\sqrt{f+g\,x}}{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}}\right],\ \frac{b-\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}{b+\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}\right]\Big/\left(\sqrt{c}\,e^3\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 37 138 leaves) : Display of huge result suppressed !

Problem 909: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(d+e\,x)^3}{\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}\,\mathbb{d}x$$

Optimal (type 4, 631 leaves, 7 steps) :

$$-\frac{8\,e^2\,(c\,e\,f-3\,c\,d\,g+b\,e\,g)\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{15\,c^2\,g^2}+$$

$$\frac{2\,e^2\,(d+e\,x)\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{5\,c\,g}+\Bigg(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,e$$

$$\left(8\,b^2\,e^2\,g^2+c\,e\,g\,(7\,b\,e\,f-30\,b\,d\,g-9\,a\,e\,g)+c^2\,\left(8\,e^2\,f^2-30\,d\,e\,f\,g+45\,d^2\,g^2\right)\right)\sqrt{f+g\,x}$$

$$\sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\Bigg)\Bigg/$$

$$\left(15\,c^3\,g^3\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\Bigg(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\left(4\,b\,e^3\,g^2\,(b\,f-a\,g)+c^2\,\left(8\,e^3\,f^3-30\,d\,e^2\,f^2\,g+45\,d^2\,e\,f\,g^2-15\,d^3\,g^3\right)-$$

$$c\,e^2\,g\,(a\,g\,(7\,e\,f-15\,d\,g)-3\,b\,f\,(e\,f-5\,d\,g))\right)\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}$$

$$\sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\Bigg)\Bigg/$$

$$\left(15\,c^3\,g^3\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 12746 leaves):

$$\frac{\left(-\frac{2\,e^2\,(4\,c\,e\,f-15\,c\,d\,g+4\,b\,e\,g)}{15\,c^2\,g^2}+\frac{2\,e^3\,x}{5\,c\,g}\right)\sqrt{f+g\,x}\,\left(a+b\,x+c\,x^2\right)}{\sqrt{a+x\,(b+c\,x)}}-\frac{1}{15\,c^2\,g^4\,\sqrt{a+x\,(b+c\,x)}}\,2\sqrt{a+b\,x+c\,x^2}$$

$$\left(-\left(\left(e\left(8c^2e^2f^2-30c^2def g+7bce^2fg+45c^2d^2g^2-30bcdeg^2+8b^2e^2g^2-9ace^2g^2\right)\right.\right.\right.$$

$$\left.\left.\left.(f+gx)^{3/2}\left(c+\frac{cf^2}{(f+gx)^2}-\frac{bfg}{(f+gx)^2}+\frac{ag^2}{(f+gx)^2}-\frac{2cf}{f+gx}+\frac{bg}{f+gx}\right)\right)\Big/\right.\right.$$

$$\left.\left.\left(c\sqrt{\frac{(f+gx)^2\left(c\left(-1+\frac{f}{f+gx}\right)^2+\frac{g\left(b-\frac{bf}{f+gx}+\frac{ag}{f+gx}\right)}{f+gx}\right)}{g^2}}\right)\right)+\frac{1}{c\sqrt{\frac{(f+gx)^2\left(c\left(-1+\frac{f}{f+gx}\right)^2+\frac{g\left(b-\frac{bf}{f+gx}+\frac{ag}{f+gx}\right)}{f+gx}\right)}{g^2}}}$$

$$(f+gx)\sqrt{c+\frac{cf^2}{(f+gx)^2}-\frac{bfg}{(f+gx)^2}+\frac{ag^2}{(f+gx)^2}-\frac{2cf}{f+gx}+\frac{bg}{f+gx}}\left(\left(2i\sqrt{2}\,c^3e^3\right.\right.$$

$$f^4\left(2cf-bg+\sqrt{b^2g^2-4acg^2}\right)\sqrt{1-\frac{2\left(cf^2-bfg+ag^2\right)}{\left(2cf-bg-\sqrt{b^2g^2-4acg^2}\right)(f+gx)}}$$

$$\sqrt{1-\frac{2\left(cf^2-bfg+ag^2\right)}{\left(2cf-bg+\sqrt{b^2g^2-4acg^2}\right)(f+gx)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{cf^2-bfg+ag^2}{2cf-bg-\sqrt{b^2g^2-4acg^2}}}}{\sqrt{f+gx}}\right],\frac{2cf-bg-\sqrt{b^2g^2-4acg^2}}{2cf-bg+\sqrt{b^2g^2-4acg^2}}\right]-\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{cf^2-bfg+ag^2}{2cf-bg-\sqrt{b^2g^2-4acg^2}}}}{\sqrt{f+gx}}\right],\right.$$

$$\left.\left.\left.\left.\frac{2cf-bg-\sqrt{b^2g^2-4acg^2}}{2cf-bg+\sqrt{b^2g^2-4acg^2}}\right]\right)\right)\Big/\left(cf^2-bfg+ag^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(15\,i\,c^3$$

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

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i$$

$$\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(i\,b\,c^2\,e^3\,f^3\,g$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(45\,i\,c^3\,d^2\,e\,f^2\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(i\,b^2\,c\,e^3\,f^2\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i$$

$$\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(i\,a\,c^2\,e^3\,f^2\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(45\,i\,b\,c^2\,d^2\,e\,f\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big)\Big)\Big/$$

$$\Bigg(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(15\,i\,b^2\,c\,d\,e^2\,f\,g^3$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Big/\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(15\,i\,a\,c^2\,d\,e^2\,f\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(\sqrt{2}\ \left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(2\,i\,\sqrt{2}\ b^3\,e^3\,f\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(4\,i\,\sqrt{2}\;a\,b\,c\,e^3\,f\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Big/\Bigg(\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(45\,i\,a\,c^2\,d^2\,e\,g^4\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(15\,i\,a\,b\,c\,d\,e^2\,g^4\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(2\,i\,\sqrt{2}\,a\,b^2\,e^3\,g^4\,\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\,\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(9\,i\,a^2\,c\,e^3\,g^4\,\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\left.\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(4\,i\,\sqrt{2}\,c^3\,e^3\,f^3\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(15\,i\,\sqrt{2}\,c^3\,d\,e^2\,f^2\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(3\,i\,b\,c^2\,e^3\,f^2\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(45\,i\,c^3\,d^2\,e\,f\,g^2\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(15\,i\,b\,c^2\,d\,e^2\,f\,g^2\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(2\,i\,\sqrt{2}\,b^2\,c\,e^3\,f\,g^2\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(7\,i\,a\,c^2\,e^3\,f\,g^2\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(15\,i\,c^3\,d^3\,g^3\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(15\,i\,a\,c^2\,d\,e^2\,g^3\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(2\,i\,\sqrt{2}\,a\,b\,c\,e^3\,g^3\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left.\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)\right)$$

Problem 910: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(d+e\,x)^2}{\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}\,dx$$

Optimal (type 4, 479 leaves, 7 steps):

$$\frac{2\,e^2\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{3\,c\,g}\;-$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\;e\,\left(c\,e\,f-3\,c\,d\,g+b\,e\,g\right)\sqrt{f+g\,x}\,\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],\,-\frac{2\sqrt{b^2-4\,a\,c}\;g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(3\,c^2\,g^2\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)+$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\;\left(e^2\,g\,\left(b\,f-a\,g\right)+c\,\left(2\,e^2\,f^2-6\,d\,e\,f\,g+3\,d^2\,g^2\right)\right)\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\right.$$

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

$$\left(3\,c^2\,g^2\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 6194 leaves):

$$\frac{2\,e^2\,\sqrt{f+g\,x}\,\left(a+b\,x+c\,x^2\right)}{3\,c\,g\,\sqrt{a+x\,\left(b+c\,x\right)}}+$$

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

$$\left.\left.\left.\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\right)\Big/\right.$$

$$\left.\left(c\,\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)\right)+\frac{1}{c\,\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}$$

$$(f+g\,x)\,\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\left(\left(\left(i\,c^2\,e^2\,f^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\left.\left.\left.\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.\right.$$

$$\left.\left.\left.\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\Big/$$

$$\left(\sqrt{2}\,(c\,f^2-b\,f\,g+a\,g^2)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-\Bigg(3\,i\,c^2\,d\,e\,f^2\,g$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i$$

$$\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+\Bigg(3\,i\,b\,c\,d\,e\,f\,g^2$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\left(i\,b^2\,e^2\,f\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\left(i\,a\,c\,e^2\,f\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\right.\right.\right.$$

$$\left.\left.\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\right.$$

$$\left.\left.\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-\left(3\,i\,a\,c\,d\,e\,g^3\right.$$

$$\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(i\,a\,b\,e^2\,g^3\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\Bigg(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\Bigg(\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(i\,\sqrt{2}\,c^2\,e^2\,f^2\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(3\,i\,\sqrt{2}\,c^2\,d\,e\,f\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left.\left(\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+\right.$$

$$\left(i\,b\,c\,e^2\,f\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

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

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(i\,a\,c\,e^2\,g^2\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left.\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)\right)$$

Problem 911: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{d+e\,x}{\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}\,dx$$

Optimal (type 4, 393 leaves, 5 steps):

$$\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\;e\,\sqrt{f+g\,x}\,\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\,\sqrt{b^2-4\,a\,c}\;g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(c\,g\,\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(2\,\sqrt{2}\,\sqrt{b^2-4\,a\,c}\;\left(e\,f-d\,g\right)\sqrt{\frac{c\,\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\;\text{EllipticF}\left[\right.\right.$$

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

Result (type 4, 2732 leaves):

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

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

$$\left(f+g x\right)\sqrt{c+\frac{c f^2}{\left(f+g x\right)^2}-\frac{b f g}{\left(f+g x\right)^2}+\frac{a g^2}{\left(f+g x\right)^2}-\frac{2 c f}{f+g x}+\frac{b g}{f+g x}}$$

$$\left(\left(\left(i c e f^2\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)\left(f+g x\right)}}\right.\right.\right.$$

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

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]-\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\right.$$

$$\left.\left.\left.\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\right)\right)\Bigg/\left(2\sqrt{2}\left(c f^2-b f g+a g^2\right)\right.$$

$$\left.\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{c+\frac{c f^2-b f g+a g^2}{\left(f+g x\right)^2}+\frac{-2 c f+b g}{f+g x}}\right)-$$

$$\left(i b e f g\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)\left(f+g x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\left(i\,a\,e\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\right.$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/\left(2\sqrt{2}\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\right.$$

$$\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(i\,c\,e\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Big/$$

$$\Bigg(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(i\,c\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Big/$$

$$\Bigg(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\;\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)\Bigg)$$

Problem 912: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}\,dx$$

Optimal (type 4, 189 leaves, 2 steps):

$$\left(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\,\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\,g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/\left(c\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 308 leaves):

$$\left(i\,(f+g\,x)\,\sqrt{2-\frac{4\,\left(c\,f^2+g\,\left(-b\,f+a\,g\right)\right)}{\left(2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)\,(f+g\,x)}}\,\sqrt{1+\frac{2\,\left(c\,f^2+g\,\left(-b\,f+a\,g\right)\right)}{\left(-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)\,(f+g\,x)}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{\frac{c\,f^2-b\,f\,g+a\,g^2}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}}{\sqrt{f+g\,x}}\right],-\frac{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}{2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}\right]\right)\Big/\left(g\,\sqrt{\frac{c\,f^2+g\,\left(-b\,f+a\,g\right)}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}\,\sqrt{a+x\,\left(b+c\,x\right)}\right)$$

Problem 913: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(d+e\,x)\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}\,dx$$

Optimal (type 4, 280 leaves, 5 steps):

$$-\left(\left(\sqrt{2}\,\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}\,\sqrt{1-\frac{2\,c\,(f+g\,x)}{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}}\,\sqrt{1-\frac{2\,c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}}\right.\right.$$

$$\left.\left.\text{EllipticPi}\left[\frac{e\,\left(2\,c\,f-b\,g+\sqrt{b^2-4\,a\,c}\,g\right)}{2\,c\,(e\,f-d\,g)},\,\text{ArcSin}\left[\frac{\sqrt{2}\,\sqrt{c}\,\sqrt{f+g\,x}}{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)\,g}}\right],\,\frac{b-\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}{b+\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}\right]\right)\Big/\left(\sqrt{c}\,(e\,f-d\,g)\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 499 leaves):

$$\left(i\,(f+g\,x)\,\sqrt{2-\frac{4\,\left(c\,f^2+g\,\left(-b\,f+a\,g\right)\right)}{\left(2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)\,(f+g\,x)}}\,\sqrt{1+\frac{2\,\left(c\,f^2+g\,\left(-b\,f+a\,g\right)\right)}{\left(-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{\frac{c\,f^2-b\,f\,g+a\,g^2}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}}{\sqrt{f+g\,x}}\right],\,-\frac{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}{2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}\right]-\right.$$

$$\text{EllipticPi}\left[\frac{\left(e\,f-d\,g\right)\,\left(2\,c\,f-b\,g-\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)}{2\,e\,\left(c\,f^2+g\,\left(-b\,f+a\,g\right)\right)},\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{\frac{c\,f^2-b\,f\,g+a\,g^2}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}}{\sqrt{f+g\,x}}\right],\,-\frac{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}{2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}\right]\right)\Big/$$

$$\left.\left(\left(-e\,f+d\,g\right)\,\sqrt{\frac{c\,f^2+g\,\left(-b\,f+a\,g\right)}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}\,\sqrt{a+x\,\left(b+c\,x\right)}\right)\right.$$

Problem 914: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{(d+e\,x)^2\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}\,dx$$

Optimal (type 4, 1037 leaves, 15 steps):

$$-\frac{e^2\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}}{\left(c\,d^2-b\,d\,e+a\,e^2\right)\left(e\,f-d\,g\right)\left(d+e\,x\right)}+\left(\sqrt{b^2-4\,a\,c}\;e\,\sqrt{f+g\,x}\,\sqrt{-\frac{c\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\,\sqrt{b^2-4\,a\,c}\;g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(\sqrt{2}\,\left(c\,d^2-b\,d\,e+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{\frac{c\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\;e\,f\,\sqrt{\frac{c\left(f+g\,x\right)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{-\frac{c\left(a+b\,x+c\,x^2\right)}{b^2-4\,a\,c}}\right.$$

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

$$\left(\left(c\,d^2-b\,d\,e+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)+$$

$$\left(\sqrt{2}\,\sqrt{b^2-4ac}\;d\,g\,\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{-\frac{c\,\left(a+b\,x+c\,x^2\right)}{b^2-4ac}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\;g}{2\,c\,f-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(\left(c\,d^2-b\,d\,e+a\,e^2\right)\left(e\,f-d\,g\right)\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4ac}\right)g}\;\left(c\,d\left(2\,e\,f-3\,d\,g\right)-e\left(b\,e\,f-2\,b\,d\,g+a\,e\,g\right)\right)\right.$$

$$\sqrt{1-\frac{2\,c\,(f+g\,x)}{2\,c\,f-\left(b-\sqrt{b^2-4ac}\right)g}}\,\sqrt{1-\frac{2\,c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4ac}\right)g}}$$

$$\text{EllipticPi}\left[\frac{e\left(2\,c\,f-b\,g+\sqrt{b^2-4ac}\;g\right)}{2\,c\,(e\,f-d\,g)},\text{ArcSin}\left[\frac{\sqrt{2}\,\sqrt{c}\,\sqrt{f+g\,x}}{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4ac}\right)g}}\right],\right.$$

$$\left.\left.\frac{b-\sqrt{b^2-4ac}-\frac{2\,c\,f}{g}}{b+\sqrt{b^2-4ac}-\frac{2\,c\,f}{g}}\right]\right)\Big/\left(\sqrt{2}\,\sqrt{c}\,\left(c\,d^2-b\,d\,e+a\,e^2\right)\left(e\,f-d\,g\right)^2\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 10 881 leaves):

$$-\frac{e^2\sqrt{f+g\,x}\;\left(a+b\,x+c\,x^2\right)}{\left(c\,d^2-b\,d\,e+a\,e^2\right)\left(e\,f-d\,g\right)\left(d+e\,x\right)\sqrt{a+x\left(b+c\,x\right)}}+$$

$$\frac{1}{2\left(c\,d^2-b\,d\,e+a\,e^2\right)g\left(-e\,f+d\,g\right)\sqrt{a+x\left(b+c\,x\right)}}\sqrt{a+b\,x+c\,x^2}$$

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

$$2\,(e\,f-d\,g)\,(f+g\,x)\sqrt{c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\left(-\left(\left(\left(i\,c\,e\,f^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[\right.\right.$$

$$\left.\left.\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\Big/$$

$$\left(2\sqrt{2}\,(e\,f-d\,g)\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(i\,b\,e\,f\,g\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(2\sqrt{2}\,\left(e\,f-d\,g\right)\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\left(i\,a\,e\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(2\sqrt{2}\,\left(e\,f-d\,g\right)\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(i\,c\,e^2\,f^2\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticF}\Bigg[$$

$$i\,\text{ArcSinh}\Bigg[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Bigg],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\Bigg(\sqrt{2}$$

$$(e\,f-d\,g)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(i\,b\,e^2\,f\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticF}\Bigg[$$

$$i\,\text{ArcSinh}\Bigg[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Bigg],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\Bigg(\sqrt{2}$$

$$(e\,f-d\,g)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(i\,a\,e^2\,g^2\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticF}\Big[$$

$$i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big/\Bigg(\sqrt{2}$$

$$\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(i\,\sqrt{2}\ c\,e\,f\ \sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\Big[i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big/$$

$$\Bigg(\left(e\,f-d\,g\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(i\,\sqrt{2}\ c\,d\,g\ \sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\Big[i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Big/$$

$$\left((e f-d g)\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{c+\frac{c f^2-b f g+a g^2}{(f+g x)^2}+\frac{-2 c f+b g}{f+g x}}\right)+$$

$$\left(i\sqrt{2}\ b e g\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.$$

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

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\right)\Big/$$

$$\left((e f-d g)\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{c+\frac{c f^2-b f g+a g^2}{(f+g x)^2}+\frac{-2 c f+b g}{f+g x}}\right)-$$

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

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

$$\text{EllipticPi}\left[\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Big)\Big/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\right.\right.$$

$$\left(\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\Bigg)-\Bigg(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/\Bigg(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)+$$

$$\frac{1}{\left(e\,f-d\,g\right)^3}\,b\,e^3\,f\,g\Bigg(\Bigg(\Bigg(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(\left(i\,d\,g\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\;\text{EllipticPi}\Big[$$

$$\frac{(e\,f-d\,g)\,\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\,(c\,f^2-b\,f\,g+a\,g^2)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\right)\Big/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.\right.$$

$$\left.\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)\right)-$$

$$\frac{1}{(e\,f-d\,g)^3}\,a\,e^3\,g^2\left(\left(\left(i\,f\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.\right.\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\text{EllipticPi}\Big[\frac{(e\,f-d\,g)\,\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\,(c\,f^2-b\,f\,g+a\,g^2)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\right)-\left(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\ \text{EllipticPi}\Bigg[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)+$$

$$\frac{1}{(e\,f-d\,g)^2}\,2\,c\,e^2\,f\left(\left(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\text{EllipticPi}\left[\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\right.\right.$$

$$\left.\left.\frac{2 c f}{f+g x}+\frac{b g}{f+g x}\right)\right)-\left(i\,d g\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.$$

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\,\text{EllipticPi}\left[\right.$$

$$\left.\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\right.$$

$$\left.\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg/\left(\sqrt{2}\,e\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}+\frac{b g}{f+g x}\right)}\right)+$$

$$\frac{1}{(e f-d g)^2}2 c d e g\left(\left(i f\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-\Bigg(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/\Bigg(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-$$

$$\frac{1}{(e f-d g)^2}\,2 b e^2 g \left(\left(i f \sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.\right.$$

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

$$\text{EllipticPi}\left[\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\right.\right.$$

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

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\;\text{EllipticPi}\left[\right.$$

$$\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],$$

$$\left.\left.\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\right)\Bigg/\left(\sqrt{2}\,e\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\right.$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)\Bigg)-$$

$$\frac{1}{e\,f-d\,g}\,c\,e\left(\left(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(i\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\;\text{EllipticPi}\left[\right.$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\right.$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\left(\sqrt{2}\;e\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)\Bigg)\Bigg)\Bigg)$$

Problem 915: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{(d+e\,x)^3\sqrt{f+g\,x}\;\sqrt{a+b\,x+c\,x^2}}\,dx$$

Optimal (type 4, 1114 leaves, 25 steps):

$$-\frac{e^2\sqrt{f+g\,x}\;\sqrt{a+b\,x+c\,x^2}}{2\,(c\,d^2-b\,d\,e+a\,e^2)\,(e\,f-d\,g)\,(d+e\,x)^2}-$$

$$\left(3\,e^2\,(c\,d\,(2\,e\,f-3\,d\,g)-e\,(b\,e\,f-2\,b\,d\,g+a\,e\,g))\sqrt{f+g\,x}\;\sqrt{a+b\,x+c\,x^2}\right)\Big/$$

$$\left(4\,(c\,d^2-b\,d\,e+a\,e^2)^2\,(e\,f-d\,g)^2\,(d+e\,x)\right)+$$

$$\left(3\sqrt{b^2-4\,a\,c}\;e\,(c\,d\,(2\,e\,f-3\,d\,g)-e\,(b\,e\,f-2\,b\,d\,g+a\,e\,g))\sqrt{f+g\,x}\sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\;g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(4\sqrt{2}\;(c\,d^2-b\,d\,e+a\,e^2)^2\,(e\,f-d\,g)^2\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\sqrt{a+b\,x+c\,x^2}\right)+$$

$$\left(\sqrt{b^2-4ac}\,\left(cd\left(-6ef+7dg\right)+e\left(3bef-4bdg+aeg\right)\right)\sqrt{\frac{c\left(f+gx\right)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\right.$$

$$\left.\sqrt{\frac{c\left(a+x\left(b+cx\right)\right)}{-b^2+4ac}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],\frac{2\sqrt{b^2-4ac}\,g}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(2\sqrt{2}\,\left(cd^2+e\left(-bd+ae\right)\right)^2\left(ef-dg\right)\sqrt{f+gx}\,\sqrt{a+x\left(b+cx\right)}\right)+$$

$$\frac{1}{4\sqrt{2}\,\sqrt{c}\,\left(cd^2+e\left(-bd+ae\right)\right)^2\left(-ef+dg\right)^3\sqrt{a+x\left(b+cx\right)}}$$

$$\sqrt{2cf-bg+\sqrt{b^2-4ac}\,g}\,\left(c^2d^2\left(8e^2f^2-20defg+15d^2g^2\right)+\right.$$

$$2ce\left(bd\left(-4e^2f^2+11defg-10d^2g^2\right)+ae\left(-2e^2f^2+2defg+3d^2g^2\right)\right)+$$

$$\left.e^2\left(3a^2e^2g^2+2abeg\left(ef-4dg\right)+b^2\left(3e^2f^2-8defg+8d^2g^2\right)\right)\right)$$

$$\sqrt{\frac{g\left(-b+\sqrt{b^2-4ac}-2cx\right)}{2cf+\left(-b+\sqrt{b^2-4ac}\right)g}}\,\sqrt{\frac{g\left(b+\sqrt{b^2-4ac}+2cx\right)}{-2cf+\left(b+\sqrt{b^2-4ac}\right)g}}$$

$$\text{EllipticPi}\left[\frac{2cef-beg+\sqrt{b^2-4ac}\,eg}{2cef-2cdg},\right.$$

$$\left.\text{ArcSin}\left[\frac{\sqrt{2}\,\sqrt{c}\,\sqrt{f+gx}}{\sqrt{2cf-bg+\sqrt{b^2-4ac}\,g}}\right],\frac{2cf+\left(-b+\sqrt{b^2-4ac}\right)g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]$$

Result (type 4, 40 396 leaves) : Display of huge result suppressed !

Problem 916: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{\left(d+ex\right)\left(f+gx\right)^{3/2}\sqrt{a+bx+cx^2}}\,dx$$

Optimal (type 4, 553 leaves, 11 steps) :

$$\frac{2\,g^2\,\sqrt{a+b\,x+c\,x^2}}{(e\,f-d\,g)\,(c\,f^2-b\,f\,g+a\,g^2)\,\sqrt{f+g\,x}}-\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\;g\,\sqrt{f+g\,x}\,\sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\,\sqrt{b^2-4\,a\,c}\;g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left((e\,f-d\,g)\,(c\,f^2-b\,f\,g+a\,g^2)\,\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(\sqrt{2}\,e\,\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}\,\sqrt{1-\frac{2\,c\,(f+g\,x)}{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}}\right.$$

$$\sqrt{1-\frac{2\,c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\;\text{EllipticPi}\left[\frac{e\left(2\,c\,f-b\,g+\sqrt{b^2-4\,a\,c}\;g\right)}{2\,c\,(e\,f-d\,g)},\text{ArcSin}\left[\right.\right.$$

$$\left.\left.\frac{\sqrt{2}\,\sqrt{c}\,\sqrt{f+g\,x}}{\sqrt{2\,c\,f-\left(b-\sqrt{b^2-4\,a\,c}\right)g}}\right],\frac{b-\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}{b+\sqrt{b^2-4\,a\,c}-\frac{2\,c\,f}{g}}\right]\Big/\left(\sqrt{c}\,(e\,f-d\,g)^2\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 1061 leaves):

$$\frac{2\,g^2\,\left(a+b\,x+c\,x^2\right)}{(e\,f-d\,g)\,(c\,f^2-b\,f\,g+a\,g^2)\,\sqrt{f+g\,x}\,\sqrt{a+x\,(b+c\,x)}}+$$

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

$$\left.\left.\frac{1}{4\,(e\,f-d\,g)\,\sqrt{\frac{c\,f^2+g\,(-b\,f+a\,g)}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}\,\sqrt{f+g\,x}}\,i\,\sqrt{1-\frac{2\,\left(c\,f^2+g\,\left(-b\,f+a\,g\right)\right)}{\left(2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)\,(f+g\,x)}}\right.\right.$$

$$\sqrt{2+\frac{4\left(c\,f^2+g\left(-b\,f+a\,g\right)\right)}{\left(-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)\left(f+g\,x\right)}}$$

$$\left(\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)\left(\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{\frac{c\,f^2-b\,f\,g+a\,g^2}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}}{\sqrt{f+g\,x}}\right],-\frac{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}{2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}\right]-\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{\frac{c\,f^2-b\,f\,g+a\,g^2}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}}{\sqrt{f+g\,x}}\right],-\frac{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}{2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}\right]\right)-2\,e\left(c\,f^2+g\left(-b\,f+a\,g\right)\right)\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{\frac{c\,f^2-b\,f\,g+a\,g^2}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}}{\sqrt{f+g\,x}}\right],-\frac{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}{2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}\right]+2\,e\left(c\,f^2+g\left(-b\,f+a\,g\right)\right)\text{EllipticPi}\left[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)}{2\,e\left(c\,f^2+g\left(-b\,f+a\,g\right)\right)},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{\frac{c\,f^2-b\,f\,g+a\,g^2}{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}}{\sqrt{f+g\,x}}\right],-\frac{-2\,c\,f+b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}{2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}\right]\right)\Bigg/$$

$$\left(\left(-e\,f+d\,g\right)\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{a+x\left(b+c\,x\right)}\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)$$

Problem 917: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 1125 leaves, 18 steps):

$$\frac{2\,g^2\sqrt{a+b\,x+c\,x^2}}{3\,(e\,f-d\,g)\,(c\,f^2-b\,f\,g+a\,g^2)\,(f+g\,x)^{3/2}}+$$

$$\frac{4\,g^2\,(2\,c\,f-b\,g)\,\sqrt{a+b\,x+c\,x^2}}{3\,(e\,f-d\,g)\,(c\,f^2-b\,f\,g+a\,g^2)^2\sqrt{f+g\,x}}+\frac{2\,e\,g^2\sqrt{a+b\,x+c\,x^2}}{(e\,f-d\,g)^2\,(c\,f^2-b\,f\,g+a\,g^2)\,\sqrt{f+g\,x}}-$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4\,a\,c}\;g\,(2\,c\,f-b\,g)\,\sqrt{f+g\,x}\,\sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\;g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left(3\,(e\,f-d\,g)\,(c\,f^2-b\,f\,g+a\,g^2)^2\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)-$$

$$\left(\sqrt{2}\,\sqrt{b^2-4\,a\,c}\;e\,g\,\sqrt{f+g\,x}\,\sqrt{-\frac{c\,(a+b\,x+c\,x^2)}{b^2-4\,a\,c}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,x}{\sqrt{b^2-4\,a\,c}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4\,a\,c}\;g}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}\right]\right)\Big/$$

$$\left((e\,f-d\,g)^2\,(c\,f^2-b\,f\,g+a\,g^2)\sqrt{\frac{c\,(f+g\,x)}{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)g}}\,\sqrt{a+b\,x+c\,x^2}\right)+$$

$$\left(2\sqrt{2}\,\sqrt{b^2-4ac}\,g\sqrt{\frac{c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\sqrt{-\frac{c\,\left(a+bx+cx^2\right)}{b^2-4ac}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{b^2-4ac}+2cx}{\sqrt{b^2-4ac}}}}{\sqrt{2}}\right],-\frac{2\sqrt{b^2-4ac}\,g}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}\right]\right)\Big/$$

$$\left(3\,(ef-dg)\,\left(cf^2-bfg+ag^2\right)\sqrt{f+gx}\,\sqrt{a+bx+cx^2}\right)-$$

$$\left(\sqrt{2}\,e^2\sqrt{2cf-\left(b-\sqrt{b^2-4ac}\right)g}\sqrt{1-\frac{2c\,(f+gx)}{2cf-\left(b-\sqrt{b^2-4ac}\right)g}}\right.$$

$$\sqrt{1-\frac{2c\,(f+gx)}{2cf-\left(b+\sqrt{b^2-4ac}\right)g}}\,\text{EllipticPi}\left[\frac{e\left(2cf-bg+\sqrt{b^2-4ac}\,g\right)}{2c\,(ef-dg)},\text{ArcSin}\left[\right.\right.$$

$$\left.\left.\frac{\sqrt{2}\,\sqrt{c}\,\sqrt{f+gx}}{\sqrt{2cf-\left(b-\sqrt{b^2-4ac}\right)g}}\right],\frac{b-\sqrt{b^2-4ac}-\frac{2cf}{g}}{b+\sqrt{b^2-4ac}-\frac{2cf}{g}}\right]\Big/\left(\sqrt{c}\,(ef-dg)^3\sqrt{a+bx+cx^2}\right)$$

Result (type 4, 14 762 leaves) :

$$\frac{1}{\sqrt{a+x\,(b+cx)}}\sqrt{f+gx}\,\left(a+bx+cx^2\right)$$

$$\left(\frac{2g^2}{3\,(ef-dg)\,\left(cf^2-bfg+ag^2\right)\,(f+gx)^2}+\frac{2g^2\,\left(7cef^2-4cdfg-5befg+2bdg^2+3aeg^2\right)}{3\,(ef-dg)^2\,\left(cf^2-bfg+ag^2\right)^2\,(f+gx)}\right)+$$

$$\frac{1}{3\,(-ef+dg)^2\,\left(cf^2-bfg+ag^2\right)^2\sqrt{a+x\,(b+cx)}}$$

$$2\sqrt{a+bx+cx^2}\left(\left(-7cef^2+4cdfg+5befg-2bdg^2-3aeg^2\right)\right.$$

$$\left(f+g\,x\right)^{3/2}\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(f+g\,x\right)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)-\frac{1}{\sqrt{\frac{(f+g\,x)^2\left(c\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}}\left(e\,f-d\,g\right)$$

$$\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(f+g\,x\right)\sqrt{c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}}$$

$$\left(-\left(\left(\left(7\,i\,c\,e\,f^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\right)\Bigg/$$

$$\left(2\sqrt{2}\left(e\,f-d\,g\right)\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+\left(i\sqrt{2}\,c\,d\,f\,g\right.$$

$$\left.\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\left(e\,f-d\,g\right)\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(5\,\text{i}\,b\,e\,f\,g\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\left(\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]-\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(2\sqrt{2}\left(e\,f-d\,g\right)\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(i\,b\,d\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i$$

$$\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg)\Big/$$

$$\Bigg(\sqrt{2}\,(e\,f-d\,g)\left(c\,f^2-b\,f\,g+a\,g^2\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{(f+g\,x)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(3\,i\,a\,e\,g^2\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\Bigg(\text{EllipticE}\Big[i\,\text{ArcSinh}\Big[$$

$$\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]-\text{EllipticF}\Big[i$$

$$\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(2\sqrt{2}\,\left(e\,f-d\,g\right)\,\left(c\,f^2-b\,f\,g+a\,g^2\right)\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(7\,i\,c\,e^2\,f^2\,\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}\ \text{EllipticF}\Bigg[$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\Bigg(\sqrt{2}$$

$$\left(e\,f-d\,g\right)^2\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(2\,i\,\sqrt{2}\,c\,d\,e\,f\,g\,\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left((e f-d g)^2 \sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}} \sqrt{c+\frac{c f^2-b f g+a g^2}{(f+g x)^2}+\frac{-2 c f+b g}{f+g x}}\right)-$$

$$\left(5 i b e^2 f g \sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.$$

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\ \text{EllipticF}\Big[$$

$$i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\Big],\ \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\Big]\Big)\Big/\Bigg(\sqrt{2}$$

$$\left((e f-d g)^2 \sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}} \sqrt{c+\frac{c f^2-b f g+a g^2}{(f+g x)^2}+\frac{-2 c f+b g}{f+g x}}\right)+$$

$$\left(i \sqrt{2}\ b d e g^2 \sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.$$

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

$$\text{EllipticF}\Big[i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\Big],\ \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\Big]\Big)\Big/$$

$$\left((e f-d g)^2 \sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}} \sqrt{c+\frac{c f^2-b f g+a g^2}{(f+g x)^2}+\frac{-2 c f+b g}{f+g x}}\right)+$$

$$\left(3 i a e^2 g^2 \sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticF}\Big[$$

$$i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg/\Bigg(\sqrt{2}$$

$$\left(e\,f-d\,g\right)^2\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)-$$

$$\Bigg(5\,i\,c\,e\,f\ \sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\Big[i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg/$$

$$\Bigg(\sqrt{2}\ \left(e\,f-d\,g\right)\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\ \sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\Bigg)+$$

$$\Bigg(i\,c\,d\,g\ \sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticF}\Big[i\ \text{ArcSinh}\Big[\frac{\sqrt{2}\ \sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg/$$

$$\left(\sqrt{2}\,\left(e\,f-d\,g\right)\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)+$$

$$\left(i\,\sqrt{2}\,b\,e\,g\,\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}\right.$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\,\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\left(e\,f-d\,g\right)\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}}\right)-$$

$$\frac{1}{\left(e\,f-d\,g\right)^3}\,7\,c\,e^3\,f^2\left(\left(\left(i\,f\,\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}\right.\right.$$

$$\sqrt{1-\frac{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\left[\frac{\left(e\,f-d\,g\right)\,\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\,\left(c\,f^2-b\,f\,g+a\,g^2\right)},\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\,\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Big/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\right.\right.$$

$$\left(\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\Bigg)-\Bigg(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\;\text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/\Bigg(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)+$$

$$\frac{1}{\left(e\,f-d\,g\right)^3}\,4\,c\,d\,e^2\,f\,g\Bigg(\Bigg(\Bigg(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\;\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(\left(i\,d\,g\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\;\text{EllipticPi}\Big[$$

$$\frac{(e\,f-d\,g)\,\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\,(c\,f^2-b\,f\,g+a\,g^2)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\right)\Big/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.\right.$$

$$\left.\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)\right)+$$

$$\frac{1}{(e\,f-d\,g)^3}\,5\,b\,e^3\,f\,g\left(\left(\left(i\,f\,\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}\right.\right.\right.$$

$$\sqrt{1-\frac{2\,(c\,f^2-b\,f\,g+a\,g^2)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\,(f+g\,x)}}$$

$$\text{EllipticPi}\Big[\frac{(e\,f-d\,g)\,\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\,(c\,f^2-b\,f\,g+a\,g^2)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\right)-\left(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\ \text{EllipticPi}\Bigg[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-$$

$$\frac{1}{(e\,f-d\,g)^3}\,2\,b\,d\,e^2\,g^2\left(\left(i\,f\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\text{EllipticPi}\left[\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\right.\right.$$

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

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\,\text{EllipticPi}\left[\right.$$

$$\left.\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],\right.$$

$$\left.\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg/\left(\sqrt{2}\,e\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\frac{2 c f}{f+g x}+\frac{b g}{f+g x}\right)}\right)-$$

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

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\text{EllipticPi}\Big[\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\ \frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-\Bigg(i\,d\,g\,\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\left(f+g\,x\right)}}\ \text{EllipticPi}\Big[$$

$$\frac{\left(e\,f-d\,g\right)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/\Bigg(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{\left(f+g\,x\right)^2}-\frac{b\,f\,g}{\left(f+g\,x\right)^2}+\frac{a\,g^2}{\left(f+g\,x\right)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)+$$

$$\frac{1}{(e f-d g)^2} 5 c e^2 f \left(\left(i f \sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\right.\right.$$

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

$$\text{EllipticPi}\left[\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right], \frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\Bigg) \Bigg/$$

$$\left(\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\sqrt{\left(c+\frac{c f^2}{(f+g x)^2}-\frac{b f g}{(f+g x)^2}+\frac{a g^2}{(f+g x)^2}-\right.\right.$$

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

$$\sqrt{1-\frac{2\left(c f^2-b f g+a g^2\right)}{\left(2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}\right)(f+g x)}}\ \text{EllipticPi}\Bigg[$$

$$\frac{(e f-d g)\left(2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}\right)}{2 e\left(c f^2-b f g+a g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}}{\sqrt{f+g x}}\right],$$

$$\left.\left.\frac{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}{2 c f-b g+\sqrt{b^2 g^2-4 a c g^2}}\right]\right) \Bigg/ \left(\sqrt{2}\, e \sqrt{-\frac{c f^2-b f g+a g^2}{2 c f-b g-\sqrt{b^2 g^2-4 a c g^2}}}\right.$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-$$

$$\frac{1}{(e\,f-d\,g)^2}\,c\,d\,e\,g\left(\left(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\ \left.\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\right)\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(i\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\ \text{EllipticPi}\left[\right.$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],$$

$$\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Bigg]\Bigg/\Bigg(\sqrt{2}\;e\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}$$

$$\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\Bigg)-$$

$$\frac{1}{(e\,f-d\,g)^2}\,2\,b\,e^2\,g\Bigg(\Bigg(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\Big[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\Big],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\Big]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2}\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.$$

$$\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}-\Bigg(i\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\Big[$$

$$\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],$$

$$\left.\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/\left(\sqrt{2}\,e\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-$$

$$\frac{1}{e\,f-d\,g}\,c\,e\left(\left(i\,f\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.\right.$$

$$\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}$$

$$\text{EllipticPi}\left[\frac{(e\,f-d\,g)\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)}{2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}}{\sqrt{f+g\,x}}\right],\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}\right]\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{-\frac{c\,f^2-b\,f\,g+a\,g^2}{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}}\,\sqrt{\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\right.\right.$$

$$\left.\left.\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)}\right)-\left(i\,d\,g\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\right.$$

$$\left.\sqrt{1-\frac{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}{\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)(f+g\,x)}}\;\text{EllipticPi}\left[\right.\right.$$

$$\frac{(e f - d g)\left(2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}\right)}{2 e \left(c f^2 - b f g + a g^2\right)},$$

$$i \operatorname{ArcSinh}\left[\frac{\sqrt{2}\sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}}{\sqrt{f + g x}}\right],$$

$$\frac{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}{2 c f - b g + \sqrt{b^2 g^2 - 4 a c g^2}}\Bigg] \Bigg/ \Bigg(\sqrt{2}\, e \sqrt{-\frac{c f^2 - b f g + a g^2}{2 c f - b g - \sqrt{b^2 g^2 - 4 a c g^2}}}$$

$$\sqrt{\left(c + \frac{c f^2}{(f + g x)^2} - \frac{b f g}{(f + g x)^2} + \frac{a g^2}{(f + g x)^2} - \frac{2 c f}{f + g x} + \frac{b g}{f + g x}\right)}\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 918: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{d + e x}}{\sqrt{f + g x}\ \sqrt{a + b x + c x^2}}\, dx$$

Optimal (type 4, 475 leaves, 1 step):

$$\left(\sqrt{2}\,\sqrt{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}\,\sqrt{b-\sqrt{b^2-4\,a\,c}+2\,c\,x}\right.$$

$$\sqrt{\frac{(e\,f-d\,g)\,\left(b+\sqrt{b^2-4\,a\,c}+2\,c\,x\right)}{\left(2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g\right)\,(d+e\,x)}}\,\sqrt{\frac{(e\,f-d\,g)\,\left(2\,a+\left(b+\sqrt{b^2-4\,a\,c}\right)\,x\right)}{\left(b\,f+\sqrt{b^2-4\,a\,c}\,f-2\,a\,g\right)\,(d+e\,x)}}\,(d+e\,x)$$

$$\text{EllipticPi}\left[\frac{e\,\left(2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g\right)}{\left(2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e\right)\,g},\,\text{ArcSin}\left[\frac{\sqrt{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e}\,\sqrt{f+g\,x}}{\sqrt{2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g}\,\sqrt{d+e\,x}}\right],\right.$$

$$\left.\left.\frac{\left(b\,d+\sqrt{b^2-4\,a\,c}\,d-2\,a\,e\right)\,\left(2\,c\,f-\left(b+\sqrt{b^2-4\,a\,c}\right)\,g\right)}{\left(2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e\right)\,\left(b\,f+\sqrt{b^2-4\,a\,c}\,f-2\,a\,g\right)}\right]\right/$$

$$\left(\sqrt{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e}\,g\,\sqrt{\frac{2\,a\,c}{b+\sqrt{b^2-4\,a\,c}}+c\,x}\,\sqrt{a+b\,x+c\,x^2}\right)$$

Result (type 4, 2493 leaves):

$$-\left(\left(\left(2\,\sqrt{f+g\,x}\,\sqrt{a+b\,x+c\,x^2}\right.\right.\right.$$

$$\sqrt{\left(\left(c+\frac{c\,f^2}{(f+g\,x)^2}-\frac{b\,f\,g}{(f+g\,x)^2}+\frac{a\,g^2}{(f+g\,x)^2}-\frac{2\,c\,f}{f+g\,x}+\frac{b\,g}{f+g\,x}\right)\,\left(e-\frac{e\,f}{f+g\,x}+\frac{d\,g}{f+g\,x}\right)\right)}$$

$$\left.\left.\sqrt{d+\frac{(f+g\,x)\,\left(e-\frac{e\,f}{f+g\,x}\right)}{g}}\right)\right/$$

$$\left(-\left(\left(\left(e\,f\,\sqrt{\frac{-\frac{e}{e\,f-d\,g}+\frac{1}{f+g\,x}}{-\frac{e}{e\,f-d\,g}+\frac{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}}}\,\sqrt{\frac{-\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}+\frac{1}{f+g\,x}}{-\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}+\frac{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\,\left(c\,f^2-b\,f\,g+a\,g^2\right)}}}\right.\right.\right.\right.$$

$$\left(-\frac{2cf-bg+\sqrt{b^2g^2-4acg^2}}{2\left(cf^2-bfg+ag^2\right)}+\frac{1}{f+gx}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{2cf-bg+\sqrt{\left(b^2-4ac\right)g^2}-\frac{2cf^2}{f+gx}+\frac{2bfg}{f+gx}-\frac{2ag^2}{f+gx}}{\sqrt{\left(b^2-4ac\right)g^2}}}}{\sqrt{2}}\right],\left(2\sqrt{\left(b^2-4ac\right)g^2}\left(ef-dg\right)\right)\Big/\left(-2cdfg+befg+bdg^2-2aeg^2+ef\sqrt{\left(b^2-4ac\right)g^2}-dg\sqrt{\left(b^2-4ac\right)g^2}\right)\right]\Bigg/\left(\sqrt{\frac{-\frac{2cf-bg+\sqrt{b^2g^2-4acg^2}}{2\left(cf^2-bfg+ag^2\right)}+\frac{1}{f+gx}}{\frac{2cf-bg-\sqrt{b^2g^2-4acg^2}}{2\left(cf^2-bfg+ag^2\right)}-\frac{2cf-bg+\sqrt{b^2g^2-4acg^2}}{2\left(cf^2-bfg+ag^2\right)}}}\sqrt{\left(c+\frac{cf^2-bfg+ag^2}{\left(f+gx\right)^2}+\frac{-2cf+bg}{f+gx}\right)\left(e+\frac{-ef+dg}{f+gx}\right)}\right)+$$

$$\left(dg\sqrt{\frac{-\frac{e}{ef-dg}+\frac{1}{f+gx}}{-\frac{e}{ef-dg}+\frac{2cf-bg+\sqrt{b^2g^2-4acg^2}}{2\left(cf^2-bfg+ag^2\right)}}}\sqrt{\frac{-\frac{2cf-bg-\sqrt{b^2g^2-4acg^2}}{2\left(cf^2-bfg+ag^2\right)}+\frac{1}{f+gx}}{-\frac{2cf-bg-\sqrt{b^2g^2-4acg^2}}{2\left(cf^2-bfg+ag^2\right)}+\frac{2cf-bg+\sqrt{b^2g^2-4acg^2}}{2\left(cf^2-bfg+ag^2\right)}}}\left(-\frac{2cf-bg+\sqrt{b^2g^2-4acg^2}}{2\left(cf^2-bfg+ag^2\right)}+\frac{1}{f+gx}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{2cf-bg+\sqrt{\left(b^2-4ac\right)g^2}-\frac{2cf^2}{f+gx}+\frac{2bfg}{f+gx}-\frac{2ag^2}{f+gx}}{\sqrt{\left(b^2-4ac\right)g^2}}}}{\sqrt{2}}\right],\left(2\sqrt{\left(b^2-4ac\right)g^2}\left(ef-dg\right)\right)\Big/\right.$$

$$\left(-2\,c\,d\,f\,g+b\,e\,f\,g+b\,d\,g^2-2\,a\,e\,g^2+e\,f\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\;-d\,g\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)\Bigg]\Bigg/$$

$$\left(\sqrt{\frac{-\frac{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}+\frac{1}{f+g\,x}}{\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}-\frac{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}}}\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}\right)\left(e+\frac{-e\,f+d\,g}{f+g\,x}\right)}\right)-$$

$$\left(2\,e\left(c\,f^2-b\,f\,g+a\,g^2\right)\left(-\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}+\frac{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}\right)\right.$$

$$\sqrt{\frac{-\frac{e}{e\,f-d\,g}+\frac{1}{f+g\,x}}{-\frac{e}{e\,f-d\,g}+\frac{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}}}\sqrt{\left(-\left(\left(\left(-\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}+\frac{1}{f+g\,x}\right)\right.\right.\right.\right.$$

$$\left.\left.\left.\left(-\frac{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}+\frac{1}{f+g\,x}\right)\right)\Bigg/\right.$$

$$\left.\left.\left(-\frac{2\,c\,f-b\,g-\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}+\frac{2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}}{2\left(c\,f^2-b\,f\,g+a\,g^2\right)}\right)^2\right)\right)$$

$$\text{EllipticPi}\left[\frac{2\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}{2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{2\,c\,f-b\,g+\sqrt{\left(b^2-4\,a\,c\right)\,g^2}-\frac{2\,c\,f^2}{f+g\,x}+\frac{2\,b\,f\,g}{f+g\,x}-\frac{2\,a\,g^2}{f+g\,x}}{\sqrt{\left(b^2-4\,a\,c\right)\,g^2}}}}{\sqrt{2}}\right],\right.$$

$$\left(2\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\;\left(e\,f-d\,g\right)\right)\Big/\left(-2\,c\,d\,f\,g+b\,e\,f\,g+b\,d\,g^2-2\,a\,e\,g^2+\right.$$

$$\left. e\,f\,\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\,-d\,g\,\sqrt{\left(b^2-4\,a\,c\right)\,g^2}\right)\Big]\Big/\left(\left(2\,c\,f-b\,g+\sqrt{b^2\,g^2-4\,a\,c\,g^2}\right)\right.$$

$$\left.\sqrt{\left(c+\frac{c\,f^2-b\,f\,g+a\,g^2}{\left(f+g\,x\right)^2}+\frac{-2\,c\,f+b\,g}{f+g\,x}\right)\,\left(e+\frac{-e\,f+d\,g}{f+g\,x}\right)}\right)\Big)\Big/$$

$$\left(g\,\sqrt{a+x\,\left(b+c\,x\right)}\,\left(e-\frac{e\,f}{f+g\,x}+\frac{d\,g}{f+g\,x}\right)\,\sqrt{\frac{\left(f+g\,x\right)^2\,\left(c\,\left(-1+\frac{f}{f+g\,x}\right)^2+\frac{g\,\left(b-\frac{b\,f}{f+g\,x}+\frac{a\,g}{f+g\,x}\right)}{f+g\,x}\right)}{g^2}}\right)$$

Problem 923: Unable to integrate problem.

$$\int\frac{\left(d+e\,x\right)^m\,\left(a+b\,x+c\,x^2\right)}{\left(f+g\,x\right)^2}\,\mathbb{d}x$$

Optimal (type 5, 157 leaves, 3 steps):

$$\frac{c\,\left(d+e\,x\right)^{1+m}}{e\,g^2\,\left(1+m\right)}+\frac{\left(a+\frac{f\,\left(c\,f-b\,g\right)}{g^2}\right)\,\left(d+e\,x\right)^{1+m}}{\left(e\,f-d\,g\right)\,\left(f+g\,x\right)}+$$

$$\left(\left(c\,f\,\left(2\,d\,g-e\,f\,\left(2+m\right)\right)-g\,\left(a\,e\,g\,m+b\,\left(d\,g-e\,f\,\left(1+m\right)\right)\right)\right)\,\left(d+e\,x\right)^{1+m}\right.$$

$$\left.\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{g\,\left(d+e\,x\right)}{e\,f-d\,g}\right]\right)\Big/\left(g^2\,\left(e\,f-d\,g\right)^2\,\left(1+m\right)\right)$$

Result (type 8, 27 leaves):

$$\int\frac{\left(d+e\,x\right)^m\,\left(a+b\,x+c\,x^2\right)}{\left(f+g\,x\right)^2}\,\mathbb{d}x$$

Problem 924: Unable to integrate problem.

$$\int\frac{\left(d+e\,x\right)^m\,\left(a+b\,x+c\,x^2\right)}{\left(f+g\,x\right)^3}\,\mathbb{d}x$$

Optimal (type 5, 245 leaves, 3 steps):

$$\frac{\left(a+\frac{f\,(c\,f-b\,g)}{g^2}\right)\,(d+e\,x)^{1+m}}{2\,(e\,f-d\,g)\,(f+g\,x)^2}+\left(\left(c\,f\,(4\,d\,g-e\,f\,(3+m))+g\,(a\,e\,g\,(1-m)-b\,(2\,d\,g-e\,f\,(1+m)))\right)\,(d+e\,x)^{1+m}\right)\Big/\left(2\,g^2\,(e\,f-d\,g)^2\,(f+g\,x)\right)+\left(\left(c\,\left(2\,d^2\,g^2-4\,d\,e\,f\,g\,(1+m)+e^2\,f^2\,\left(2+3\,m+m^2\right)\right)-e\,g\,m\,(a\,e\,g\,(1-m)-b\,(2\,d\,g-e\,f\,(1+m)))\right)\right.$$
$$\left.(d+e\,x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{g\,(d+e\,x)}{e\,f-d\,g}\right]\right)\Big/\left(2\,g^2\,(e\,f-d\,g)^3\,(1+m)\right)$$

Result (type 8, 27 leaves):

$$\int\frac{(d+e\,x)^m\,\left(a+b\,x+c\,x^2\right)}{(f+g\,x)^3}\,dx$$

Problem 925: Result more than twice size of optimal antiderivative.

$$\int(d+e\,x)^m\,(f+g\,x)^2\,\left(a+b\,x+c\,x^2\right)^2\,dx$$

Optimal (type 3, 525 leaves, 2 steps):

$$\frac{\left(c\,d^2-b\,d\,e+a\,e^2\right)^2\,(e\,f-d\,g)^2\,(d+e\,x)^{1+m}}{e^7\,(1+m)}-\frac{1}{e^7\,(2+m)}2\,\left(c\,d^2-b\,d\,e+a\,e^2\right)\,(e\,f-d\,g)\,(c\,d\,(2\,e\,f-3\,d\,g)-e\,(b\,e\,f-2\,b\,d\,g+a\,e\,g))\,(d+e\,x)^{2+m}+\frac{1}{e^7\,(3+m)}\left(c^2\,d^2\,\left(6\,e^2\,f^2-20\,d\,e\,f\,g+15\,d^2\,g^2\right)+e^2\,\left(a^2\,e^2\,g^2+2\,a\,b\,e\,g\,(2\,e\,f-3\,d\,g)+b^2\,\left(e^2\,f^2-6\,d\,e\,f\,g+6\,d^2\,g^2\right)\right)+2\,c\,e\,\left(a\,e\,\left(e^2\,f^2-6\,d\,e\,f\,g+6\,d^2\,g^2\right)-b\,d\,\left(3\,e^2\,f^2-12\,d\,e\,f\,g+10\,d^2\,g^2\right)\right)\right)\,(d+e\,x)^{3+m}+\frac{1}{e^7\,(4+m)}2\,\left(b\,e^2\,g\,(b\,e\,f-2\,b\,d\,g+a\,e\,g)-2\,c^2\,d\,\left(e^2\,f^2-5\,d\,e\,f\,g+5\,d^2\,g^2\right)+c\,e\,\left(2\,a\,e\,g\,(e\,f-2\,d\,g)+b\,\left(e^2\,f^2-8\,d\,e\,f\,g+10\,d^2\,g^2\right)\right)\right)\,(d+e\,x)^{4+m}+\frac{1}{e^7\,(5+m)}\left(b^2\,e^2\,g^2+2\,c\,e\,g\,(2\,b\,e\,f-5\,b\,d\,g+a\,e\,g)+c^2\,\left(e^2\,f^2-10\,d\,e\,f\,g+15\,d^2\,g^2\right)\right)\,(d+e\,x)^{5+m}+\frac{2\,c\,g\,(c\,e\,f-3\,c\,d\,g+b\,e\,g)\,(d+e\,x)^{6+m}}{e^7\,(6+m)}+\frac{c^2\,g^2\,(d+e\,x)^{7+m}}{e^7\,(7+m)}$$

Result (type 3, 1263 leaves):

$$\frac{1}{e^7 (1+m)(2+m)(3+m)(4+m)(5+m)(6+m)(7+m)}$$
$$(d+e\,x)^{1+m}\Big(c^2\big(720\,d^6\,g^2-240\,d^5\,e\,g\,(f(7+m)+3\,g(1+m)\,x)+24\,d^4\,e^2\,(f^2(42+13\,m+m^2)+10\,f\,g(7+8\,m+m^2)\,x+15\,g^2(2+3\,m+m^2)\,x^2)-24\,d^3\,e^3(1+m)\,x\,(f^2(42+13\,m+m^2)+5\,f\,g(14+9\,m+m^2)\,x+5\,g^2(6+5\,m+m^2)\,x^2)+2\,d^2\,e^4(2+3\,m+m^2)\,x^2\,(6\,f^2(42+13\,m+m^2)+20\,f\,g(21+10\,m+m^2)\,x+15\,g^2(12+7\,m+m^2)\,x^2)-2\,d\,e^5(6+11\,m+6\,m^2+m^3)\,x^3\,(2\,f^2(42+13\,m+m^2)+5\,f\,g(28+11\,m+m^2)\,x+3\,g^2(20+9\,m+m^2)\,x^2)+e^6(24+50\,m+35\,m^2+10\,m^3+m^4)\,x^4\,(f^2(42+13\,m+m^2)+2\,f\,g(35+12\,m+m^2)\,x+g^2(30+11\,m+m^2)\,x^2)\big)+e^2(42+13\,m+m^2)\big(a^2\,e^2(20+9\,m+m^2)\,(2\,d^2\,g^2-2\,d\,e\,g\,(f(3+m)+g(1+m)\,x)+e^2(f^2(6+5\,m+m^2)+2\,f\,g(3+4\,m+m^2)\,x+g^2(2+3\,m+m^2)\,x^2))+2\,a\,b\,e(5+m)\,(-6\,d^3\,g^2+2\,d^2\,e\,g\,(2\,f(4+m)+3\,g(1+m)\,x)-d\,e^2\,(f^2(12+7\,m+m^2)+4\,f\,g(4+5\,m+m^2)\,x+3\,g^2(2+3\,m+m^2)\,x^2)+e^3(1+m)\,x\,(f^2(12+7\,m+m^2)+2\,f\,g(8+6\,m+m^2)\,x+g^2(6+5\,m+m^2)\,x^2))+b^2\,(24\,d^4\,g^2-12\,d^3\,e\,g\,(f(5+m)+2\,g(1+m)\,x)+2\,d^2\,e^2\,(f^2(20+9\,m+m^2)+6\,f\,g(5+6\,m+m^2)\,x+6\,g^2(2+3\,m+m^2)\,x^2)-2\,d\,e^3(1+m)\,x\,(f^2(20+9\,m+m^2)+3\,f\,g(10+7\,m+m^2)\,x+2\,g^2(6+5\,m+m^2)\,x^2)+e^4(2+3\,m+m^2)\,x^2\,(f^2(20+9\,m+m^2)+2\,f\,g(15+8\,m+m^2)\,x+g^2(12+7\,m+m^2)\,x^2))\big)+2\,c\,e(7+m)\,\big(a\,e(6+m)\,(24\,d^4\,g^2-12\,d^3\,e\,g\,(f(5+m)+2\,g(1+m)\,x)+2\,d^2\,e^2\,(f^2(20+9\,m+m^2)+6\,f\,g(5+6\,m+m^2)\,x+6\,g^2(2+3\,m+m^2)\,x^2)-2\,d\,e^3(1+m)\,x\,(f^2(20+9\,m+m^2)+3\,f\,g(10+7\,m+m^2)\,x+2\,g^2(6+5\,m+m^2)\,x^2)+e^4(2+3\,m+m^2)\,x^2\,(f^2(20+9\,m+m^2)+2\,f\,g(15+8\,m+m^2)\,x+g^2(12+7\,m+m^2)\,x^2))+b\,(-120\,d^5\,g^2+24\,d^4\,e\,g\,(2\,f(6+m)+5\,g(1+m)\,x)-6\,d^3\,e^2\,(f^2(30+11\,m+m^2)+8\,f\,g(6+7\,m+m^2)\,x+10\,g^2(2+3\,m+m^2)\,x^2)+2\,d^2\,e^3(1+m)\,x\,(3\,f^2(30+11\,m+m^2)+12\,f\,g(12+8\,m+m^2)\,x+10\,g^2(6+5\,m+m^2)\,x^2)-d\,e^4(2+3\,m+m^2)\,x^2\,(3\,f^2(30+11\,m+m^2)+8\,f\,g(18+9\,m+m^2)\,x+5\,g^2(12+7\,m+m^2)\,x^2)+e^5(6+11\,m+6\,m^2+m^3)\,x^3\,(f^2(30+11\,m+m^2)+2\,f\,g(24+10\,m+m^2)\,x+g^2(20+9\,m+m^2)\,x^2))\big)\big)$$

Problem 927: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(d+e\,x)^m\,(a+b\,x+c\,x^2)^2}{f+g\,x}\,dx$$

Optimal (type 5, 287 leaves, 4 steps):

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

Result (type 6, 733 leaves):

$$\left(3 a b d f x^2 (d + e x)^m \text{AppellF1}\left[2, -m, 1, 3, -\frac{e x}{d}, -\frac{g x}{f}\right]\right) \Big/ \left((f + g x) \left(3 d f \text{AppellF1}\left[2, -m, 1, 3, -\frac{e x}{d}, -\frac{g x}{f}\right] + e f m x \text{AppellF1}\left[3, 1-m, 1, 4, -\frac{e x}{d}, -\frac{g x}{f}\right] - d g x \text{AppellF1}\left[3, -m, 2, 4, -\frac{e x}{d}, -\frac{g x}{f}\right]\right)\right) +$$
$$\left(4 b^2 d f x^3 (d + e x)^m \text{AppellF1}\left[3, -m, 1, 4, -\frac{e x}{d}, -\frac{g x}{f}\right]\right) \Big/ \left(3 (f + g x) \left(4 d f \text{AppellF1}\left[3, -m, 1, 4, -\frac{e x}{d}, -\frac{g x}{f}\right] + e f m x \text{AppellF1}\left[4, 1-m, 1, 5, -\frac{e x}{d}, -\frac{g x}{f}\right] - d g x \text{AppellF1}\left[4, -m, 2, 5, -\frac{e x}{d}, -\frac{g x}{f}\right]\right)\right) +$$
$$\left(8 a c d f x^3 (d + e x)^m \text{AppellF1}\left[3, -m, 1, 4, -\frac{e x}{d}, -\frac{g x}{f}\right]\right) \Big/ \left(3 (f + g x) \left(4 d f \text{AppellF1}\left[3, -m, 1, 4, -\frac{e x}{d}, -\frac{g x}{f}\right] + e f m x \text{AppellF1}\left[4, 1-m, 1, 5, -\frac{e x}{d}, -\frac{g x}{f}\right] - d g x \text{AppellF1}\left[4, -m, 2, 5, -\frac{e x}{d}, -\frac{g x}{f}\right]\right)\right) +$$
$$\left(5 b c d f x^4 (d + e x)^m \text{AppellF1}\left[4, -m, 1, 5, -\frac{e x}{d}, -\frac{g x}{f}\right]\right) \Big/ \left(2 (f + g x) \left(5 d f \text{AppellF1}\left[4, -m, 1, 5, -\frac{e x}{d}, -\frac{g x}{f}\right] + e f m x \text{AppellF1}\left[5, 1-m, 1, 6, -\frac{e x}{d}, -\frac{g x}{f}\right] - d g x \text{AppellF1}\left[5, -m, 2, 6, -\frac{e x}{d}, -\frac{g x}{f}\right]\right)\right) +$$
$$\left(6 c^2 d f x^5 (d + e x)^m \text{AppellF1}\left[5, -m, 1, 6, -\frac{e x}{d}, -\frac{g x}{f}\right]\right) \Big/ \left(5 (f + g x) \left(6 d f \text{AppellF1}\left[5, -m, 1, 6, -\frac{e x}{d}, -\frac{g x}{f}\right] + e f m x \text{AppellF1}\left[6, 1-m, 1, 7, -\frac{e x}{d}, -\frac{g x}{f}\right] - d g x \text{AppellF1}\left[6, -m, 2, 7, -\frac{e x}{d}, -\frac{g x}{f}\right]\right)\right) +$$
$$\frac{1}{g m} a^2 \left(1 + \frac{\left(d - \frac{e f}{g}\right) g}{e (f + g x)}\right)^{-m} \left(d - \frac{e f}{g} + \frac{e (f + g x)}{g}\right)^m \text{Hypergeometric2F1}\left[-m, -m, 1-m, -\frac{\left(d - \frac{e f}{g}\right) g}{e (f + g x)}\right]$$

Problem 928: Unable to integrate problem.

$$\int \frac{(d+e\,x)^m\,(a+b\,x+c\,x^2)^2}{(f+g\,x)^2}\,dx$$

Optimal (type 5, 298 leaves, 4 steps):

$$\frac{1}{e^3\,g^4\,(1+m)}\left(b^2\,e^2\,g^2+c^2\,\left(3\,e^2\,f^2+2\,d\,e\,f\,g+d^2\,g^2\right)+2\,c\,e\,g\,\left(a\,e\,g-b\,\left(2\,e\,f+d\,g\right)\right)\right)\,(d+e\,x)^{1+m}-$$

$$\frac{2\,c\,\left(c\,e\,f+c\,d\,g-b\,e\,g\right)\,(d+e\,x)^{2+m}}{e^3\,g^3\,(2+m)}+\frac{c^2\,(d+e\,x)^{3+m}}{e^3\,g^2\,(3+m)}+\frac{\left(c\,f^2-b\,f\,g+a\,g^2\right)^2\,(d+e\,x)^{1+m}}{g^4\,(e\,f-d\,g)\,(f+g\,x)}+$$

$$\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\,\left(c\,f\,\left(4\,d\,g-e\,f\,(4+m)\right)-g\,\left(a\,e\,g\,m+b\,\left(2\,d\,g-e\,f\,\left(2+m\right)\right)\right)\right)\,(d+e\,x)^{1+m}\right.$$

$$\left.\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{g\,(d+e\,x)}{e\,f-d\,g}\right]\right)\Big/\left(g^4\,(e\,f-d\,g)^2\,(1+m)\right)$$

Result (type 8, 29 leaves):

$$\int \frac{(d+e\,x)^m\,(a+b\,x+c\,x^2)^2}{(f+g\,x)^2}\,dx$$

Problem 929: Unable to integrate problem.

$$\int \frac{(d+e\,x)^m\,(a+b\,x+c\,x^2)^2}{(f+g\,x)^3}\,dx$$

Optimal (type 5, 461 leaves, 5 steps):

$$-\frac{c\,\left(3\,c\,e\,f+c\,d\,g-2\,b\,e\,g\right)\,(d+e\,x)^{1+m}}{e^2\,g^4\,(1+m)}+\frac{c^2\,(d+e\,x)^{2+m}}{e^2\,g^3\,(2+m)}+\frac{\left(c\,f^2-b\,f\,g+a\,g^2\right)^2\,(d+e\,x)^{1+m}}{2\,g^4\,(e\,f-d\,g)\,(f+g\,x)^2}+$$

$$\left(\left(c\,f^2-b\,f\,g+a\,g^2\right)\,\left(c\,f\,\left(8\,d\,g-e\,f\,(7+m)\right)+g\,\left(a\,e\,g\,(1-m)-b\,\left(4\,d\,g-e\,f\,\left(3+m\right)\right)\right)\right)\,(d+e\,x)^{1+m}\right)\Big/$$

$$\left(2\,g^4\,(e\,f-d\,g)^2\,(f+g\,x)\right)+\frac{1}{2\,g^4\,(e\,f-d\,g)^3\,(1+m)}$$

$$\left(c^2\,f^2\,\left(12\,d^2\,g^2-8\,d\,e\,f\,g\,\left(3+m\right)+e^2\,f^2\,\left(12+7\,m+m^2\right)\right)-g^2\,\left(a^2\,e^2\,g^2\,(1-m)\,m-\right.\right.$$

$$\left.2\,a\,b\,e\,g\,m\,\left(2\,d\,g-e\,f\,\left(1+m\right)\right)-b^2\,\left(2\,d^2\,g^2-4\,d\,e\,f\,g\,\left(1+m\right)+e^2\,f^2\,\left(2+3\,m+m^2\right)\right)\right)+$$

$$2\,c\,g\,\left(a\,g\,\left(2\,d^2\,g^2-4\,d\,e\,f\,g\,\left(1+m\right)+e^2\,f^2\,\left(2+3\,m+m^2\right)\right)-\right.$$

$$\left.\left.b\,f\,\left(6\,d^2\,g^2-6\,d\,e\,f\,g\,\left(2+m\right)+e^2\,f^2\,\left(6+5\,m+m^2\right)\right)\right)\right)$$

$$(d+e\,x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{g\,(d+e\,x)}{e\,f-d\,g}\right]$$

Result (type 8, 29 leaves):

$$\int \frac{(d+e\,x)^m\,(a+b\,x+c\,x^2)^2}{(f+g\,x)^3}\,dx$$

Problem 930: Result more than twice size of optimal antiderivative.

$$\int \frac{(2+3x)^4\,(1+4x)^m}{1-5x+3x^2}\,dx$$

Optimal (type 5, 183 leaves, 4 steps):

$$\frac{3687\,(1+4x)^{1+m}}{64\,(1+m)}+\frac{207\,(1+4x)^{2+m}}{32\,(2+m)}+\frac{27\,(1+4x)^{3+m}}{64\,(3+m)}-$$
$$\left(3\left(5499-1631\sqrt{13}\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{3\,(1+4x)}{13-2\sqrt{13}}\right]\right)\Big/$$
$$\left(26\left(13-2\sqrt{13}\right)(1+m)\right)-$$
$$\left(3\left(5499+1631\sqrt{13}\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{3\,(1+4x)}{13+2\sqrt{13}}\right]\right)\Big/$$
$$\left(26\left(13+2\sqrt{13}\right)(1+m)\right)$$

Result (type 5, 568 leaves):

$$\frac{48\,(1+4x)^{1+m}}{1+m}+\frac{1}{16\,(1+m)\,(2+m)}$$
$$3^{2-m}\,(-1-4x)^{-m}\,(1+4x)^m\left(5^{2+m}+39\,(-3-12x)^m+192\,(-3-12x)^m x+\right.$$
$$144\,(-3-12x)^m x^2+12m\,(-3-12x)^m\,(2+11x+12x^2)\Big)+\Big(3^{-m}\,(-1-4x)^{-m}\,(1+4x)^m$$
$$\left(5^{3+m}+387\,(-3-12x)^m+2304\,(-3-12x)^m x+3456\,(-3-12x)^m x^2+1728\,(-3-12x)^m x^3+\right.$$
$$\left.24m^2\,(-3-12x)^m\,(2+3x)^2\,(1+4x)+12m\,(-3-12x)^m\,(34+223x+402x^2+216x^3)\right)\Big)\Big/$$
$$\left(32\,(1+m)\,(2+m)\,(3+m)\right)+\frac{1}{\sqrt{13}\,m}17\times 2^{6+m}\times 3^{-m}\,(1+4x)^m$$
$$\left(-\left(-\frac{1+4x}{5+\sqrt{13}-6x}\right)^{-m}\text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{13+2\sqrt{13}}{2\left(5+\sqrt{13}-6x\right)}\right]+\right.$$
$$\left.\left(\frac{1+4x}{-5+\sqrt{13}+6x}\right)^{-m}\text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{-13+2\sqrt{13}}{2\left(-5+\sqrt{13}+6x\right)}\right]\right)+$$
$$\frac{1}{\sqrt{13}\,m}47\times 2^{-1+2m}\times 3^{2-m}\left(\frac{1}{2}+2x\right)^m$$
$$\left(\left(9+\sqrt{13}\right)\left(-\frac{1+4x}{5+\sqrt{13}-6x}\right)^{-m}\text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{13+2\sqrt{13}}{2\left(5+\sqrt{13}-6x\right)}\right]+\right.$$
$$\left.\left(-9+\sqrt{13}\right)\left(\frac{1+4x}{-5+\sqrt{13}+6x}\right)^{-m}\text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{-13+2\sqrt{13}}{2\left(-5+\sqrt{13}+6x\right)}\right]\right)$$

Problem 931: Result more than twice size of optimal antiderivative.

$$\int \frac{(2+3x)^3 (1+4x)^m}{1-5x+3x^2}\,dx$$

Optimal (type 5, 165 leaves, 4 steps):

$$\frac{123\,(1+4x)^{1+m}}{16\,(1+m)} + \frac{9\,(1+4x)^{2+m}}{16\,(2+m)} -$$

$$\left(3\left(416-135\sqrt{13}\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3\,(1+4x)}{13-2\sqrt{13}}\right]\right)\Big/$$

$$\left(13\left(13-2\sqrt{13}\right)(1+m)\right) -$$

$$\left(3\left(416+135\sqrt{13}\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3\,(1+4x)}{13+2\sqrt{13}}\right]\right)\Big/$$

$$\left(13\left(13+2\sqrt{13}\right)(1+m)\right)$$

Result (type 5, 410 leaves):

$$\frac{1}{208\,m\,(1+m)\,(2+m)}$$

$$(1+4x)^m\left(507\,m+312\,m^2+1404\,m\,(2+m)+325\,m\left(-\frac{3}{5}-\frac{12\,x}{5}\right)^{-m}+2496\,m\,x+1716\,m^2\,x+\right.$$

$$5616\,m\,(2+m)\,x+1872\,m\,x^2+1872\,m^2\,x^2+13\times 2^{9+m}\times 3^{-m}\,(1+m)\,(2+m)\left(-\frac{1+4x}{5+\sqrt{13}-6x}\right)^{-m}$$

$$\text{Hypergeometric2F1}\left[-m,\,-m,\,1-m,\,\frac{13+2\sqrt{13}}{2\left(5+\sqrt{13}-6x\right)}\right]+5\times 2^{4+m}\times 3^{3-m}\sqrt{13}\,(1+m)$$

$$(2+m)\left(-\frac{1+4x}{5+\sqrt{13}-6x}\right)^{-m}\text{Hypergeometric2F1}\left[-m,\,-m,\,1-m,\,\frac{13+2\sqrt{13}}{2\left(5+\sqrt{13}-6x\right)}\right]+$$

$$13\times 2^{9+m}\times 3^{-m}\,(1+m)\,(2+m)\left(\frac{1+4x}{-5+\sqrt{13}+6x}\right)^{-m}$$

$$\text{Hypergeometric2F1}\left[-m,\,-m,\,1-m,\,\frac{-13+2\sqrt{13}}{2\left(-5+\sqrt{13}+6x\right)}\right]-5\times 2^{4+m}\times 3^{3-m}\sqrt{13}\,(1+m)$$

$$\left.(2+m)\left(\frac{1+4x}{-5+\sqrt{13}+6x}\right)^{-m}\text{Hypergeometric2F1}\left[-m,\,-m,\,1-m,\,\frac{-13+2\sqrt{13}}{2\left(-5+\sqrt{13}+6x\right)}\right]\right)$$

Problem 937: Unable to integrate problem.

$$\int \frac{(2+3x)^4 (1+4x)^m}{(1-5x+3x^2)^2}\,dx$$

Optimal (type 5, 202 leaves, 5 steps):

$$\frac{9\,(1+4x)^{1+m}}{4\,(1+m)}+\frac{(844-2355x)\,(1+4x)^{1+m}}{39\,(1-5x+3x^2)}-\left(\left(13\,689-\sqrt{13}\,\left(297+4474\,m-1570\sqrt{13}\,m\right)\right)\,(1+4x)^{1+m}\right.$$
$$\left.\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3\,(1+4x)}{13-2\sqrt{13}}\right]\right)\Big/\left(169\left(13-2\sqrt{13}\right)\,(1+m)\right)-$$
$$\left(\left(13\,689+\sqrt{13}\,\left(297+4474\,m+1570\sqrt{13}\,m\right)\right)\,(1+4x)^{1+m}\right.$$
$$\left.\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3\,(1+4x)}{13+2\sqrt{13}}\right]\right)\Big/\left(169\left(13+2\sqrt{13}\right)\,(1+m)\right)$$

Result (type 8, 29 leaves):

$$\int\frac{(2+3x)^4\,(1+4x)^m}{(1-5x+3x^2)^2}\,dx$$

Problem 938: Unable to integrate problem.

$$\int\frac{(2+3x)^3\,(1+4x)^m}{(1-5x+3x^2)^2}\,dx$$

Optimal (type 5, 181 leaves, 5 steps):

$$\frac{(209-426x)\,(1+4x)^{1+m}}{39\,(1-5x+3x^2)}-\left(\left(1521+\sqrt{13}\,\left(1701-1168\,m+568\sqrt{13}\,m\right)\right)\,(1+4x)^{1+m}\right.$$
$$\left.\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3\,(1+4x)}{13-2\sqrt{13}}\right]\right)\Big/\left(338\left(13-2\sqrt{13}\right)\,(1+m)\right)+$$
$$\left(\left(\sqrt{13}\,\left(1701-1168\,m\right)-13\left(117+568\,m\right)\right)\,(1+4x)^{1+m}\right.$$
$$\left.\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3\,(1+4x)}{13+2\sqrt{13}}\right]\right)\Big/\left(338\left(13+2\sqrt{13}\right)\,(1+m)\right)$$

Result (type 8, 29 leaves):

$$\int\frac{(2+3x)^3\,(1+4x)^m}{(1-5x+3x^2)^2}\,dx$$

Problem 939: Unable to integrate problem.

$$\int\frac{(2+3x)^2\,(1+4x)^m}{(1-5x+3x^2)^2}\,dx$$

Optimal (type 5, 179 leaves, 5 steps):

$$\frac{(61-87x)(1+4x)^{1+m}}{39(1-5x+3x^2)} -$$
$$\left(2\left(153-\left(23-29\sqrt{13}\right)m\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{3(1+4x)}{13-2\sqrt{13}}\right]\right)\Big/$$
$$\left(13\sqrt{13}\left(13-2\sqrt{13}\right)(1+m)\right) +$$
$$\left(2\left(153-\left(23+29\sqrt{13}\right)m\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{3(1+4x)}{13+2\sqrt{13}}\right]\right)\Big/$$
$$\left(13\sqrt{13}\left(13+2\sqrt{13}\right)(1+m)\right)$$

Result (type 8, 29 leaves):

$$\int\frac{(2+3x)^2(1+4x)^m}{(1-5x+3x^2)^2}\,dx$$

Problem 940: Unable to integrate problem.

$$\int\frac{(2+3x)(1+4x)^m}{(1-5x+3x^2)^2}\,dx$$

Optimal (type 5, 179 leaves, 5 steps):

$$\frac{(20-21x)(1+4x)^{1+m}}{39(1-5x+3x^2)} -$$
$$\left(\left(81+2\left(5+7\sqrt{13}\right)m\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{3(1+4x)}{13-2\sqrt{13}}\right]\right)\Big/$$
$$\left(13\sqrt{13}\left(13-2\sqrt{13}\right)(1+m)\right) +$$
$$\left(\left(81+2\left(5-7\sqrt{13}\right)m\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{3(1+4x)}{13+2\sqrt{13}}\right]\right)\Big/$$
$$\left(13\sqrt{13}\left(13+2\sqrt{13}\right)(1+m)\right)$$

Result (type 8, 27 leaves):

$$\int\frac{(2+3x)(1+4x)^m}{(1-5x+3x^2)^2}\,dx$$

Problem 941: Unable to integrate problem.

$$\int\frac{(1+4x)^m}{(1-5x+3x^2)^2}\,dx$$

Optimal (type 5, 177 leaves, 5 steps):

$$\frac{(7-6x)\,(1+4x)^{1+m}}{39\,(1-5x+3x^2)} -$$
$$\left(2\left(9+2\left(2+\sqrt{13}\right)m\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3\,(1+4x)}{13-2\sqrt{13}}\right]\right)\Big/$$
$$\left(13\sqrt{13}\,\left(13-2\sqrt{13}\right)(1+m)\right) +$$
$$\left(2\left(9+2\left(2-\sqrt{13}\right)m\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3\,(1+4x)}{13+2\sqrt{13}}\right]\right)\Big/$$
$$\left(13\sqrt{13}\,\left(13+2\sqrt{13}\right)(1+m)\right)$$

Result (type 8, 22 leaves):

$$\int \frac{(1+4x)^m}{(1-5x+3x^2)^2}\,dx$$

Problem 942: Unable to integrate problem.

$$\int \frac{(1+4x)^m}{(2+3x)\,(1-5x+3x^2)^2}\,dx$$

Optimal (type 5, 340 leaves, 12 steps):

$$\frac{(43-33x)\,(1+4x)^{1+m}}{663\,(1-5x+3x^2)} + \frac{9\,(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{3}{5}(1+4x)\right]}{1445\,(1+m)} +$$
$$\left(9\left(13+9\sqrt{13}\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3\,(1+4x)}{13-2\sqrt{13}}\right]\right)\Big/$$
$$\left(7514\left(13-2\sqrt{13}\right)(1+m)\right) -$$
$$\left(\left(81+\left(62+22\sqrt{13}\right)m\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3\,(1+4x)}{13-2\sqrt{13}}\right]\right)\Big/$$
$$\left(221\sqrt{13}\,\left(13-2\sqrt{13}\right)(1+m)\right) +$$
$$\left(9\left(13-9\sqrt{13}\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3\,(1+4x)}{13+2\sqrt{13}}\right]\right)\Big/$$
$$\left(7514\left(13+2\sqrt{13}\right)(1+m)\right) +$$
$$\left(\left(81+\left(62-22\sqrt{13}\right)m\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3\,(1+4x)}{13+2\sqrt{13}}\right]\right)\Big/$$
$$\left(221\sqrt{13}\,\left(13+2\sqrt{13}\right)(1+m)\right)$$

Result (type 8, 29 leaves):

$$\int \frac{(1+4x)^m}{(2+3x)\,(1-5x+3x^2)^2}\,dx$$

Problem 943: Unable to integrate problem.

$$\int \frac{(1+4x)^m}{(2+3x)^2\,(1-5x+3x^2)^2}\,dx$$

Optimal (type 5, 376 leaves, 13 steps):

$$\frac{(268-195x)\,(1+4x)^{1+m}}{11271\,(1-5x+3x^2)}+\frac{162\,(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{3}{5}(1+4x)\right]}{24565\,(1+m)}+$$
$$\left(9\left(117+64\sqrt{13}\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3(1+4x)}{13-2\sqrt{13}}\right]\right)\Big/$$
$$\left(63869\left(13-2\sqrt{13}\right)(1+m)\right)-$$
$$\left(\left(423+2\left(211+65\sqrt{13}\right)m\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3(1+4x)}{13-2\sqrt{13}}\right]\right)\Big/$$
$$\left(3757\sqrt{13}\left(13-2\sqrt{13}\right)(1+m)\right)+$$
$$\left(9\left(117-64\sqrt{13}\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3(1+4x)}{13+2\sqrt{13}}\right]\right)\Big/$$
$$\left(63869\left(13+2\sqrt{13}\right)(1+m)\right)+$$
$$\left(\left(423+\left(422-130\sqrt{13}\right)m\right)(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{3(1+4x)}{13+2\sqrt{13}}\right]\right)\Big/$$
$$\left(3757\sqrt{13}\left(13+2\sqrt{13}\right)(1+m)\right)+$$
$$\frac{36\,(1+4x)^{1+m}\,\text{Hypergeometric2F1}\left[2,\,1+m,\,2+m,\,-\frac{3}{5}(1+4x)\right]}{7225\,(1+m)}$$

Result (type 8, 29 leaves):

$$\int \frac{(1+4x)^m}{(2+3x)^2\,(1-5x+3x^2)^2}\,dx$$

Problem 945: Unable to integrate problem.

$$\int (d+ex)^m\,(f+gx)^2\,\sqrt{a+bx+cx^2}\,dx$$

Optimal (type 6, 509 leaves, 6 steps):

$$\frac{g^2 (d+e x)^{1+m} (a+b x+c x^2)^{3/2}}{c e (4+m)} +$$

$$\left(\left(e (b d - a e) g^2 (1+m) + c \left(3 d^2 g^2 + e^2 f^2 (4+m) - 2 d e f g (4+m)\right)\right) (d+e x)^{1+m} \sqrt{a+b x+c x^2} \right.$$

$$\left. \text{AppellF1}\left[1+m, -\frac{1}{2}, -\frac{1}{2}, 2+m, \frac{2 c (d+e x)}{2 c d - \left(b - \sqrt{b^2-4 a c}\right) e}, \frac{2 c (d+e x)}{2 c d - \left(b + \sqrt{b^2-4 a c}\right) e}\right] \right) /$$

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

$$\left(g \left(b e g (5+2 m) + 2 c \left(3 d g - 2 e f (4+m)\right)\right) (d+e x)^{2+m} \sqrt{a+b x+c x^2} \right.$$

$$\left. \text{AppellF1}\left[2+m, -\frac{1}{2}, -\frac{1}{2}, 3+m, \frac{2 c (d+e x)}{2 c d - \left(b - \sqrt{b^2-4 a c}\right) e}, \frac{2 c (d+e x)}{2 c d - \left(b + \sqrt{b^2-4 a c}\right) e}\right] \right) /$$

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

Result (type 8, 31 leaves):

$$\int (d+e x)^m (f+g x)^2 \sqrt{a+b x+c x^2} \, dx$$

Problem 946: Unable to integrate problem.

$$\int (d+e x)^m (f+g x) \sqrt{a+b x+c x^2} \, dx$$

Optimal (type 6, 388 leaves, 5 steps):

$$\left(\left(e\,f-d\,g\right)\,\left(d+e\,x\right)^{1+m}\sqrt{a+b\,x+c\,x^2}\right.$$

$$\left.\text{AppellF1}\left[1+m,\,-\frac{1}{2},\,-\frac{1}{2},\,2+m,\,\frac{2\,c\,\left(d+e\,x\right)}{2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)\,e},\,\frac{2\,c\,\left(d+e\,x\right)}{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e}\right]\right)\Big/$$

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

$$\left(g\,\left(d+e\,x\right)^{2+m}\sqrt{a+b\,x+c\,x^2}\right.$$

$$\left.\text{AppellF1}\left[2+m,\,-\frac{1}{2},\,-\frac{1}{2},\,3+m,\,\frac{2\,c\,\left(d+e\,x\right)}{2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)\,e},\,\frac{2\,c\,\left(d+e\,x\right)}{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)\,e}\right]\right)\Big/$$

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

Result (type 8, 29 leaves):

$$\int\left(d+e\,x\right)^m\,\left(f+g\,x\right)\,\sqrt{a+b\,x+c\,x^2}\,\mathbb{d}x$$

Problem 949: Unable to integrate problem.

$$\int\frac{\left(d+e\,x\right)^m\,\left(f+g\,x\right)^2}{\sqrt{a+b\,x+c\,x^2}}\,\mathbb{d}x$$

Optimal (type 6, 502 leaves, 6 steps):

$$\frac{g^2 (d+e x)^{1+m} \sqrt{a+b x+c x^2}}{c e (2+m)} +$$

$$\left(\left(e (b d - a e) g^2 (1+m) + c \left(d^2 g^2 + e^2 f^2 (2+m) - 2 d e f g (2+m)\right)\right) (d+e x)^{1+m} \right.$$

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

$$\left. \text{AppellF1}\left[1+m, \frac{1}{2}, \frac{1}{2}, 2+m, \frac{2 c (d+e x)}{2 c d - \left(b - \sqrt{b^2-4 a c}\right) e}, \frac{2 c (d+e x)}{2 c d - \left(b + \sqrt{b^2-4 a c}\right) e}\right] \right) /$$

$$\left(c e^3 (1+m) (2+m) \sqrt{a+b x+c x^2} \right) - \left(g (b e g (3+2 m) + c (2 d g - 4 e f (2+m))) (d+e x)^{2+m} \right.$$

$$\sqrt{1 - \frac{2 c (d+e x)}{2 c d - \left(b - \sqrt{b^2-4 a c}\right) e}} \sqrt{1 - \frac{2 c (d+e x)}{2 c d - \left(b + \sqrt{b^2-4 a c}\right) e}} \text{AppellF1}\left[2+m, \frac{1}{2}, \frac{1}{2}, 3+m,\right.$$

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

Result (type 8, 31 leaves):

$$\int \frac{(d+e x)^m (f+g x)^2}{\sqrt{a+b x+c x^2}} \, dx$$

Problem 950: Unable to integrate problem.

$$\int \frac{(d+e x)^m (f+g x)}{\sqrt{a+b x+c x^2}} \, dx$$

Optimal (type 6, 388 leaves, 5 steps):

$$\left((e f - d g)\,(d+e x)^{1+m}\sqrt{1-\frac{2 c (d+e x)}{2 c d-\left(b-\sqrt{b^2-4 a c}\right) e}}\sqrt{1-\frac{2 c (d+e x)}{2 c d-\left(b+\sqrt{b^2-4 a c}\right) e}}\right.$$

$$\left.\text{AppellF1}\left[1+m,\frac{1}{2},\frac{1}{2},2+m,\frac{2 c (d+e x)}{2 c d-\left(b-\sqrt{b^2-4 a c}\right) e},\frac{2 c (d+e x)}{2 c d-\left(b+\sqrt{b^2-4 a c}\right) e}\right]\right)\Big/$$

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

$$\sqrt{1-\frac{2 c (d+e x)}{2 c d-\left(b+\sqrt{b^2-4 a c}\right) e}}\,\text{AppellF1}\left[2+m,\frac{1}{2},\frac{1}{2},3+m,\right.$$

$$\left.\left.\frac{2 c (d+e x)}{2 c d-\left(b-\sqrt{b^2-4 a c}\right) e},\frac{2 c (d+e x)}{2 c d-\left(b+\sqrt{b^2-4 a c}\right) e}\right]\right)\Big/\left(e^2 (2+m)\sqrt{a+b x+c x^2}\right)$$

Result (type 8, 29 leaves):

$$\int\frac{(d+e x)^m (f+g x)}{\sqrt{a+b x+c x^2}}\,dx$$

Problem 953: Result unnecessarily involves higher level functions.

$$\int (d+e x)^m (f+g x)^n (a+b x+c x^2)\,dx$$

Optimal (type 5, 265 leaves, 4 steps):

$$\left((b e g (3+m+n)-c (e f (2+m)+d g (4+m+2 n)))\,(d+e x)^{1+m}(f+g x)^{1+n}\right)\Big/$$

$$\left(e^2 g^2 (2+m+n)(3+m+n)\right)+\frac{c (d+e x)^{2+m}(f+g x)^{1+n}}{e^2 g (3+m+n)}+$$

$$\left((g (2+m+n)(a e^2 g (3+m+n)-c d (e f (2+m)+d g (1+n)))-\right.$$

$$\left.(e f (1+m)+d g (1+n))(b e g (3+m+n)-c (e f (2+m)+d g (4+m+2 n)))\right)(d+e x)^{1+m}$$

$$(f+g x)^n\left(\frac{e (f+g x)}{e f-d g}\right)^{-n}\text{Hypergeometric2F1}\left[1+m,-n,2+m,-\frac{g (d+e x)}{e f-d g}\right]\Big)\Big/$$

$$\left(e^3 g^2 (1+m)(2+m+n)(3+m+n)\right)$$

Result (type 6, 327 leaves):

$$\frac{1}{3}(d+e x)^m (f+g x)^n \left(\left(9 b d f x^2 \text{AppellF1}\left[2,-m,-n,3,-\frac{e x}{d},-\frac{g x}{f}\right]\right)\Big/\left(6 d f \text{AppellF1}\left[2,-m,-n,3,-\frac{e x}{d},-\frac{g x}{f}\right]+2 e f m x \text{AppellF1}\left[3,1-m,-n,4,-\frac{e x}{d},-\frac{g x}{f}\right]+2 d g n x \text{AppellF1}\left[3,-m,1-n,4,-\frac{e x}{d},-\frac{g x}{f}\right]\right)+\left(4 c d f x^3 \text{AppellF1}\left[3,-m,-n,4,-\frac{e x}{d},-\frac{g x}{f}\right]\right)\Big/\left(4 d f \text{AppellF1}\left[3,-m,-n,4,-\frac{e x}{d},-\frac{g x}{f}\right]+e f m x \text{AppellF1}\left[4,1-m,-n,5,-\frac{e x}{d},-\frac{g x}{f}\right]+d g n x \text{AppellF1}\left[4,-m,1-n,5,-\frac{e x}{d},-\frac{g x}{f}\right]\right)+\frac{1}{g(1+n)}\right)$$

$$3 a \left(\frac{g(d+e x)}{-e f+d g}\right)^{-m}(f+g x)\,\text{Hypergeometric2F1}\left[-m,1+n,2+n,\frac{e(f+g x)}{e f-d g}\right]\Bigg)$$

Problem 954: Unable to integrate problem.

$$\int (d+e x)^m (f+g x)^2 (a+b x+c x^2)^p \,dx$$

Optimal (type 6, 525 leaves, 6 steps):

$$\frac{g^2 (d+e x)^{1+m}(a+b x+c x^2)^{1+p}}{c e (3+m+2 p)}+\left(\left(e(b d-a e) g^2(1+m)+c\left(2 d^2 g^2(1+p)+e^2 f^2(3+m+2 p)-2 d e f g(3+m+2 p)\right)\right)(d+e x)^{1+m}(a+b x+c x^2)^p\left(1-\frac{2 c(d+e x)}{2 c d-\left(b-\sqrt{b^2-4 a c}\right)e}\right)^{-p}\left(1-\frac{2 c(d+e x)}{2 c d-\left(b+\sqrt{b^2-4 a c}\right)e}\right)^{-p}\text{AppellF1}\left[1+m,-p,-p,2+m,\frac{2 c(d+e x)}{2 c d-\left(b-\sqrt{b^2-4 a c}\right)e},\frac{2 c(d+e x)}{2 c d-\left(b+\sqrt{b^2-4 a c}\right)e}\right]\Big/\left(c e^3(1+m)(3+m+2 p)\right)-\left(g\left(b e g(2+m+p)+2 c\left(d g(1+p)-e f(3+m+2 p)\right)\right)(d+e x)^{2+m}(a+b x+c x^2)^p\left(1-\frac{2 c(d+e x)}{2 c d-\left(b-\sqrt{b^2-4 a c}\right)e}\right)^{-p}\left(1-\frac{2 c(d+e x)}{2 c d-\left(b+\sqrt{b^2-4 a c}\right)e}\right)^{-p}\text{AppellF1}\left[2+m,-p,-p,3+m,\frac{2 c(d+e x)}{2 c d-\left(b-\sqrt{b^2-4 a c}\right)e},\frac{2 c(d+e x)}{2 c d-\left(b+\sqrt{b^2-4 a c}\right)e}\right]\Big/\left(c e^3(2+m)(3+m+2 p)\right)\right)$$

Result (type 8, 29 leaves):

$$\int (d+e\,x)^m\,(f+g\,x)^2\,(a+b\,x+c\,x^2)^p\,dx$$

Problem 955: Unable to integrate problem.

$$\int (d+e\,x)^m\,(f+g\,x)\,(a+b\,x+c\,x^2)^p\,dx$$

Optimal (type 6, 384 leaves, 5 steps):

$$\frac{1}{e^2\,(1+m)}(e\,f-d\,g)\,(d+e\,x)^{1+m}\,(a+b\,x+c\,x^2)^p$$

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

$$\text{AppellF1}\left[1+m,\,-p,\,-p,\,2+m,\,\frac{2\,c\,(d+e\,x)}{2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)e},\,\frac{2\,c\,(d+e\,x)}{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)e}\right]+\frac{1}{e^2\,(2+m)}$$

$$g\,(d+e\,x)^{2+m}\,(a+b\,x+c\,x^2)^p\left(1-\frac{2\,c\,(d+e\,x)}{2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)e}\right)^{-p}\left(1-\frac{2\,c\,(d+e\,x)}{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)e}\right)^{-p}$$

$$\text{AppellF1}\left[2+m,\,-p,\,-p,\,3+m,\,\frac{2\,c\,(d+e\,x)}{2\,c\,d-\left(b-\sqrt{b^2-4\,a\,c}\right)e},\,\frac{2\,c\,(d+e\,x)}{2\,c\,d-\left(b+\sqrt{b^2-4\,a\,c}\right)e}\right]$$

Result (type 8, 27 leaves):

$$\int (d+e\,x)^m\,(f+g\,x)\,(a+b\,x+c\,x^2)^p\,dx$$

Problem 958: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{1-\frac{1}{c^2\,x^2}}\;x^2\,\sqrt{d+e\,x}}\,dx$$

Optimal (type 4, 89 leaves, 5 steps):

$$-\frac{2\sqrt{\frac{c\,(d+e\,x)}{c\,d+e}}\;\sqrt{1-c^2\,x^2}\;\text{EllipticPi}\left[2,\,\text{ArcSin}\left[\frac{\sqrt{1-c\,x}}{\sqrt{2}}\right],\,\frac{2\,e}{c\,d+e}\right]}{\sqrt{1-\frac{1}{c^2\,x^2}}\;x\,\sqrt{d+e\,x}}$$

Result (type 4, 188 leaves):

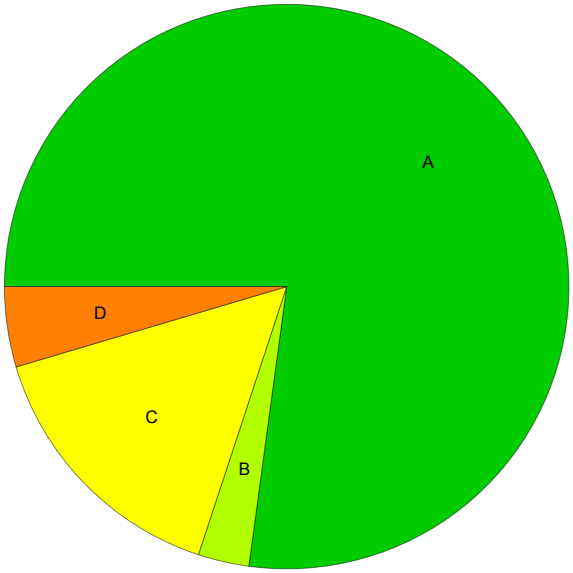
$$-\frac{1}{d\sqrt{-\frac{c\,d+e}{c}}\sqrt{1-\frac{1}{c^2\,x^2}}\,x}$$

$$2\,i\sqrt{\frac{e\,(-1+c\,x)}{c\,(d+e\,x)}}\,(d+e\,x)\sqrt{\frac{e+c\,e\,x}{c\,d+c\,e\,x}}\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,d+e}{c}}}{\sqrt{d+e\,x}}\right],\frac{c\,d-e}{c\,d+e}\right]-\right.$$

$$\left.\text{EllipticPi}\left[\frac{c\,d}{c\,d+e},i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{c\,d+e}{c}}}{\sqrt{d+e\,x}}\right],\frac{c\,d-e}{c\,d+e}\right]\right)$$

Summary of Integration Test Results

958 integration problems



A - 739 optimal antiderivatives

B - 28 more than twice size of optimal antiderivatives

C - 147 unnecessarily complex antiderivatives

D - 44 unable to integrate problems

E - 0 integration timeouts