Mathematica 11.3 Integration Test Results

on the problems in the test-suite directory "5 Inverse trig functions\5.1 Inverse sine"

Test results for the 227 problems in "5.1.2 (d x)^m (a+b arcsin(c x))^n.m"

Problem 121: Unable to integrate problem.

$$\int (b x)^m \text{ArcSin}[a x]^2 \, dx$$

Optimal (type 5, 150 leaves, 2 steps):

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

Result (type 9, 143 leaves):

$$\frac{1}{(1+m) (2+m)} 2^{-2-m} x (b x)^m \left(2^{2+m} \text{ArcSin}[a x] \left((2+m) \text{ArcSin}[a x] - 2 a x \sqrt{1-a^2 x^2} \text{Hypergeometric2F1}\left[1, \frac{3+m}{2}, \frac{4+m}{2}, a^2 x^2\right]\right) + a^2 (2+m) \sqrt{\pi} x^2 \text{Gamma}[2+m] \text{HypergeometricPFQRegularized}\left[\left\{1, \frac{3+m}{2}, \frac{3+m}{2}\right\}, \left\{\frac{4+m}{2}, \frac{5+m}{2}\right\}, a^2 x^2\right]\right)$$

Problem 157: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + b \text{ArcSin}[c x])^3}{x^2} \, dx$$

Optimal (type 4, 137 leaves, 9 steps):

$$-\frac{(a+b\,\text{ArcSin}[c\,x])^3}{x}-6\,b\,c\,(a+b\,\text{ArcSin}[c\,x])^2\,\text{ArcTanh}\left[e^{i\,\text{ArcSin}[c\,x]}\right]+6\,i\,b^2\,c\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c\,x]}\right]-6\,i\,b^2\,c\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c\,x]}\right]-6\,b^3\,c\,\text{PolyLog}\left[3,-e^{i\,\text{ArcSin}[c\,x]}\right]+6\,b^3\,c\,\text{PolyLog}\left[3,e^{i\,\text{ArcSin}[c\,x]}\right]$$

Result (type 4, 283 leaves):

$$-\frac{a^3}{x}-\frac{3\,a^2\,b\,\text{ArcSin}[c\,x]}{x}+3\,a^2\,b\,c\,\text{Log}[x]-3\,a^2\,b\,c\,\text{Log}\left[1+\sqrt{1-c^2\,x^2}\right]+3\,a\,b^2\,c\left(-\text{ArcSin}[c\,x]\left(\frac{\text{ArcSin}[c\,x]}{c\,x}-2\,\text{Log}\left[1-e^{i\,\text{ArcSin}[c\,x]}\right]+2\,\text{Log}\left[1+e^{i\,\text{ArcSin}[c\,x]}\right]\right)+2\,i\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c\,x]}\right]-2\,i\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c\,x]}\right]\right)+b^3\,c\left(-\frac{\text{ArcSin}[c\,x]^3}{c\,x}+3\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1-e^{i\,\text{ArcSin}[c\,x]}\right]-3\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+e^{i\,\text{ArcSin}[c\,x]}\right]+6\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c\,x]}\right]-6\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c\,x]}\right]-6\,\text{PolyLog}\left[3,-e^{i\,\text{ArcSin}[c\,x]}\right]+6\,\text{PolyLog}\left[3,e^{i\,\text{ArcSin}[c\,x]}\right]\right)$$

Problem 203: Result unnecessarily involves imaginary or complex numbers.

$$\int (d\,x)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])\,dx$$

Optimal (type 4, 120 leaves, 5 steps):

$$\frac{20\,b\,d^2\,\sqrt{d\,x}\,\sqrt{1-c^2\,x^2}}{147\,c^3}+\frac{4\,b\,(d\,x)^{5/2}\,\sqrt{1-c^2\,x^2}}{49\,c}+\frac{2\,(d\,x)^{7/2}\,(a+b\,\text{ArcSin}[c\,x])}{7\,d}-\frac{20\,b\,d^{5/2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{c}\,\sqrt{d\,x}}{\sqrt{d}}\right],-1\right]}{147\,c^{7/2}}$$

Result (type 4, 159 leaves):

$$\frac{1}{147\,c^3\,\sqrt{1-c^2\,x^2}}2\,d^2\,\sqrt{d\,x}\left(10\,b-4\,b\,c^2\,x^2-6\,b\,c^4\,x^4+21\,a\,c^3\,x^3\,\sqrt{1-c^2\,x^2}+21\,b\,c^3\,x^3\,\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]+10\,i\,b\,\sqrt{-\frac{1}{c}}\,c\,\sqrt{1-\frac{1}{c^2\,x^2}}\,\sqrt{x}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{-\frac{1}{c}}}{\sqrt{x}}\right],-1\right]\right)$$

Problem 204: Result unnecessarily involves imaginary or complex numbers.

$$\int (d\,x)^{3/2}\,(a+b\,\text{ArcSin}[c\,x])\,dx$$

Optimal (type 4, 124 leaves, 7 steps):

$$\frac{4 b (d x)^{3/2} \sqrt{1-c^2 x^2}}{25 c}+\frac{2 (d x)^{5/2} (a+b \text{ArcSin}[c x])}{5 d}-\frac{12 b d^{3/2} \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{c} \sqrt{d x}}{\sqrt{d}}\right],-1\right]}{25 c^{5/2}}+\frac{12 b d^{3/2} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{c} \sqrt{d x}}{\sqrt{d}}\right],-1\right]}{25 c^{5/2}}$$

Result (type 4, 107 leaves):

$$\frac{1}{25 c^2 \sqrt{-c x}} 2 d \sqrt{d x} \left(c x \sqrt{-c x} \left(5 a c x+2 b \sqrt{1-c^2 x^2}+5 b c x \text{ArcSin}[c x]\right)+6 i b \text{EllipticE}\left[i \text{ArcSinh}\left[\sqrt{-c x}\right],-1\right]-6 i b \text{EllipticF}\left[i \text{ArcSinh}\left[\sqrt{-c x}\right],-1\right]\right)$$

Problem 205: Result unnecessarily involves imaginary or complex numbers.

$$\int \sqrt{d x} (a+b \text{ArcSin}[c x]) \, dx$$

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

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

Result (type 4, 113 leaves):

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

Problem 206: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{a+b \text{ArcSin}[c x]}{\sqrt{d x}} \, dx$$

Optimal (type 4, 89 leaves, 6 steps):

$$\frac{2 \sqrt{d x} (a+b \text{ArcSin}[c x])}{d}-\frac{4 b \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{c} \sqrt{d x}}{\sqrt{d}}\right],-1\right]}{\sqrt{c} \sqrt{d}}+\frac{4 b \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{c} \sqrt{d x}}{\sqrt{d}}\right],-1\right]}{\sqrt{c} \sqrt{d}}$$

Result (type 4, 76 leaves):

$$\frac{1}{\sqrt{-c x}\,\sqrt{d x}}2 x \left(\sqrt{-c x}\,\left(a+b \operatorname{ArcSin}[c x]\right)+2 i b \operatorname{EllipticE}\left[i \operatorname{ArcSinh}\left[\sqrt{-c x}\right],-1\right]-2 i b \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\sqrt{-c x}\right],-1\right]\right)$$

Problem 207: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 55 leaves, 3 steps):

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

Result (type 4, 91 leaves):

$$\frac{2 x \left(-a-b \operatorname{ArcSin}[c x]+\frac{2 i b c \sqrt{1-\frac{1}{c^2 x^2}}\, x^{3/2} \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{-\frac{1}{c}}}{\sqrt{x}}\right],-1\right]}{\sqrt{-\frac{1}{c}}\,\sqrt{1-c^2 x^2}}\right)}{(d x)^{3/2}}$$

Problem 208: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{a+b \operatorname{ArcSin}[c x]}{(d x)^{5/2}}\, dx$$

Optimal (type 4, 125 leaves, 7 steps):

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

Result (type 4, 110 leaves):

$$\frac{1}{3 \sqrt{-c x}\, (d x)^{5/2}}$$

$$x \left(-2 \sqrt{-c x}\,\left(a+2 b c x \sqrt{1-c^2 x^2}+b \operatorname{ArcSin}[c x]\right)+4 i b c^2 x^2 \operatorname{EllipticE}\left[i \operatorname{ArcSinh}\left[\sqrt{-c x}\right],-1\right]-4 i b c^2 x^2 \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\sqrt{-c x}\right],-1\right]\right)$$

Problem 209: Result more than twice size of optimal antiderivative.

$$\int (d x)^{5/2} (a + b \text{ArcSin}[c x])^2 \, dx$$

Optimal (type 5, 109 leaves, 2 steps):

$$\frac{2 (d x)^{7/2} (a + b \text{ArcSin}[c x])^2}{7 d} - \frac{8 b c (d x)^{9/2} (a + b \text{ArcSin}[c x]) \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{9}{4}, \frac{13}{4}, c^2 x^2\right]}{63 d^2} + \frac{16 b^2 c^2 (d x)^{11/2} \text{HypergeometricPFQ}\left[\left\{1, \frac{11}{4}, \frac{11}{4}\right\}, \left\{\frac{13}{4}, \frac{15}{4}\right\}, c^2 x^2\right]}{693 d^3}$$

Result (type 5, 269 leaves):

$$\frac{1}{6174} (d x)^{5/2} \left(1764 a^2 x + 3528 a b x \text{ArcSin}[c x] - \frac{336 a b x \left(\sqrt{c x} \left(-5 + 2 c^2 x^2 + 3 c^4 x^4\right) - 5 c \sqrt{1 - \frac{1}{c^2 x^2}} \, x \, \text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{c x}}\right], -1\right]\right)}{(c x)^{7/2} \sqrt{1 - c^2 x^2}} + \frac{1}{c^3 x^2 \text{Gamma}\left[\frac{5}{4}\right] \text{Gamma}\left[\frac{7}{4}\right]} b^2 \left(210 \sqrt{2} \, c \, \pi \, x \, \text{HypergeometricPFQ}\left[\left\{\frac{3}{4}, \frac{3}{4}, 1\right\}, \left\{\frac{5}{4}, \frac{7}{4}\right\}, c^2 x^2\right] + 4 \text{Gamma}\left[\frac{5}{4}\right] \text{Gamma}\left[\frac{7}{4}\right] \left(-334 c x + 441 c^3 x^3 \text{ArcSin}[c x]^2 + 21 \text{ArcSin}[c x] \left(23 \sqrt{1 - c^2 x^2} - 3 \text{Cos}[3 \text{ArcSin}[c x]]\right) - 420 \sqrt{1 - c^2 x^2} \, \text{ArcSin}[c x] \, \text{Hypergeometric2F1}\left[\frac{3}{4}, 1, \frac{5}{4}, c^2 x^2\right] + 18 \text{Sin}[3 \text{ArcSin}[c x]]\right)\right)\right)$$

Problem 211: Result more than twice size of optimal antiderivative.

$$\int \sqrt{d x} \, (a + b \text{ArcSin}[c x])^2 \, dx$$

Optimal (type 5, 109 leaves, 2 steps):

$$\frac{2\,(d\,x)^{3/2}\,(a+b\,\text{ArcSin}[c\,x])^2}{3\,d}-\frac{8\,b\,c\,(d\,x)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{4},\frac{9}{4},c^2\,x^2\right]}{15\,d^2}+\frac{16\,b^2\,c^2\,(d\,x)^{7/2}\,\text{HypergeometricPFQ}\left[\left\{1,\frac{7}{4},\frac{7}{4}\right\},\left\{\frac{9}{4},\frac{11}{4}\right\},c^2\,x^2\right]}{105\,d^3}$$

Result (type 5, 228 leaves) :

$$\frac{1}{27}\sqrt{d\,x}\left(18\,a^2\,x+36\,a\,b\,x\,\text{ArcSin}[c\,x]+\frac{24\,b^2\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]}{c}+2\,b^2\,x\,\left(-8+9\,\text{ArcSin}[c\,x]^2\right)-\frac{24\,a\,b\,x\left(-\sqrt{c\,x}+(c\,x)^{5/2}-c\sqrt{1-\frac{1}{c^2\,x^2}}\,x\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{c\,x}}\right],-1\right]\right)}{(c\,x)^{3/2}\sqrt{1-c^2\,x^2}}-\frac{24\,b^2\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]\,\text{Hypergeometric2F1}\left[\frac{3}{4},1,\frac{5}{4},c^2\,x^2\right]}{c}+\frac{3\sqrt{2}\,b^2\,\pi\,x\,\text{HypergeometricPFQ}\left[\left\{\frac{3}{4},\frac{3}{4},1\right\},\left\{\frac{5}{4},\frac{7}{4}\right\},c^2\,x^2\right]}{\text{Gamma}\left[\frac{5}{4}\right]\,\text{Gamma}\left[\frac{7}{4}\right]}\right)$$

Problem 214: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\text{ArcSin}[c\,x])^2}{(d\,x)^{5/2}}\,dx$$

Optimal (type 5, 109 leaves, 2 steps) :

$$-\frac{2\,(a+b\,\text{ArcSin}[c\,x])^2}{3\,d\,(d\,x)^{3/2}}-\frac{8\,b\,c\,(a+b\,\text{ArcSin}[c\,x])\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},c^2\,x^2\right]}{3\,d^2\sqrt{d\,x}}+\frac{16\,b^2\,c^2\sqrt{d\,x}\,\text{HypergeometricPFQ}\left[\left\{\frac{1}{4},\frac{1}{4},1\right\},\left\{\frac{3}{4},\frac{5}{4}\right\},c^2\,x^2\right]}{3\,d^3}$$

Result (type 5, 242 leaves) :

$$\frac{1}{36\,(d\,x)^{5/2}\,\text{Gamma}\left[\frac{7}{4}\right]\,\text{Gamma}\left[\frac{9}{4}\right]}$$

$$x\,\Bigg(-8\,\text{Gamma}\left[\frac{7}{4}\right]\,\text{Gamma}\left[\frac{9}{4}\right]\,\Big(3\,a^2-24\,b^2\,c^2\,x^2+12\,a\,b\,c\,x\,\sqrt{1-c^2\,x^2}\,+6\,a\,b\,\text{ArcSin}[c\,x]+12\,b^2\,c\,x\,\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]+3\,b^2\,\text{ArcSin}[c\,x]^2+12\,a\,b\,(c\,x)^{3/2}\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{c\,x}\right],-1\right]-12\,a\,b\,(c\,x)^{3/2}\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{c\,x}\right],-1\right]+4\,b^2\,c^3\,x^3\,\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]\,\text{Hypergeometric2F1}\left[1,\frac{5}{4},\frac{7}{4},c^2\,x^2\right]\Big)+3\,\sqrt{2}\,b^2\,c^4\,\pi\,x^4\,\text{HypergeometricPFQ}\left[\left\{1,\frac{5}{4},\frac{5}{4}\right\},\left\{\frac{7}{4},\frac{9}{4}\right\},c^2\,x^2\right]\Bigg)$$

Problem 216: Attempted integration timed out after 120 seconds.

$$\int\sqrt{d\,x}\,\left(a+b\,\text{ArcSin}[c\,x]\right)^3\,dx$$

Optimal (type 9, 66 leaves, 1 step):

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

Result (type 1, 1 leaves):

???

Test results for the 703 problems in "5.1.4 (f x)^m (d+e x^2)^p (a+b arcsin(c x))^n.m"

Problem 29: Result more than twice size of optimal antiderivative.

$$\int\frac{x^3\,\left(a+b\,\text{ArcSin}[c\,x]\right)}{d-c^2\,d\,x^2}\,dx$$

Optimal (type 4, 144 leaves, 8 steps):

$$-\frac{b\,x\,\sqrt{1-c^2\,x^2}}{4\,c^3\,d}+\frac{b\,\text{ArcSin}[c\,x]}{4\,c^4\,d}-\frac{x^2\,\left(a+b\,\text{ArcSin}[c\,x]\right)}{2\,c^2\,d}+\frac{i\,\left(a+b\,\text{ArcSin}[c\,x]\right)^2}{2\,b\,c^4\,d}-\frac{\left(a+b\,\text{ArcSin}[c\,x]\right)\,\text{Log}\left[1+e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{c^4\,d}+\frac{i\,b\,\text{PolyLog}\left[2,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{2\,c^4\,d}$$

Result (type 4, 294 leaves):

$$-\frac{1}{4 c^4 d}\left(2 a c^2 x^2+b c x \sqrt{1-c^2 x^2}-b \operatorname{ArcSin}[c x]+4 i b \pi \operatorname{ArcSin}[c x]+2 b c^2 x^2 \operatorname{ArcSin}[c x]-2 i b \operatorname{ArcSin}[c x]^2+8 b \pi \operatorname{Log}\left[1+e^{-i \operatorname{ArcSin}[c x]}\right]+2 b \pi \operatorname{Log}\left[1-i e^{i \operatorname{ArcSin}[c x]}\right]+4 b \operatorname{ArcSin}[c x] \operatorname{Log}\left[1-i e^{i \operatorname{ArcSin}[c x]}\right]-2 b \pi \operatorname{Log}\left[1+i e^{i \operatorname{ArcSin}[c x]}\right]+4 b \operatorname{ArcSin}[c x] \operatorname{Log}\left[1+i e^{i \operatorname{ArcSin}[c x]}\right]+2 a \operatorname{Log}\left[1-c^2 x^2\right]-8 b \pi \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]+2 b \pi \operatorname{Log}\left[-\operatorname{Cos}\left[\frac{1}{4}(\pi+2 \operatorname{ArcSin}[c x])\right]\right]-2 b \pi \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{4}(\pi+2 \operatorname{ArcSin}[c x])\right]\right]-4 i b \operatorname{PolyLog}\left[2,-i e^{i \operatorname{ArcSin}[c x]}\right]-4 i b \operatorname{PolyLog}\left[2, i e^{i \operatorname{ArcSin}[c x]}\right]\right)$$

Problem 31: Result more than twice size of optimal antiderivative.

$$\int \frac{x\,(a+b \operatorname{ArcSin}[c x])}{d-c^2 d x^2} \, dx$$

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

$$\frac{i\,(a+b \operatorname{ArcSin}[c x])^2}{2 b c^2 d}-\frac{(a+b \operatorname{ArcSin}[c x]) \operatorname{Log}\left[1+e^{2 i \operatorname{ArcSin}[c x]}\right]}{c^2 d}+\frac{i b \operatorname{PolyLog}\left[2,-e^{2 i \operatorname{ArcSin}[c x]}\right]}{2 c^2 d}$$

Result (type 4, 244 leaves):

$$-\frac{1}{2 c^2 d}\left(2 i b \pi \operatorname{ArcSin}[c x]-i b \operatorname{ArcSin}[c x]^2+4 b \pi \operatorname{Log}\left[1+e^{-i \operatorname{ArcSin}[c x]}\right]+b \pi \operatorname{Log}\left[1-i e^{i \operatorname{ArcSin}[c x]}\right]+2 b \operatorname{ArcSin}[c x] \operatorname{Log}\left[1-i e^{i \operatorname{ArcSin}[c x]}\right]-b \pi \operatorname{Log}\left[1+i e^{i \operatorname{ArcSin}[c x]}\right]+2 b \operatorname{ArcSin}[c x] \operatorname{Log}\left[1+i e^{i \operatorname{ArcSin}[c x]}\right]+a \operatorname{Log}\left[1-c^2 x^2\right]-4 b \pi \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]+b \pi \operatorname{Log}\left[-\operatorname{Cos}\left[\frac{1}{4}(\pi+2 \operatorname{ArcSin}[c x])\right]\right]-b \pi \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{4}(\pi+2 \operatorname{ArcSin}[c x])\right]\right]-2 i b \operatorname{PolyLog}\left[2,-i e^{i \operatorname{ArcSin}[c x]}\right]-2 i b \operatorname{PolyLog}\left[2, i e^{i \operatorname{ArcSin}[c x]}\right]\right)$$

Problem 32: Result more than twice size of optimal antiderivative.

$$\int \frac{a+b \operatorname{ArcSin}[c x]}{d-c^2 d x^2} \, dx$$

Optimal (type 4, 84 leaves, 6 steps):

$$-\frac{2 i\,(a+b \operatorname{ArcSin}[c x]) \operatorname{ArcTan}\left[e^{i \operatorname{ArcSin}[c x]}\right]}{c d}+\frac{i b \operatorname{PolyLog}\left[2,-i e^{i \operatorname{ArcSin}[c x]}\right]}{c d}-\frac{i b \operatorname{PolyLog}\left[2, i e^{i \operatorname{ArcSin}[c x]}\right]}{c d}$$

Result (type 4, 207 leaves):

$$\frac{1}{2\,c\,d}\left(-i\,b\,\pi\,\text{ArcSin}[c\,x]+b\,\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+b\,\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-a\,\text{Log}[1-c\,x]+a\,\text{Log}[1+c\,x]-b\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-b\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+2\,i\,b\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,i\,b\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\right)$$

Problem 33: Result more than twice size of optimal antiderivative.

$$\int\frac{a+b\,\text{ArcSin}[c\,x]}{x\,(d-c^2\,d\,x^2)}\,dx$$

Optimal (type 4, 71 leaves, 7 steps):

$$-\frac{2\,(a+b\,\text{ArcSin}[c\,x])\,\text{ArcTanh}\left[e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{d}+\frac{i\,b\,\text{PolyLog}\left[2,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{2\,d}-\frac{i\,b\,\text{PolyLog}\left[2,e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{2\,d}$$

Result (type 4, 274 leaves):

$$-\frac{1}{2\,d}\left(2\,i\,b\,\pi\,\text{ArcSin}[c\,x]+4\,b\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]+b\,\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-b\,\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-e^{2\,i\,\text{ArcSin}[c\,x]}\right]-2\,a\,\text{Log}[x]+a\,\text{Log}\left[1-c^2\,x^2\right]-4\,b\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]+b\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-b\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-2\,i\,b\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,i\,b\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]+i\,b\,\text{PolyLog}\left[2,e^{2\,i\,\text{ArcSin}[c\,x]}\right]\right)$$

Problem 34: Result more than twice size of optimal antiderivative.

$$\int\frac{a+b\,\text{ArcSin}[c\,x]}{x^2\,(d-c^2\,d\,x^2)}\,dx$$

Optimal (type 4, 116 leaves, 10 steps):

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

Result (type 4, 268 leaves):

$$-\frac{1}{2\,d\,x}\left(2\,a+2\,b\,\text{ArcSin}[c\,x]+i\,b\,c\,\pi\,x\,\text{ArcSin}[c\,x]-b\,c\,\pi\,x\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,b\,c\,x\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-b\,c\,\pi\,x\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b\,c\,x\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,b\,c\,x\,\text{Log}[x]+a\,c\,x\,\text{Log}[1-c\,x]-a\,c\,x\,\text{Log}[1+c\,x]+2\,b\,c\,x\,\text{Log}\left[1+\sqrt{1-c^2\,x^2}\right]+b\,c\,\pi\,x\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+b\,c\,\pi\,x\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-2\,i\,b\,c\,x\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,i\,b\,c\,x\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\right)$$

Problem 35: Result more than twice size of optimal antiderivative.

$$\int\frac{a+b\,\text{ArcSin}[c\,x]}{x^3\,(d-c^2\,d\,x^2)}\,dx$$

Optimal (type 4, 124 leaves, 9 steps):

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

Result (type 4, 392 leaves):

$$-\frac{1}{2\,d\,x^2}\left(a+b\,c\,x\,\sqrt{1-c^2\,x^2}+b\,\text{ArcSin}[c\,x]+2\,i\,b\,c^2\,\pi\,x^2\,\text{ArcSin}[c\,x]+4\,b\,c^2\,\pi\,x^2\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]+b\,c^2\,\pi\,x^2\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b\,c^2\,x^2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-b\,c^2\,\pi\,x^2\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b\,c^2\,x^2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,b\,c^2\,x^2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-e^{2\,i\,\text{ArcSin}[c\,x]}\right]-2\,a\,c^2\,x^2\,\text{Log}[x]+a\,c^2\,x^2\,\text{Log}\left[1-c^2\,x^2\right]-4\,b\,c^2\,\pi\,x^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]+b\,c^2\,\pi\,x^2\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-b\,c^2\,\pi\,x^2\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-2\,i\,b\,c^2\,x^2\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,i\,b\,c^2\,x^2\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]+i\,b\,c^2\,x^2\,\text{PolyLog}\left[2,e^{2\,i\,\text{ArcSin}[c\,x]}\right]\right)$$

Problem 36: Result more than twice size of optimal antiderivative.

$$\int\frac{a+b\,\text{ArcSin}[c\,x]}{x^4\,(d-c^2\,d\,x^2)}\,dx$$

Optimal (type 4, 173 leaves, 15 steps):

$$-\frac{b\,c\,\sqrt{1-c^2\,x^2}}{6\,d\,x^2}-\frac{a+b\,\text{ArcSin}[c\,x]}{3\,d\,x^3}-\frac{c^2\,(a+b\,\text{ArcSin}[c\,x])}{d\,x}-\frac{2\,i\,c^3\,(a+b\,\text{ArcSin}[c\,x])\,\text{ArcTan}\left[e^{i\,\text{ArcSin}[c\,x]}\right]}{d}-\frac{7\,b\,c^3\,\text{ArcTanh}\left[\sqrt{1-c^2\,x^2}\right]}{6\,d}+\frac{i\,b\,c^3\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{d}-\frac{i\,b\,c^3\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{d}$$

Result (type 4, 363 leaves):

$$-\frac{1}{6\,d\,x^3}\left(2\,a+6\,a\,c^2\,x^2+b\,c\,x\,\sqrt{1-c^2\,x^2}+2\,b\,\text{ArcSin}[c\,x]+6\,b\,c^2\,x^2\,\text{ArcSin}[c\,x]+3\,i\,b\,c^3\,\pi\,x^3\,\text{ArcSin}[c\,x]-3\,b\,c^3\,\pi\,x^3\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-6\,b\,c^3\,x^3\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-3\,b\,c^3\,\pi\,x^3\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+6\,b\,c^3\,x^3\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-7\,b\,c^3\,x^3\,\text{Log}[x]+3\,a\,c^3\,x^3\,\text{Log}[1-c\,x]-3\,a\,c^3\,x^3\,\text{Log}[1+c\,x]+7\,b\,c^3\,x^3\,\text{Log}\left[1+\sqrt{1-c^2\,x^2}\right]+3\,b\,c^3\,\pi\,x^3\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+3\,b\,c^3\,\pi\,x^3\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-6\,i\,b\,c^3\,x^3\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+6\,i\,b\,c^3\,x^3\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\right)$$

Problem 38: Result more than twice size of optimal antiderivative.

$$\int \frac{x^3\,(a+b\,\text{ArcSin}[c\,x])}{\left(d-c^2\,d\,x^2\right)^2}\,dx$$

Optimal (type 4, 155 leaves, 8 steps):

$$-\frac{b\,x}{2\,c^3\,d^2\,\sqrt{1-c^2\,x^2}}+\frac{b\,\text{ArcSin}[c\,x]}{2\,c^4\,d^2}+\frac{x^2\,(a+b\,\text{ArcSin}[c\,x])}{2\,c^2\,d^2\,\left(1-c^2\,x^2\right)}-\frac{i\,(a+b\,\text{ArcSin}[c\,x])^2}{2\,b\,c^4\,d^2}+\frac{(a+b\,\text{ArcSin}[c\,x])\,\text{Log}\left[1+e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{c^4\,d^2}-\frac{i\,b\,\text{PolyLog}\left[2,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{2\,c^4\,d^2}$$

Result (type 4, 334 leaves):

$$\frac{1}{4\,c^4\,d^2}\left(\frac{b\,\sqrt{1-c^2\,x^2}}{-1+c\,x}+\frac{b\,\sqrt{1-c^2\,x^2}}{1+c\,x}-\frac{2\,a}{-1+c^2\,x^2}+4\,i\,b\,\pi\,\text{ArcSin}[c\,x]+\frac{b\,\text{ArcSin}[c\,x]}{1-c\,x}+\frac{b\,\text{ArcSin}[c\,x]}{1+c\,x}-2\,i\,b\,\text{ArcSin}[c\,x]^2+8\,b\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]+2\,b\,\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,b\,\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,a\,\text{Log}\left[1-c^2\,x^2\right]-8\,b\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]+2\,b\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-2\,b\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-4\,i\,b\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-4\,i\,b\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\right)$$

Problem 39: Result more than twice size of optimal antiderivative.

$$\int \frac{x^2\,(a+b\,\text{ArcSin}[c\,x])}{\left(d-c^2\,d\,x^2\right)^2}\,dx$$

Optimal (type 4, 144 leaves, 8 steps):

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

Result (type 4, 463 leaves):

$$-\frac{a x}{2 c^2 d^2 \left(-1+c^2 x^2\right)}+\frac{a \text{Log}[1-c x]}{4 c^3 d^2}-\frac{a \text{Log}[1+c x]}{4 c^3 d^2}+\frac{1}{d^2} b \left(\frac{\sqrt{1-c^2 x^2}-\text{ArcSin}[c x]}{4 c^3 (-1+c x)}-\frac{\sqrt{1-c^2 x^2}+\text{ArcSin}[c x]}{4 c^2 \left(c+c^2 x\right)}+\frac{1}{4 c^2}\left(\frac{3 i \pi \text{ArcSin}[c x]}{2 c}-\frac{i \text{ArcSin}[c x]^2}{2 c}+\frac{2 \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]}{c}-\frac{\pi \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]}{c}+\frac{2 \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]}{c}-\frac{2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]}{c}+\frac{\pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]}{c}-\frac{2 i \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]}{c}\right)-\frac{1}{4 c^2}\left(\frac{i \pi \text{ArcSin}[c x]}{2 c}-\frac{i \text{ArcSin}[c x]^2}{2 c}+\frac{2 \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]}{c}+\frac{\pi \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]}{c}+\frac{2 \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]}{c}-\frac{2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]}{c}-\frac{\pi \text{Log}\left[\text{Sin}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]}{c}-\frac{2 i \text{PolyLog}\left[2,i e^{i \text{ArcSin}[c x]}\right]}{c}\right)\right)$$

Problem 41: Result more than twice size of optimal antiderivative.

$$\int \frac{a+b \text{ArcSin}[c x]}{\left(d-c^2 d x^2\right)^2} \, dx$$

Optimal (type 4, 141 leaves, 8 steps):

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

Result (type 4, 334 leaves):

$$-\frac{1}{4 d^2}\left(\frac{b\sqrt{1-c^2 x^2}}{c-c^2 x}+\frac{b\sqrt{1-c^2 x^2}}{c+c^2 x}+\frac{2 a x}{-1+c^2 x^2}+\frac{i b \pi \text{ArcSin}[c x]}{c}+\frac{b \text{ArcSin}[c x]}{c(-1+c x)}+\frac{b \text{ArcSin}[c x]}{c+c^2 x}-\frac{b \pi \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]}{c}-\frac{2 b \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]}{c}-\frac{b \pi \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]}{c}+\frac{2 b \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]}{c}+\frac{a \text{Log}[1-c x]}{c}-\frac{a \text{Log}[1+c x]}{c}+\frac{b \pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4}(\pi+2 \text{ArcSin}[c x])\right]\right]}{c}+\frac{b \pi \text{Log}\left[\text{Sin}\left[\frac{1}{4}(\pi+2 \text{ArcSin}[c x])\right]\right]}{c}-\frac{2 i b \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]}{c}+\frac{2 i b \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]}{c}\right)$$

Problem 42: Result more than twice size of optimal antiderivative.

$$\int \frac{a+b \text{ArcSin}[c x]}{x\left(d-c^2 d x^2\right)^2} dx$$

Optimal (type 4, 122 leaves, 9 steps):

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

Result (type 4, 364 leaves):

$$\frac{1}{4 d^2}\left(\frac{b\sqrt{1-c^2 x^2}}{-1+c x}+\frac{b\sqrt{1-c^2 x^2}}{1+c x}-\frac{2 a}{-1+c^2 x^2}-4 i b \pi \text{ArcSin}[c x]+\frac{b \text{ArcSin}[c x]}{1-c x}+\frac{b \text{ArcSin}[c x]}{1+c x}-8 b \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]-2 b \pi \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]-4 b \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]+2 b \pi \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]-4 b \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]+4 b \text{ArcSin}[c x] \text{Log}\left[1-e^{2 i \text{ArcSin}[c x]}\right]+4 a \text{Log}[x]-2 a \text{Log}\left[1-c^2 x^2\right]+8 b \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-2 b \pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4}(\pi+2 \text{ArcSin}[c x])\right]\right]+2 b \pi \text{Log}\left[\text{Sin}\left[\frac{1}{4}(\pi+2 \text{ArcSin}[c x])\right]\right]+4 i b \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]+4 i b \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]-2 i b \text{PolyLog}\left[2, e^{2 i \text{ArcSin}[c x]}\right]\right)$$

Problem 44: Result more than twice size of optimal antiderivative.

$$\int \frac{a+b \text{ArcSin}[c x]}{x^3\left(d-c^2 d x^2\right)^2} dx$$

Optimal (type 4, 159 leaves, 12 steps):

$$-\frac{b c}{2 d^2 x \sqrt{1-c^2 x^2}}+\frac{c^2 (a+b \text{ArcSin}[c x])}{d^2 (1-c^2 x^2)}-\frac{a+b \text{ArcSin}[c x]}{2 d^2 x^2 (1-c^2 x^2)}-\frac{4 c^2 (a+b \text{ArcSin}[c x]) \text{ArcTanh}\left[e^{2 i \text{ArcSin}[c x]}\right]}{d^2}+\frac{i b c^2 \text{PolyLog}\left[2,-e^{2 i \text{ArcSin}[c x]}\right]}{d^2}-\frac{i b c^2 \text{PolyLog}\left[2,e^{2 i \text{ArcSin}[c x]}\right]}{d^2}$$

Result (type 4, 461 leaves):

$$\frac{1}{4 d^2}\left(-\frac{2 a}{x^2}-\frac{2 b c \sqrt{1-c^2 x^2}}{x}+\frac{b c^2 \sqrt{1-c^2 x^2}}{-1+c x}+\frac{b c^2 \sqrt{1-c^2 x^2}}{1+c x}-\frac{2 a c^2}{-1+c^2 x^2}-8 i b c^2 \pi \text{ArcSin}[c x]-\frac{2 b \text{ArcSin}[c x]}{x^2}+\frac{b c^2 \text{ArcSin}[c x]}{1-c x}+\frac{b c^2 \text{ArcSin}[c x]}{1+c x}-16 b c^2 \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]-4 b c^2 \pi \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]-8 b c^2 \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]+4 b c^2 \pi \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]-8 b c^2 \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]+8 b c^2 \text{ArcSin}[c x] \text{Log}\left[1-e^{2 i \text{ArcSin}[c x]}\right]+8 a c^2 \text{Log}[x]-4 a c^2 \text{Log}\left[1-c^2 x^2\right]+16 b c^2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-4 b c^2 \pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]+4 b c^2 \pi \text{Log}\left[\text{Sin}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]+8 i b c^2 \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]+8 i b c^2 \text{PolyLog}\left[2,i e^{i \text{ArcSin}[c x]}\right]-4 i b c^2 \text{PolyLog}\left[2,e^{2 i \text{ArcSin}[c x]}\right]\right)$$

Problem 46: Result more than twice size of optimal antiderivative.

$$\int \frac{x^4 (a+b \text{ArcSin}[c x])}{(d-c^2 d x^2)^3} \, dx$$

Optimal (type 4, 204 leaves, 12 steps):

$$-\frac{b}{12 c^5 d^3 (1-c^2 x^2)^{3/2}}+\frac{5 b}{8 c^5 d^3 \sqrt{1-c^2 x^2}}+\frac{x^3 (a+b \text{ArcSin}[c x])}{4 c^2 d^3 (1-c^2 x^2)^2}-\frac{3 x (a+b \text{ArcSin}[c x])}{8 c^4 d^3 (1-c^2 x^2)}-\frac{3 i (a+b \text{ArcSin}[c x]) \text{ArcTan}\left[e^{i \text{ArcSin}[c x]}\right]}{4 c^5 d^3}+\frac{3 i b \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]}{8 c^5 d^3}-\frac{3 i b \text{PolyLog}\left[2,i e^{i \text{ArcSin}[c x]}\right]}{8 c^5 d^3}$$

Result (type 4, 445 leaves):

$$\frac{1}{48 c^5 d^3}\left(-\frac{2 b \sqrt{1-c^2 x^2}}{(-1+c x)^2}+\frac{b c x \sqrt{1-c^2 x^2}}{(-1+c x)^2}-\frac{15 b \sqrt{1-c^2 x^2}}{-1+c x}-\frac{2 b \sqrt{1-c^2 x^2}}{(1+c x)^2}-\frac{b c x \sqrt{1-c^2 x^2}}{(1+c x)^2}+\frac{15 b \sqrt{1-c^2 x^2}}{1+c x}+\frac{12 a c x}{(-1+c^2 x^2)^2}+\frac{30 a c x}{-1+c^2 x^2}-9 i b \pi \text{ArcSin}[c x]+\frac{3 b \text{ArcSin}[c x]}{(-1+c x)^2}+\frac{15 b \text{ArcSin}[c x]}{-1+c x}-\frac{3 b \text{ArcSin}[c x]}{(1+c x)^2}+\frac{15 b \text{ArcSin}[c x]}{1+c x}+9 b \pi \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]+18 b \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]+9 b \pi \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]-18 b \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]-9 a \text{Log}[1-c x]+9 a \text{Log}[1+c x]-9 b \pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4}(\pi+2 \text{ArcSin}[c x])\right]\right]-9 b \pi \text{Log}\left[\text{Sin}\left[\frac{1}{4}(\pi+2 \text{ArcSin}[c x])\right]\right]+18 i b \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]-18 i b \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]\right)$$

Problem 48: Result more than twice size of optimal antiderivative.

$$\int \frac{x^2 (a+b \text{ArcSin}[c x])}{(d-c^2 d x^2)^3} \, dx$$

Optimal (type 4, 202 leaves, 10 steps):

$$-\frac{b}{12 c^3 d^3 (1-c^2 x^2)^{3/2}}+\frac{b}{8 c^3 d^3 \sqrt{1-c^2 x^2}}+\frac{x (a+b \text{ArcSin}[c x])}{4 c^2 d^3 (1-c^2 x^2)^2}-\frac{x (a+b \text{ArcSin}[c x])}{8 c^2 d^3 (1-c^2 x^2)}+\frac{i (a+b \text{ArcSin}[c x]) \text{ArcTan}\left[e^{i \text{ArcSin}[c x]}\right]}{4 c^3 d^3}-\frac{i b \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]}{8 c^3 d^3}+\frac{i b \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]}{8 c^3 d^3}$$

Result (type 4, 445 leaves):

$$\frac{1}{48 c^3 d^3}\left(-\frac{2 b \sqrt{1-c^2 x^2}}{(-1+c x)^2}+\frac{b c x \sqrt{1-c^2 x^2}}{(-1+c x)^2}-\frac{3 b \sqrt{1-c^2 x^2}}{-1+c x}-\frac{2 b \sqrt{1-c^2 x^2}}{(1+c x)^2}-\frac{b c x \sqrt{1-c^2 x^2}}{(1+c x)^2}+\frac{3 b \sqrt{1-c^2 x^2}}{1+c x}+\frac{12 a c x}{(-1+c^2 x^2)^2}+\frac{6 a c x}{-1+c^2 x^2}+3 i b \pi \text{ArcSin}[c x]+\frac{3 b \text{ArcSin}[c x]}{(-1+c x)^2}+\frac{3 b \text{ArcSin}[c x]}{-1+c x}-\frac{3 b \text{ArcSin}[c x]}{(1+c x)^2}+\frac{3 b \text{ArcSin}[c x]}{1+c x}-3 b \pi \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]-6 b \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]-3 b \pi \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]+6 b \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]+3 a \text{Log}[1-c x]-3 a \text{Log}[1+c x]+3 b \pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4}(\pi+2 \text{ArcSin}[c x])\right]\right]+3 b \pi \text{Log}\left[\text{Sin}\left[\frac{1}{4}(\pi+2 \text{ArcSin}[c x])\right]\right]-6 i b \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]+6 i b \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]\right)$$

Problem 50: Result more than twice size of optimal antiderivative.

$$\int \frac{a+b\,\text{ArcSin}[c\,x]}{\left(d-c^2\,d\,x^2\right)^3}\,dx$$

Optimal (type 4, 196 leaves, 10 steps):

$$-\frac{b}{12\,c\,d^3\,\left(1-c^2\,x^2\right)^{3/2}}-\frac{3\,b}{8\,c\,d^3\,\sqrt{1-c^2\,x^2}}+\frac{x\,\left(a+b\,\text{ArcSin}[c\,x]\right)}{4\,d^3\,\left(1-c^2\,x^2\right)^2}+\frac{3\,x\,\left(a+b\,\text{ArcSin}[c\,x]\right)}{8\,d^3\,\left(1-c^2\,x^2\right)}-\frac{3\,i\,\left(a+b\,\text{ArcSin}[c\,x]\right)\,\text{ArcTan}\left[e^{i\,\text{ArcSin}[c\,x]}\right]}{4\,c\,d^3}+\frac{3\,i\,b\,\text{PolyLog}\left[2,\,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{8\,c\,d^3}-\frac{3\,i\,b\,\text{PolyLog}\left[2,\,i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{8\,c\,d^3}$$

Result (type 4, 501 leaves):

$$-\frac{1}{16\,d^3}\left(\frac{2\,b\,\sqrt{1-c^2\,x^2}}{3\,c\,\left(-1+c\,x\right)^2}-\frac{b\,x\,\sqrt{1-c^2\,x^2}}{3\,\left(-1+c\,x\right)^2}+\frac{2\,b\,\sqrt{1-c^2\,x^2}}{3\,c\,\left(1+c\,x\right)^2}+\frac{b\,x\,\sqrt{1-c^2\,x^2}}{3\,\left(1+c\,x\right)^2}+\frac{3\,b\,\sqrt{1-c^2\,x^2}}{c-c^2\,x}+\frac{3\,b\,\sqrt{1-c^2\,x^2}}{c+c^2\,x}-\frac{4\,a\,x}{\left(-1+c^2\,x^2\right)^2}+\frac{6\,a\,x}{-1+c^2\,x^2}+\frac{3\,i\,b\,\pi\,\text{ArcSin}[c\,x]}{c}-\frac{b\,\text{ArcSin}[c\,x]}{c\,\left(-1+c\,x\right)^2}+\frac{b\,\text{ArcSin}[c\,x]}{c\,\left(1+c\,x\right)^2}-\frac{3\,b\,\text{ArcSin}[c\,x]}{c-c^2\,x}+\frac{3\,b\,\text{ArcSin}[c\,x]}{c+c^2\,x}-\frac{3\,b\,\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c}-\frac{6\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c}-\frac{3\,b\,\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c}+\frac{6\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c}+\frac{3\,a\,\text{Log}[1-c\,x]}{c}-\frac{3\,a\,\text{Log}[1+c\,x]}{c}+\frac{3\,b\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right]}{c}+\frac{3\,b\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right]}{c}-\frac{6\,i\,b\,\text{PolyLog}\left[2,\,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c}+\frac{6\,i\,b\,\text{PolyLog}\left[2,\,i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c}\right)$$

Problem 51: Result more than twice size of optimal antiderivative.

$$\int \frac{a+b\,\text{ArcSin}[c\,x]}{x\,\left(d-c^2\,d\,x^2\right)^3}\,dx$$

Optimal (type 4, 173 leaves, 12 steps):

$$-\frac{b\,c\,x}{12\,d^3\,\left(1-c^2\,x^2\right)^{3/2}}-\frac{2\,b\,c\,x}{3\,d^3\,\sqrt{1-c^2\,x^2}}+\frac{a+b\,\text{ArcSin}[c\,x]}{4\,d^3\,\left(1-c^2\,x^2\right)^2}+\frac{a+b\,\text{ArcSin}[c\,x]}{2\,d^3\,\left(1-c^2\,x^2\right)}-\frac{2\,\left(a+b\,\text{ArcSin}[c\,x]\right)\,\text{ArcTanh}\left[e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{d^3}+\frac{i\,b\,\text{PolyLog}\left[2,\,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{2\,d^3}-\frac{i\,b\,\text{PolyLog}\left[2,\,e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{2\,d^3}$$

Result (type 4, 524 leaves):

$$\frac{1}{4 d^3}\left(-\frac{b \sqrt{1-c^2 x^2}}{6 (-1+c x)^2}+\frac{b c x \sqrt{1-c^2 x^2}}{12 (-1+c x)^2}+\frac{b \sqrt{1-c^2 x^2}}{6 (1+c x)^2}+\frac{b c x \sqrt{1-c^2 x^2}}{12 (1+c x)^2}+\frac{5 b \sqrt{1-c^2 x^2}}{-4+4 c x}+\frac{5 b \sqrt{1-c^2 x^2}}{4+4 c x}+\frac{a}{(-1+c^2 x^2)^2}-\frac{2 a}{-1+c^2 x^2}-\right.$$
$$4 i b \pi \text{ArcSin}[c x]+\frac{5 b \text{ArcSin}[c x]}{4-4 c x}+\frac{b \text{ArcSin}[c x]}{4 (-1+c x)^2}+\frac{b \text{ArcSin}[c x]}{4 (1+c x)^2}+\frac{5 b \text{ArcSin}[c x]}{4+4 c x}-8 b \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]-$$
$$2 b \pi \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]-4 b \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]+2 b \pi \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]-4 b \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]+$$
$$4 b \text{ArcSin}[c x] \text{Log}\left[1-e^{2 i \text{ArcSin}[c x]}\right]+4 a \text{Log}[x]-2 a \text{Log}\left[1-c^2 x^2\right]+8 b \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-2 b \pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]+$$
$$\left.2 b \pi \text{Log}\left[\text{Sin}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]+4 i b \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]+4 i b \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]-2 i b \text{PolyLog}\left[2, e^{2 i \text{ArcSin}[c x]}\right]\right)$$

Problem 52: Result more than twice size of optimal antiderivative.

$$\int \frac{a+b \text{ArcSin}[c x]}{x^2 (d-c^2 d x^2)^3} \, dx$$

Optimal (type 4, 242 leaves, 16 steps):

$$-\frac{b c}{12 d^3 (1-c^2 x^2)^{3/2}}-\frac{7 b c}{8 d^3 \sqrt{1-c^2 x^2}}-\frac{a+b \text{ArcSin}[c x]}{d^3 x (1-c^2 x^2)^2}+$$
$$\frac{5 c^2 x (a+b \text{ArcSin}[c x])}{4 d^3 (1-c^2 x^2)^2}+\frac{15 c^2 x (a+b \text{ArcSin}[c x])}{8 d^3 (1-c^2 x^2)}-\frac{15 i c (a+b \text{ArcSin}[c x]) \text{ArcTan}\left[e^{i \text{ArcSin}[c x]}\right]}{4 d^3}-$$
$$\frac{b c \text{ArcTanh}\left[\sqrt{1-c^2 x^2}\right]}{d^3}+\frac{15 i b c \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]}{8 d^3}-\frac{15 i b c \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]}{8 d^3}$$

Result (type 4, 520 leaves):

$$-\frac{1}{16 d^3}\left(\frac{16 a}{x}+\frac{2 b c \sqrt{1-c^2 x^2}}{3(-1+c x)^2}-\frac{b c^2 x \sqrt{1-c^2 x^2}}{3(-1+c x)^2}-\frac{7 b c \sqrt{1-c^2 x^2}}{-1+c x}+\frac{2 b c \sqrt{1-c^2 x^2}}{3(1+c x)^2}+\frac{b c^2 x \sqrt{1-c^2 x^2}}{3(1+c x)^2}+\frac{7 b c \sqrt{1-c^2 x^2}}{1+c x}-\frac{4 a c^2 x}{(-1+c^2 x^2)^2}+\frac{14 a c^2 x}{-1+c^2 x^2}+15 i b c \pi \text{ArcSin}[c x]+\frac{16 b \text{ArcSin}[c x]}{x}-\frac{b c \text{ArcSin}[c x]}{(-1+c x)^2}+\frac{7 b c \text{ArcSin}[c x]}{-1+c x}+\frac{b c \text{ArcSin}[c x]}{(1+c x)^2}+\frac{7 b c \text{ArcSin}[c x]}{1+c x}-15 b c \pi \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]-30 b c \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]-15 b c \pi \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]+30 b c \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]-16 b c \text{Log}[x]+15 a c \text{Log}[1-c x]-15 a c \text{Log}[1+c x]+16 b c \text{Log}\left[1+\sqrt{1-c^2 x^2}\right]+15 b c \pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4}(\pi+2 \text{ArcSin}[c x])\right]\right]+15 b c \pi \text{Log}\left[\text{Sin}\left[\frac{1}{4}(\pi+2 \text{ArcSin}[c x])\right]\right]-30 i b c \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]+30 i b c \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]\right)$$

Problem 53: Result more than twice size of optimal antiderivative.

$$\int \frac{a+b \text{ArcSin}[c x]}{x^3 (d-c^2 d x^2)^3} \, dx$$

Optimal (type 4, 248 leaves, 16 steps):

$$-\frac{b c}{2 d^3 x (1-c^2 x^2)^{3/2}}+\frac{5 b c^3 x}{12 d^3 (1-c^2 x^2)^{3/2}}-\frac{2 b c^3 x}{3 d^3 \sqrt{1-c^2 x^2}}+\frac{3 c^2 (a+b \text{ArcSin}[c x])}{4 d^3 (1-c^2 x^2)^2}-\frac{a+b \text{ArcSin}[c x]}{2 d^3 x^2 (1-c^2 x^2)^2}+\frac{3 c^2 (a+b \text{ArcSin}[c x])}{2 d^3 (1-c^2 x^2)}-\frac{6 c^2 (a+b \text{ArcSin}[c x]) \text{ArcTanh}\left[e^{2 i \text{ArcSin}[c x]}\right]}{d^3}+\frac{3 i b c^2 \text{PolyLog}\left[2,-e^{2 i \text{ArcSin}[c x]}\right]}{2 d^3}-\frac{3 i b c^2 \text{PolyLog}\left[2, e^{2 i \text{ArcSin}[c x]}\right]}{2 d^3}$$

Result (type 4, 568 leaves):

$$\frac{1}{4 d^3}\left(-\frac{2 a}{x^2}+\frac{a c^2}{\left(-1+c^2 x^2\right)^2}-\frac{4 a c^2}{-1+c^2 x^2}+\frac{9 b c^2\left(\sqrt{1-c^2 x^2}-\text{ArcSin}[c x]\right)}{-4+4 c x}+\frac{9 b c^2\left(\sqrt{1-c^2 x^2}+\text{ArcSin}[c x]\right)}{4+4 c x}-\right.$$
$$\frac{2 b\left(c x \sqrt{1-c^2 x^2}+\text{ArcSin}[c x]\right)}{x^2}+\frac{b c^2\left(\left(-2+c x\right) \sqrt{1-c^2 x^2}+3 \text{ArcSin}[c x]\right)}{12\left(-1+c x\right)^2}+\frac{b c^2\left(\left(2+c x\right) \sqrt{1-c^2 x^2}+3 \text{ArcSin}[c x]\right)}{12\left(1+c x\right)^2}+$$
$$12 a c^2 \text{Log}[x]-6 a c^2 \text{Log}\left[1-c^2 x^2\right]+3 b c^2\left(i \text{ArcSin}[c x]^2+\text{ArcSin}[c x]\left(-3 i \pi-4 \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]\right)+\right.$$
$$2 \pi\left(-2 \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]+\text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]+2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\left(\pi+2 \text{ArcSin}[c x]\right)\right]\right]\right)+$$
$$\left.4 i \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]\right)+3 b c^2\left(i \text{ArcSin}[c x]^2+\text{ArcSin}[c x]\left(-i \pi-4 \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]\right)+\right.$$
$$2 \pi\left(-2 \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]-\text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]+2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+\text{Log}\left[\text{Sin}\left[\frac{1}{4}\left(\pi+2 \text{ArcSin}[c x]\right)\right]\right]\right)+$$
$$\left.\left.4 i \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]\right)+12 b c^2\left(\text{ArcSin}[c x] \text{Log}\left[1-e^{2 i \text{ArcSin}[c x]}\right]-\frac{1}{2} i\left(\text{ArcSin}[c x]^2+\text{PolyLog}\left[2, e^{2 i \text{ArcSin}[c x]}\right]\right)\right)\right)$$

Problem 119: Result unnecessarily involves higher level functions.

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

Optimal (type 3, 221 leaves, 5 steps):

$$-\frac{5 b x \sqrt{d-c^2 d x^2}}{3 c^5 d^2 \sqrt{1-c^2 x^2}}-\frac{b x^3 \sqrt{d-c^2 d x^2}}{9 c^3 d^2 \sqrt{1-c^2 x^2}}+\frac{a+b \text{ArcSin}[c x]}{c^6 d \sqrt{d-c^2 d x^2}}+$$
$$\frac{2 \sqrt{d-c^2 d x^2}\left(a+b \text{ArcSin}[c x]\right)}{c^6 d^2}-\frac{\left(d-c^2 d x^2\right)^{3/2}\left(a+b \text{ArcSin}[c x]\right)}{3 c^6 d^3}-\frac{b \sqrt{d-c^2 d x^2} \text{ArcTanh}[c x]}{c^6 d^2 \sqrt{1-c^2 x^2}}$$

Result (type 4, 166 leaves):

$$\frac{1}{9 c^6 \sqrt{-c^2} d^2\left(-1+c^2 x^2\right)} \sqrt{d-c^2 d x^2}\left(\sqrt{-c^2}\left(b c x \sqrt{1-c^2 x^2}\left(15+c^2 x^2\right)+3 a\left(-8+4 c^2 x^2+c^4 x^4\right)+3 b\left(-8+4 c^2 x^2+c^4 x^4\right) \text{ArcSin}[c x]\right)-\right.$$
$$\left.9 i b c \sqrt{1-c^2 x^2} \text{EllipticF}\left[i \text{ArcSinh}\left[\sqrt{-c^2} x\right], 1\right]\right)$$

Problem 121: Result unnecessarily involves higher level functions.

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

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

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

Result (type 4, 136 leaves):

$$\frac{1}{c^4 \sqrt{-c^2} d^2 \left(-1+c^2 x^2\right)} \sqrt{d-c^2 d x^2} \left(\sqrt{-c^2} \left(-2 a+a c^2 x^2+b c x \sqrt{1-c^2 x^2}+b \left(-2+c^2 x^2\right) \text{ArcSin}[c x]\right)-i b c \sqrt{1-c^2 x^2} \text{EllipticF}\left[i \text{ArcSinh}\left[\sqrt{-c^2} x\right],1\right]\right)$$

Problem 123: Result unnecessarily involves higher level functions.

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

Optimal (type 3, 73 leaves, 2 steps):

$$\frac{a+b \text{ArcSin}[c x]}{c^2 d \sqrt{d-c^2 d x^2}}-\frac{b \sqrt{1-c^2 x^2} \text{ArcTanh}[c x]}{c^2 d \sqrt{d-c^2 d x^2}}$$

Result (type 4, 96 leaves):

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

Problem 130: Result unnecessarily involves higher level functions.

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

Optimal (type 3, 219 leaves, 5 steps):

$$-\frac{b x \sqrt{d-c^2 d x^2}}{6 c^5 d^3 \left(1-c^2 x^2\right)^{3/2}}+\frac{b x \sqrt{d-c^2 d x^2}}{c^5 d^3 \sqrt{1-c^2 x^2}}+\frac{a+b \text{ArcSin}[c x]}{3 c^6 d \left(d-c^2 d x^2\right)^{3/2}}-\frac{2 (a+b \text{ArcSin}[c x])}{c^6 d^2 \sqrt{d-c^2 d x^2}}-\frac{\sqrt{d-c^2 d x^2} (a+b \text{ArcSin}[c x])}{c^6 d^3}+\frac{11 b \sqrt{d-c^2 d x^2} \text{ArcTanh}[c x]}{6 c^6 d^3 \sqrt{1-c^2 x^2}}$$

Result (type 4, 169 leaves):

$$\left(\sqrt{d-c^2 d x^2} \left(\sqrt{-c^2} \left(b c x \sqrt{1-c^2 x^2} \left(-5+6 c^2 x^2\right)+2 a \left(8-12 c^2 x^2+3 c^4 x^4\right)+2 b \left(8-12 c^2 x^2+3 c^4 x^4\right) \text{ArcSin}[c x]\right)+11 i b c \left(1-c^2 x^2\right)^{3/2} \text{EllipticF}\left[i \text{ArcSinh}\left[\sqrt{-c^2} x\right],1\right]\right)\right) \Big/ \left(6 c^4 \left(-c^2\right)^{3/2} d^3 \left(-1+c^2 x^2\right)^2\right)$$

Problem 132: Result unnecessarily involves higher level functions.

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

Optimal (type 3, 150 leaves, 4 steps):

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

Result (type 4, 143 leaves):

$$\left(\sqrt{d-c^2 d x^2} \left(\sqrt{-c^2} \left(-4 a+6 a c^2 x^2-b c x \sqrt{1-c^2 x^2}+2 b \left(-2+3 c^2 x^2\right) \text{ArcSin}[c x]\right)-5 i b c \left(1-c^2 x^2\right)^{3/2} \text{EllipticF}\left[i \text{ArcSinh}\left[\sqrt{-c^2} x\right],1\right]\right)\right) \Big/ \left(6 c^4 \sqrt{-c^2} d^3 \left(-1+c^2 x^2\right)^2\right)$$

Problem 134: Result unnecessarily involves higher level functions.

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

Optimal (type 3, 119 leaves, 3 steps):

$$-\frac{b x}{6 c d^2 \sqrt{1-c^2 x^2} \sqrt{d-c^2 d x^2}}+\frac{a+b \text{ArcSin}[c x]}{3 c^2 d \left(d-c^2 d x^2\right)^{3/2}}-\frac{b \sqrt{1-c^2 x^2} \text{ArcTanh}[c x]}{6 c^2 d^2 \sqrt{d-c^2 d x^2}}$$

Result (type 4, 121 leaves):

$$-\left(\left(\sqrt{d-c^2 d x^2}\left(\sqrt{-c^2}\left(2 a-b c x \sqrt{1-c^2 x^2}+2 b \text{ArcSin}[c x]\right)+i b c \left(1-c^2 x^2\right)^{3/2} \text{EllipticF}\left[i \text{ArcSinh}\left[\sqrt{-c^2} x\right], 1\right]\right)\right) \Big/ \left(6 \left(-c^2\right)^{3/2} d^3 \left(-1+c^2 x^2\right)^2\right)\right)$$

Problem 141: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(f x)^{3/2} (a+b \text{ArcSin}[c x])}{\sqrt{1-c^2 x^2}} \, dx$$

Optimal (type 5, 79 leaves, 1 step):

$$\frac{2 (f x)^{5/2} (a+b \text{ArcSin}[c x]) \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{5}{4}, \frac{9}{4}, c^2 x^2\right]}{5 f}-\frac{4 b c (f x)^{7/2} \text{HypergeometricPFQ}\left[\left\{1, \frac{7}{4}, \frac{7}{4}\right\}, \left\{\frac{9}{4}, \frac{11}{4}\right\}, c^2 x^2\right]}{35 f^2}$$

Result (type 5, 233 leaves):

$$\frac{1}{36 c^2 \sqrt{1-c^2 x^2} \text{Gamma}\left[\frac{5}{4}\right] \text{Gamma}\left[\frac{7}{4}\right]} f \sqrt{f x} \left(8 \text{Gamma}\left[\frac{5}{4}\right] \text{Gamma}\left[\frac{7}{4}\right] \left(-3 a+3 a c^2 x^2+2 b c x \sqrt{1-c^2 x^2}-3 b \text{ArcSin}[c x]+3 b c^2 x^2 \text{ArcSin}[c x]+\frac{3 i a \sqrt{1-\frac{1}{c^2 x^2}} \sqrt{x} \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{1}{c}}}{\sqrt{x}}\right], -1\right]}{\sqrt{-\frac{1}{c}}}-3 b \left(-1+c^2 x^2\right) \text{ArcSin}[c x] \text{Hypergeometric2F1}\left[\frac{3}{4}, 1, \frac{5}{4}, c^2 x^2\right]\right)-3 b c \pi x \sqrt{2-2 c^2 x^2} \text{HypergeometricPFQ}\left[\left\{\frac{3}{4}, \frac{3}{4}, 1\right\}, \left\{\frac{5}{4}, \frac{7}{4}\right\}, c^2 x^2\right]\right)$$

Problem 142: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{(f x)^{3/2} (a+b \text{ArcSin}[c x])}{\sqrt{d-c^2 d x^2}} \, dx$$

Optimal (type 5, 137 leaves, 1 step):

$$\frac{2 (f x)^{5/2} \sqrt{1-c^2 x^2} (a+b \text{ArcSin}[c x]) \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{4},\frac{9}{4},c^2 x^2\right]}{5 f \sqrt{d-c^2 d x^2}}-\frac{4 b c (f x)^{7/2} \sqrt{1-c^2 x^2} \text{HypergeometricPFQ}\left[\left\{1,\frac{7}{4},\frac{7}{4}\right\},\left\{\frac{9}{4},\frac{11}{4}\right\},c^2 x^2\right]}{35 f^2 \sqrt{d-c^2 d x^2}}$$

Result (type 5, 234 leaves):

$$\frac{1}{36 c^2 \sqrt{d-c^2 d x^2} \text{Gamma}\left[\frac{5}{4}\right] \text{Gamma}\left[\frac{7}{4}\right]} f \sqrt{f x} \left(8 \text{Gamma}\left[\frac{5}{4}\right] \text{Gamma}\left[\frac{7}{4}\right]\right.$$

$$\left(-3 a+3 a c^2 x^2+2 b c x \sqrt{1-c^2 x^2}-3 b \text{ArcSin}[c x]+3 b c^2 x^2 \text{ArcSin}[c x]+\frac{3 i a \sqrt{1-\frac{1}{c^2 x^2}} \sqrt{x} \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{-\frac{1}{c}}}{\sqrt{x}}\right],-1\right]}{\sqrt{-\frac{1}{c}}}-\right.$$

$$\left.\left.3 b \left(-1+c^2 x^2\right) \text{ArcSin}[c x] \text{Hypergeometric2F1}\left[\frac{3}{4},1,\frac{5}{4},c^2 x^2\right]\right)-3 b c \pi x \sqrt{2-2 c^2 x^2} \text{HypergeometricPFQ}\left[\left\{\frac{3}{4},\frac{3}{4},1\right\},\left\{\frac{5}{4},\frac{7}{4}\right\},c^2 x^2\right]\right)$$

Problem 149: Unable to integrate problem.

$$\int x^m \left(d-c^2 d x^2\right)^{5/2} (a+b \text{ArcSin}[c x]) \, dx$$

Optimal (type 5, 635 leaves, 9 steps):

$$-\frac{15 b c d^2 x^{2+m} \sqrt{d-c^2 d x^2}}{(2+m)^2 (4+m) (6+m) \sqrt{1-c^2 x^2}}-\frac{5 b c d^2 x^{2+m} \sqrt{d-c^2 d x^2}}{(6+m) \left(8+6 m+m^2\right) \sqrt{1-c^2 x^2}}-\frac{b c d^2 x^{2+m} \sqrt{d-c^2 d x^2}}{\left(12+8 m+m^2\right) \sqrt{1-c^2 x^2}}+\frac{5 b c^3 d^2 x^{4+m} \sqrt{d-c^2 d x^2}}{(4+m)^2 (6+m) \sqrt{1-c^2 x^2}}+$$

$$\frac{2 b c^3 d^2 x^{4+m} \sqrt{d-c^2 d x^2}}{(4+m) (6+m) \sqrt{1-c^2 x^2}}-\frac{b c^5 d^2 x^{6+m} \sqrt{d-c^2 d x^2}}{(6+m)^2 \sqrt{1-c^2 x^2}}+\frac{15 d^2 x^{1+m} \sqrt{d-c^2 d x^2} \, (a+b \text{ArcSin}[c x])}{(6+m) \left(8+6 m+m^2\right)}+\frac{5 d x^{1+m} \left(d-c^2 d x^2\right)^{3/2} (a+b \text{ArcSin}[c x])}{(4+m) (6+m)}+$$

$$\frac{x^{1+m} \left(d-c^2 d x^2\right)^{5/2} (a+b \text{ArcSin}[c x])}{6+m}+\frac{15 d^2 x^{1+m} \sqrt{d-c^2 d x^2} \, (a+b \text{ArcSin}[c x]) \, \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{1+m}{2},\frac{3+m}{2},c^2 x^2\right]}{(6+m) \left(8+14 m+7 m^2+m^3\right) \sqrt{1-c^2 x^2}}-$$

$$\frac{15 b c d^2 x^{2+m} \sqrt{d-c^2 d x^2} \, \text{HypergeometricPFQ}\left[\left\{1,1+\frac{m}{2},1+\frac{m}{2}\right\},\left\{\frac{3}{2}+\frac{m}{2},2+\frac{m}{2}\right\},c^2 x^2\right]}{(1+m) (2+m)^2 (4+m) (6+m) \sqrt{1-c^2 x^2}}$$

Result (type 8, 29 leaves) :

$$\int x^m \left(d-c^2 d x^2\right)^{5/2} (a+b \text{ArcSin}[c x]) \, dx$$

Problem 150: Unable to integrate problem.

$$\int x^m \left(d-c^2 d x^2\right)^{3/2} (a+b \text{ArcSin}[c x]) \, dx$$

Optimal (type 5, 399 leaves, 6 steps) :

$$-\frac{3 b c d x^{2+m} \sqrt{d-c^2 d x^2}}{(2+m)^2 (4+m) \sqrt{1-c^2 x^2}}-\frac{b c d x^{2+m} \sqrt{d-c^2 d x^2}}{\left(8+6 m+m^2\right) \sqrt{1-c^2 x^2}}+\frac{b c^3 d x^{4+m} \sqrt{d-c^2 d x^2}}{(4+m)^2 \sqrt{1-c^2 x^2}}+\frac{3 d x^{1+m} \sqrt{d-c^2 d x^2} \, (a+b \text{ArcSin}[c x])}{8+6 m+m^2}+$$

$$\frac{x^{1+m} \left(d-c^2 d x^2\right)^{3/2} (a+b \text{ArcSin}[c x])}{4+m}+\frac{3 d x^{1+m} \sqrt{d-c^2 d x^2} \, (a+b \text{ArcSin}[c x]) \, \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{1+m}{2},\frac{3+m}{2},c^2 x^2\right]}{\left(8+14 m+7 m^2+m^3\right) \sqrt{1-c^2 x^2}}-$$

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

Result (type 8, 29 leaves) :

$$\int x^m \left(d-c^2 d x^2\right)^{3/2} (a+b \text{ArcSin}[c x]) \, dx$$

Problem 151: Unable to integrate problem.

$$\int x^m \sqrt{d-c^2 d x^2} \, (a+b \text{ArcSin}[c x]) \, dx$$

Optimal (type 5, 245 leaves, 3 steps):

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

Result (type 8, 29 leaves):

$$\int x^m \sqrt{d-c^2 d x^2} \, (a+b \text{ArcSin}[c x]) \, dx$$

Problem 152: Unable to integrate problem.

$$\int \frac{x^m (a+b \text{ArcSin}[c x])}{\sqrt{d-c^2 d x^2}} \, dx$$

Optimal (type 5, 163 leaves, 1 step):

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

Result (type 9, 181 leaves):

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

Problem 153: Unable to integrate problem.

$$\int \frac{x^m (a+b \text{ArcSin}[c x])}{(d-c^2 d x^2)^{3/2}} \, dx$$

Optimal (type 5, 272 leaves, 3 steps):

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

Result (type 8, 29 leaves):

$$\int\frac{x^m\,(a+b\,\text{ArcSin}[c\,x])}{(d-c^2\,d\,x^2)^{3/2}}\,dx$$

Problem 154: Unable to integrate problem.

$$\int\frac{x^m\,(a+b\,\text{ArcSin}[c\,x])}{(d-c^2\,d\,x^2)^{5/2}}\,dx$$

Optimal (type 5, 408 leaves, 5 steps):

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

Result (type 8, 29 leaves):

$$\int\frac{x^m\,(a+b\,\text{ArcSin}[c\,x])}{(d-c^2\,d\,x^2)^{5/2}}\,dx$$

Problem 155: Unable to integrate problem.

$$\int\frac{x^m\,\text{ArcSin}[a\,x]}{\sqrt{1-a^2\,x^2}}\,dx$$

Optimal (type 5, 100 leaves, 1 step):

$$\frac{x^{1+m}\,\text{ArcSin}[a\,x]\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{1+m}{2},\frac{3+m}{2},a^2 x^2\right]}{1+m}-\frac{a\,x^{2+m}\,\text{HypergeometricPFQ}\left[\left\{1,1+\frac{m}{2},1+\frac{m}{2}\right\},\left\{\frac{3}{2}+\frac{m}{2},2+\frac{m}{2}\right\},a^2 x^2\right]}{2+3m+m^2}$$

Result (type 9, 117 leaves):

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

Problem 184: Result more than twice size of optimal antiderivative.

$$\int\frac{x^3\,(a+b\,\text{ArcSin}[c\,x])^2}{d-c^2\,d\,x^2}\,dx$$

Optimal (type 4, 210 leaves, 10 steps):

$$\frac{b^2x^2}{4c^2d}-\frac{b\,x\sqrt{1-c^2x^2}\,(a+b\,\text{ArcSin}[c\,x])}{2c^3d}+\frac{(a+b\,\text{ArcSin}[c\,x])^2}{4c^4d}-\frac{x^2\,(a+b\,\text{ArcSin}[c\,x])^2}{2c^2d}+\frac{i\,(a+b\,\text{ArcSin}[c\,x])^3}{3\,b\,c^4d}-\frac{(a+b\,\text{ArcSin}[c\,x])^2\,\text{Log}\left[1+e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{c^4d}+\frac{i\,b\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{c^4d}-\frac{b^2\,\text{PolyLog}\left[3,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{2c^4d}$$

Result (type 4, 441 leaves):

$$-\frac{1}{24c^4d}\Big(12a^2c^2x^2+12\,a\,b\,c\,x\sqrt{1-c^2x^2}-12\,a\,b\,\text{ArcSin}[c\,x]+48\,i\,a\,b\,\pi\,\text{ArcSin}[c\,x]+24\,a\,b\,c^2x^2\,\text{ArcSin}[c\,x]-24\,i\,a\,b\,\text{ArcSin}[c\,x]^2-8\,i\,b^2\,\text{ArcSin}[c\,x]^3+3\,b^2\,\text{Cos}[2\,\text{ArcSin}[c\,x]]-6\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Cos}[2\,\text{ArcSin}[c\,x]]+96\,a\,b\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]+24\,a\,b\,\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+48\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-24\,a\,b\,\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+48\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+24\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+e^{2\,i\,\text{ArcSin}[c\,x]}\right]+12a^2\,\text{Log}\left[1-c^2x^2\right]-96\,a\,b\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+24\,a\,b\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-24\,a\,b\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-48\,i\,a\,b\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-48\,i\,a\,b\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]-24\,i\,b^2\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]+12\,b^2\,\text{PolyLog}\left[3,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]+6\,b^2\,\text{ArcSin}[c\,x]\,\text{Sin}[2\,\text{ArcSin}[c\,x]]\Big)$$

Problem 186: Result more than twice size of optimal antiderivative.

$$\int\frac{x\,(a+b\,\text{ArcSin}[c\,x])^2}{d-c^2\,d\,x^2}\,dx$$

Optimal (type 4, 117 leaves, 6 steps):

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

Result (type 4, 342 leaves):

$$\frac{1}{6\,c^2\,d}\Big(-12\,i\,a\,b\,\pi\,\text{ArcSin}[c\,x]+6\,i\,a\,b\,\text{ArcSin}[c\,x]^2+2\,i\,b^2\,\text{ArcSin}[c\,x]^3-24\,a\,b\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]-6\,a\,b\,\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-12\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+6\,a\,b\,\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-12\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-6\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+e^{2\,i\,\text{ArcSin}[c\,x]}\right]-3\,a^2\,\text{Log}\left[1-c^2\,x^2\right]+24\,a\,b\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]-6\,a\,b\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+6\,a\,b\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+12\,i\,a\,b\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+12\,i\,a\,b\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]+6\,i\,b^2\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]-3\,b^2\,\text{PolyLog}\left[3,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]\Big)$$

Problem 187: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\text{ArcSin}[c\,x])^2}{d-c^2\,d\,x^2}\,dx$$

Optimal (type 4, 156 leaves, 8 steps):

$$-\frac{2\,i\,(a+b\,\text{ArcSin}[c\,x])^2\,\text{ArcTan}\left[e^{i\,\text{ArcSin}[c\,x]}\right]}{c\,d}+\frac{2\,i\,b\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c\,d}-\frac{2\,i\,b\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c\,d}-\frac{2\,b^2\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c\,d}+\frac{2\,b^2\,\text{PolyLog}\left[3,i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c\,d}$$

Result (type 4, 334 leaves):

$$\frac{1}{2\,c\,d}\Big(-2\,i\,a\,b\,\pi\,\text{ArcSin}[c\,x]+2\,a\,b\,\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,a\,b\,\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-4\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-a^2\,\text{Log}[1-c\,x]+a^2\,\text{Log}[1+c\,x]-2\,a\,b\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-2\,a\,b\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+4\,i\,b\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-4\,i\,b\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]-4\,b^2\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,b^2\,\text{PolyLog}\left[3,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\Big)$$

Problem 188: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^2}{x\,(d-c^2\,d\,x^2)}\,dx$$

Optimal (type 4, 131 leaves, 9 steps):

$$-\frac{2\,(a+b\,\text{ArcSin}[c\,x])^2\,\text{ArcTanh}\left[e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{d}+\frac{i\,b\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{d}-\frac{i\,b\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{d}-\frac{b^2\,\text{PolyLog}\left[3,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{2\,d}+\frac{b^2\,\text{PolyLog}\left[3,e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{2\,d}$$

Result (type 4, 453 leaves):

$$\frac{1}{24\,d}\Big(-i\,b^2\,\pi^3-48\,i\,a\,b\,\pi\,\text{ArcSin}[c\,x]+16\,i\,b^2\,\text{ArcSin}[c\,x]^3-96\,a\,b\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]-24\,a\,b\,\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-48\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+24\,a\,b\,\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-48\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+24\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1-e^{-2\,i\,\text{ArcSin}[c\,x]}\right]+48\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-e^{2\,i\,\text{ArcSin}[c\,x]}\right]-24\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+e^{2\,i\,\text{ArcSin}[c\,x]}\right]+24\,a^2\,\text{Log}[c\,x]-12\,a^2\,\text{Log}\left[1-c^2\,x^2\right]+96\,a\,b\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]-24\,a\,b\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+24\,a\,b\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+48\,i\,a\,b\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+48\,i\,a\,b\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]+24\,i\,b^2\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,e^{-2\,i\,\text{ArcSin}[c\,x]}\right]+24\,i\,b^2\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]-24\,i\,a\,b\,\text{PolyLog}\left[2,e^{2\,i\,\text{ArcSin}[c\,x]}\right]+12\,b^2\,\text{PolyLog}\left[3,e^{-2\,i\,\text{ArcSin}[c\,x]}\right]-12\,b^2\,\text{PolyLog}\left[3,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]\Big)$$

Problem 189: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^2}{x^2\,(d-c^2\,d\,x^2)}\,dx$$

Optimal (type 4, 238 leaves, 15 steps):

$$-\frac{(a+b\,\text{ArcSin}[c\,x])^2}{d\,x}-\frac{2\,i\,c\,(a+b\,\text{ArcSin}[c\,x])^2\,\text{ArcTan}\left[e^{i\,\text{ArcSin}[c\,x]}\right]}{d}-\frac{4\,b\,c\,(a+b\,\text{ArcSin}[c\,x])\,\text{ArcTanh}\left[e^{i\,\text{ArcSin}[c\,x]}\right]}{d}+\frac{2\,i\,b^2\,c\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c\,x]}\right]}{d}+\frac{2\,i\,b\,c\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{d}-\frac{2\,i\,b\,c\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{d}-\frac{2\,i\,b^2\,c\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c\,x]}\right]}{d}-\frac{2\,b^2\,c\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{d}+\frac{2\,b^2\,c\,\text{PolyLog}\left[3,i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{d}$$

Result (type 4, 537 leaves):

$$-\frac{1}{2\,d\,x}\Big(2 a^2 + 4 a b \text{ArcSin}[c x] + 2 i a b c \pi x \text{ArcSin}[c x] + 2 b^2 \text{ArcSin}[c x]^2 - 4 b^2 c x \text{ArcSin}[c x] \text{Log}\left[1 - e^{i \text{ArcSin}[c x]}\right] - 2 a b c \pi x \text{Log}\left[1 - i e^{i \text{ArcSin}[c x]}\right] -$$
$$4 a b c x \text{ArcSin}[c x] \text{Log}\left[1 - i e^{i \text{ArcSin}[c x]}\right] - 2 b^2 c x \text{ArcSin}[c x]^2 \text{Log}\left[1 - i e^{i \text{ArcSin}[c x]}\right] - 2 a b c \pi x \text{Log}\left[1 + i e^{i \text{ArcSin}[c x]}\right] +$$
$$4 a b c x \text{ArcSin}[c x] \text{Log}\left[1 + i e^{i \text{ArcSin}[c x]}\right] + 2 b^2 c x \text{ArcSin}[c x]^2 \text{Log}\left[1 + i e^{i \text{ArcSin}[c x]}\right] + 4 b^2 c x \text{ArcSin}[c x] \text{Log}\left[1 + e^{i \text{ArcSin}[c x]}\right] -$$
$$4 a b c x \text{Log}[c x] + a^2 c x \text{Log}[1 - c x] - a^2 c x \text{Log}[1 + c x] + 4 a b c x \text{Log}\left[1 + \sqrt{1 - c^2 x^2}\right] + 2 a b c \pi x \text{Log}\left[-\text{Cos}\left[\frac{1}{4}(\pi + 2 \text{ArcSin}[c x])\right]\right] +$$
$$2 a b c \pi x \text{Log}\left[\text{Sin}\left[\frac{1}{4}(\pi + 2 \text{ArcSin}[c x])\right]\right] - 4 i b^2 c x \text{PolyLog}\left[2, -e^{i \text{ArcSin}[c x]}\right] - 4 i b c x (a + b \text{ArcSin}[c x]) \text{PolyLog}\left[2, -i e^{i \text{ArcSin}[c x]}\right] +$$
$$4 i a b c x \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right] + 4 i b^2 c x \text{ArcSin}[c x] \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right] +$$
$$4 i b^2 c x \text{PolyLog}\left[2, e^{i \text{ArcSin}[c x]}\right] + 4 b^2 c x \text{PolyLog}\left[3, -i e^{i \text{ArcSin}[c x]}\right] - 4 b^2 c x \text{PolyLog}\left[3, i e^{i \text{ArcSin}[c x]}\right]\Big)$$

Problem 190: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + b \text{ArcSin}[c x])^2}{x^3 (d - c^2 d x^2)} \, dx$$

Optimal (type 4, 210 leaves, 12 steps):

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

Result (type 4, 614 leaves):

$$-\frac{1}{2d}\left(\frac{1}{12}\,i\,b^2 c^2 \pi^3+\frac{a^2}{x^2}+\frac{2abc\sqrt{1-c^2x^2}}{x}+4\,i\,a b c^2\pi\,\text{ArcSin}[c x]+\frac{2ab\,\text{ArcSin}[c x]}{x^2}+\frac{2b^2c\sqrt{1-c^2x^2}\,\text{ArcSin}[c x]}{x}+\frac{b^2\,\text{ArcSin}[c x]^2}{x^2}-\right.$$

$$\frac{4}{3}\,i\,b^2c^2\,\text{ArcSin}[c x]^3+8abc^2\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c x]}\right]+2abc^2\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c x]}\right]+4abc^2\,\text{ArcSin}[c x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c x]}\right]-$$

$$2abc^2\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c x]}\right]+4abc^2\,\text{ArcSin}[c x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c x]}\right]-2b^2c^2\,\text{ArcSin}[c x]^2\,\text{Log}\left[1-e^{-2\,i\,\text{ArcSin}[c x]}\right]-$$

$$4abc^2\,\text{ArcSin}[c x]\,\text{Log}\left[1-e^{2\,i\,\text{ArcSin}[c x]}\right]+2b^2c^2\,\text{ArcSin}[c x]^2\,\text{Log}\left[1+e^{2\,i\,\text{ArcSin}[c x]}\right]-2a^2c^2\,\text{Log}[x]-2b^2c^2\,\text{Log}[c x]+$$

$$a^2c^2\,\text{Log}\left[1-c^2x^2\right]-8abc^2\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c x]\right]\right]+2abc^2\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right]-$$

$$2abc^2\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right]-4\,i\,abc^2\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c x]}\right]-4\,i\,abc^2\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c x]}\right]-$$

$$2\,i\,b^2c^2\,\text{ArcSin}[c x]\,\text{PolyLog}\left[2,e^{-2\,i\,\text{ArcSin}[c x]}\right]-2\,i\,b^2c^2\,\text{ArcSin}[c x]\,\text{PolyLog}\left[2,-e^{2\,i\,\text{ArcSin}[c x]}\right]+$$

$$\left.2\,i\,abc^2\,\text{PolyLog}\left[2,e^{2\,i\,\text{ArcSin}[c x]}\right]-b^2c^2\,\text{PolyLog}\left[3,e^{-2\,i\,\text{ArcSin}[c x]}\right]+b^2c^2\,\text{PolyLog}\left[3,-e^{2\,i\,\text{ArcSin}[c x]}\right]\right)$$

Problem 191: Result more than twice size of optimal antiderivative.

$$\int\frac{\left(a+b\,\text{ArcSin}[c x]\right)^2}{x^4\left(d-c^2d x^2\right)}\,dx$$

Optimal (type 4, 333 leaves, 24 steps):

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

$$\frac{2\,i\,c^3\left(a+b\,\text{ArcSin}[c x]\right)^2\,\text{ArcTan}\left[e^{i\,\text{ArcSin}[c x]}\right]}{d}-\frac{14\,b\,c^3\left(a+b\,\text{ArcSin}[c x]\right)\,\text{ArcTanh}\left[e^{i\,\text{ArcSin}[c x]}\right]}{3d}+\frac{7\,i\,b^2c^3\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c x]}\right]}{3d}+$$

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

$$\frac{7\,i\,b^2c^3\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c x]}\right]}{3d}-\frac{2\,b^2c^3\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[c x]}\right]}{d}+\frac{2\,b^2c^3\,\text{PolyLog}\left[3,i\,e^{i\,\text{ArcSin}[c x]}\right]}{d}$$

Result (type 4, 868 leaves):

$$-\frac{a^2}{3\,d\,x^3}-\frac{a^2\,c^2}{d\,x}-\frac{a^2\,c^3\,\text{Log}[1-c\,x]}{2\,d}+\frac{a^2\,c^3\,\text{Log}[1+c\,x]}{2\,d}-$$

$$\frac{1}{d}2\,a\,b\left(\frac{c\sqrt{1-c^2\,x^2}}{6\,x^2}+\frac{\text{ArcSin}[c\,x]}{3\,x^3}-\frac{1}{6}c^3\,\text{Log}[x]+\frac{1}{6}c^3\,\text{Log}\left[1+\sqrt{1-c^2\,x^2}\right]-c^2\left(-\frac{\text{ArcSin}[c\,x]}{x}+c\,\text{Log}[x]-c\,\text{Log}\left[1+\sqrt{1-c^2\,x^2}\right]\right)+\right.$$

$$\frac{1}{2}c^4\left(\frac{3\,i\,\pi\,\text{ArcSin}[c\,x]}{2\,c}-\frac{i\,\text{ArcSin}[c\,x]^2}{2\,c}+\frac{2\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]}{c}-\frac{\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c}+\frac{2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c}-\right.$$

$$\left.\frac{2\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]}{c}+\frac{\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right]}{c}-\frac{2\,i\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c}\right)-$$

$$\frac{1}{2}c^4\left(\frac{i\,\pi\,\text{ArcSin}[c\,x]}{2\,c}-\frac{i\,\text{ArcSin}[c\,x]^2}{2\,c}+\frac{2\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]}{c}+\frac{\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c}+\frac{2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c}-\right.$$

$$\left.\left.\frac{2\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]}{c}-\frac{\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right]}{c}-\frac{2\,i\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{c}\right)\right)-$$

$$\frac{1}{24\,d}b^2\,c^3\left(4\,\text{Cot}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+14\,\text{ArcSin}[c\,x]^2\,\text{Cot}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+2\,\text{ArcSin}[c\,x]\,\text{Csc}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]^2+\right.$$

$$\frac{1}{2}c\,x\,\text{ArcSin}[c\,x]^2\,\text{Csc}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]^4-56\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-e^{i\,\text{ArcSin}[c\,x]}\right]-24\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+$$

$$24\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+56\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+e^{i\,\text{ArcSin}[c\,x]}\right]-56\,i\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c\,x]}\right]-$$

$$48\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+48\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]+56\,i\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c\,x]}\right]+$$

$$48\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-48\,\text{PolyLog}\left[3,i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,\text{ArcSin}[c\,x]\,\text{Sec}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]^2+$$

$$\left.\frac{8\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]^4}{c^3\,x^3}+4\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+14\,\text{ArcSin}[c\,x]^2\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)$$

Problem 192: Result more than twice size of optimal antiderivative.

$$\int\frac{x^4\left(a+b\,\text{ArcSin}[c\,x]\right)^2}{\left(d-c^2\,d\,x^2\right)^2}\,dx$$

Optimal (type 4, 300 leaves, 15 steps):

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

$$\frac{3 i\left(a+b \operatorname{ArcSin}[c x]\right)^2 \operatorname{ArcTan}\left[e^{i \operatorname{ArcSin}[c x]}\right]}{c^5 d^2}+\frac{b^2 \operatorname{ArcTanh}[c x]}{c^5 d^2}-\frac{3 i b\left(a+b \operatorname{ArcSin}[c x]\right) \operatorname{PolyLog}\left[2,-i e^{i \operatorname{ArcSin}[c x]}\right]}{c^5 d^2}+$$

$$\frac{3 i b\left(a+b \operatorname{ArcSin}[c x]\right) \operatorname{PolyLog}\left[2, i e^{i \operatorname{ArcSin}[c x]}\right]}{c^5 d^2}+\frac{3 b^2 \operatorname{PolyLog}\left[3,-i e^{i \operatorname{ArcSin}[c x]}\right]}{c^5 d^2}-\frac{3 b^2 \operatorname{PolyLog}\left[3, i e^{i \operatorname{ArcSin}[c x]}\right]}{c^5 d^2}$$

Result (type 4, 1081 leaves) :

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

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

$$3 \Bigg(\frac{3 i \pi\, \text{ArcSin}[c x]}{2 c}-\frac{i\, \text{ArcSin}[c x]^2}{2 c}+\frac{2 \pi\, \text{Log}\left[1+e^{-i\, \text{ArcSin}[c x]}\right]}{c}-\frac{\pi\, \text{Log}\left[1+i e^{i\, \text{ArcSin}[c x]}\right]}{c}+\frac{2\, \text{ArcSin}[c x]\, \text{Log}\left[1+i e^{i\, \text{ArcSin}[c x]}\right]}{c}-$$

$$\frac{2 \pi\, \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]}{c}+\frac{\pi\, \text{Log}\left[-\text{Cos}\left[\frac{1}{4} (\pi+2\, \text{ArcSin}[c x])\right]\right]}{c}-\frac{2 i\, \text{PolyLog}\left[2,-i e^{i\, \text{ArcSin}[c x]}\right]}{c}\Bigg)-\frac{1}{4 c^4}$$

$$3 \Bigg(\frac{i \pi\, \text{ArcSin}[c x]}{2 c}-\frac{i\, \text{ArcSin}[c x]^2}{2 c}+\frac{2 \pi\, \text{Log}\left[1+e^{-i\, \text{ArcSin}[c x]}\right]}{c}+\frac{\pi\, \text{Log}\left[1-i e^{i\, \text{ArcSin}[c x]}\right]}{c}+\frac{2\, \text{ArcSin}[c x]\, \text{Log}\left[1-i e^{i\, \text{ArcSin}[c x]}\right]}{c}-$$

$$\frac{2 \pi\, \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]}{c}-\frac{\pi\, \text{Log}\left[\text{Sin}\left[\frac{1}{4} (\pi+2\, \text{ArcSin}[c x])\right]\right]}{c}-\frac{2 i\, \text{PolyLog}\left[2,i e^{i\, \text{ArcSin}[c x]}\right]}{c}\Bigg)\Bigg)+$$

$$\frac{1}{c^5 d^2} b^2 \Bigg(\frac{\text{ArcSin}[c x]+\frac{c x \left(2 \left(-1+\text{ArcSin}[c x]^2\right)+\left(-2+\text{ArcSin}[c x]^2\right) \text{Cos}[2\, \text{ArcSin}[c x]]\right)}{\sqrt{1-c^2 x^2}}+\frac{\text{ArcSin}[c x]\, \text{Cos}[3\, \text{ArcSin}[c x]]}{\sqrt{1-c^2 x^2}}}{2 \sqrt{1-c^2 x^2}}+$$

$$\frac{1}{2} \Bigg(-3\, \text{ArcSin}[c x]^2\, \text{Log}\left[1-i e^{i\, \text{ArcSin}[c x]}\right]+3\, \text{ArcSin}[c x]^2\, \text{Log}\left[1+i e^{i\, \text{ArcSin}[c x]}\right]-$$

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

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

$$2\, \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-3\, \text{ArcSin}[c x]^2\, \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+$$

$$3 \pi\, \text{ArcSin}[c x]\, \text{Log}\left[-\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+2\, \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+3 \pi\, \text{ArcSin}[c x]$$

$$\text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+3\, \text{ArcSin}[c x]^2\, \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-6 i\, \text{ArcSin}[c x]$$

$$\text{PolyLog}\left[2,-i e^{i\, \text{ArcSin}[c x]}\right]+6 i\, \text{ArcSin}[c x]\, \text{PolyLog}\left[2,i e^{i\, \text{ArcSin}[c x]}\right]+6\, \text{PolyLog}\left[3,-i e^{i\, \text{ArcSin}[c x]}\right]-6\, \text{PolyLog}\left[3,i e^{i\, \text{ArcSin}[c x]}\right]\Bigg)\Bigg)$$

Problem 193: Result more than twice size of optimal antiderivative.

$$\int \frac{x^3 (a+b\,\text{ArcSin}[c\,x])^2}{(d-c^2 d x^2)^2}\,dx$$

Optimal (type 4, 227 leaves, 10 steps):

$$-\frac{b x (a+b\,\text{ArcSin}[c\,x])}{c^3 d^2 \sqrt{1-c^2 x^2}}+\frac{(a+b\,\text{ArcSin}[c\,x])^2}{2 c^4 d^2}+\frac{x^2 (a+b\,\text{ArcSin}[c\,x])^2}{2 c^2 d^2 (1-c^2 x^2)}-\frac{i (a+b\,\text{ArcSin}[c\,x])^3}{3 b c^4 d^2}+\frac{(a+b\,\text{ArcSin}[c\,x])^2 \text{Log}\left[1+e^{2 i \text{ArcSin}[c\,x]}\right]}{c^4 d^2}-\frac{b^2 \text{Log}\left[1-c^2 x^2\right]}{2 c^4 d^2}-\frac{i b (a+b\,\text{ArcSin}[c\,x]) \text{PolyLog}\left[2,-e^{2 i \text{ArcSin}[c\,x]}\right]}{c^4 d^2}+\frac{b^2 \text{PolyLog}\left[3,-e^{2 i \text{ArcSin}[c\,x]}\right]}{2 c^4 d^2}$$

Result (type 4, 502 leaves):

$$\frac{1}{6 c^4 d^2}\left(\frac{3 a b \sqrt{1-c^2 x^2}}{-1+c x}+\frac{3 a b \sqrt{1-c^2 x^2}}{1+c x}-\frac{3 a^2}{-1+c^2 x^2}+12 i a b \pi\,\text{ArcSin}[c\,x]-\frac{3 a b\,\text{ArcSin}[c\,x]}{-1+c x}+\frac{3 a b\,\text{ArcSin}[c\,x]}{1+c x}-\frac{6 b^2 c x\,\text{ArcSin}[c\,x]}{\sqrt{1-c^2 x^2}}-\right.$$
$$6 i a b\,\text{ArcSin}[c\,x]^2+\frac{3 b^2 \text{ArcSin}[c\,x]^2}{1-c^2 x^2}-2 i b^2 \text{ArcSin}[c\,x]^3+24 a b \pi\,\text{Log}\left[1+e^{-i \text{ArcSin}[c\,x]}\right]+6 a b \pi\,\text{Log}\left[1-i e^{i \text{ArcSin}[c\,x]}\right]+$$
$$12 a b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i e^{i \text{ArcSin}[c\,x]}\right]-6 a b \pi\,\text{Log}\left[1+i e^{i \text{ArcSin}[c\,x]}\right]+12 a b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i e^{i \text{ArcSin}[c\,x]}\right]+$$
$$6 b^2 \text{ArcSin}[c\,x]^2 \text{Log}\left[1+e^{2 i \text{ArcSin}[c\,x]}\right]+3 a^2 \text{Log}\left[1-c^2 x^2\right]-3 b^2 \text{Log}\left[1-c^2 x^2\right]-24 a b \pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+$$
$$6 a b \pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-6 a b \pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-12 i a b\,\text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c\,x]}\right]-$$
$$\left.12 i a b\,\text{PolyLog}\left[2,i e^{i \text{ArcSin}[c\,x]}\right]-6 i b^2 \text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,-e^{2 i \text{ArcSin}[c\,x]}\right]+3 b^2 \text{PolyLog}\left[3,-e^{2 i \text{ArcSin}[c\,x]}\right]\right)$$

Problem 194: Result more than twice size of optimal antiderivative.

$$\int \frac{x^2 (a+b\,\text{ArcSin}[c\,x])^2}{(d-c^2 d x^2)^2}\,dx$$

Optimal (type 4, 233 leaves, 11 steps):

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

Result (type 4, 839 leaves) :

$$-\frac{1}{4\,c^3\,d^2}\left(-\frac{2\,a\,b\,\sqrt{1-c^2\,x^2}}{-1+c\,x}+\frac{2\,a\,b\,\sqrt{1-c^2\,x^2}}{1+c\,x}+\frac{2\,a^2\,c\,x}{-1+c^2\,x^2}-2\,i\,a\,b\,\pi\,\text{ArcSin}[c\,x]+\frac{2\,a\,b\,\text{ArcSin}[c\,x]}{-1+c\,x}+\frac{2\,a\,b\,\text{ArcSin}[c\,x]}{1+c\,x}+\frac{4\,b^2\,\text{ArcSin}[c\,x]}{\sqrt{1-c^2\,x^2}}+\frac{2\,b^2\,c\,x\,\text{ArcSin}[c\,x]^2}{-1+c^2\,x^2}+2\,a\,b\,\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,a\,b\,\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-4\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b^2\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\left(-\frac{1}{2}-\frac{i}{2}\right)e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left(-i+e^{i\,\text{ArcSin}[c\,x]}\right)\right]-2\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[\left(\frac{1}{2}+\frac{i}{2}\right)e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left(-i+e^{i\,\text{ArcSin}[c\,x]}\right)\right]+2\,b^2\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\frac{1}{2}e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left((1+i)+(1-i)\,e^{i\,\text{ArcSin}[c\,x]}\right)\right]+2\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[\frac{1}{2}e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left((1+i)+(1-i)\,e^{i\,\text{ArcSin}[c\,x]}\right)\right]-a^2\,\text{Log}[1-c\,x]+a^2\,\text{Log}[1+c\,x]-2\,a\,b\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+4\,b^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+2\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-2\,b^2\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[-\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-4\,b^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-2\,b^2\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-2\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-2\,a\,b\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+4\,i\,b\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-4\,i\,b\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]-4\,b^2\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,b^2\,\text{PolyLog}\left[3,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\right)$$

Problem 196: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\text{ArcSin}[c\,x])^2}{(d-c^2\,d\,x^2)^2}\,dx$$

Optimal (type 4, 230 leaves, 11 steps) :

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

Result (type 4, 810 leaves):

$$\frac{1}{4\,d^2}\left(-\frac{2\,a^2\,x}{-1+c^2x^2}-\frac{a^2\,\text{Log}[1-c\,x]}{c}+\frac{a^2\,\text{Log}[1+c\,x]}{c}+\right.$$
$$\frac{1}{c}2\,a\,b\left(\frac{\sqrt{1-c^2x^2}}{-1+c\,x}-\frac{\sqrt{1-c^2x^2}}{1+c\,x}-i\,\pi\,\text{ArcSin}[c\,x]+\frac{\text{ArcSin}[c\,x]}{1-c\,x}-\frac{\text{ArcSin}[c\,x]}{1+c\,x}+\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+\right.$$
$$\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right]-$$
$$\left.\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right]+2\,i\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,i\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\right)+$$
$$\frac{1}{c}2\,b^2\left(-\frac{2\,\text{ArcSin}[c\,x]}{\sqrt{1-c^2x^2}}+\frac{c\,x\,\text{ArcSin}[c\,x]^2}{1-c^2x^2}+\text{ArcSin}[c\,x]^2\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+\right.$$
$$\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\left(-\frac{1}{2}-\frac{i}{2}\right)e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left(-i+e^{i\,\text{ArcSin}[c\,x]}\right)\right]-\text{ArcSin}[c\,x]^2\,\text{Log}\left[\left(\frac{1}{2}+\frac{i}{2}\right)e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left(-i+e^{i\,\text{ArcSin}[c\,x]}\right)\right]+$$
$$\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\frac{1}{2}e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left(\left(1+i\right)+\left(1-i\right)e^{i\,\text{ArcSin}[c\,x]}\right)\right]+$$
$$\text{ArcSin}[c\,x]^2\,\text{Log}\left[\frac{1}{2}e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left(\left(1+i\right)+\left(1-i\right)e^{i\,\text{ArcSin}[c\,x]}\right)\right]-2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+$$
$$\text{ArcSin}[c\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[-\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+$$
$$2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-$$
$$\text{ArcSin}[c\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+2\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-$$
$$\left.\left.2\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,\text{PolyLog}\left[3,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\right)\right)$$

Problem 197: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^2}{x\,(d-c^2\,d\,x^2)^2}\,dx$$

Optimal (type 4, 211 leaves, 12 steps):

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

Result (type 4, 612 leaves):

$$\frac{1}{2\,d^2}\left(-\frac{1}{12}\,i\,b^2\,\pi^3+\frac{a^2}{1-c^2x^2}+\frac{a\,b\sqrt{1-c^2x^2}}{-1+c\,x}+\frac{a\,b\sqrt{1-c^2x^2}}{1+c\,x}-4\,i\,a\,b\,\pi\,\text{ArcSin}[c\,x]+\frac{a\,b\,\text{ArcSin}[c\,x]}{1-c\,x}+\frac{a\,b\,\text{ArcSin}[c\,x]}{1+c\,x}-\frac{2\,b^2\,c\,x\,\text{ArcSin}[c\,x]}{\sqrt{1-c^2x^2}}+\frac{b^2\,\text{ArcSin}[c\,x]^2}{1-c^2x^2}+\frac{4}{3}\,i\,b^2\,\text{ArcSin}[c\,x]^3-8\,a\,b\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]-2\,a\,b\,\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-4\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,a\,b\,\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-4\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1-e^{-2\,i\,\text{ArcSin}[c\,x]}\right]+4\,a\,b\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-e^{2\,i\,\text{ArcSin}[c\,x]}\right]-2\,b^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+e^{2\,i\,\text{ArcSin}[c\,x]}\right]+2\,a^2\,\text{Log}[c\,x]-a^2\,\text{Log}\left[1-c^2x^2\right]-b^2\,\text{Log}\left[1-c^2x^2\right]+8\,a\,b\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]-2\,a\,b\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+2\,a\,b\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+4\,i\,a\,b\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,i\,a\,b\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,i\,b^2\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,e^{-2\,i\,\text{ArcSin}[c\,x]}\right]+2\,i\,b^2\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]-2\,i\,a\,b\,\text{PolyLog}\left[2,e^{2\,i\,\text{ArcSin}[c\,x]}\right]+b^2\,\text{PolyLog}\left[3,e^{-2\,i\,\text{ArcSin}[c\,x]}\right]-b^2\,\text{PolyLog}\left[3,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]\right)$$

Problem 198: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^2}{x^2\,(d-c^2\,d\,x^2)^2}\,dx$$

Optimal (type 4, 324 leaves, 20 steps):

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

$$\frac{4 b c \left(a+b \text{ArcSin}[c x]\right) \text{ArcTanh}\left[e^{i \text{ArcSin}[c x]}\right]}{d^2}+\frac{b^2 c \text{ArcTanh}[c x]}{d^2}+\frac{2 i b^2 c \text{PolyLog}\left[2,-e^{i \text{ArcSin}[c x]}\right]}{d^2}+$$

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

$$\frac{2 i b^2 c \text{PolyLog}\left[2,e^{i \text{ArcSin}[c x]}\right]}{d^2}-\frac{3 b^2 c \text{PolyLog}\left[3,-i e^{i \text{ArcSin}[c x]}\right]}{d^2}+\frac{3 b^2 c \text{PolyLog}\left[3,i e^{i \text{ArcSin}[c x]}\right]}{d^2}$$

Result (type 4, 1175 leaves) :

$$-\frac{a^2}{d^2 x}-\frac{a^2 c^2 x}{2 d^2 \left(-1+c^2 x^2\right)}-\frac{3 a^2 c \,\mathrm{Log}[1-c x]}{4 d^2}+\frac{3 a^2 c \,\mathrm{Log}[1+c x]}{4 d^2}+$$

$$\frac{1}{d^2} 2 a b c \left(\frac{\sqrt{1-c^2 x^2}-\mathrm{ArcSin}[c x]}{4 (-1+c x)}-\frac{\mathrm{ArcSin}[c x]}{c x}-\frac{\sqrt{1-c^2 x^2}+\mathrm{ArcSin}[c x]}{4 (1+c x)}+\mathrm{Log}[c x]-\mathrm{Log}\left[1+\sqrt{1-c^2 x^2}\right]-\right.$$

$$\frac{3}{4}\left(\frac{3}{2} i \pi \,\mathrm{ArcSin}[c x]-\frac{1}{2} i \,\mathrm{ArcSin}[c x]^2+2 \pi \,\mathrm{Log}\left[1+e^{-i \,\mathrm{ArcSin}[c x]}\right]-\pi \,\mathrm{Log}\left[1+i e^{i \,\mathrm{ArcSin}[c x]}\right]+2 \,\mathrm{ArcSin}[c x] \,\mathrm{Log}\left[1+i e^{i \,\mathrm{ArcSin}[c x]}\right]-\right.$$

$$\left.2 \pi \,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]\right]+\pi \,\mathrm{Log}\left[-\mathrm{Cos}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]\right]-2 i \,\mathrm{PolyLog}\left[2,-i e^{i \,\mathrm{ArcSin}[c x]}\right]\right)+$$

$$\frac{3}{4}\left(\frac{1}{2} i \pi \,\mathrm{ArcSin}[c x]-\frac{1}{2} i \,\mathrm{ArcSin}[c x]^2+2 \pi \,\mathrm{Log}\left[1+e^{-i \,\mathrm{ArcSin}[c x]}\right]+\pi \,\mathrm{Log}\left[1-i e^{i \,\mathrm{ArcSin}[c x]}\right]+2 \,\mathrm{ArcSin}[c x] \,\mathrm{Log}\left[1-i e^{i \,\mathrm{ArcSin}[c x]}\right]-\right.$$

$$\left.\left.2 \pi \,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]\right]-\pi \,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]\right]-2 i \,\mathrm{PolyLog}\left[2, i e^{i \,\mathrm{ArcSin}[c x]}\right]\right)\right)+$$

$$\frac{1}{4 d^2} b^2 c \left(-4 \,\mathrm{ArcSin}[c x]-2 \,\mathrm{ArcSin}[c x]^2 \,\mathrm{Cot}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]+8 \,\mathrm{ArcSin}[c x] \,\mathrm{Log}\left[1-e^{i \,\mathrm{ArcSin}[c x]}\right]+6 \,\mathrm{ArcSin}[c x]^2 \,\mathrm{Log}\left[1-i e^{i \,\mathrm{ArcSin}[c x]}\right]-\right.$$

$$6 \,\mathrm{ArcSin}[c x]^2 \,\mathrm{Log}\left[1+i e^{i \,\mathrm{ArcSin}[c x]}\right]+6 \pi \,\mathrm{ArcSin}[c x] \,\mathrm{Log}\left[\left(-\frac{1}{2}-\frac{i}{2}\right) e^{-\frac{1}{2} i \,\mathrm{ArcSin}[c x]} \left(-i+e^{i \,\mathrm{ArcSin}[c x]}\right)\right]-$$

$$6 \,\mathrm{ArcSin}[c x]^2 \,\mathrm{Log}\left[\left(\frac{1}{2}+\frac{i}{2}\right) e^{-\frac{1}{2} i \,\mathrm{ArcSin}[c x]} \left(-i+e^{i \,\mathrm{ArcSin}[c x]}\right)\right]-8 \,\mathrm{ArcSin}[c x] \,\mathrm{Log}\left[1+e^{i \,\mathrm{ArcSin}[c x]}\right]+$$

$$6 \pi \,\mathrm{ArcSin}[c x] \,\mathrm{Log}\left[\frac{1}{2} e^{-\frac{1}{2} i \,\mathrm{ArcSin}[c x]} \left((1+i)+(1-i) e^{i \,\mathrm{ArcSin}[c x]}\right)\right]+6 \,\mathrm{ArcSin}[c x]^2 \,\mathrm{Log}\left[\frac{1}{2} e^{-\frac{1}{2} i \,\mathrm{ArcSin}[c x]} \left((1+i)+(1-i) e^{i \,\mathrm{ArcSin}[c x]}\right)\right]-$$

$$4 \,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]-\mathrm{Sin}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]\right]+6 \,\mathrm{ArcSin}[c x]^2 \,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]-\mathrm{Sin}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]\right]-$$

$$6 \pi \,\mathrm{ArcSin}[c x] \,\mathrm{Log}\left[-\mathrm{Cos}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]+\mathrm{Sin}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]\right]+4 \,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]+\mathrm{Sin}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]\right]-$$

$$6 \pi \,\mathrm{ArcSin}[c x] \,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]+\mathrm{Sin}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]\right]-6 \,\mathrm{ArcSin}[c x]^2 \,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]+\mathrm{Sin}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]\right]+$$

$$8 i \,\mathrm{PolyLog}\left[2,-e^{i \,\mathrm{ArcSin}[c x]}\right]+12 i \,\mathrm{ArcSin}[c x] \,\mathrm{PolyLog}\left[2,-i e^{i \,\mathrm{ArcSin}[c x]}\right]-12 i \,\mathrm{ArcSin}[c x] \,\mathrm{PolyLog}\left[2, i e^{i \,\mathrm{ArcSin}[c x]}\right]-$$

$$8 i \,\mathrm{PolyLog}\left[2, e^{i \,\mathrm{ArcSin}[c x]}\right]-12 \,\mathrm{PolyLog}\left[3,-i e^{i \,\mathrm{ArcSin}[c x]}\right]+12 \,\mathrm{PolyLog}\left[3, i e^{i \,\mathrm{ArcSin}[c x]}\right]+$$

$$\frac{\mathrm{ArcSin}[c x]^2}{\left(\mathrm{Cos}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]-\mathrm{Sin}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]\right)^2}-\frac{4 \,\mathrm{ArcSin}[c x] \,\mathrm{Sin}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]}{\mathrm{Cos}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]-\mathrm{Sin}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]}-$$

$$\left.\frac{\mathrm{ArcSin}[c x]^2}{\left(\mathrm{Cos}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]+\mathrm{Sin}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]\right)^2}+\frac{4 \,\mathrm{ArcSin}[c x] \,\mathrm{Sin}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]}{\mathrm{Cos}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]+\mathrm{Sin}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]}-2 \,\mathrm{ArcSin}[c x]^2 \,\mathrm{Tan}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]\right)$$

Problem 199: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^2}{x^3\,(d-c^2\,d\,x^2)^2}\,dx$$

Optimal (type 4, 270 leaves, 17 steps):

$$-\frac{b\,c\,(a+b\,\text{ArcSin}[c\,x])}{d^2\,x\,\sqrt{1-c^2\,x^2}}+\frac{c^2\,(a+b\,\text{ArcSin}[c\,x])^2}{d^2\,(1-c^2\,x^2)}-\frac{(a+b\,\text{ArcSin}[c\,x])^2}{2\,d^2\,x^2\,(1-c^2\,x^2)}-\frac{4\,c^2\,(a+b\,\text{ArcSin}[c\,x])^2\,\text{ArcTanh}\left[e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{d^2}+\frac{b^2\,c^2\,\text{Log}[x]}{d^2}-\frac{b^2\,c^2\,\text{Log}\left[1-c^2\,x^2\right]}{2\,d^2}+\frac{2\,i\,b\,c^2\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{d^2}-\frac{2\,i\,b\,c^2\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{d^2}-\frac{b^2\,c^2\,\text{PolyLog}\left[3,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{d^2}+\frac{b^2\,c^2\,\text{PolyLog}\left[3,e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{d^2}$$

Result (type 4, 759 leaves):

$$\frac{1}{2\,d^2}\left(-\frac{a^2}{x^2}+\frac{a^2\,c^2}{1-c^2\,x^2}-\frac{2\,a\,b\,c\,\sqrt{1-c^2\,x^2}}{x}+\frac{a\,b\,c^2\,\sqrt{1-c^2\,x^2}}{-1+c\,x}+\frac{a\,b\,c^2\,\sqrt{1-c^2\,x^2}}{1+c\,x}-8\,i\,a\,b\,c^2\,\pi\,\text{ArcSin}[c\,x]-\frac{2\,a\,b\,\text{ArcSin}[c\,x]}{x^2}+\frac{a\,b\,c^2\,\text{ArcSin}[c\,x]}{1-c\,x}+\frac{a\,b\,c^2\,\text{ArcSin}[c\,x]}{1+c\,x}-\frac{2\,b^2\,c^3\,x\,\text{ArcSin}[c\,x]}{\sqrt{1-c^2\,x^2}}-\frac{2\,b^2\,c\,\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]}{x}-\frac{b^2\,\text{ArcSin}[c\,x]^2}{x^2}+\frac{b^2\,c^2\,\text{ArcSin}[c\,x]^2}{1-c^2\,x^2}-16\,a\,b\,c^2\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]-4\,a\,b\,c^2\,\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-8\,a\,b\,c^2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,a\,b\,c^2\,\pi\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-8\,a\,b\,c^2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+8\,a\,b\,c^2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-e^{2\,i\,\text{ArcSin}[c\,x]}\right]+4\,b^2\,c^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1-e^{2\,i\,\text{ArcSin}[c\,x]}\right]-4\,b^2\,c^2\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+e^{2\,i\,\text{ArcSin}[c\,x]}\right]+4\,a^2\,c^2\,\text{Log}[x]+2\,b^2\,c^2\,\text{Log}\left[\frac{c\,x}{\sqrt{1-c^2\,x^2}}\right]-2\,a^2\,c^2\,\text{Log}\left[1-c^2\,x^2\right]+16\,a\,b\,c^2\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]-4\,a\,b\,c^2\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+4\,a\,b\,c^2\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+8\,i\,a\,b\,c^2\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+8\,i\,a\,b\,c^2\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,i\,b^2\,c^2\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]-4\,i\,a\,b\,c^2\,\text{PolyLog}\left[2,e^{2\,i\,\text{ArcSin}[c\,x]}\right]-4\,i\,b^2\,c^2\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,e^{2\,i\,\text{ArcSin}[c\,x]}\right]-2\,b^2\,c^2\,\text{PolyLog}\left[3,-e^{2\,i\,\text{ArcSin}[c\,x]}\right]+2\,b^2\,c^2\,\text{PolyLog}\left[3,e^{2\,i\,\text{ArcSin}[c\,x]}\right]\right)$$

Problem 200: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^2}{x^4\,(d-c^2\,d\,x^2)^2}\,dx$$

Optimal (type 4, 439 leaves, 32 steps):

$$-\frac{b^2 c^2}{3 d^2 x}-\frac{2 b c^3 (a+b \text{ArcSin}[c x])}{3 d^2 \sqrt{1-c^2 x^2}}-\frac{b c (a+b \text{ArcSin}[c x])}{3 d^2 x^2 \sqrt{1-c^2 x^2}}-\frac{(a+b \text{ArcSin}[c x])^2}{3 d^2 x^3 (1-c^2 x^2)}-$$
$$\frac{5 c^2 (a+b \text{ArcSin}[c x])^2}{3 d^2 x (1-c^2 x^2)}+\frac{5 c^4 x (a+b \text{ArcSin}[c x])^2}{2 d^2 (1-c^2 x^2)}-\frac{5 i c^3 (a+b \text{ArcSin}[c x])^2 \text{ArcTan}[e^{i \text{ArcSin}[c x]}]}{d^2}-$$
$$\frac{26 b c^3 (a+b \text{ArcSin}[c x]) \text{ArcTanh}[e^{i \text{ArcSin}[c x]}]}{3 d^2}+\frac{b^2 c^3 \text{ArcTanh}[c x]}{d^2}+\frac{13 i b^2 c^3 \text{PolyLog}[2,-e^{i \text{ArcSin}[c x]}]}{3 d^2}+$$
$$\frac{5 i b c^3 (a+b \text{ArcSin}[c x]) \text{PolyLog}[2,-i e^{i \text{ArcSin}[c x]}]}{d^2}-\frac{5 i b c^3 (a+b \text{ArcSin}[c x]) \text{PolyLog}[2,i e^{i \text{ArcSin}[c x]}]}{d^2}-$$
$$\frac{13 i b^2 c^3 \text{PolyLog}[2,e^{i \text{ArcSin}[c x]}]}{3 d^2}-\frac{5 b^2 c^3 \text{PolyLog}[3,-i e^{i \text{ArcSin}[c x]}]}{d^2}+\frac{5 b^2 c^3 \text{PolyLog}[3,i e^{i \text{ArcSin}[c x]}]}{d^2}$$

Result (type 4, 1541 leaves) :

$$-\frac{a^2}{3 d^2 x^3}-\frac{2 a^2 c^2}{d^2 x}-\frac{a^2 c^4 x}{2 d^2 (-1+c^2 x^2)}-\frac{5 a^2 c^3 \text{Log}[1-c x]}{4 d^2}+\frac{5 a^2 c^3 \text{Log}[1+c x]}{4 d^2}+$$
$$\frac{1}{d^2} 2 a b \left(-\frac{c \sqrt{1-c^2 x^2}}{6 x^2}+\frac{c^3 \left(\sqrt{1-c^2 x^2}-\text{ArcSin}[c x]\right)}{4 (-1+c x)}-\frac{\text{ArcSin}[c x]}{3 x^3}-\frac{c^4 \left(\sqrt{1-c^2 x^2}+\text{ArcSin}[c x]\right)}{4 (c+c^2 x)}+\right.$$
$$\frac{1}{6} c^3 \text{Log}[x]-\frac{1}{6} c^3 \text{Log}\left[1+\sqrt{1-c^2 x^2}\right]+2 c^2 \left(-\frac{\text{ArcSin}[c x]}{x}+c \text{Log}[x]-c \text{Log}\left[1+\sqrt{1-c^2 x^2}\right]\right)-$$
$$\frac{5}{4} c^4 \left(\frac{3 i \pi \text{ArcSin}[c x]}{2 c}-\frac{i \text{ArcSin}[c x]^2}{2 c}+\frac{2 \pi \text{Log}[1+e^{-i \text{ArcSin}[c x]}]}{c}-\frac{\pi \text{Log}[1+i e^{i \text{ArcSin}[c x]}]}{c}+\frac{2 \text{ArcSin}[c x] \text{Log}[1+i e^{i \text{ArcSin}[c x]}]}{c}-\right.$$
$$\left.\frac{2 \pi \text{Log}[\text{Cos}[\frac{1}{2} \text{ArcSin}[c x]]]}{c}+\frac{\pi \text{Log}[-\text{Cos}[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])]]}{c}-\frac{2 i \text{PolyLog}[2,-i e^{i \text{ArcSin}[c x]}]}{c}\right)+$$
$$\frac{5}{4} c^4 \left(\frac{i \pi \text{ArcSin}[c x]}{2 c}-\frac{i \text{ArcSin}[c x]^2}{2 c}+\frac{2 \pi \text{Log}[1+e^{-i \text{ArcSin}[c x]}]}{c}+\frac{\pi \text{Log}[1-i e^{i \text{ArcSin}[c x]}]}{c}+\frac{2 \text{ArcSin}[c x] \text{Log}[1-i e^{i \text{ArcSin}[c x]}]}{c}-\right.$$
$$\left.\left.\frac{2 \pi \text{Log}[\text{Cos}[\frac{1}{2} \text{ArcSin}[c x]]]}{c}-\frac{\pi \text{Log}[\text{Sin}[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])]]}{c}-\frac{2 i \text{PolyLog}[2,i e^{i \text{ArcSin}[c x]}]}{c}\right)\right)+$$
$$\frac{1}{d^2} b^2 c^3 \left(\frac{5}{6} \text{ArcSin}[c x]^3+\frac{1}{12} \left(-2 \text{Cos}[\frac{1}{2} \text{ArcSin}[c x]]-13 \text{ArcSin}[c x]^2 \text{Cos}[\frac{1}{2} \text{ArcSin}[c x]]\right) \text{Csc}[\frac{1}{2} \text{ArcSin}[c x]]-\right.$$
$$\frac{1}{12} \text{ArcSin}[c x] \text{Csc}[\frac{1}{2} \text{ArcSin}[c x]]^2-\frac{1}{24} \text{ArcSin}[c x]^2 \text{Cot}[\frac{1}{2} \text{ArcSin}[c x]] \text{Csc}[\frac{1}{2} \text{ArcSin}[c x]]^2+$$

$$\frac{26}{3}\left(\frac{1}{8}\,i\,\text{ArcSin}[c\,x]^2-\frac{1}{2}\text{ArcSin}[c\,x]\,\text{Log}\left[1+e^{i\,\text{ArcSin}[c\,x]}\right]+\frac{1}{2}\,i\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c\,x]}\right]\right)+$$

$$\frac{26}{3}\left(\frac{1}{2}\text{ArcSin}[c\,x]\,\text{Log}\left[1-e^{i\,\text{ArcSin}[c\,x]}\right]-\frac{1}{2}\,i\left(\frac{1}{4}\text{ArcSin}[c\,x]^2+\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c\,x]}\right]\right)\right)+$$

$$\frac{1}{6}\left(-6\,\text{ArcSin}[c\,x]-5\,\text{ArcSin}[c\,x]^3+15\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-\right.$$

$$15\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+15\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\left(-\frac{1}{2}-\frac{i}{2}\right)e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left(-i+e^{i\,\text{ArcSin}[c\,x]}\right)\right]-$$

$$15\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[\left(\frac{1}{2}+\frac{i}{2}\right)e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left(-i+e^{i\,\text{ArcSin}[c\,x]}\right)\right]+15\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\frac{1}{2}e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left((1+i)+(1-i)\,e^{i\,\text{ArcSin}[c\,x]}\right)\right]+$$

$$15\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[\frac{1}{2}e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left((1+i)+(1-i)\,e^{i\,\text{ArcSin}[c\,x]}\right)\right]-6\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+$$

$$15\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-15\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[-\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+$$

$$6\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-15\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-$$

$$15\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+30\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-$$

$$\left.30\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]-30\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+30\,\text{PolyLog}\left[3,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\right)+$$

$$\frac{1}{12}\text{ArcSin}[c\,x]\,\text{Sec}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]^2+\frac{\text{ArcSin}[c\,x]^2}{4\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^2}-\frac{\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}-$$

$$\frac{\text{ArcSin}[c\,x]^2}{4\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^2}+\frac{\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}+$$

$$\frac{1}{12}\text{Sec}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\left(-2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-13\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)-$$

$$\left.\frac{1}{24}\text{ArcSin}[c\,x]^2\,\text{Sec}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]^2\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)$$

Problem 201: Result more than twice size of optimal antiderivative.

$$\int\frac{x^4\,(a+b\,\text{ArcSin}[c\,x])^2}{\left(d-c^2\,d\,x^2\right)^3}\,dx$$

Optimal (type 4, 343 leaves, 16 steps):

$$\frac{b^2 x}{12 c^4 d^3 \left(1-c^2 x^2\right)}-\frac{b \left(a+b \text{ArcSin}[c x]\right)}{6 c^5 d^3 \left(1-c^2 x^2\right)^{3/2}}+\frac{5 b \left(a+b \text{ArcSin}[c x]\right)}{4 c^5 d^3 \sqrt{1-c^2 x^2}}+\frac{x^3 \left(a+b \text{ArcSin}[c x]\right)^2}{4 c^2 d^3 \left(1-c^2 x^2\right)^2}-\frac{3 x \left(a+b \text{ArcSin}[c x]\right)^2}{8 c^4 d^3 \left(1-c^2 x^2\right)}-$$

$$\frac{3 i \left(a+b \text{ArcSin}[c x]\right)^2 \text{ArcTan}\left[e^{i \text{ArcSin}[c x]}\right]}{4 c^5 d^3}-\frac{7 b^2 \text{ArcTanh}[c x]}{6 c^5 d^3}+\frac{3 i b \left(a+b \text{ArcSin}[c x]\right) \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]}{4 c^5 d^3}-$$

$$\frac{3 i b \left(a+b \text{ArcSin}[c x]\right) \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]}{4 c^5 d^3}-\frac{3 b^2 \text{PolyLog}\left[3,-i e^{i \text{ArcSin}[c x]}\right]}{4 c^5 d^3}+\frac{3 b^2 \text{PolyLog}\left[3, i e^{i \text{ArcSin}[c x]}\right]}{4 c^5 d^3}$$

Result (type 4, 1148 leaves) :

$$\frac{a^2 x}{4 c^4 d^3 \left(-1+c^2 x^2\right)^2}+\frac{5 a^2 x}{8 c^4 d^3 \left(-1+c^2 x^2\right)}-\frac{3 a^2 \text{Log}[1-c x]}{16 c^5 d^3}+\frac{3 a^2 \text{Log}[1+c x]}{16 c^5 d^3}-$$

$$\frac{1}{d^3} 2 a b \left(\frac{(2-c x) \sqrt{1-c^2 x^2}-3 \text{ArcSin}[c x]}{48 c^5 (-1+c x)^2}+\frac{5 \left(\sqrt{1-c^2 x^2}-\text{ArcSin}[c x]\right)}{16 c^5 (-1+c x)}-\frac{5 \left(\sqrt{1-c^2 x^2}+\text{ArcSin}[c x]\right)}{16 c^4 \left(c+c^2 x\right)}+\frac{(2+c x) \sqrt{1-c^2 x^2}+3 \text{ArcSin}[c x]}{48 c^5 (1+c x)^2}+\right.$$

$$\frac{1}{16 c^4} 3 \left(\frac{3 i \pi \text{ArcSin}[c x]}{2 c}-\frac{i \text{ArcSin}[c x]^2}{2 c}+\frac{2 \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]}{c}-\frac{\pi \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]}{c}+\frac{2 \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]}{c}-\right.$$

$$\left.\frac{2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]}{c}+\frac{\pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]}{c}-\frac{2 i \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]}{c}\right)-\frac{1}{16 c^4}$$

$$3 \left(\frac{i \pi \text{ArcSin}[c x]}{2 c}-\frac{i \text{ArcSin}[c x]^2}{2 c}+\frac{2 \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]}{c}+\frac{\pi \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]}{c}+\frac{2 \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]}{c}-\right.$$

$$\left.\left.\frac{2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]}{c}-\frac{\pi \text{Log}\left[\text{Sin}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]}{c}-\frac{2 i \text{PolyLog}\left[2,i e^{i \text{ArcSin}[c x]}\right]}{c}\right)\right)-$$

$$\frac{1}{c^5 d^3} b^2 \left(\frac{1}{24} \left(-9 \text{ArcSin}[c x]^2 \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]+9 \text{ArcSin}[c x]^2 \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]-\right.\right.$$

$$9 \pi \text{ArcSin}[c x] \text{Log}\left[\left(-\frac{1}{2}-\frac{i}{2}\right) e^{-\frac{1}{2} i \text{ArcSin}[c x]} \left(-i+e^{i \text{ArcSin}[c x]}\right)\right]+9 \text{ArcSin}[c x]^2 \text{Log}\left[\left(\frac{1}{2}+\frac{i}{2}\right) e^{-\frac{1}{2} i \text{ArcSin}[c x]} \left(-i+e^{i \text{ArcSin}[c x]}\right)\right]-$$

$$9 \pi \text{ArcSin}[c x] \text{Log}\left[\frac{1}{2} e^{-\frac{1}{2} i \text{ArcSin}[c x]} \left((1+i)+(1-i) e^{i \text{ArcSin}[c x]}\right)\right]-9 \text{ArcSin}[c x]^2 \text{Log}\left[\frac{1}{2} e^{-\frac{1}{2} i \text{ArcSin}[c x]} \left((1+i)+(1-i) e^{i \text{ArcSin}[c x]}\right)\right]-$$

$$28 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-9 \text{ArcSin}[c x]^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+$$

$$9 \pi \text{ArcSin}[c x] \text{Log}\left[-\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+28 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+$$

$$9 \pi \text{ArcSin}[c x] \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+9 \text{ArcSin}[c x]^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-$$

$$18 i \text{ArcSin}[c x] \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]+18 i \text{ArcSin}[c x] \text{PolyLog}\left[2,i e^{i \text{ArcSin}[c x]}\right]+$$

$$\left.18 \text{PolyLog}\left[3,-i e^{i \text{ArcSin}[c x]}\right]-18 \text{PolyLog}\left[3,i e^{i \text{ArcSin}[c x]}\right]\right)-\frac{1}{96 \left(1-c^2 x^2\right)^2}\left(2 c x+74 \sqrt{1-c^2 x^2} \text{ArcSin}[c x]+\right.$$

$$\left.\left.9 c x \text{ArcSin}[c x]^2+30 \text{ArcSin}[c x] \text{Cos}[3 \text{ArcSin}[c x]]+2 \text{Sin}[3 \text{ArcSin}[c x]]-15 \text{ArcSin}[c x]^2 \text{Sin}[3 \text{ArcSin}[c x]]\right)\right)$$

Problem 203: Result more than twice size of optimal antiderivative.

$$\int \frac{x^2 \left(a+b \text{ArcSin}[c x]\right)^2}{\left(d-c^2 d x^2\right)^3} \, dx$$

Optimal (type 4, 341 leaves, 15 steps):

$$\frac{b^2 x}{12 c^2 d^3 \left(1-c^2 x^2\right)}-\frac{b \left(a+b \text{ArcSin}[c x]\right)}{6 c^3 d^3 \left(1-c^2 x^2\right)^{3/2}}+\frac{b \left(a+b \text{ArcSin}[c x]\right)}{4 c^3 d^3 \sqrt{1-c^2 x^2}}+\frac{x \left(a+b \text{ArcSin}[c x]\right)^2}{4 c^2 d^3 \left(1-c^2 x^2\right)^2}-\frac{x \left(a+b \text{ArcSin}[c x]\right)^2}{8 c^2 d^3 \left(1-c^2 x^2\right)}+$$
$$\frac{i \left(a+b \text{ArcSin}[c x]\right)^2 \text{ArcTan}\left[e^{i \text{ArcSin}[c x]}\right]}{4 c^3 d^3}-\frac{b^2 \text{ArcTanh}[c x]}{6 c^3 d^3}-\frac{i b \left(a+b \text{ArcSin}[c x]\right) \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]}{4 c^3 d^3}+$$
$$\frac{i b \left(a+b \text{ArcSin}[c x]\right) \text{PolyLog}\left[2,i e^{i \text{ArcSin}[c x]}\right]}{4 c^3 d^3}+\frac{b^2 \text{PolyLog}\left[3,-i e^{i \text{ArcSin}[c x]}\right]}{4 c^3 d^3}-\frac{b^2 \text{PolyLog}\left[3,i e^{i \text{ArcSin}[c x]}\right]}{4 c^3 d^3}$$

Result (type 4, 1082 leaves):

$$\frac{a^2 x}{4 c^2 d^3 \left(-1+c^2 x^2\right)^2}+\frac{a^2 x}{8 c^2 d^3 \left(-1+c^2 x^2\right)}+\frac{a^2 \text{Log}[1-c x]}{16 c^3 d^3}-\frac{a^2 \text{Log}[1+c x]}{16 c^3 d^3}-$$

$$\frac{1}{c^3 d^3} 2 a b \left(\frac{\sqrt{1-c^2 x^2}-\text{ArcSin}[c x]}{16 (-1+c x)}-\frac{\sqrt{1-c^2 x^2}+\text{ArcSin}[c x]}{16 (1+c x)}-\frac{(-2+c x) \sqrt{1-c^2 x^2}+3 \text{ArcSin}[c x]}{48 (-1+c x)^2}+\frac{(2+c x) \sqrt{1-c^2 x^2}+3 \text{ArcSin}[c x]}{48 (1+c x)^2}+\right.$$

$$\frac{1}{16}\left(-\frac{3}{2} i \pi \text{ArcSin}[c x]+\frac{1}{2} i \text{ArcSin}[c x]^2-2 \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]+\pi \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]-2 \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]+\right.$$

$$\left.2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-\pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]+2 i \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]\right)+$$

$$\frac{1}{16}\left(\frac{1}{2} i \pi \text{ArcSin}[c x]-\frac{1}{2} i \text{ArcSin}[c x]^2+2 \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]+\pi \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]+2 \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]-\right.$$

$$\left.\left.2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-\pi \text{Log}\left[\text{Sin}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]-2 i \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]\right)\right)-$$

$$\frac{1}{c^3 d^3} b^2 \left(\frac{1}{24}\left(3 \text{ArcSin}[c x]^2 \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]-3 \text{ArcSin}[c x]^2 \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]+\right.\right.$$

$$3 \pi \text{ArcSin}[c x] \text{Log}\left[\left(-\frac{1}{2}-\frac{i}{2}\right) e^{-\frac{1}{2} i \text{ArcSin}[c x]} \left(-i+e^{i \text{ArcSin}[c x]}\right)\right]-3 \text{ArcSin}[c x]^2 \text{Log}\left[\left(\frac{1}{2}+\frac{i}{2}\right) e^{-\frac{1}{2} i \text{ArcSin}[c x]} \left(-i+e^{i \text{ArcSin}[c x]}\right)\right]+$$

$$3 \pi \text{ArcSin}[c x] \text{Log}\left[\frac{1}{2} e^{-\frac{1}{2} i \text{ArcSin}[c x]} \left((1+i)+(1-i) e^{i \text{ArcSin}[c x]}\right)\right]+3 \text{ArcSin}[c x]^2 \text{Log}\left[\frac{1}{2} e^{-\frac{1}{2} i \text{ArcSin}[c x]} \left((1+i)+(1-i) e^{i \text{ArcSin}[c x]}\right)\right]-$$

$$4 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+3 \text{ArcSin}[c x]^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-$$

$$3 \pi \text{ArcSin}[c x] \text{Log}\left[-\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+4 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-3 \pi \text{ArcSin}[c x]$$

$$\text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-3 \text{ArcSin}[c x]^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+6 i \text{ArcSin}[c x]$$

$$\left.\text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]-6 i \text{ArcSin}[c x] \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]-6 \text{PolyLog}\left[3,-i e^{i \text{ArcSin}[c x]}\right]+6 \text{PolyLog}\left[3, i e^{i \text{ArcSin}[c x]}\right]\right)-$$

$$\frac{1}{96 \left(1-c^2 x^2\right)^2}\left(2 c x+2 \sqrt{1-c^2 x^2} \text{ArcSin}[c x]+21 c x \text{ArcSin}[c x]^2+6 \text{ArcSin}[c x] \text{Cos}[3 \text{ArcSin}[c x]]+\right.$$

$$\left.\left.2 \text{Sin}[3 \text{ArcSin}[c x]]-3 \text{ArcSin}[c x]^2 \text{Sin}[3 \text{ArcSin}[c x]]\right)\right)$$

Problem 205: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b \text{ArcSin}[c x])^2}{\left(d-c^2 d x^2\right)^3} \, dx$$

Optimal (type 4, 332 leaves, 15 steps) :

$$\frac{b^2 x}{12 d^3 \left(1-c^2 x^2\right)}-\frac{b \left(a+b \text{ArcSin}[c x]\right)}{6 c d^3 \left(1-c^2 x^2\right)^{3/2}}-\frac{3 b \left(a+b \text{ArcSin}[c x]\right)}{4 c d^3 \sqrt{1-c^2 x^2}}+\frac{x \left(a+b \text{ArcSin}[c x]\right)^2}{4 d^3 \left(1-c^2 x^2\right)^2}+\frac{3 x \left(a+b \text{ArcSin}[c x]\right)^2}{8 d^3 \left(1-c^2 x^2\right)}-\frac{3 i \left(a+b \text{ArcSin}[c x]\right)^2 \text{ArcTan}\left[e^{i \text{ArcSin}[c x]}\right]}{4 c d^3}+\frac{5 b^2 \text{ArcTanh}[c x]}{6 c d^3}+\frac{3 i b \left(a+b \text{ArcSin}[c x]\right) \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]}{4 c d^3}-\frac{3 i b \left(a+b \text{ArcSin}[c x]\right) \text{PolyLog}\left[2,i e^{i \text{ArcSin}[c x]}\right]}{4 c d^3}-\frac{3 b^2 \text{PolyLog}\left[3,-i e^{i \text{ArcSin}[c x]}\right]}{4 c d^3}+\frac{3 b^2 \text{PolyLog}\left[3,i e^{i \text{ArcSin}[c x]}\right]}{4 c d^3}$$

Result (type 4, 1069 leaves) :

$$\frac{a^2 x}{4 d^3 \left(-1+c^2 x^2\right)^2}-\frac{3 a^2 x}{8 d^3 \left(-1+c^2 x^2\right)}-\frac{3 a^2 \operatorname{Log}[1-c x]}{16 c d^3}+\frac{3 a^2 \operatorname{Log}[1+c x]}{16 c d^3}-\frac{1}{c d^3}2 a b$$

$$\left(-\frac{3 \left(\sqrt{1-c^2 x^2}-\operatorname{ArcSin}[c x]\right)}{16 (-1+c x)}+\frac{3 \left(\sqrt{1-c^2 x^2}+\operatorname{ArcSin}[c x]\right)}{16 (1+c x)}-\frac{(-2+c x) \sqrt{1-c^2 x^2}+3 \operatorname{ArcSin}[c x]}{48 (-1+c x)^2}+\frac{(2+c x) \sqrt{1-c^2 x^2}+3 \operatorname{ArcSin}[c x]}{48 (1+c x)^2}+\right.$$

$$\frac{3}{16}\left(\frac{3}{2} i \pi \operatorname{ArcSin}[c x]-\frac{1}{2} i \operatorname{ArcSin}[c x]^2+2 \pi \operatorname{Log}\left[1+e^{-i \operatorname{ArcSin}[c x]}\right]-\pi \operatorname{Log}\left[1+i e^{i \operatorname{ArcSin}[c x]}\right]+2 \operatorname{ArcSin}[c x] \operatorname{Log}\left[1+i e^{i \operatorname{ArcSin}[c x]}\right]-\right.$$

$$\left.2 \pi \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]+\pi \operatorname{Log}\left[-\operatorname{Cos}\left[\frac{1}{4} (\pi+2 \operatorname{ArcSin}[c x])\right]\right]-2 i \operatorname{PolyLog}\left[2,-i e^{i \operatorname{ArcSin}[c x]}\right]\right)-$$

$$\frac{3}{16}\left(\frac{1}{2} i \pi \operatorname{ArcSin}[c x]-\frac{1}{2} i \operatorname{ArcSin}[c x]^2+2 \pi \operatorname{Log}\left[1+e^{-i \operatorname{ArcSin}[c x]}\right]+\pi \operatorname{Log}\left[1-i e^{i \operatorname{ArcSin}[c x]}\right]+2 \operatorname{ArcSin}[c x] \operatorname{Log}\left[1-i e^{i \operatorname{ArcSin}[c x]}\right]-\right.$$

$$\left.\left.2 \pi \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]-\pi \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{4} (\pi+2 \operatorname{ArcSin}[c x])\right]\right]-2 i \operatorname{PolyLog}\left[2, i e^{i \operatorname{ArcSin}[c x]}\right]\right)\right)-$$

$$\frac{1}{c d^3} b^2\left(-\frac{1}{48 \left(1-c^2 x^2\right)^2}\left(-35 \sqrt{1-c^2 x^2} \operatorname{ArcSin}[c x]+c x \left(2+21 \operatorname{ArcSin}[c x]^2+\left(2+9 \operatorname{ArcSin}[c x]^2\right) \operatorname{Cos}[2 \operatorname{ArcSin}[c x]]\right)-\right.\right.$$

$$\left.9 \operatorname{ArcSin}[c x] \operatorname{Cos}[3 \operatorname{ArcSin}[c x]]\right)+\frac{1}{24}\left(-9 \operatorname{ArcSin}[c x]^2 \operatorname{Log}\left[1-i e^{i \operatorname{ArcSin}[c x]}\right]+\right.$$

$$9 \operatorname{ArcSin}[c x]^2 \operatorname{Log}\left[1+i e^{i \operatorname{ArcSin}[c x]}\right]-9 \pi \operatorname{ArcSin}[c x] \operatorname{Log}\left[\left(-\frac{1}{2}-\frac{i}{2}\right) e^{-\frac{1}{2} i \operatorname{ArcSin}[c x]}\left(-i+e^{i \operatorname{ArcSin}[c x]}\right)\right]+$$

$$9 \operatorname{ArcSin}[c x]^2 \operatorname{Log}\left[\left(\frac{1}{2}+\frac{i}{2}\right) e^{-\frac{1}{2} i \operatorname{ArcSin}[c x]}\left(-i+e^{i \operatorname{ArcSin}[c x]}\right)\right]-9 \pi \operatorname{ArcSin}[c x] \operatorname{Log}\left[\frac{1}{2} e^{-\frac{1}{2} i \operatorname{ArcSin}[c x]}\left((1+i)+(1-i) e^{i \operatorname{ArcSin}[c x]}\right)\right]-$$

$$9 \operatorname{ArcSin}[c x]^2 \operatorname{Log}\left[\frac{1}{2} e^{-\frac{1}{2} i \operatorname{ArcSin}[c x]}\left((1+i)+(1-i) e^{i \operatorname{ArcSin}[c x]}\right)\right]+20 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]-\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]-$$

$$9 \operatorname{ArcSin}[c x]^2 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]-\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]+9 \pi \operatorname{ArcSin}[c x] \operatorname{Log}\left[-\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]+\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]-$$

$$20 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]+\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]+9 \pi \operatorname{ArcSin}[c x] \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]+\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]+$$

$$9 \operatorname{ArcSin}[c x]^2 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]+\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]-18 i \operatorname{ArcSin}[c x] \operatorname{PolyLog}\left[2,-i e^{i \operatorname{ArcSin}[c x]}\right]+$$

$$\left.\left.18 i \operatorname{ArcSin}[c x] \operatorname{PolyLog}\left[2, i e^{i \operatorname{ArcSin}[c x]}\right]+18 \operatorname{PolyLog}\left[3,-i e^{i \operatorname{ArcSin}[c x]}\right]-18 \operatorname{PolyLog}\left[3, i e^{i \operatorname{ArcSin}[c x]}\right]\right)\right)$$

Problem 206: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b \operatorname{ArcSin}[c x])^2}{x \left(d-c^2 d x^2\right)^3} \, dx$$

Optimal (type 4, 296 leaves, 17 steps):

$$\frac{b^2}{12 d^3 \left(1-c^2 x^2\right)}-\frac{b c x \left(a+b \text{ArcSin}[c x]\right)}{6 d^3 \left(1-c^2 x^2\right)^{3/2}}-\frac{4 b c x \left(a+b \text{ArcSin}[c x]\right)}{3 d^3 \sqrt{1-c^2 x^2}}+\frac{\left(a+b \text{ArcSin}[c x]\right)^2}{4 d^3 \left(1-c^2 x^2\right)^2}+\frac{\left(a+b \text{ArcSin}[c x]\right)^2}{2 d^3 \left(1-c^2 x^2\right)}-\frac{2 \left(a+b \text{ArcSin}[c x]\right)^2 \text{ArcTanh}\left[e^{2 i \text{ArcSin}[c x]}\right]}{d^3}-\frac{2 b^2 \text{Log}\left[1-c^2 x^2\right]}{3 d^3}+\frac{i b \left(a+b \text{ArcSin}[c x]\right) \text{PolyLog}\left[2,-e^{2 i \text{ArcSin}[c x]}\right]}{d^3}-\frac{i b \left(a+b \text{ArcSin}[c x]\right) \text{PolyLog}\left[2,e^{2 i \text{ArcSin}[c x]}\right]}{d^3}-\frac{b^2 \text{PolyLog}\left[3,-e^{2 i \text{ArcSin}[c x]}\right]}{2 d^3}+\frac{b^2 \text{PolyLog}\left[3,e^{2 i \text{ArcSin}[c x]}\right]}{2 d^3}$$

Result (type 4, 800 leaves):

$$\frac{a^2}{4 d^3 \left(-1+c^2 x^2\right)^2}-\frac{a^2}{2 d^3 \left(-1+c^2 x^2\right)}+\frac{a^2 \text{Log}[c x]}{d^3}-\frac{a^2 \text{Log}\left[1-c^2 x^2\right]}{2 d^3}-\frac{1}{d^3}2 a b \left(-\frac{5 \left(\sqrt{1-c^2 x^2}-\text{ArcSin}[c x]\right)}{16 (-1+c x)}-\frac{5 \left(\sqrt{1-c^2 x^2}+\text{ArcSin}[c x]\right)}{16 (1+c x)}-\frac{(-2+c x) \sqrt{1-c^2 x^2}+3 \text{ArcSin}[c x]}{48 (-1+c x)^2}-\frac{(2+c x) \sqrt{1-c^2 x^2}+3 \text{ArcSin}[c x]}{48 (1+c x)^2}-\text{ArcSin}[c x] \text{Log}\left[1-e^{2 i \text{ArcSin}[c x]}\right]+\frac{1}{2} \left(\frac{3}{2} i \pi \text{ArcSin}[c x]-\frac{1}{2} i \text{ArcSin}[c x]^2+2 \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]-\pi \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]+2 \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]-2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+\pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4} \left(\pi+2 \text{ArcSin}[c x]\right)\right]\right]-2 i \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]\right)+\frac{1}{2} \left(\frac{1}{2} i \pi \text{ArcSin}[c x]-\frac{1}{2} i \text{ArcSin}[c x]^2+2 \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]+\pi \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]+2 \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]-2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-\pi \text{Log}\left[\text{Sin}\left[\frac{1}{4} \left(\pi+2 \text{ArcSin}[c x]\right)\right]\right]-2 i \text{PolyLog}\left[2,i e^{i \text{ArcSin}[c x]}\right]\right)+\frac{1}{2} i \left(\text{ArcSin}[c x]^2+\text{PolyLog}\left[2,e^{2 i \text{ArcSin}[c x]}\right]\right)\right)-\frac{1}{24 d^3}b^2 \left(i \pi^3-\frac{2}{1-c^2 x^2}+\frac{4 c x \text{ArcSin}[c x]}{\left(1-c^2 x^2\right)^{3/2}}+\frac{32 c x \text{ArcSin}[c x]}{\sqrt{1-c^2 x^2}}-\frac{6 \text{ArcSin}[c x]^2}{\left(1-c^2 x^2\right)^2}-\frac{12 \text{ArcSin}[c x]^2}{1-c^2 x^2}-16 i \text{ArcSin}[c x]^3-24 \text{ArcSin}[c x]^2 \text{Log}\left[1-e^{-2 i \text{ArcSin}[c x]}\right]+24 \text{ArcSin}[c x]^2 \text{Log}\left[1+e^{2 i \text{ArcSin}[c x]}\right]+32 \text{Log}\left[\sqrt{1-c^2 x^2}\right]-24 i \text{ArcSin}[c x] \text{PolyLog}\left[2,e^{-2 i \text{ArcSin}[c x]}\right]-24 i \text{ArcSin}[c x] \text{PolyLog}\left[2,-e^{2 i \text{ArcSin}[c x]}\right]-12 \text{PolyLog}\left[3,e^{-2 i \text{ArcSin}[c x]}\right]+12 \text{PolyLog}\left[3,-e^{2 i \text{ArcSin}[c x]}\right]\right)$$

Problem 207: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^2}{x^2\,(d-c^2 d\,x^2)^3}\,dx$$

Optimal (type 4, 429 leaves, 27 steps):

$$\frac{b^2 c^2 x}{12 d^3 (1-c^2 x^2)}-\frac{b c (a+b\,\text{ArcSin}[c x])}{6 d^3 (1-c^2 x^2)^{3/2}}-\frac{7 b c (a+b\,\text{ArcSin}[c x])}{4 d^3 \sqrt{1-c^2 x^2}}-\frac{(a+b\,\text{ArcSin}[c x])^2}{d^3 x (1-c^2 x^2)^2}+$$
$$\frac{5 c^2 x (a+b\,\text{ArcSin}[c x])^2}{4 d^3 (1-c^2 x^2)^2}+\frac{15 c^2 x (a+b\,\text{ArcSin}[c x])^2}{8 d^3 (1-c^2 x^2)}-\frac{15 i c (a+b\,\text{ArcSin}[c x])^2 \text{ArcTan}\left[e^{i\,\text{ArcSin}[c x]}\right]}{4 d^3}-$$
$$\frac{4 b c (a+b\,\text{ArcSin}[c x]) \text{ArcTanh}\left[e^{i\,\text{ArcSin}[c x]}\right]}{d^3}+\frac{11 b^2 c\,\text{ArcTanh}[c x]}{6 d^3}+\frac{2 i b^2 c\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c x]}\right]}{d^3}+$$
$$\frac{15 i b c (a+b\,\text{ArcSin}[c x]) \text{PolyLog}\left[2,-i e^{i\,\text{ArcSin}[c x]}\right]}{4 d^3}-\frac{15 i b c (a+b\,\text{ArcSin}[c x]) \text{PolyLog}\left[2,i e^{i\,\text{ArcSin}[c x]}\right]}{4 d^3}-$$
$$\frac{2 i b^2 c\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c x]}\right]}{d^3}-\frac{15 b^2 c\,\text{PolyLog}\left[3,-i e^{i\,\text{ArcSin}[c x]}\right]}{4 d^3}+\frac{15 b^2 c\,\text{PolyLog}\left[3,i e^{i\,\text{ArcSin}[c x]}\right]}{4 d^3}$$

Result (type 4, 1416 leaves):

$$-\frac{a^2}{d^3 x}+\frac{a^2 c^2 x}{4 d^3 (-1+c^2 x^2)^2}-\frac{7 a^2 c^2 x}{8 d^3 (-1+c^2 x^2)}-\frac{15 a^2 c\,\text{Log}[1-c x]}{16 d^3}+\frac{15 a^2 c\,\text{Log}[1+c x]}{16 d^3}-$$
$$\frac{1}{d^3} 2 a b c \left(-\frac{7\left(\sqrt{1-c^2 x^2}-\text{ArcSin}[c x]\right)}{16 (-1+c x)}+\frac{\text{ArcSin}[c x]}{c x}+\frac{7\left(\sqrt{1-c^2 x^2}+\text{ArcSin}[c x]\right)}{16 (1+c x)}-\right.$$
$$\frac{(-2+c x)\sqrt{1-c^2 x^2}+3\,\text{ArcSin}[c x]}{48 (-1+c x)^2}+\frac{(2+c x)\sqrt{1-c^2 x^2}+3\,\text{ArcSin}[c x]}{48 (1+c x)^2}-\text{Log}[c x]+\text{Log}\left[1+\sqrt{1-c^2 x^2}\right]+$$
$$\frac{15}{16}\left(\frac{3}{2} i \pi\,\text{ArcSin}[c x]-\frac{1}{2} i\,\text{ArcSin}[c x]^2+2\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c x]}\right]-\pi\,\text{Log}\left[1+i e^{i\,\text{ArcSin}[c x]}\right]+2\,\text{ArcSin}[c x]\,\text{Log}\left[1+i e^{i\,\text{ArcSin}[c x]}\right]-\right.$$
$$\left.2\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c x]\right]\right]+\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}(\pi+2\,\text{ArcSin}[c x])\right]\right]-2 i\,\text{PolyLog}\left[2,-i e^{i\,\text{ArcSin}[c x]}\right]\right)-$$
$$\frac{15}{16}\left(\frac{1}{2} i \pi\,\text{ArcSin}[c x]-\frac{1}{2} i\,\text{ArcSin}[c x]^2+2\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c x]}\right]+\pi\,\text{Log}\left[1-i e^{i\,\text{ArcSin}[c x]}\right]+2\,\text{ArcSin}[c x]\,\text{Log}\left[1-i e^{i\,\text{ArcSin}[c x]}\right]-\right.$$
$$\left.\left.2\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c x]\right]\right]-\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}(\pi+2\,\text{ArcSin}[c x])\right]\right]-2 i\,\text{PolyLog}\left[2,i e^{i\,\text{ArcSin}[c x]}\right]\right)\right)-$$

$$\frac{1}{d^3} b^2 c \left(-2\, i\, \text{PolyLog}\left[2, -e^{i\, \text{ArcSin}[c\, x]}\right] + \frac{1}{24} \left(44\, \text{ArcSin}[c\, x] + 15\, \text{ArcSin}[c\, x]^3 - 45\, \text{ArcSin}[c\, x]^2 \text{Log}\left[1 - i\, e^{i\, \text{ArcSin}[c\, x]}\right] + \right.\right.$$

$$45\, \text{ArcSin}[c\, x]^2 \text{Log}\left[1 + i\, e^{i\, \text{ArcSin}[c\, x]}\right] - 45\, \pi\, \text{ArcSin}[c\, x]\, \text{Log}\left[\left(-\frac{1}{2} - \frac{i}{2}\right) e^{-\frac{1}{2} i\, \text{ArcSin}[c\, x]} \left(-i + e^{i\, \text{ArcSin}[c\, x]}\right)\right] +$$

$$45\, \text{ArcSin}[c\, x]^2 \text{Log}\left[\left(\frac{1}{2} + \frac{i}{2}\right) e^{-\frac{1}{2} i\, \text{ArcSin}[c\, x]} \left(-i + e^{i\, \text{ArcSin}[c\, x]}\right)\right] - 45\, \pi\, \text{ArcSin}[c\, x]\, \text{Log}\left[\frac{1}{2} e^{-\frac{1}{2} i\, \text{ArcSin}[c\, x]} \left((1 + i) + (1 - i)\, e^{i\, \text{ArcSin}[c\, x]}\right)\right] -$$

$$45\, \text{ArcSin}[c\, x]^2 \text{Log}\left[\frac{1}{2} e^{-\frac{1}{2} i\, \text{ArcSin}[c\, x]} \left((1 + i) + (1 - i)\, e^{i\, \text{ArcSin}[c\, x]}\right)\right] + 44\, \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right] - \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right]\right] -$$

$$45\, \text{ArcSin}[c\, x]^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right] - \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right]\right] + 45\, \pi\, \text{ArcSin}[c\, x]\, \text{Log}\left[-\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right]\right] -$$

$$44\, \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right]\right] + 45\, \pi\, \text{ArcSin}[c\, x]\, \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right]\right] +$$

$$45\, \text{ArcSin}[c\, x]^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right]\right] - 90\, i\, \text{ArcSin}[c\, x]\, \text{PolyLog}\left[2, -i\, e^{i\, \text{ArcSin}[c\, x]}\right] +$$

$$\left.\left.90\, i\, \text{ArcSin}[c\, x]\, \text{PolyLog}\left[2, i\, e^{i\, \text{ArcSin}[c\, x]}\right] + 90\, \text{PolyLog}\left[3, -i\, e^{i\, \text{ArcSin}[c\, x]}\right] - 90\, \text{PolyLog}\left[3, i\, e^{i\, \text{ArcSin}[c\, x]}\right]\right)\right) -$$

$$\frac{1}{384\, c\, x \left(1 - c^2 x^2\right)^2} \left(4 + 88\, c\, x\, \text{ArcSin}[c\, x] - 54\, \text{ArcSin}[c\, x]^2 + 30\, c\, x\, \text{ArcSin}[c\, x]^3 - 240\, \text{ArcSin}[c\, x]^2 \text{Cos}[2\, \text{ArcSin}[c\, x]] - \right.$$

$$4\, \text{Cos}[4\, \text{ArcSin}[c\, x]] - 90\, \text{ArcSin}[c\, x]^2 \text{Cos}[4\, \text{ArcSin}[c\, x]] + 96\, c\, x\, \text{ArcSin}[c\, x]\, \text{Log}\left[1 - e^{i\, \text{ArcSin}[c\, x]}\right] -$$

$$96\, c\, x\, \text{ArcSin}[c\, x]\, \text{Log}\left[1 + e^{i\, \text{ArcSin}[c\, x]}\right] - 768\, i\, c\, x \left(1 - c^2 x^2\right)^2 \text{PolyLog}\left[2, e^{i\, \text{ArcSin}[c\, x]}\right] -$$

$$200\, \text{ArcSin}[c\, x]\, \text{Sin}[2\, \text{ArcSin}[c\, x]] + 132\, \text{ArcSin}[c\, x]\, \text{Sin}[3\, \text{ArcSin}[c\, x]] + 45\, \text{ArcSin}[c\, x]^3 \text{Sin}[3\, \text{ArcSin}[c\, x]] +$$

$$144\, \text{ArcSin}[c\, x]\, \text{Log}\left[1 - e^{i\, \text{ArcSin}[c\, x]}\right] \text{Sin}[3\, \text{ArcSin}[c\, x]] - 144\, \text{ArcSin}[c\, x]\, \text{Log}\left[1 + e^{i\, \text{ArcSin}[c\, x]}\right] \text{Sin}[3\, \text{ArcSin}[c\, x]] -$$

$$84\, \text{ArcSin}[c\, x]\, \text{Sin}[4\, \text{ArcSin}[c\, x]] + 44\, \text{ArcSin}[c\, x]\, \text{Sin}[5\, \text{ArcSin}[c\, x]] + 15\, \text{ArcSin}[c\, x]^3 \text{Sin}[5\, \text{ArcSin}[c\, x]] +$$

$$\left.48\, \text{ArcSin}[c\, x]\, \text{Log}\left[1 - e^{i\, \text{ArcSin}[c\, x]}\right] \text{Sin}[5\, \text{ArcSin}[c\, x]] - 48\, \text{ArcSin}[c\, x]\, \text{Log}\left[1 + e^{i\, \text{ArcSin}[c\, x]}\right] \text{Sin}[5\, \text{ArcSin}[c\, x]]\right)\Big)$$

Problem 208: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + b\, \text{ArcSin}[c\, x])^2}{x^3 \left(d - c^2 d\, x^2\right)^3}\, dx$$

Optimal (type 4, 403 leaves, 23 steps):

$$\frac{b^2 c^2}{12 d^3 \left(1-c^2 x^2\right)}-\frac{b c \left(a+b \text{ArcSin}[c x]\right)}{d^3 x \left(1-c^2 x^2\right)^{3/2}}+\frac{5 b c^3 x \left(a+b \text{ArcSin}[c x]\right)}{6 d^3 \left(1-c^2 x^2\right)^{3/2}}-\frac{4 b c^3 x \left(a+b \text{ArcSin}[c x]\right)}{3 d^3 \sqrt{1-c^2 x^2}}+$$
$$\frac{3 c^2 \left(a+b \text{ArcSin}[c x]\right)^2}{4 d^3 \left(1-c^2 x^2\right)^2}-\frac{\left(a+b \text{ArcSin}[c x]\right)^2}{2 d^3 x^2 \left(1-c^2 x^2\right)^2}+\frac{3 c^2 \left(a+b \text{ArcSin}[c x]\right)^2}{2 d^3 \left(1-c^2 x^2\right)}-\frac{6 c^2 \left(a+b \text{ArcSin}[c x]\right)^2 \text{ArcTanh}\left[e^{2 i \text{ArcSin}[c x]}\right]}{d^3}+$$
$$\frac{b^2 c^2 \text{Log}[x]}{d^3}-\frac{7 b^2 c^2 \text{Log}\left[1-c^2 x^2\right]}{6 d^3}+\frac{3 i b c^2 \left(a+b \text{ArcSin}[c x]\right) \text{PolyLog}\left[2,-e^{2 i \text{ArcSin}[c x]}\right]}{d^3}-$$
$$\frac{3 i b c^2 \left(a+b \text{ArcSin}[c x]\right) \text{PolyLog}\left[2,e^{2 i \text{ArcSin}[c x]}\right]}{d^3}-\frac{3 b^2 c^2 \text{PolyLog}\left[3,-e^{2 i \text{ArcSin}[c x]}\right]}{2 d^3}+\frac{3 b^2 c^2 \text{PolyLog}\left[3,e^{2 i \text{ArcSin}[c x]}\right]}{2 d^3}$$

Result (type 4, 989 leaves) :

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

$$\frac{1}{d^3} 2 a b \Bigg(\frac{c^2 \left((2-c x) \sqrt{1-c^2 x^2}-3 \,\text{ArcSin}[c x]\right)}{48 (-1+c x)^2}-\frac{9 c^2 \left(\sqrt{1-c^2 x^2}-\text{ArcSin}[c x]\right)}{16 (-1+c x)}-$$

$$\frac{9 c^3 \left(\sqrt{1-c^2 x^2}+\text{ArcSin}[c x]\right)}{16 \left(c+c^2 x\right)}+\frac{c x \sqrt{1-c^2 x^2}+\text{ArcSin}[c x]}{2 x^2}-\frac{c^2 \left((2+c x) \sqrt{1-c^2 x^2}+3 \,\text{ArcSin}[c x]\right)}{48 (1+c x)^2}+$$

$$\frac{3}{2} c^3 \Bigg(\frac{3 i \pi \,\text{ArcSin}[c x]}{2 c}-\frac{i \,\text{ArcSin}[c x]^2}{2 c}+\frac{2 \pi \,\text{Log}\left[1+e^{-i \,\text{ArcSin}[c x]}\right]}{c}-\frac{\pi \,\text{Log}\left[1+i e^{i \,\text{ArcSin}[c x]}\right]}{c}+\frac{2 \,\text{ArcSin}[c x] \,\text{Log}\left[1+i e^{i \,\text{ArcSin}[c x]}\right]}{c}-$$

$$\frac{2 \pi \,\text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]}{c}+\frac{\pi \,\text{Log}\left[-\text{Cos}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[c x])\right]\right]}{c}-\frac{2 i \,\text{PolyLog}\left[2,-i e^{i \,\text{ArcSin}[c x]}\right]}{c}\Bigg)+$$

$$\frac{3}{2} c^3 \Bigg(\frac{i \pi \,\text{ArcSin}[c x]}{2 c}-\frac{i \,\text{ArcSin}[c x]^2}{2 c}+\frac{2 \pi \,\text{Log}\left[1+e^{-i \,\text{ArcSin}[c x]}\right]}{c}+\frac{\pi \,\text{Log}\left[1-i e^{i \,\text{ArcSin}[c x]}\right]}{c}+\frac{2 \,\text{ArcSin}[c x] \,\text{Log}\left[1-i e^{i \,\text{ArcSin}[c x]}\right]}{c}-$$

$$\frac{2 \pi \,\text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]}{c}-\frac{\pi \,\text{Log}\left[\text{Sin}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[c x])\right]\right]}{c}-\frac{2 i \,\text{PolyLog}\left[2,i e^{i \,\text{ArcSin}[c x]}\right]}{c}\Bigg)-$$

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

$$\frac{1}{d^3} b^2 c^2 \Bigg(\frac{i \pi^3}{8}-\frac{1}{12 \left(1-c^2 x^2\right)}+\frac{c x \,\text{ArcSin}[c x]}{6 \left(1-c^2 x^2\right)^{3/2}}+\frac{7 c x \,\text{ArcSin}[c x]}{3 \sqrt{1-c^2 x^2}}+\frac{\sqrt{1-c^2 x^2} \,\text{ArcSin}[c x]}{c x}+\frac{\text{ArcSin}[c x]^2}{2 c^2 x^2}-$$

$$\frac{\text{ArcSin}[c x]^2}{4 \left(1-c^2 x^2\right)^2}-\frac{\text{ArcSin}[c x]^2}{1-c^2 x^2}-2 i \,\text{ArcSin}[c x]^3-3 \,\text{ArcSin}[c x]^2 \,\text{Log}\left[1-e^{-2 i \,\text{ArcSin}[c x]}\right]+$$

$$3 \,\text{ArcSin}[c x]^2 \,\text{Log}\left[1+e^{2 i \,\text{ArcSin}[c x]}\right]-\text{Log}[c x]+\frac{7}{3} \text{Log}\left[\sqrt{1-c^2 x^2}\right]-3 i \,\text{ArcSin}[c x] \,\text{PolyLog}\left[2,e^{-2 i \,\text{ArcSin}[c x]}\right]-$$

$$3 i \,\text{ArcSin}[c x] \,\text{PolyLog}\left[2,-e^{2 i \,\text{ArcSin}[c x]}\right]-\frac{3}{2} \text{PolyLog}\left[3,e^{-2 i \,\text{ArcSin}[c x]}\right]+\frac{3}{2} \text{PolyLog}\left[3,-e^{2 i \,\text{ArcSin}[c x]}\right]\Bigg)$$

Problem 209: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b \,\text{ArcSin}[c x])^2}{x^4 \left(d-c^2 d x^2\right)^3} \, dx$$

Optimal (type 4, 572 leaves, 43 steps):

$$-\frac{b^2 c^2}{2 d^3 x}+\frac{b^2 c^2}{6 d^3 x \left(1-c^2 x^2\right)}-\frac{b^2 c^4 x}{12 d^3 \left(1-c^2 x^2\right)}+\frac{b c^3 (a+b \text{ArcSin}[c x])}{6 d^3 \left(1-c^2 x^2\right)^{3/2}}-\frac{b c (a+b \text{ArcSin}[c x])}{3 d^3 x^2 \left(1-c^2 x^2\right)^{3/2}}-\frac{29 b c^3 (a+b \text{ArcSin}[c x])}{12 d^3 \sqrt{1-c^2 x^2}}-\frac{(a+b \text{ArcSin}[c x])^2}{3 d^3 x^3 \left(1-c^2 x^2\right)^2}-\frac{7 c^2 (a+b \text{ArcSin}[c x])^2}{3 d^3 x \left(1-c^2 x^2\right)^2}+\frac{35 c^4 x (a+b \text{ArcSin}[c x])^2}{12 d^3 \left(1-c^2 x^2\right)^2}+\frac{35 c^4 x (a+b \text{ArcSin}[c x])^2}{8 d^3 \left(1-c^2 x^2\right)}-\frac{35 i c^3 (a+b \text{ArcSin}[c x])^2 \text{ArcTan}\left[e^{i \text{ArcSin}[c x]}\right]}{4 d^3}-\frac{38 b c^3 (a+b \text{ArcSin}[c x]) \text{ArcTanh}\left[e^{i \text{ArcSin}[c x]}\right]}{3 d^3}+\frac{17 b^2 c^3 \text{ArcTanh}[c x]}{6 d^3}+\frac{19 i b^2 c^3 \text{PolyLog}\left[2,-e^{i \text{ArcSin}[c x]}\right]}{3 d^3}+\frac{35 i b c^3 (a+b \text{ArcSin}[c x]) \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]}{4 d^3}-\frac{35 i b c^3 (a+b \text{ArcSin}[c x]) \text{PolyLog}\left[2,i e^{i \text{ArcSin}[c x]}\right]}{4 d^3}-\frac{19 i b^2 c^3 \text{PolyLog}\left[2,e^{i \text{ArcSin}[c x]}\right]}{3 d^3}-\frac{35 b^2 c^3 \text{PolyLog}\left[3,-i e^{i \text{ArcSin}[c x]}\right]}{4 d^3}+\frac{35 b^2 c^3 \text{PolyLog}\left[3,i e^{i \text{ArcSin}[c x]}\right]}{4 d^3}$$

Result (type 4, 1817 leaves):

$$-\frac{a^2}{3 d^3 x^3}-\frac{3 a^2 c^2}{d^3 x}+\frac{a^2 c^4 x}{4 d^3 \left(-1+c^2 x^2\right)^2}-\frac{11 a^2 c^4 x}{8 d^3 \left(-1+c^2 x^2\right)}-\frac{35 a^2 c^3 \text{Log}[1-c x]}{16 d^3}+\frac{35 a^2 c^3 \text{Log}[1+c x]}{16 d^3}-\frac{1}{d^3}2 a b \left(\frac{c \sqrt{1-c^2 x^2}}{6 x^2}+\frac{c^3 \left((2-c x) \sqrt{1-c^2 x^2}-3 \text{ArcSin}[c x]\right)}{48 (-1+c x)^2}-\frac{11 c^3 \left(\sqrt{1-c^2 x^2}-\text{ArcSin}[c x]\right)}{16 (-1+c x)}+\frac{\text{ArcSin}[c x]}{3 x^3}+\frac{11 c^4 \left(\sqrt{1-c^2 x^2}+\text{ArcSin}[c x]\right)}{16 \left(c+c^2 x\right)}+\frac{c^3 \left((2+c x) \sqrt{1-c^2 x^2}+3 \text{ArcSin}[c x]\right)}{48 (1+c x)^2}-\frac{1}{6} c^3 \text{Log}[x]+\frac{1}{6} c^3 \text{Log}\left[1+\sqrt{1-c^2 x^2}\right]-3 c^2 \left(-\frac{\text{ArcSin}[c x]}{x}+c \text{Log}[x]-c \text{Log}\left[1+\sqrt{1-c^2 x^2}\right]\right)+\frac{35}{16} c^4 \left(\frac{3 i \pi \text{ArcSin}[c x]}{2 c}-\frac{i \text{ArcSin}[c x]^2}{2 c}+\frac{2 \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]}{c}-\frac{\pi \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]}{c}+\frac{2 \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]}{c}-\frac{2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]}{c}+\frac{\pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]}{c}-\frac{2 i \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]}{c}\right)-\frac{35}{16} c^4 \left(\frac{i \pi \text{ArcSin}[c x]}{2 c}-\frac{i \text{ArcSin}[c x]^2}{2 c}+\frac{2 \pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]}{c}+\frac{\pi \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]}{c}+\frac{2 \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]}{c}-\frac{2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]}{c}-\frac{\pi \text{Log}\left[\text{Sin}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]}{c}-\frac{2 i \text{PolyLog}\left[2,i e^{i \text{ArcSin}[c x]}\right]}{c}\right)\right)-$$

$$\frac{1}{d^3} b^2 c^3 \Bigg(-\frac{35}{24} \text{ArcSin}[c\,x]^3 - \frac{1}{12}\left(-2\,\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] - 19\,\text{ArcSin}[c\,x]^2\,\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\text{Csc}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] +$$

$$\frac{1}{12}\text{ArcSin}[c\,x]\,\text{Csc}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]^2 + \frac{1}{24}\text{ArcSin}[c\,x]^2\,\text{Cot}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\text{Csc}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]^2 -$$

$$\frac{38}{3}\left(\frac{1}{8}\,i\,\text{ArcSin}[c\,x]^2 - \frac{1}{2}\text{ArcSin}[c\,x]\,\text{Log}\left[1 + e^{i\,\text{ArcSin}[c\,x]}\right] + \frac{1}{2}\,i\,\text{PolyLog}\left[2, -e^{i\,\text{ArcSin}[c\,x]}\right]\right) -$$

$$\frac{38}{3}\left(\frac{1}{2}\text{ArcSin}[c\,x]\,\text{Log}\left[1 - e^{i\,\text{ArcSin}[c\,x]}\right] - \frac{1}{2}\,i\left(\frac{1}{4}\text{ArcSin}[c\,x]^2 + \text{PolyLog}\left[2, e^{i\,\text{ArcSin}[c\,x]}\right]\right)\right) +$$

$$\frac{1}{24}\Bigg(68\,\text{ArcSin}[c\,x] + 35\,\text{ArcSin}[c\,x]^3 - 105\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1 - i\,e^{i\,\text{ArcSin}[c\,x]}\right] +$$

$$105\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1 + i\,e^{i\,\text{ArcSin}[c\,x]}\right] - 105\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\left(-\frac{1}{2} - \frac{i}{2}\right)e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left(-i + e^{i\,\text{ArcSin}[c\,x]}\right)\right] +$$

$$105\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[\left(\frac{1}{2} + \frac{i}{2}\right)e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left(-i + e^{i\,\text{ArcSin}[c\,x]}\right)\right] - 105\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\frac{1}{2}e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left((1+i) + (1-i)\,e^{i\,\text{ArcSin}[c\,x]}\right)\right] -$$

$$105\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[\frac{1}{2}e^{-\frac{1}{2}i\,\text{ArcSin}[c\,x]}\left((1+i) + (1-i)\,e^{i\,\text{ArcSin}[c\,x]}\right)\right] + 68\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] - \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right] -$$

$$105\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] - \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right] + 105\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[-\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] + \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right] -$$

$$68\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] + \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right] + 105\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] + \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right] +$$

$$105\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] + \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right] - 210\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2, -i\,e^{i\,\text{ArcSin}[c\,x]}\right] +$$

$$210\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\left[2, i\,e^{i\,\text{ArcSin}[c\,x]}\right] + 210\,\text{PolyLog}\left[3, -i\,e^{i\,\text{ArcSin}[c\,x]}\right] - 210\,\text{PolyLog}\left[3, i\,e^{i\,\text{ArcSin}[c\,x]}\right]\Bigg) -$$

$$\frac{1}{12}\text{ArcSin}[c\,x]\,\text{Sec}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]^2 - \frac{\text{ArcSin}[c\,x]^2}{16\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] - \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^4} - \frac{2 - 2\,\text{ArcSin}[c\,x] + 33\,\text{ArcSin}[c\,x]^2}{48\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] - \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^2} +$$

$$\frac{\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{12\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] - \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^3} + \frac{17\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{6\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] - \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)} +$$

$$\frac{\text{ArcSin}[c\,x]^2}{16\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] + \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^4} - \frac{\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{12\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] + \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^3} -$$

$$\frac{-2 - 2\,\text{ArcSin}[c\,x] - 33\,\text{ArcSin}[c\,x]^2}{48\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] + \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^2} - \frac{17\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{6\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] + \text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)} -$$

$$\frac{1}{12}\text{Sec}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\left(-2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right] - 19\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right) +$$

$$\frac{1}{24}\,\text{ArcSin}[c\,x]^2\,\text{Sec}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]^2\,\text{Tan}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\Bigg)$$

Problem 276: Unable to integrate problem.

$$\int x^m\,\left(d-c^2\,d\,x^2\right)^3\,\left(a+b\,\text{ArcSin}[c\,x]\right)^2\,dx$$

Optimal (type 5, 1312 leaves, 23 steps) :

$$\frac{2 b^2 c^2 d^3 x^{3+m}}{(3+m)(7+m)^2}+\frac{30 b^2 c^2 d^3 x^{3+m}}{(3+m)^2(5+m)(7+m)^2}+\frac{36 b^2 c^2 d^3 x^{3+m}}{(3+m)^2(5+m)^2(7+m)}+\frac{12 b^2 c^2 d^3 x^{3+m}}{(3+m)(5+m)^2(7+m)}+$$

$$\frac{48 b^2 c^2 d^3 x^{3+m}}{(3+m)^3(5+m)(7+m)}+\frac{10 b^2 c^2 d^3 x^{3+m}}{(7+m)^2\left(15+8 m+m^2\right)}-\frac{10 b^2 c^4 d^3 x^{5+m}}{(5+m)^2(7+m)^2}-\frac{4 b^2 c^4 d^3 x^{5+m}}{(5+m)(7+m)^2}-\frac{12 b^2 c^4 d^3 x^{5+m}}{(5+m)^3(7+m)}+\frac{2 b^2 c^6 d^3 x^{7+m}}{(7+m)^3}-$$

$$\frac{36 b c d^3 x^{2+m}\sqrt{1-c^2 x^2}\,(a+b\,\mathrm{ArcSin}[c x])}{(3+m)(5+m)^2(7+m)}-\frac{48 b c d^3 x^{2+m}\sqrt{1-c^2 x^2}\,(a+b\,\mathrm{ArcSin}[c x])}{(3+m)^2(5+m)(7+m)}-\frac{30 b c d^3 x^{2+m}\sqrt{1-c^2 x^2}\,(a+b\,\mathrm{ArcSin}[c x])}{(7+m)^2\left(15+8 m+m^2\right)}-$$

$$\frac{10 b c d^3 x^{2+m}\left(1-c^2 x^2\right)^{3/2}(a+b\,\mathrm{ArcSin}[c x])}{(5+m)(7+m)^2}-\frac{12 b c d^3 x^{2+m}\left(1-c^2 x^2\right)^{3/2}(a+b\,\mathrm{ArcSin}[c x])}{(5+m)^2(7+m)}-\frac{2 b c d^3 x^{2+m}\left(1-c^2 x^2\right)^{5/2}(a+b\,\mathrm{ArcSin}[c x])}{(7+m)^2}+$$

$$\frac{48 d^3 x^{1+m}(a+b\,\mathrm{ArcSin}[c x])^2}{(5+m)(7+m)\left(3+4 m+m^2\right)}+\frac{24 d^3 x^{1+m}\left(1-c^2 x^2\right)(a+b\,\mathrm{ArcSin}[c x])^2}{(7+m)\left(15+8 m+m^2\right)}+\frac{6 d^3 x^{1+m}\left(1-c^2 x^2\right)^2(a+b\,\mathrm{ArcSin}[c x])^2}{(5+m)(7+m)}+$$

$$\frac{d^3 x^{1+m}\left(1-c^2 x^2\right)^3(a+b\,\mathrm{ArcSin}[c x])^2}{7+m}-\frac{48 b c d^3 x^{2+m}(a+b\,\mathrm{ArcSin}[c x])\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\frac{2+m}{2},\frac{4+m}{2},c^2 x^2\right]}{(2+m)(3+m)^2(5+m)(7+m)}-$$

$$\frac{30 b c d^3 x^{2+m}(a+b\,\mathrm{ArcSin}[c x])\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\frac{2+m}{2},\frac{4+m}{2},c^2 x^2\right]}{(5+m)(7+m)^2\left(6+5 m+m^2\right)}-$$

$$\frac{36 b c d^3 x^{2+m}(a+b\,\mathrm{ArcSin}[c x])\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\frac{2+m}{2},\frac{4+m}{2},c^2 x^2\right]}{(5+m)^2(7+m)\left(6+5 m+m^2\right)}-$$

$$\frac{96 b c d^3 x^{2+m}(a+b\,\mathrm{ArcSin}[c x])\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\frac{2+m}{2},\frac{4+m}{2},c^2 x^2\right]}{(5+m)(7+m)\left(6+11 m+6 m^2+m^3\right)}+$$

$$\frac{30 b^2 c^2 d^3 x^{3+m}\,\mathrm{HypergeometricPFQ}\left[\left\{1,\frac{3}{2}+\frac{m}{2},\frac{3}{2}+\frac{m}{2}\right\},\left\{2+\frac{m}{2},\frac{5}{2}+\frac{m}{2}\right\},c^2 x^2\right]}{(2+m)(3+m)^2(5+m)(7+m)^2}+$$

$$\frac{36 b^2 c^2 d^3 x^{3+m}\,\mathrm{HypergeometricPFQ}\left[\left\{1,\frac{3}{2}+\frac{m}{2},\frac{3}{2}+\frac{m}{2}\right\},\left\{2+\frac{m}{2},\frac{5}{2}+\frac{m}{2}\right\},c^2 x^2\right]}{(2+m)(3+m)^2(5+m)^2(7+m)}+$$

$$\frac{48 b^2 c^2 d^3 x^{3+m}\,\mathrm{HypergeometricPFQ}\left[\left\{1,\frac{3}{2}+\frac{m}{2},\frac{3}{2}+\frac{m}{2}\right\},\left\{2+\frac{m}{2},\frac{5}{2}+\frac{m}{2}\right\},c^2 x^2\right]}{(2+m)(3+m)^3(5+m)(7+m)}+$$

$$\frac{96 b^2 c^2 d^3 x^{3+m}\,\mathrm{HypergeometricPFQ}\left[\left\{1,\frac{3}{2}+\frac{m}{2},\frac{3}{2}+\frac{m}{2}\right\},\left\{2+\frac{m}{2},\frac{5}{2}+\frac{m}{2}\right\},c^2 x^2\right]}{(3+m)^2(5+m)(7+m)\left(2+3 m+m^2\right)}$$

Result (type 8, 29 leaves) :

$$\int x^m\left(d-c^2 d x^2\right)^3(a+b\,\mathrm{ArcSin}[c x])^2\,dx$$

Problem 277: Unable to integrate problem.

$$\int x^m \left(d-c^2 d x^2\right)^2 (a+b \text{ArcSin}[c x])^2 \, dx$$

Optimal (type 5, 756 leaves, 13 steps):

$$\frac{6 b^2 c^2 d^2 x^{3+m}}{(3+m)^2 (5+m)^2}+\frac{2 b^2 c^2 d^2 x^{3+m}}{(3+m) (5+m)^2}+\frac{8 b^2 c^2 d^2 x^{3+m}}{(3+m)^3 (5+m)}-\frac{2 b^2 c^4 d^2 x^{5+m}}{(5+m)^3}-$$
$$\frac{6 b c d^2 x^{2+m} \sqrt{1-c^2 x^2} (a+b \text{ArcSin}[c x])}{(3+m) (5+m)^2}-\frac{8 b c d^2 x^{2+m} \sqrt{1-c^2 x^2} (a+b \text{ArcSin}[c x])}{(3+m)^2 (5+m)}-$$
$$\frac{2 b c d^2 x^{2+m} \left(1-c^2 x^2\right)^{3/2} (a+b \text{ArcSin}[c x])}{(5+m)^2}+\frac{8 d^2 x^{1+m} (a+b \text{ArcSin}[c x])^2}{(5+m) \left(3+4 m+m^2\right)}+\frac{4 d^2 x^{1+m} \left(1-c^2 x^2\right) (a+b \text{ArcSin}[c x])^2}{15+8 m+m^2}+$$
$$\frac{d^2 x^{1+m} \left(1-c^2 x^2\right)^2 (a+b \text{ArcSin}[c x])^2}{5+m}-\frac{8 b c d^2 x^{2+m} (a+b \text{ArcSin}[c x]) \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{2+m}{2},\frac{4+m}{2},c^2 x^2\right]}{(2+m) (3+m)^2 (5+m)}-$$
$$\frac{6 b c d^2 x^{2+m} (a+b \text{ArcSin}[c x]) \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{2+m}{2},\frac{4+m}{2},c^2 x^2\right]}{(5+m)^2 \left(6+5 m+m^2\right)}-\frac{16 b c d^2 x^{2+m} (a+b \text{ArcSin}[c x]) \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{2+m}{2},\frac{4+m}{2},c^2 x^2\right]}{(5+m) \left(6+11 m+6 m^2+m^3\right)}+$$
$$\frac{6 b^2 c^2 d^2 x^{3+m} \text{HypergeometricPFQ}\left[\left\{1,\frac{3}{2}+\frac{m}{2},\frac{3}{2}+\frac{m}{2}\right\},\left\{2+\frac{m}{2},\frac{5}{2}+\frac{m}{2}\right\},c^2 x^2\right]}{(2+m) (3+m)^2 (5+m)^2}+$$
$$\frac{8 b^2 c^2 d^2 x^{3+m} \text{HypergeometricPFQ}\left[\left\{1,\frac{3}{2}+\frac{m}{2},\frac{3}{2}+\frac{m}{2}\right\},\left\{2+\frac{m}{2},\frac{5}{2}+\frac{m}{2}\right\},c^2 x^2\right]}{(2+m) (3+m)^3 (5+m)}+$$
$$\frac{16 b^2 c^2 d^2 x^{3+m} \text{HypergeometricPFQ}\left[\left\{1,\frac{3}{2}+\frac{m}{2},\frac{3}{2}+\frac{m}{2}\right\},\left\{2+\frac{m}{2},\frac{5}{2}+\frac{m}{2}\right\},c^2 x^2\right]}{(3+m)^2 (5+m) \left(2+3 m+m^2\right)}$$

Result (type 8, 29 leaves):

$$\int x^m \left(d-c^2 d x^2\right)^2 (a+b \text{ArcSin}[c x])^2 \, dx$$

Problem 278: Unable to integrate problem.

$$\int x^m \left(d-c^2 d x^2\right) (a+b \text{ArcSin}[c x])^2 \, dx$$

Optimal (type 5, 371 leaves, 6 steps):

$$\frac{2 b^2 c^2 d x^{3+m}}{(3+m)^3} - \frac{2 b c d x^{2+m} \sqrt{1-c^2 x^2}\, (a+b \text{ArcSin}[c x])}{(3+m)^2} + \frac{2 d x^{1+m} (a+b \text{ArcSin}[c x])^2}{3+4 m+m^2} + \frac{d x^{1+m} (1-c^2 x^2) (a+b \text{ArcSin}[c x])^2}{3+m} -$$
$$\frac{2 b c d x^{2+m} (a+b \text{ArcSin}[c x]) \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{2+m}{2}, \frac{4+m}{2}, c^2 x^2\right]}{(2+m) (3+m)^2} - \frac{4 b c d x^{2+m} (a+b \text{ArcSin}[c x]) \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{2+m}{2}, \frac{4+m}{2}, c^2 x^2\right]}{6+11 m+6 m^2+m^3} +$$
$$\frac{2 b^2 c^2 d x^{3+m} \text{HypergeometricPFQ}\left[\left\{1, \frac{3}{2}+\frac{m}{2}, \frac{3}{2}+\frac{m}{2}\right\}, \left\{2+\frac{m}{2}, \frac{5}{2}+\frac{m}{2}\right\}, c^2 x^2\right]}{(2+m) (3+m)^3} +$$
$$\frac{4 b^2 c^2 d x^{3+m} \text{HypergeometricPFQ}\left[\left\{1, \frac{3}{2}+\frac{m}{2}, \frac{3}{2}+\frac{m}{2}\right\}, \left\{2+\frac{m}{2}, \frac{5}{2}+\frac{m}{2}\right\}, c^2 x^2\right]}{(3+m)^2 (2+3 m+m^2)}$$

Result (type 8, 27 leaves) :

$$\int x^m (d-c^2 d x^2) (a+b \text{ArcSin}[c x])^2 \, dx$$

Problem 292: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{ArcSin}[a x]^3}{c-a^2 c x^2} \, dx$$

Optimal (type 4, 200 leaves, 10 steps) :

$$-\frac{2 i \text{ArcSin}[a x]^3 \text{ArcTan}\left[e^{i \text{ArcSin}[a x]}\right]}{a c} + \frac{3 i \text{ArcSin}[a x]^2 \text{PolyLog}\left[2, -i e^{i \text{ArcSin}[a x]}\right]}{a c} -$$
$$\frac{3 i \text{ArcSin}[a x]^2 \text{PolyLog}\left[2, i e^{i \text{ArcSin}[a x]}\right]}{a c} - \frac{6 \text{ArcSin}[a x] \text{PolyLog}\left[3, -i e^{i \text{ArcSin}[a x]}\right]}{a c} +$$
$$\frac{6 \text{ArcSin}[a x] \text{PolyLog}\left[3, i e^{i \text{ArcSin}[a x]}\right]}{a c} - \frac{6 i \text{PolyLog}\left[4, -i e^{i \text{ArcSin}[a x]}\right]}{a c} + \frac{6 i \text{PolyLog}\left[4, i e^{i \text{ArcSin}[a x]}\right]}{a c}$$

Result (type 4, 556 leaves) :

$$-\frac{1}{a\,c}\left(\frac{7\,i\,\pi^4}{64}+\frac{1}{8}\,i\,\pi^3\,\text{ArcSin}[a\,x]-\frac{3}{8}\,i\,\pi^2\,\text{ArcSin}[a\,x]^2+\frac{1}{2}\,i\,\pi\,\text{ArcSin}[a\,x]^3-\frac{1}{4}\,i\,\text{ArcSin}[a\,x]^4-\frac{3}{4}\,\pi^2\,\text{ArcSin}[a\,x]\,\text{Log}\left[1-i\,e^{-i\,\text{ArcSin}[a\,x]}\right]+\right.$$
$$\frac{3}{2}\,\pi\,\text{ArcSin}[a\,x]^2\,\text{Log}\left[1-i\,e^{-i\,\text{ArcSin}[a\,x]}\right]+\frac{1}{8}\,\pi^3\,\text{Log}\left[1+i\,e^{-i\,\text{ArcSin}[a\,x]}\right]-\text{ArcSin}[a\,x]^3\,\text{Log}\left[1+i\,e^{-i\,\text{ArcSin}[a\,x]}\right]-$$
$$\frac{1}{8}\,\pi^3\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[a\,x]}\right]+\frac{3}{4}\,\pi^2\,\text{ArcSin}[a\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[a\,x]}\right]-\frac{3}{2}\,\pi\,\text{ArcSin}[a\,x]^2\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[a\,x]}\right]+$$
$$\text{ArcSin}[a\,x]^3\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[a\,x]}\right]-\frac{1}{8}\,\pi^3\,\text{Log}\left[\text{Tan}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[a\,x])\right]\right]-3\,i\,\text{ArcSin}[a\,x]^2\,\text{PolyLog}\left[2,-i\,e^{-i\,\text{ArcSin}[a\,x]}\right]-$$
$$\frac{3}{4}\,i\,\pi\,(\pi-4\,\text{ArcSin}[a\,x])\,\text{PolyLog}\left[2,\,i\,e^{-i\,\text{ArcSin}[a\,x]}\right]-\frac{3}{4}\,i\,\pi^2\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]+3\,i\,\pi\,\text{ArcSin}[a\,x]\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]-$$
$$3\,i\,\text{ArcSin}[a\,x]^2\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]-6\,\text{ArcSin}[a\,x]\,\text{PolyLog}\left[3,-i\,e^{-i\,\text{ArcSin}[a\,x]}\right]+3\,\pi\,\text{PolyLog}\left[3,\,i\,e^{-i\,\text{ArcSin}[a\,x]}\right]-$$
$$\left.3\,\pi\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]+6\,\text{ArcSin}[a\,x]\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]+6\,i\,\text{PolyLog}\left[4,-i\,e^{-i\,\text{ArcSin}[a\,x]}\right]+6\,i\,\text{PolyLog}\left[4,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]\right)$$

Problem 293: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{ArcSin}[a\,x]^3}{\left(c-a^2\,c\,x^2\right)^2}\,dx$$

Optimal (type 4, 337 leaves, 18 steps):

$$-\frac{3\,\text{ArcSin}[a\,x]^2}{2\,a\,c^2\,\sqrt{1-a^2\,x^2}}+\frac{x\,\text{ArcSin}[a\,x]^3}{2\,c^2\,\left(1-a^2\,x^2\right)}-\frac{6\,i\,\text{ArcSin}[a\,x]\,\text{ArcTan}\left[e^{i\,\text{ArcSin}[a\,x]}\right]}{a\,c^2}-$$
$$\frac{i\,\text{ArcSin}[a\,x]^3\,\text{ArcTan}\left[e^{i\,\text{ArcSin}[a\,x]}\right]}{a\,c^2}+\frac{3\,i\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{a\,c^2}+\frac{3\,i\,\text{ArcSin}[a\,x]^2\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{2\,a\,c^2}-$$
$$\frac{3\,i\,\text{PolyLog}\left[2,\,i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{a\,c^2}-\frac{3\,i\,\text{ArcSin}[a\,x]^2\,\text{PolyLog}\left[2,\,i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{2\,a\,c^2}-\frac{3\,\text{ArcSin}[a\,x]\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{a\,c^2}+$$
$$\frac{3\,\text{ArcSin}[a\,x]\,\text{PolyLog}\left[3,\,i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{a\,c^2}-\frac{3\,i\,\text{PolyLog}\left[4,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{a\,c^2}+\frac{3\,i\,\text{PolyLog}\left[4,\,i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{a\,c^2}$$

Result (type 4, 747 leaves):

$$\frac{1}{128\,a\,c^2}\left(-7\,i\,\pi^4-8\,i\,\pi^3\,\text{ArcSin}[a\,x]-192\,\text{ArcSin}[a\,x]^2+24\,i\,\pi^2\,\text{ArcSin}[a\,x]^2-32\,i\,\pi\,\text{ArcSin}[a\,x]^3-\frac{32\,\text{ArcSin}[a\,x]^3}{-1+a\,x}+16\,i\,\text{ArcSin}[a\,x]^4+\right.$$
$$48\,\pi^2\,\text{ArcSin}[a\,x]\,\text{Log}\left[1-i\,e^{-i\,\text{ArcSin}[a\,x]}\right]-96\,\pi\,\text{ArcSin}[a\,x]^2\,\text{Log}\left[1-i\,e^{-i\,\text{ArcSin}[a\,x]}\right]-8\,\pi^3\,\text{Log}\left[1+i\,e^{-i\,\text{ArcSin}[a\,x]}\right]+$$
$$64\,\text{ArcSin}[a\,x]^3\,\text{Log}\left[1+i\,e^{-i\,\text{ArcSin}[a\,x]}\right]+384\,\text{ArcSin}[a\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[a\,x]}\right]+8\,\pi^3\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[a\,x]}\right]-$$
$$384\,\text{ArcSin}[a\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[a\,x]}\right]-48\,\pi^2\,\text{ArcSin}[a\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[a\,x]}\right]+96\,\pi\,\text{ArcSin}[a\,x]^2\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[a\,x]}\right]-$$
$$64\,\text{ArcSin}[a\,x]^3\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[a\,x]}\right]+8\,\pi^3\,\text{Log}\left[\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[a\,x]\right)\right]\right]+192\,i\,\text{ArcSin}[a\,x]^2\,\text{PolyLog}\left[2,-i\,e^{-i\,\text{ArcSin}[a\,x]}\right]+$$
$$48\,i\,\pi\left(\pi-4\,\text{ArcSin}[a\,x]\right)\text{PolyLog}\left[2,i\,e^{-i\,\text{ArcSin}[a\,x]}\right]+384\,i\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]+48\,i\,\pi^2\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]-$$
$$192\,i\,\pi\,\text{ArcSin}[a\,x]\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]+192\,i\,\text{ArcSin}[a\,x]^2\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]-384\,i\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[a\,x]}\right]+$$
$$384\,\text{ArcSin}[a\,x]\,\text{PolyLog}\left[3,-i\,e^{-i\,\text{ArcSin}[a\,x]}\right]-192\,\pi\,\text{PolyLog}\left[3,i\,e^{-i\,\text{ArcSin}[a\,x]}\right]+192\,\pi\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]-$$
$$384\,\text{ArcSin}[a\,x]\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]-384\,i\,\text{PolyLog}\left[4,-i\,e^{-i\,\text{ArcSin}[a\,x]}\right]-384\,i\,\text{PolyLog}\left[4,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]-$$
$$\left.\frac{192\,\text{ArcSin}[a\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]}{\text{Cos}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]}-\frac{32\,\text{ArcSin}[a\,x]^3}{\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]\right)^2}+\frac{192\,\text{ArcSin}[a\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]}{\text{Cos}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]}\right)$$

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

$$\int\frac{\text{ArcSin}[a\,x]^3}{\left(c-a^2\,c\,x^2\right)^3}\,dx$$

Optimal (type 4, 455 leaves, 28 steps):

$$-\frac{1}{4\,a\,c^3\,\sqrt{1-a^2\,x^2}}+\frac{x\,\text{ArcSin}[a\,x]}{4\,c^3\left(1-a^2\,x^2\right)}-\frac{\text{ArcSin}[a\,x]^2}{4\,a\,c^3\left(1-a^2\,x^2\right)^{3/2}}-\frac{9\,\text{ArcSin}[a\,x]^2}{8\,a\,c^3\,\sqrt{1-a^2\,x^2}}+\frac{x\,\text{ArcSin}[a\,x]^3}{4\,c^3\left(1-a^2\,x^2\right)^2}+$$
$$\frac{3\,x\,\text{ArcSin}[a\,x]^3}{8\,c^3\left(1-a^2\,x^2\right)}-\frac{5\,i\,\text{ArcSin}[a\,x]\,\text{ArcTan}\left[e^{i\,\text{ArcSin}[a\,x]}\right]}{a\,c^3}-\frac{3\,i\,\text{ArcSin}[a\,x]^3\,\text{ArcTan}\left[e^{i\,\text{ArcSin}[a\,x]}\right]}{4\,a\,c^3}+$$
$$\frac{5\,i\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{2\,a\,c^3}+\frac{9\,i\,\text{ArcSin}[a\,x]^2\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{8\,a\,c^3}-\frac{5\,i\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{2\,a\,c^3}-$$
$$\frac{9\,i\,\text{ArcSin}[a\,x]^2\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{8\,a\,c^3}-\frac{9\,\text{ArcSin}[a\,x]\,\text{PolyLog}\left[3,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{4\,a\,c^3}+$$
$$\frac{9\,\text{ArcSin}[a\,x]\,\text{PolyLog}\left[3,i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{4\,a\,c^3}-\frac{9\,i\,\text{PolyLog}\left[4,-i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{4\,a\,c^3}+\frac{9\,i\,\text{PolyLog}\left[4,i\,e^{i\,\text{ArcSin}[a\,x]}\right]}{4\,a\,c^3}$$

Result (type 4, 1544 leaves):

$$-\frac{1}{a\,c^3}\left(\frac{1}{4}\left(1+5\,\text{ArcSin}[a\,x]^2\right)-\right.$$

$$\frac{5}{2}\left(\text{ArcSin}[a\,x]\left(\text{Log}\left[1-\mathrm{i}\,\mathrm{e}^{\mathrm{i}\,\text{ArcSin}[a\,x]}\right]-\text{Log}\left[1+\mathrm{i}\,\mathrm{e}^{\mathrm{i}\,\text{ArcSin}[a\,x]}\right]\right)+\mathrm{i}\left(\text{PolyLog}\left[2,-\mathrm{i}\,\mathrm{e}^{\mathrm{i}\,\text{ArcSin}[a\,x]}\right]-\text{PolyLog}\left[2,\mathrm{i}\,\mathrm{e}^{\mathrm{i}\,\text{ArcSin}[a\,x]}\right]\right)\right)-$$

$$\frac{3}{8}\left(\frac{1}{8}\pi^3\,\text{Log}\left[\text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)\right]\right]+\frac{3}{4}\pi^2\left(\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)\left(\text{Log}\left[1-\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]-\text{Log}\left[1+\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]\right)+\right.\right.$$

$$\left.\mathrm{i}\left(\text{PolyLog}\left[2,-\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]-\text{PolyLog}\left[2,\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]\right)\right)-$$

$$\frac{3}{2}\pi\left(\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)^2\left(\text{Log}\left[1-\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]-\text{Log}\left[1+\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]\right)+2\,\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)\right.$$

$$\left.\left(\text{PolyLog}\left[2,-\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]-\text{PolyLog}\left[2,\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]\right)+2\left(-\text{PolyLog}\left[3,-\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]+\text{PolyLog}\left[3,\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]\right)\right)+$$

$$8\left(\frac{1}{64}\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)^4+\frac{1}{4}\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)^4-\frac{1}{8}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)^3\text{Log}\left[1+\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]-\right.$$

$$\frac{1}{8}\pi^3\left(\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)-\text{Log}\left[1+\mathrm{e}^{2\,\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)}\right]\right)-\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)^3\text{Log}\left[1+\mathrm{e}^{2\,\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)}\right]+$$

$$\frac{3}{8}\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)^2\text{PolyLog}\left[2,-\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]+\frac{3}{4}\pi^2\left(\frac{1}{2}\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)^2-\right.$$

$$\left.\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)\text{Log}\left[1+\mathrm{e}^{2\,\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)}\right]+\frac{1}{2}\mathrm{i}\,\text{PolyLog}\left[2,-\mathrm{e}^{2\,\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)}\right]\right)+$$

$$\frac{3}{2}\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)^2\text{PolyLog}\left[2,-\mathrm{e}^{2\,\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)}\right]-\frac{3}{4}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)\text{PolyLog}\left[3,-\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]-$$

$$\frac{3}{2}\pi\left(\frac{1}{3}\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)^3-\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)^2\text{Log}\left[1+\mathrm{e}^{2\,\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)}\right]+\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)\right.$$

$$\left.\text{PolyLog}\left[2,-\mathrm{e}^{2\,\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)}\right]-\frac{1}{2}\text{PolyLog}\left[3,-\mathrm{e}^{2\,\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)}\right]\right)-\frac{3}{2}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)$$

$$\left.\left.\text{PolyLog}\left[3,-\mathrm{e}^{2\,\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)}\right]-\frac{3}{4}\mathrm{i}\,\text{PolyLog}\left[4,-\mathrm{e}^{\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[a\,x]\right)}\right]-\frac{3}{4}\mathrm{i}\,\text{PolyLog}\left[4,-\mathrm{e}^{2\,\mathrm{i}\left(\frac{\pi}{2}+\frac{1}{2}\left(-\frac{\pi}{2}+\text{ArcSin}[a\,x]\right)\right)}\right]\right)\right)-$$

$$\frac{\text{ArcSin}[a\,x]^3}{16\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]\right)^4}-\frac{2\,\text{ArcSin}[a\,x]-\text{ArcSin}[a\,x]^2+3\,\text{ArcSin}[a\,x]^3}{16\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]\right)^2}+$$

$$\frac{\text{ArcSin}[a\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]}{8\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]\right)^3}+$$

$$\frac{\text{ArcSin}[a\,x]^3}{16\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]\right)^4}-$$

$$\frac{\text{ArcSin}[a\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]}{8\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[a\,x]\right]\right)^3}-$$

$$\frac{-2\,\text{ArcSin}[a\,x]-\text{ArcSin}[a\,x]^2-3\,\text{ArcSin}[a\,x]^3}{16\left(\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[a\,x]\right]+\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[a\,x]\right]\right)^2}-$$

$$\frac{-\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[a\,x]\right]-5\,\text{ArcSin}[a\,x]^2\,\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[a\,x]\right]}{4\left(\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[a\,x]\right]-\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[a\,x]\right]\right)}-$$

$$\left.\frac{\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[a\,x]\right]+5\,\text{ArcSin}[a\,x]^2\,\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[a\,x]\right]}{4\left(\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[a\,x]\right]+\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[a\,x]\right]\right)}\right)$$

Problem 419: Attempted integration timed out after 120 seconds.

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

Optimal (type 9, 28 leaves, 0 steps):

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

Result (type 1, 1 leaves):

???

Problem 424: Attempted integration timed out after 120 seconds.

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

Optimal (type 9, 30 leaves, 0 steps):

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

Result (type 1, 1 leaves):

???

Problem 426: Attempted integration timed out after 120 seconds.

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

Optimal (type 9, 28 leaves, 0 steps):

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

Result (type 1, 1 leaves):

???

Problem 428: Attempted integration timed out after 120 seconds.

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

Optimal (type 9, 30 leaves, 0 steps):

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

Result (type 1, 1 leaves):

???

Problem 441: Unable to integrate problem.

$$\int \left(-\frac{3 x}{8 \left(1-x^2\right) \sqrt{\text{ArcSin}[x]}}+\frac{x \,\text{ArcSin}[x]^{3/2}}{\left(1-x^2\right)^2}\right) dx$$

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

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

Result (type 8, 40 leaves):

$$\int \left(-\frac{3 x}{8 \left(1-x^2\right) \sqrt{\text{ArcSin}[x]}}+\frac{x \,\text{ArcSin}[x]^{3/2}}{\left(1-x^2\right)^2}\right) dx$$

Problem 515: Result more than twice size of optimal antiderivative.

$$\int \frac{(f-c f x)^{3/2} (a+b \,\text{ArcSin}[c x])}{(d+c d x)^{5/2}} \, dx$$

Optimal (type 3, 324 leaves, 9 steps):

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

$$\frac{2\,f^4\,\left(1-c\,x\right)\,\left(1-c^2\,x^2\right)^2\,\left(a+b\,\mathrm{ArcSin}[c\,x]\right)}{c\,\left(d+c\,d\,x\right)^{5/2}\,\left(f-c\,f\,x\right)^{5/2}}+\frac{f^4\,\left(1-c^2\,x^2\right)^{5/2}\,\mathrm{ArcSin}[c\,x]\,\left(a+b\,\mathrm{ArcSin}[c\,x]\right)}{c\,\left(d+c\,d\,x\right)^{5/2}\,\left(f-c\,f\,x\right)^{5/2}}-\frac{8\,b\,f^4\,\left(1-c^2\,x^2\right)^{5/2}\,\mathrm{Log}[1+c\,x]}{3\,c\,\left(d+c\,d\,x\right)^{5/2}\,\left(f-c\,f\,x\right)^{5/2}}$$

Result (type 3, 736 leaves):

$$\frac{\sqrt{-f\,\left(-1+c\,x\right)}\,\sqrt{d\,\left(1+c\,x\right)}\,\left(-\frac{4\,a\,f}{3\,d^3\,\left(1+c\,x\right)^2}+\frac{8\,a\,f}{3\,d^3\,\left(1+c\,x\right)}\right)}{c}-\frac{a\,f^{3/2}\,\mathrm{ArcTan}\left[\frac{c\,x\,\sqrt{-f\,\left(-1+c\,x\right)}\,\sqrt{d\,\left(1+c\,x\right)}}{\sqrt{d}\,\sqrt{f}\,\left(-1+c\,x\right)\,\left(1+c\,x\right)}\right]}{c\,d^{5/2}}-$$

$$\Big(b\,f\,\sqrt{d+c\,d\,x}\,\sqrt{f-c\,f\,x}\,\sqrt{-d\,f\,\left(1-c^2\,x^2\right)}\,\left(\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]-\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right)$$
$$\Big(\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\,\Big(-8+6\,\mathrm{ArcSin}[c\,x]+9\,\mathrm{ArcSin}[c\,x]^2-84\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right]\Big)+$$
$$\mathrm{Cos}\left[\frac{3}{2}\,\mathrm{ArcSin}[c\,x]\right]\,\Big(\left(14-3\,\mathrm{ArcSin}[c\,x]\right)\,\mathrm{ArcSin}[c\,x]+28\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right]\Big)+$$
$$2\,\Big(-4+4\,\mathrm{ArcSin}[c\,x]+6\,\mathrm{ArcSin}[c\,x]^2+\sqrt{1-c^2\,x^2}\,\Big(\mathrm{ArcSin}[c\,x]\,\left(14+3\,\mathrm{ArcSin}[c\,x]\right)-28\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right]\Big)-$$
$$56\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right]\Big)\,\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\Big)\Big)\Big/$$
$$\left(12\,c\,d^3\,\left(-1+c\,x\right)\,\sqrt{-\left(d+c\,d\,x\right)\,\left(f-c\,f\,x\right)}\,\left(\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right)^4\right)-$$

$$\Big(b\,f\,\sqrt{d+c\,d\,x}\,\sqrt{f-c\,f\,x}\,\sqrt{-d\,f\,\left(1-c^2\,x^2\right)}\,\left(\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]-\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right)$$
$$\Big(\mathrm{Cos}\left[\frac{3}{2}\,\mathrm{ArcSin}[c\,x]\right]\,\Big(\mathrm{ArcSin}[c\,x]+2\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right]\Big)-$$
$$\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\,\Big(4+3\,\mathrm{ArcSin}[c\,x]+6\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right]\Big)+$$
$$2\,\Big(-2+2\,\mathrm{ArcSin}[c\,x]+\sqrt{1-c^2\,x^2}\,\mathrm{ArcSin}[c\,x]-4\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right]-$$
$$2\,\sqrt{1-c^2\,x^2}\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right]\Big)\,\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\Big)\Big)\Big/$$
$$\left(6\,c\,d^3\,\left(-1+c\,x\right)\,\sqrt{-\left(d+c\,d\,x\right)\,\left(f-c\,f\,x\right)}\,\left(\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right)^4\right)$$

Problem 521: Result more than twice size of optimal antiderivative.

$$\int \frac{(f - c f x)^{5/2} (a + b \text{ArcSin}[c x])}{(d + c d x)^{5/2}} \, dx$$

Optimal (type 3, 420 leaves, 10 steps):

$$-\frac{b f^5 x (1 - c^2 x^2)^{5/2}}{(d + c d x)^{5/2} (f - c f x)^{5/2}} - \frac{8 b f^5 (1 - c^2 x^2)^{5/2}}{3 c (1 + c x) (d + c d x)^{5/2} (f - c f x)^{5/2}} - \frac{5 b f^5 (1 - c^2 x^2)^{5/2} \text{ArcSin}[c x]^2}{2 c (d + c d x)^{5/2} (f - c f x)^{5/2}} - \frac{2 f^5 (1 - c x)^4 (1 - c^2 x^2) (a + b \text{ArcSin}[c x])}{3 c (d + c d x)^{5/2} (f - c f x)^{5/2}} + \frac{10 f^5 (1 - c x)^2 (1 - c^2 x^2)^2 (a + b \text{ArcSin}[c x])}{3 c (d + c d x)^{5/2} (f - c f x)^{5/2}} + \frac{5 f^5 (1 - c^2 x^2)^3 (a + b \text{ArcSin}[c x])}{c (d + c d x)^{5/2} (f - c f x)^{5/2}} + \frac{5 f^5 (1 - c^2 x^2)^{5/2} \text{ArcSin}[c x] (a + b \text{ArcSin}[c x])}{c (d + c d x)^{5/2} (f - c f x)^{5/2}} - \frac{28 b f^5 (1 - c^2 x^2)^{5/2} \text{Log}[1 + c x]}{3 c (d + c d x)^{5/2} (f - c f x)^{5/2}}$$

Result (type 3, 1170 leaves):

$$\frac{\sqrt{-f (-1 + c x)} \sqrt{d (1 + c x)} \left(\frac{a f^2}{d^3} - \frac{8 a f^2}{3 d^3 (1+c x)^2} + \frac{28 a f^2}{3 d^3 (1+c x)}\right)}{c} - \frac{5 a f^{5/2} \text{ArcTan}\left[\frac{c x \sqrt{-f (-1+c x)} \sqrt{d (1+c x)}}{\sqrt{d} \sqrt{f} (-1+c x) (1+c x)}\right]}{c d^{5/2}} -$$

$$\left(b f^2 \sqrt{d + c d x} \sqrt{f - c f x} \sqrt{-d f (1 - c^2 x^2)} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] - \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right) \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] \left(-8 + 6 \text{ArcSin}[c x] + 9 \text{ArcSin}[c x]^2 - 84 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) + \text{Cos}\left[\frac{3}{2} \text{ArcSin}[c x]\right] \left((14 - 3 \text{ArcSin}[c x]) \text{ArcSin}[c x] + 28 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) + 2 \left(-4 + 4 \text{ArcSin}[c x] + 6 \text{ArcSin}[c x]^2 + \sqrt{1 - c^2 x^2} \left(\text{ArcSin}[c x] (14 + 3 \text{ArcSin}[c x]) - 28 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) - 56 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)\right) \Big/$$

$$\left(6 c d^3 (-1 + c x) \sqrt{-(d + c d x) (f - c f x)} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)^4\right) -$$

$$\left(b f^2 \sqrt{d + c d x} \sqrt{f - c f x} \sqrt{-d f (1 - c^2 x^2)} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] - \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right) \left(\text{Cos}\left[\frac{3}{2} \text{ArcSin}[c x]\right] \left(\text{ArcSin}[c x] + 2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) - \text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] \left(4 + 3 \text{ArcSin}[c x] + 6 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) + 2 \left(-2 + 2 \text{ArcSin}[c x] + \sqrt{1 - c^2 x^2} \text{ArcSin}[c x] - 4 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right] -\right.\right.\right.$$

$$2\sqrt{1-c^2x^2}\ \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right]\right)\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\Bigg)\Bigg)\Big/$$

$$\left(6\,c\,d^3\,(-1+c\,x)\sqrt{-(d+c\,d\,x)\,(f-c\,f\,x)}\left(\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right)^4\right)-$$

$$\Bigg(b\,f^2\sqrt{d+c\,d\,x}\sqrt{f-c\,f\,x}\sqrt{-d\,f\,(1-c^2x^2)}\left(\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]-\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right)$$

$$\Bigg(3\,\mathrm{Cos}\left[\frac{5}{2}\mathrm{ArcSin}[c\,x]\right]-3\,\mathrm{ArcSin}[c\,x]\,\mathrm{Cos}\left[\frac{5}{2}\mathrm{ArcSin}[c\,x]\right]+$$

$$\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\left(-20+24\,\mathrm{ArcSin}[c\,x]+27\,\mathrm{ArcSin}[c\,x]^2-156\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right]\right)+$$

$$\mathrm{Cos}\left[\frac{3}{2}\mathrm{ArcSin}[c\,x]\right]\left(9+35\,\mathrm{ArcSin}[c\,x]-9\,\mathrm{ArcSin}[c\,x]^2+52\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right]\right)-20\,\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]-$$

$$24\,\mathrm{ArcSin}[c\,x]\,\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+27\,\mathrm{ArcSin}[c\,x]^2\,\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]-156\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right]$$

$$\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]-9\,\mathrm{Sin}\left[\frac{3}{2}\mathrm{ArcSin}[c\,x]\right]+35\,\mathrm{ArcSin}[c\,x]\,\mathrm{Sin}\left[\frac{3}{2}\mathrm{ArcSin}[c\,x]\right]+9\,\mathrm{ArcSin}[c\,x]^2\,\mathrm{Sin}\left[\frac{3}{2}\mathrm{ArcSin}[c\,x]\right]-$$

$$52\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right]\mathrm{Sin}\left[\frac{3}{2}\mathrm{ArcSin}[c\,x]\right]+3\,\mathrm{Sin}\left[\frac{5}{2}\mathrm{ArcSin}[c\,x]\right]+3\,\mathrm{ArcSin}[c\,x]\,\mathrm{Sin}\left[\frac{5}{2}\mathrm{ArcSin}[c\,x]\right]\Bigg)\Bigg)\Big/$$

$$\left(12\,c\,d^3\,(-1+c\,x)\sqrt{-(d+c\,d\,x)\,(f-c\,f\,x)}\left(\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right)^4\right)$$

Problem 529: Result more than twice size of optimal antiderivative.

$$\int\frac{(d+c\,d\,x)^{3/2}\,(a+b\,\mathrm{ArcSin}[c\,x])}{(f-c\,f\,x)^{3/2}}\,dx$$

Optimal (type 3, 252 leaves, 10 steps):

$$-\frac{b\,d^3\,x\,(1-c^2x^2)^{3/2}}{(d+c\,d\,x)^{3/2}\,(f-c\,f\,x)^{3/2}}+\frac{4\,d^3\,(1+c\,x)\,(1-c^2x^2)\,(a+b\,\mathrm{ArcSin}[c\,x])}{c\,(d+c\,d\,x)^{3/2}\,(f-c\,f\,x)^{3/2}}+$$

$$\frac{d^3\,(1-c^2x^2)^2\,(a+b\,\mathrm{ArcSin}[c\,x])}{c\,(d+c\,d\,x)^{3/2}\,(f-c\,f\,x)^{3/2}}-\frac{3\,d^3\,(1-c^2x^2)^{3/2}\,(a+b\,\mathrm{ArcSin}[c\,x])^2}{2\,b\,c\,(d+c\,d\,x)^{3/2}\,(f-c\,f\,x)^{3/2}}+\frac{4\,b\,d^3\,(1-c^2x^2)^{3/2}\,\mathrm{Log}[1-c\,x]}{c\,(d+c\,d\,x)^{3/2}\,(f-c\,f\,x)^{3/2}}$$

Result (type 3, 514 leaves):

$$\frac{1}{2 c f^2} d \left(\frac{2 a (-5 + c x) \sqrt{d + c d x} \sqrt{f - c f x}}{-1 + c x} + 6 a \sqrt{d} \sqrt{f} \text{ArcTan}\left[\frac{c x \sqrt{d + c d x} \sqrt{f - c f x}}{\sqrt{d} \sqrt{f} (-1 + c^2 x^2)}\right] - \right.$$

$$\left(b (1 + c x) \sqrt{d + c d x} \sqrt{f - c f x} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] \left((-4 + \text{ArcSin}[c x]) \text{ArcSin}[c x] - 8 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] - \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) - \right.\right.$$

$$\left.\left.\left(\text{ArcSin}[c x] (4 + \text{ArcSin}[c x]) - 8 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] - \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)\right) \Big/$$

$$\left(\sqrt{1 - c^2 x^2} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] - \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right) \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)^2\right) -$$

$$\left(2 b (1 + c x) \sqrt{d + c d x} \sqrt{f - c f x} \left(\text{ArcSin}[c x]^2 \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] - \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right) + \right.\right.$$

$$\left(c x - 4 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] - \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] - \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right) -$$

$$\left.\left.\text{ArcSin}[c x] \left(\left(2 + \sqrt{1 - c^2 x^2}\right) \text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] - \left(-2 + \sqrt{1 - c^2 x^2}\right) \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)\right)\right) \Big/$$

$$\left.\left(\sqrt{1 - c^2 x^2} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] - \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right) \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] + \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)^2\right)\right)$$

Problem 534: Result more than twice size of optimal antiderivative.

$$\int \frac{(d + c d x)^{5/2} (a + b \text{ArcSin}[c x])}{(f - c f x)^{5/2}} \, dx$$

Optimal (type 3, 419 leaves, 10 steps):

$$\frac{b d^5 x (1 - c^2 x^2)^{5/2}}{(d + c d x)^{5/2} (f - c f x)^{5/2}} - \frac{8 b d^5 (1 - c^2 x^2)^{5/2}}{3 c (1 - c x) (d + c d x)^{5/2} (f - c f x)^{5/2}} - \frac{5 b d^5 (1 - c^2 x^2)^{5/2} \text{ArcSin}[c x]^2}{2 c (d + c d x)^{5/2} (f - c f x)^{5/2}} +$$

$$\frac{2 d^5 (1 + c x)^4 (1 - c^2 x^2) (a + b \text{ArcSin}[c x])}{3 c (d + c d x)^{5/2} (f - c f x)^{5/2}} - \frac{10 d^5 (1 + c x)^2 (1 - c^2 x^2)^2 (a + b \text{ArcSin}[c x])}{3 c (d + c d x)^{5/2} (f - c f x)^{5/2}} -$$

$$\frac{5 d^5 (1 - c^2 x^2)^3 (a + b \text{ArcSin}[c x])}{c (d + c d x)^{5/2} (f - c f x)^{5/2}} + \frac{5 d^5 (1 - c^2 x^2)^{5/2} \text{ArcSin}[c x] (a + b \text{ArcSin}[c x])}{c (d + c d x)^{5/2} (f - c f x)^{5/2}} - \frac{28 b d^5 (1 - c^2 x^2)^{5/2} \text{Log}[1 - c x]}{3 c (d + c d x)^{5/2} (f - c f x)^{5/2}}$$

Result (type 3, 1181 leaves):

$$\frac{\sqrt{-f\,(-1+c\,x)}\,\sqrt{d\,(1+c\,x)}\,\left(-\frac{a\,d^2}{f^3}+\frac{8\,a\,d^2}{3\,f^3\,(-1+c\,x)^2}+\frac{28\,a\,d^2}{3\,f^3\,(-1+c\,x)}\right)}{c}-\frac{5\,a\,d^{5/2}\,\text{ArcTan}\left[\frac{c\,x\,\sqrt{-f\,(-1+c\,x)}\,\sqrt{d\,(1+c\,x)}}{\sqrt{d}\,\sqrt{f}\,(-1+c\,x)\,(1+c\,x)}\right]}{c\,f^{5/2}}+$$

$$\Big(b\,d^2\,\sqrt{d+c\,d\,x}\,\sqrt{f-c\,f\,x}\,\sqrt{-d\,f\,(1-c^2\,x^2)}\,\Big(\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\,\Big(-4+3\,\text{ArcSin}[c\,x]-6\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]\Big)-$$

$$\text{Cos}\left[\tfrac{3}{2}\,\text{ArcSin}[c\,x]\right]\,\Big(\text{ArcSin}[c\,x]-2\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]\Big)+$$

$$2\,\Big(2+2\,\text{ArcSin}[c\,x]+\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]+4\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]+$$

$$2\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]\Big)\,\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\Big)\Big)\Big/$$

$$\Big(6\,c\,f^3\,\sqrt{-(d+c\,d\,x)\,(f-c\,f\,x)}\,\left(\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right)^4\,\left(\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right)\Big)+$$

$$\Big(b\,d^2\,\sqrt{d+c\,d\,x}\,\sqrt{f-c\,f\,x}\,\sqrt{-d\,f\,(1-c^2\,x^2)}$$

$$\Big(\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\,\Big(-8-6\,\text{ArcSin}[c\,x]+9\,\text{ArcSin}[c\,x]^2-84\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]\Big)+$$

$$\text{Cos}\left[\tfrac{3}{2}\,\text{ArcSin}[c\,x]\right]\,\Big(-\text{ArcSin}[c\,x]\,(14+3\,\text{ArcSin}[c\,x])+28\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]\Big)+$$

$$2\,\Big(4+4\,\text{ArcSin}[c\,x]-6\,\text{ArcSin}[c\,x]^2+56\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]+$$

$$\sqrt{1-c^2\,x^2}\,\Big((14-3\,\text{ArcSin}[c\,x])\,\text{ArcSin}[c\,x]+28\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]\Big)\Big)\,\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\Big)\Big)\Big/$$

$$\Big(6\,c\,f^3\,\sqrt{-(d+c\,d\,x)\,(f-c\,f\,x)}\,\left(\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right)^4\,\left(\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right)\Big)+$$

$$\Big(b\,d^2\,\sqrt{d+c\,d\,x}\,\sqrt{f-c\,f\,x}\,\sqrt{-d\,f\,(1-c^2\,x^2)}\,\Big(3\,\text{Cos}\left[\tfrac{5}{2}\,\text{ArcSin}[c\,x]\right]+3\,\text{ArcSin}[c\,x]\,\text{Cos}\left[\tfrac{5}{2}\,\text{ArcSin}[c\,x]\right]+$$

$$\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\,\Big(-20-24\,\text{ArcSin}[c\,x]+27\,\text{ArcSin}[c\,x]^2-156\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]\Big)+$$

$$\text{Cos}\left[\tfrac{3}{2}\,\text{ArcSin}[c\,x]\right]\,\Big(9-35\,\text{ArcSin}[c\,x]-9\,\text{ArcSin}[c\,x]^2+52\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]\Big)+20\,\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-$$

$$24\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-27\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]+156\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]$$

$$\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]+9\,\text{Sin}\left[\tfrac{3}{2}\,\text{ArcSin}[c\,x]\right]+35\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\tfrac{3}{2}\,\text{ArcSin}[c\,x]\right]-9\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\tfrac{3}{2}\,\text{ArcSin}[c\,x]\right]+$$

$$52\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]\,\text{Sin}\left[\tfrac{3}{2}\,\text{ArcSin}[c\,x]\right]-3\,\text{Sin}\left[\tfrac{5}{2}\,\text{ArcSin}[c\,x]\right]+3\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\tfrac{5}{2}\,\text{ArcSin}[c\,x]\right]\Big)\Big)\Big/$$

$$\Big(12\,c\,f^3\,\sqrt{-(d+c\,d\,x)\,(f-c\,f\,x)}\,\left(\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right)^4\,\left(\text{Cos}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\right]\right)\Big)$$

Problem 551: Result more than twice size of optimal antiderivative.

$$\int \frac{(e-c e x)^{3/2} \left(a+b \operatorname{ArcSin}[c x]\right)^2}{(d+c d x)^{5/2}} \, dx$$

Optimal (type 4, 544 leaves, 21 steps):

$$\frac{8 i e^4 \left(1-c^2 x^2\right)^{5/2} \left(a+b \operatorname{ArcSin}[c x]\right)^2}{3 c (d+c d x)^{5/2} (e-c e x)^{5/2}}+\frac{e^4 \left(1-c^2 x^2\right)^{5/2} \left(a+b \operatorname{ArcSin}[c x]\right)^3}{3 b c (d+c d x)^{5/2} (e-c e x)^{5/2}}-\frac{8 b^2 e^4 \left(1-c^2 x^2\right)^{5/2} \operatorname{Cot}\left[\frac{\pi}{4}+\frac{1}{2} \operatorname{ArcSin}[c x]\right]}{3 c (d+c d x)^{5/2} (e-c e x)^{5/2}}+$$
$$\frac{8 e^4 \left(1-c^2 x^2\right)^{5/2} \left(a+b \operatorname{ArcSin}[c x]\right)^2 \operatorname{Cot}\left[\frac{\pi}{4}+\frac{1}{2} \operatorname{ArcSin}[c x]\right]}{3 c (d+c d x)^{5/2} (e-c e x)^{5/2}}-\frac{4 b e^4 \left(1-c^2 x^2\right)^{5/2} \left(a+b \operatorname{ArcSin}[c x]\right) \operatorname{Csc}\left[\frac{\pi}{4}+\frac{1}{2} \operatorname{ArcSin}[c x]\right]^2}{3 c (d+c d x)^{5/2} (e-c e x)^{5/2}}-$$
$$\frac{2 e^4 \left(1-c^2 x^2\right)^{5/2} \left(a+b \operatorname{ArcSin}[c x]\right)^2 \operatorname{Cot}\left[\frac{\pi}{4}+\frac{1}{2} \operatorname{ArcSin}[c x]\right] \operatorname{Csc}\left[\frac{\pi}{4}+\frac{1}{2} \operatorname{ArcSin}[c x]\right]^2}{3 c (d+c d x)^{5/2} (e-c e x)^{5/2}}-$$
$$\frac{32 b e^4 \left(1-c^2 x^2\right)^{5/2} \left(a+b \operatorname{ArcSin}[c x]\right) \operatorname{Log}\left[1-i e^{i \operatorname{ArcSin}[c x]}\right]}{3 c (d+c d x)^{5/2} (e-c e x)^{5/2}}+\frac{32 i b^2 e^4 \left(1-c^2 x^2\right)^{5/2} \operatorname{PolyLog}\left[2, i e^{i \operatorname{ArcSin}[c x]}\right]}{3 c (d+c d x)^{5/2} (e-c e x)^{5/2}}$$

Result (type 4, 1430 leaves):

$$\frac{\sqrt{-e (-1+c x)} \sqrt{d (1+c x)} \left(-\frac{4 a^2 e}{3 d^3 (1+c x)^2}+\frac{8 a^2 e}{3 d^3 (1+c x)}\right)}{c}-\frac{a^2 e^{3/2} \operatorname{ArcTan}\left[\frac{c x \sqrt{-e (-1+c x)} \sqrt{d (1+c x)}}{\sqrt{d} \sqrt{e} (-1+c x) (1+c x)}\right]}{c d^{5/2}}-$$
$$\Bigg(a b e \sqrt{d+c d x} \sqrt{e-c e x} \sqrt{-d e \left(1-c^2 x^2\right)} \left(\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]-\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right)$$
$$\Bigg(\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right] \left(-8+6 \operatorname{ArcSin}[c x]+9 \operatorname{ArcSin}[c x]^2-84 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]+\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]\right)+$$
$$\operatorname{Cos}\left[\frac{3}{2} \operatorname{ArcSin}[c x]\right] \left((14-3 \operatorname{ArcSin}[c x]) \operatorname{ArcSin}[c x]+28 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]+\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]\right)+$$
$$2 \Bigg(-4+4 \operatorname{ArcSin}[c x]+6 \operatorname{ArcSin}[c x]^2+\sqrt{1-c^2 x^2} \left(\operatorname{ArcSin}[c x] (14+3 \operatorname{ArcSin}[c x])-28 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]+\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]\right)-$$
$$56 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]+\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]\Bigg) \operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\Bigg)\Bigg) \Bigg/$$
$$\left(6 c d^3 (-1+c x) \sqrt{-(d+c d x) (e-c e x)} \left(\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]+\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right)^4\right)-$$
$$\Bigg(a b e \sqrt{d+c d x} \sqrt{e-c e x} \sqrt{-d e \left(1-c^2 x^2\right)} \left(\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]-\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right)$$
$$\left(\operatorname{Cos}\left[\frac{3}{2} \operatorname{ArcSin}[c x]\right] \left(\operatorname{ArcSin}[c x]+2 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]+\operatorname{Sin}\left[\frac{1}{2} \operatorname{ArcSin}[c x]\right]\right]\right)-\right.$$

$$\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\left(4+3\,\text{ArcSin}[c\,x]+6\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+$$

$$2\left(-2+2\,\text{ArcSin}[c\,x]+\sqrt{1-c^2x^2}\,\text{ArcSin}[c\,x]-4\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-\right.$$

$$\left.\left.2\sqrt{1-c^2x^2}\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\right)\Big/$$

$$\left(3\,c\,d^3\,(-1+c\,x)\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^4\right)-$$

$$\left(b^2\,e\,(-1+c\,x)\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2x^2)}\left(-i\,\pi\,\text{ArcSin}[c\,x]+(1+i)\,\text{ArcSin}[c\,x]^2-\right.\right.$$

$$4\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]-2\,(\pi+2\,\text{ArcSin}[c\,x])\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+$$

$$2\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+4\,i\,\text{PolyLog}\left[2,\,i\,e^{i\,\text{ArcSin}[c\,x]}\right]+\frac{4\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^3}-$$

$$\left.\left.\frac{2\,\text{ArcSin}[c\,x]\,(2+\text{ArcSin}[c\,x])}{\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^2}-\frac{2\,(-4+\text{ArcSin}[c\,x]^2)\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}\right)\right)\Big/$$

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

$$\left(b^2\,e\,(-1+c\,x)\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2x^2)}\left(7\,i\,\pi\,\text{ArcSin}[c\,x]-(7+7\,i)\,\text{ArcSin}[c\,x]^2-\text{ArcSin}[c\,x]^3+\right.\right.$$

$$28\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]+14\,(\pi+2\,\text{ArcSin}[c\,x])\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-28\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-$$

$$14\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-28\,i\,\text{PolyLog}\left[2,\,i\,e^{i\,\text{ArcSin}[c\,x]}\right]-\frac{4\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^3}+$$

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

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

Problem 556: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 918 leaves, 28 steps):

$$\frac{8 a b e^4 x \left(1-c^2 x^2\right)^{3/2}}{(d+c d x)^{3/2} (e-c e x)^{3/2}}+\frac{8 b^2 e^4 \left(1-c^2 x^2\right)^2}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{b^2 e^4 x \left(1-c^2 x^2\right)^2}{4 (d+c d x)^{3/2} (e-c e x)^{3/2}}+\frac{b^2 e^4 \left(1-c^2 x^2\right)^{3/2} \text{ArcSin}[c x]}{4 c (d+c d x)^{3/2} (e-c e x)^{3/2}}+$$
$$\frac{8 b^2 e^4 x \left(1-c^2 x^2\right)^{3/2} \text{ArcSin}[c x]}{(d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{b c e^4 x^2 \left(1-c^2 x^2\right)^{3/2} \left(a+b \,\text{ArcSin}[c x]\right)}{2 (d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{8 e^4 \left(1-c^2 x^2\right) \left(a+b \,\text{ArcSin}[c x]\right)^2}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}+$$
$$\frac{8 e^4 x \left(1-c^2 x^2\right) \left(a+b \,\text{ArcSin}[c x]\right)^2}{(d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{8 i e^4 \left(1-c^2 x^2\right)^{3/2} \left(a+b \,\text{ArcSin}[c x]\right)^2}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{4 e^4 \left(1-c^2 x^2\right)^2 \left(a+b \,\text{ArcSin}[c x]\right)^2}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}+$$
$$\frac{e^4 x \left(1-c^2 x^2\right)^2 \left(a+b \,\text{ArcSin}[c x]\right)^2}{2 (d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{5 e^4 \left(1-c^2 x^2\right)^{3/2} \left(a+b \,\text{ArcSin}[c x]\right)^3}{2 b c (d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{32 i b e^4 \left(1-c^2 x^2\right)^{3/2} \left(a+b \,\text{ArcSin}[c x]\right) \text{ArcTan}\left[e^{i \,\text{ArcSin}[c x]}\right]}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}+$$
$$\frac{16 b e^4 \left(1-c^2 x^2\right)^{3/2} \left(a+b \,\text{ArcSin}[c x]\right) \text{Log}\left[1+e^{2 i \,\text{ArcSin}[c x]}\right]}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}+\frac{16 i b^2 e^4 \left(1-c^2 x^2\right)^{3/2} \text{PolyLog}\left[2,-i e^{i \,\text{ArcSin}[c x]}\right]}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}-$$
$$\frac{16 i b^2 e^4 \left(1-c^2 x^2\right)^{3/2} \text{PolyLog}\left[2,i e^{i \,\text{ArcSin}[c x]}\right]}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{8 i b^2 e^4 \left(1-c^2 x^2\right)^{3/2} \text{PolyLog}\left[2,-e^{2 i \,\text{ArcSin}[c x]}\right]}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}$$

Result (type 4, 2279 leaves):

$$\frac{\sqrt{-e (-1+c x)} \sqrt{d (1+c x)} \left(-\frac{4 a^2 e^2}{d^2}+\frac{a^2 c e^2 x}{2 d^2}-\frac{8 a^2 e^2}{d^2 (1+c x)}\right)}{c}+$$
$$\frac{15 a^2 e^{5/2} \text{ArcTan}\left[\frac{c x \sqrt{-e (-1+c x)} \sqrt{d (1+c x)}}{\sqrt{d} \sqrt{e} (-1+c x) (1+c x)}\right]}{2 c d^{3/2}}-\Bigg(a b e^2 \sqrt{d+c d x} \sqrt{e-c e x} \sqrt{-d e \left(1-c^2 x^2\right)}$$
$$\left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] \left(\text{ArcSin}[c x] (4+\text{ArcSin}[c x])-8 \,\text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right)+\right.$$
$$\left.\left((-4+\text{ArcSin}[c x]) \text{ArcSin}[c x]-8 \,\text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)\Bigg)\Bigg/$$
$$\left(c d^2 \sqrt{-(d+c d x) (e-c e x)} \sqrt{1-c^2 x^2} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)\right)-\Bigg(4 a b e^2 \sqrt{d+c d x} \sqrt{e-c e x} \sqrt{-d e \left(1-c^2 x^2\right)}$$
$$\left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] \left(-c x+2 \,\text{ArcSin}[c x]+\sqrt{1-c^2 x^2} \,\text{ArcSin}[c x]+\text{ArcSin}[c x]^2-4 \,\text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right)+\right.$$
$$\left.\left(-c x-2 \,\text{ArcSin}[c x]+\sqrt{1-c^2 x^2} \,\text{ArcSin}[c x]+\text{ArcSin}[c x]^2-4 \,\text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)\Bigg)\Bigg/$$
$$\left(c d^2 \sqrt{-(d+c d x) (e-c e x)} \sqrt{1-c^2 x^2} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)\right)-$$

$$\Big(b^2 e^2 \sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2 x^2)}$$

$$\Big(\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]\,\Big(-6\,i\,\pi\,\text{ArcSin}[c\,x]+(6+6\,i)\,\text{ArcSin}[c\,x]^2+\text{ArcSin}[c\,x]^3-24\,\pi\,\text{Log}\big[1+e^{-i\,\text{ArcSin}[c\,x]}\big]-$$

$$12\,(\pi+2\,\text{ArcSin}[c\,x])\,\text{Log}\big[1-i\,e^{i\,\text{ArcSin}[c\,x]}\big]+24\,\pi\,\text{Log}\Big[\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]\Big]+12\,\pi\,\text{Log}\Big[\text{Sin}\Big[\tfrac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\Big]\Big]\Big)+$$

$$\Big(-6\,i\,\pi\,\text{ArcSin}[c\,x]-(6-6\,i)\,\text{ArcSin}[c\,x]^2+\text{ArcSin}[c\,x]^3-24\,\pi\,\text{Log}\big[1+e^{-i\,\text{ArcSin}[c\,x]}\big]-12\,(\pi+2\,\text{ArcSin}[c\,x])\,\text{Log}\big[1-i\,e^{i\,\text{ArcSin}[c\,x]}\big]+$$

$$24\,\pi\,\text{Log}\Big[\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]\Big]+12\,\pi\,\text{Log}\Big[\text{Sin}\Big[\tfrac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\Big]\Big]\Big)\,\text{Sin}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]+$$

$$24\,i\,\text{PolyLog}\big[2,\,i\,e^{i\,\text{ArcSin}[c\,x]}\big]\,\Big(\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]+\text{Sin}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]\Big)\Big)\Big)\Big/$$

$$\Big(3\,c\,d^2\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\sqrt{1-c^2 x^2}\,\Big(\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]+\text{Sin}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]\Big)\Big)-$$

$$\Big(2\,b^2 e^2 \sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2 x^2)}\,\Big(\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]\,\Big(3\sqrt{1-c^2 x^2}\,\big(-2+\text{ArcSin}[c\,x]^2\big)+2\,\Big(-3\,i\,\pi\,\text{ArcSin}[c\,x]-3\,c\,x\,\text{ArcSin}[c\,x]+$$

$$(3+3\,i)\,\text{ArcSin}[c\,x]^2+\text{ArcSin}[c\,x]^3-12\,\pi\,\text{Log}\big[1+e^{-i\,\text{ArcSin}[c\,x]}\big]-6\,\pi\,\text{Log}\big[1-i\,e^{i\,\text{ArcSin}[c\,x]}\big]-12\,\text{ArcSin}[c\,x]\,\text{Log}\big[1-i\,e^{i\,\text{ArcSin}[c\,x]}\big]+$$

$$12\,\pi\,\text{Log}\Big[\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]\Big]+6\,\pi\,\text{Log}\Big[\text{Sin}\Big[\tfrac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\Big]\Big]\Big)\Big)+\Big(3\sqrt{1-c^2 x^2}\,\big(-2+\text{ArcSin}[c\,x]^2\big)+$$

$$2\,\Big(-3\,i\,\pi\,\text{ArcSin}[c\,x]-3\,c\,x\,\text{ArcSin}[c\,x]-(3-3\,i)\,\text{ArcSin}[c\,x]^2+\text{ArcSin}[c\,x]^3-12\,\pi\,\text{Log}\big[1+e^{-i\,\text{ArcSin}[c\,x]}\big]-6\,\pi\,\text{Log}\big[1-i\,e^{i\,\text{ArcSin}[c\,x]}\big]-$$

$$12\,\text{ArcSin}[c\,x]\,\text{Log}\big[1-i\,e^{i\,\text{ArcSin}[c\,x]}\big]+12\,\pi\,\text{Log}\Big[\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]\Big]+6\,\pi\,\text{Log}\Big[\text{Sin}\Big[\tfrac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\Big]\Big]\Big)\Big)$$

$$\text{Sin}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]+24\,i\,\text{PolyLog}\big[2,\,i\,e^{i\,\text{ArcSin}[c\,x]}\big]\,\Big(\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]+\text{Sin}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]\Big)\Big)\Big)\Big/$$

$$\Big(3\,c\,d^2\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\sqrt{1-c^2 x^2}\,\Big(\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]+\text{Sin}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]\Big)\Big)-$$

$$\Big(b^2 e^2 \sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2 x^2)}$$

$$\Big(96\,i\,\text{PolyLog}\big[2,\,i\,e^{i\,\text{ArcSin}[c\,x]}\big]\,\Big(\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]+\text{Sin}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]\Big)+\text{Sin}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]$$

$$\Big(-24\,i\,\pi\,\text{ArcSin}[c\,x]-48\,c\,x\,\text{ArcSin}[c\,x]-(24-24\,i)\,\text{ArcSin}[c\,x]^2+10\,\text{ArcSin}[c\,x]^3+3\sqrt{1-c^2 x^2}\,\big(-16+c\,x+8\,\text{ArcSin}[c\,x]^2\big)-$$

$$3\,\text{ArcSin}[c\,x]\,\text{Cos}[2\,\text{ArcSin}[c\,x]]-96\,\pi\,\text{Log}\big[1+e^{-i\,\text{ArcSin}[c\,x]}\big]-48\,\pi\,\text{Log}\big[1-i\,e^{i\,\text{ArcSin}[c\,x]}\big]-96\,\text{ArcSin}[c\,x]\,\text{Log}\big[1-i\,e^{i\,\text{ArcSin}[c\,x]}\big]+$$

$$96\,\pi\,\text{Log}\Big[\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]\Big]+48\,\pi\,\text{Log}\Big[\text{Sin}\Big[\tfrac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\Big]\Big]-3\,\text{ArcSin}[c\,x]^2\,\text{Sin}[2\,\text{ArcSin}[c\,x]]\Big)+\text{Cos}\Big[\tfrac{1}{2}\,\text{ArcSin}[c\,x]\Big]$$

$$\Big(-24\,i\,\pi\,\text{ArcSin}[c\,x]-48\,c\,x\,\text{ArcSin}[c\,x]+(24+24\,i)\,\text{ArcSin}[c\,x]^2+10\,\text{ArcSin}[c\,x]^3+3\sqrt{1-c^2 x^2}\,\big(-16+c\,x+8\,\text{ArcSin}[c\,x]^2\big)-$$

$$3\,\text{ArcSin}[c\,x]\,\text{Cos}[2\,\text{ArcSin}[c\,x]]-96\,\pi\,\text{Log}\big[1+e^{-i\,\text{ArcSin}[c\,x]}\big]-48\,\pi\,\text{Log}\big[1-i\,e^{i\,\text{ArcSin}[c\,x]}\big]-96\,\text{ArcSin}[c\,x]\,\text{Log}\big[1-i\,e^{i\,\text{ArcSin}[c\,x]}\big]+$$

$$96\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+48\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right]-3\,\text{ArcSin}[c\,x]^2\,\text{Sin}[2\,\text{ArcSin}[c\,x]]\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\left(12\,c\,d^2\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\sqrt{1-c^2\,x^2}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\right)-$$
$$\Bigg(a\,b\,e^2\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2\,x^2)}$$
$$\Bigg(\left(15+14\,\text{ArcSin}[c\,x]\right)\text{Cos}\left[\frac{3}{2}\text{ArcSin}[c\,x]\right]-\text{Cos}\left[\frac{5}{2}\text{ArcSin}[c\,x]\right]+2\,\text{ArcSin}[c\,x]\,\text{Cos}\left[\frac{5}{2}\text{ArcSin}[c\,x]\right]+$$
$$4\,\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\left(-4+12\,\text{ArcSin}[c\,x]+5\,\text{ArcSin}[c\,x]^2-16\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)-$$
$$16\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-48\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+20\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-$$
$$64\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-15\,\text{Sin}\left[\frac{3}{2}\text{ArcSin}[c\,x]\right]+$$
$$14\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{3}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{5}{2}\text{ArcSin}[c\,x]\right]-2\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{5}{2}\text{ArcSin}[c\,x]\right]\Bigg)\Bigg)\Bigg/$$
$$\left(8\,c\,d^2\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\sqrt{1-c^2\,x^2}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\right)$$

Problem 557: Result more than twice size of optimal antiderivative.

$$\int\frac{(e-c\,e\,x)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])^2}{(d+c\,d\,x)^{5/2}}\,dx$$

Optimal (type 4, 729 leaves, 25 steps):

$$-\frac{2\,a\,b\,e^5\,x\,(1-c^2\,x^2)^{5/2}}{(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}-\frac{2\,b^2\,e^5\,(1-c^2\,x^2)^3}{c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}-\frac{2\,b^2\,e^5\,x\,(1-c^2\,x^2)^{5/2}\,\text{ArcSin}[c\,x]}{(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}+\frac{28\,i\,e^5\,(1-c^2\,x^2)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])^2}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}+$$
$$\frac{e^5\,(1-c^2\,x^2)^3\,(a+b\,\text{ArcSin}[c\,x])^2}{c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}+\frac{5\,e^5\,(1-c^2\,x^2)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])^3}{3\,b\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}-\frac{16\,b^2\,e^5\,(1-c^2\,x^2)^{5/2}\,\text{Cot}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}+$$
$$\frac{28\,e^5\,(1-c^2\,x^2)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])^2\,\text{Cot}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}-\frac{8\,b\,e^5\,(1-c^2\,x^2)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])\,\text{Csc}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]^2}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}-$$
$$\frac{4\,e^5\,(1-c^2\,x^2)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])^2\,\text{Cot}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]\,\text{Csc}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]^2}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}-$$
$$\frac{112\,b\,e^5\,(1-c^2\,x^2)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}+\frac{112\,i\,b^2\,e^5\,(1-c^2\,x^2)^{5/2}\,\text{PolyLog}\left[2,\,i\,e^{i\,\text{ArcSin}[c\,x]}\right]}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}$$

Result (type 4, 2326 leaves):

$$\frac{\sqrt{-e\,(-1+c\,x)}\,\sqrt{d\,(1+c\,x)}\,\left(\frac{a^2 e^2}{d^3}-\frac{8\,a^2 e^2}{3\,d^3\,(1+c\,x)^2}+\frac{28\,a^2 e^2}{3\,d^3\,(1+c\,x)}\right)}{c}-\frac{5\,a^2 e^{5/2}\,\text{ArcTan}\left[\frac{c\,x\,\sqrt{-e\,(-1+c\,x)}\,\sqrt{d\,(1+c\,x)}}{\sqrt{d}\,\sqrt{e}\,(-1+c\,x)\,(1+c\,x)}\right]}{c\,d^{5/2}}-$$

$$\Bigg(a\,b\,e^2\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2 x^2)}\,\left(\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right)$$
$$\Bigg(\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\left(-8+6\,\text{ArcSin}[c\,x]+9\,\text{ArcSin}[c\,x]^2-84\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+$$
$$\text{Cos}\left[\tfrac{3}{2}\text{ArcSin}[c\,x]\right]\left((14-3\,\text{ArcSin}[c\,x])\,\text{ArcSin}[c\,x]+28\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+$$
$$2\,\Bigg(-4+4\,\text{ArcSin}[c\,x]+6\,\text{ArcSin}[c\,x]^2+\sqrt{1-c^2 x^2}\,\left(\text{ArcSin}[c\,x]\,(14+3\,\text{ArcSin}[c\,x])-28\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)-$$
$$56\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right]\Bigg)\,\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\Bigg)\Bigg)\Bigg/$$
$$\left(3\,c\,d^3\,(-1+c\,x)\,\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\left(\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right)^4\right)-$$

$$\Bigg(a\,b\,e^2\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2 x^2)}\,\left(\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right)$$
$$\Bigg(\text{Cos}\left[\tfrac{3}{2}\text{ArcSin}[c\,x]\right]\left(\text{ArcSin}[c\,x]+2\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)-$$
$$\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\left(4+3\,\text{ArcSin}[c\,x]+6\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+$$
$$2\,\Bigg(-2+2\,\text{ArcSin}[c\,x]+\sqrt{1-c^2 x^2}\,\text{ArcSin}[c\,x]-4\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right]-$$
$$2\,\sqrt{1-c^2 x^2}\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right]\Bigg)\,\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\Bigg)\Bigg)\Bigg/$$
$$\left(3\,c\,d^3\,(-1+c\,x)\,\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\left(\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right)^4\right)-$$

$$\Bigg(b^2 e^2\,(-1+c\,x)\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2 x^2)}\,\Bigg(-\frac{6\,c\,x\,\text{ArcSin}[c\,x]}{\sqrt{1-c^2 x^2}}+\frac{(13+13\,i)\,\text{ArcSin}[c\,x]^2}{\sqrt{1-c^2 x^2}}+\frac{3\,\text{ArcSin}[c\,x]^3}{\sqrt{1-c^2 x^2}}+3\,\left(-2+\text{ArcSin}[c\,x]^2\right)+$$
$$\frac{1}{\sqrt{1-c^2 x^2}}13\,\Bigg(-i\,\pi\,\text{ArcSin}[c\,x]-4\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]-2\,(\pi+2\,\text{ArcSin}[c\,x])\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,\pi\,\text{Log}\left[\text{Cos}\left[\tfrac{1}{2}\text{ArcSin}[c\,x]\right]\right]+$$
$$2\,\pi\,\text{Log}\left[\text{Sin}\left[\tfrac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+4\,i\,\text{PolyLog}\left[2,\,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\Bigg)+\frac{4\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\sqrt{1-c^2 x^2}\,\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^3}-$$

$$\left.\left.\frac{2\,\text{ArcSin}[c\,x]\,\left(2+\text{ArcSin}[c\,x]\right)}{\sqrt{1-c^2x^2}\,\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^2}+\frac{2\,\left(4-13\,\text{ArcSin}[c\,x]^2\right)\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\sqrt{1-c^2x^2}\,\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)}\right)\right)\Big/$$

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

$$\left(b^2e^2\,\left(-1+c\,x\right)\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,\left(1-c^2x^2\right)}\,\left(-i\,\pi\,\text{ArcSin}[c\,x]+\left(1+i\right)\,\text{ArcSin}[c\,x]^2-\right.\right.$$

$$4\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]-2\,\left(\pi+2\,\text{ArcSin}[c\,x]\right)\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+$$

$$2\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right]+4\,i\,\text{PolyLog}\left[2,\,i\,e^{i\,\text{ArcSin}[c\,x]}\right]+\frac{4\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^3}-$$

$$\left.\left.\frac{2\,\text{ArcSin}[c\,x]\,\left(2+\text{ArcSin}[c\,x]\right)}{\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^2}-\frac{2\,\left(-4+\text{ArcSin}[c\,x]^2\right)\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}\right)\right)\Big/$$

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

$$\left(2\,b^2e^2\,\left(-1+c\,x\right)\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,\left(1-c^2x^2\right)}\,\left(7\,i\,\pi\,\text{ArcSin}[c\,x]-\left(7+7\,i\right)\,\text{ArcSin}[c\,x]^2-\text{ArcSin}[c\,x]^3+\right.\right.$$

$$28\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]+14\,\left(\pi+2\,\text{ArcSin}[c\,x]\right)\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-28\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-$$

$$14\,\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right]-28\,i\,\text{PolyLog}\left[2,\,i\,e^{i\,\text{ArcSin}[c\,x]}\right]-\frac{4\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^3}+$$

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

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

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

$$\left(3\,\text{Cos}\left[\frac{5}{2}\text{ArcSin}[c\,x]\right]-3\,\text{ArcSin}[c\,x]\,\text{Cos}\left[\frac{5}{2}\text{ArcSin}[c\,x]\right]+\right.$$

$$\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\,\left(-20+24\,\text{ArcSin}[c\,x]+27\,\text{ArcSin}[c\,x]^2-156\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+$$

$$\mathrm{Cos}\left[\frac{3}{2}\mathrm{ArcSin}[c\,x]\right]\left(9+35\,\mathrm{ArcSin}[c\,x]-9\,\mathrm{ArcSin}[c\,x]^2+52\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right]\right)-20\,\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]-$$
$$24\,\mathrm{ArcSin}[c\,x]\,\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+27\,\mathrm{ArcSin}[c\,x]^2\,\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]-156\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right]$$
$$\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]-9\,\mathrm{Sin}\left[\frac{3}{2}\mathrm{ArcSin}[c\,x]\right]+35\,\mathrm{ArcSin}[c\,x]\,\mathrm{Sin}\left[\frac{3}{2}\mathrm{ArcSin}[c\,x]\right]+9\,\mathrm{ArcSin}[c\,x]^2\,\mathrm{Sin}\left[\frac{3}{2}\mathrm{ArcSin}[c\,x]\right]-$$
$$52\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right]\mathrm{Sin}\left[\frac{3}{2}\mathrm{ArcSin}[c\,x]\right]+3\,\mathrm{Sin}\left[\frac{5}{2}\mathrm{ArcSin}[c\,x]\right]+3\,\mathrm{ArcSin}[c\,x]\,\mathrm{Sin}\left[\frac{5}{2}\mathrm{ArcSin}[c\,x]\right]\Big)\Big)\Big/$$
$$\left(6\,c\,d^3\,(-1+c\,x)\,\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\left(\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right)^4\right)$$

Problem 561: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\mathrm{ArcSin}[c\,x])^2}{\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}}\,dx$$

Optimal (type 3, 55 leaves, 2 steps):

$$\frac{\sqrt{1-c^2x^2}\,(a+b\,\mathrm{ArcSin}[c\,x])^3}{3\,b\,c\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}}$$

Result (type 3, 159 leaves):

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

Problem 564: Result more than twice size of optimal antiderivative.

$$\int\frac{(d+c\,d\,x)^{5/2}\,(a+b\,\mathrm{ArcSin}[c\,x])^2}{(e-c\,e\,x)^{3/2}}\,dx$$

Optimal (type 4, 918 leaves, 28 steps):

$$-\frac{8 a b d^4 x (1-c^2 x^2)^{3/2}}{(d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{8 b^2 d^4 (1-c^2 x^2)^2}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{b^2 d^4 x (1-c^2 x^2)^2}{4 (d+c d x)^{3/2} (e-c e x)^{3/2}}+\frac{b^2 d^4 (1-c^2 x^2)^{3/2} \text{ArcSin}[c x]}{4 c (d+c d x)^{3/2} (e-c e x)^{3/2}}-$$

$$\frac{8 b^2 d^4 x (1-c^2 x^2)^{3/2} \text{ArcSin}[c x]}{(d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{b c d^4 x^2 (1-c^2 x^2)^{3/2} (a+b \text{ArcSin}[c x])}{2 (d+c d x)^{3/2} (e-c e x)^{3/2}}+\frac{8 d^4 (1-c^2 x^2) (a+b \text{ArcSin}[c x])^2}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}+$$

$$\frac{8 d^4 x (1-c^2 x^2) (a+b \text{ArcSin}[c x])^2}{(d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{8 i d^4 (1-c^2 x^2)^{3/2} (a+b \text{ArcSin}[c x])^2}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}+\frac{4 d^4 (1-c^2 x^2)^2 (a+b \text{ArcSin}[c x])^2}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}+$$

$$\frac{d^4 x (1-c^2 x^2)^2 (a+b \text{ArcSin}[c x])^2}{2 (d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{5 d^4 (1-c^2 x^2)^{3/2} (a+b \text{ArcSin}[c x])^3}{2 b c (d+c d x)^{3/2} (e-c e x)^{3/2}}+\frac{32 i b d^4 (1-c^2 x^2)^{3/2} (a+b \text{ArcSin}[c x]) \text{ArcTan}\left[e^{i \text{ArcSin}[c x]}\right]}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}+$$

$$\frac{16 b d^4 (1-c^2 x^2)^{3/2} (a+b \text{ArcSin}[c x]) \text{Log}\left[1+e^{2 i \text{ArcSin}[c x]}\right]}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{16 i b^2 d^4 (1-c^2 x^2)^{3/2} \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}+$$

$$\frac{16 i b^2 d^4 (1-c^2 x^2)^{3/2} \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}-\frac{8 i b^2 d^4 (1-c^2 x^2)^{3/2} \text{PolyLog}\left[2,-e^{2 i \text{ArcSin}[c x]}\right]}{c (d+c d x)^{3/2} (e-c e x)^{3/2}}$$

Result (type 4, 2029 leaves):

$$\frac{\sqrt{-e (-1+c x)} \sqrt{d (1+c x)} \left(\frac{4 a^2 d^2}{e^2}+\frac{a^2 c d^2 x}{2 e^2}-\frac{8 a^2 d^2}{e^2 (-1+c x)}\right)}{c}+$$

$$\frac{15 a^2 d^{5/2} \text{ArcTan}\left[\frac{c x \sqrt{-e (-1+c x)} \sqrt{d (1+c x)}}{\sqrt{d} \sqrt{e} (-1+c x) (1+c x)}\right]}{2 c e^{3/2}}-\left(a b d^2 (1+c x) \sqrt{d+c d x} \sqrt{e-c e x} \sqrt{-d e (1-c^2 x^2)}\right.$$

$$\left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] \left((-4+\text{ArcSin}[c x]) \text{ArcSin}[c x]-8 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right)-\right.$$

$$\left.\left.\left(\text{ArcSin}[c x] (4+\text{ArcSin}[c x])-8 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)\right)\Big/$$

$$\left(c e^2 \sqrt{-(d+c d x) (e-c e x)} \sqrt{1-c^2 x^2} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right) \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)^2\right)+$$

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

$$\left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right] \left(-c x+2 \text{ArcSin}[c x]+\sqrt{1-c^2 x^2} \text{ArcSin}[c x]-\text{ArcSin}[c x]^2+4 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right)+\right.$$

$$\left.\left.\left(c x+2 \text{ArcSin}[c x]-\sqrt{1-c^2 x^2} \text{ArcSin}[c x]+\text{ArcSin}[c x]^2-4 \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right) \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)\right)\Big/$$

$$\left(c e^2 \sqrt{-(d+c d x) (e-c e x)} \sqrt{1-c^2 x^2} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right) \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)^2\right)-$$

$$\left(b^2 d^2 (1+c\,x)\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2 x^2)}\,\left(-18\,i\,\pi\,\text{ArcSin}[c\,x]-(6-6\,i)\,\text{ArcSin}[c\,x]^2+\text{ArcSin}[c\,x]^3-\right.\right.$$

$$24\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]+12\,(\pi-2\,\text{ArcSin}[c\,x])\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+24\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]-$$

$$\left.\left.12\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+24\,i\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-\frac{12\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]}{\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]}\right)\right)\Big/$$

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

$$\left(b^2 d^2 (1+c\,x)\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2 x^2)}\,\left(\frac{96\,c\,x\,\text{ArcSin}[c\,x]}{\sqrt{1-c^2 x^2}}-\frac{(48-48\,i)\,\text{ArcSin}[c\,x]^2}{\sqrt{1-c^2 x^2}}+\frac{20\,\text{ArcSin}[c\,x]^3}{\sqrt{1-c^2 x^2}}-\right.\right.$$

$$48\,\left(-2+\text{ArcSin}[c\,x]^2\right)-6\,c\,x\,\left(-1+2\,\text{ArcSin}[c\,x]^2\right)-\frac{6\,\text{ArcSin}[c\,x]\,\text{Cos}[2\,\text{ArcSin}[c\,x]]}{\sqrt{1-c^2 x^2}}+\frac{1}{\sqrt{1-c^2 x^2}}$$

$$48\,\left(-3\,i\,\pi\,\text{ArcSin}[c\,x]-4\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]+2\,(\pi-2\,\text{ArcSin}[c\,x])\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]-\right.$$

$$\left.\left.\left.2\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+4\,i\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]\right)-\frac{96\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]}{\sqrt{1-c^2 x^2}\,\left(\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right)}\right)\right)\Big/$$

$$\left(24\,c\,e^2\,\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\left(\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right)^2\right)-$$

$$\left(2\,b^2 d^2 (1+c\,x)\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2 x^2)}\,\left(6+\frac{6\,c\,x\,\text{ArcSin}[c\,x]}{\sqrt{1-c^2 x^2}}-3\,\text{ArcSin}[c\,x]^2-\frac{(6-6\,i)\,\text{ArcSin}[c\,x]^2}{\sqrt{1-c^2 x^2}}+\frac{2\,\text{ArcSin}[c\,x]^3}{\sqrt{1-c^2 x^2}}+\right.\right.$$

$$\frac{1}{\sqrt{1-c^2 x^2}}6\,\left(-3\,i\,\pi\,\text{ArcSin}[c\,x]-4\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]+2\,(\pi-2\,\text{ArcSin}[c\,x])\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+4\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]-\right.$$

$$\left.\left.\left.2\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+4\,i\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]\right)-\frac{12\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]}{\sqrt{1-c^2 x^2}\,\left(\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right)}\right)\right)\Big/$$

$$\left(3\,c\,e^2\,\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\left(\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right)^2\right)+\left(a\,b\,d^2\,(1+c\,x)\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\right.$$

$$\sqrt{-d\,e\,(1-c^2 x^2)}\,\left((-15+14\,\text{ArcSin}[c\,x])\,\text{Cos}\left[\frac{3}{2}\,\text{ArcSin}[c\,x]\right]+\text{Cos}\left[\frac{5}{2}\,\text{ArcSin}[c\,x]\right]+2\,\text{ArcSin}[c\,x]\,\text{Cos}\left[\frac{5}{2}\,\text{ArcSin}[c\,x]\right]+\right.$$

$$\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\,\left(16+48\,\text{ArcSin}[c\,x]-20\,\text{ArcSin}[c\,x]^2+64\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]\right)-$$

$$16\,\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]+48\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]+20\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]-$$

$$64\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]\,\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]-15\,\text{Sin}\left[\frac{3}{2}\,\text{ArcSin}[c\,x]\right]-$$
$$14\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{3}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{5}{2}\,\text{ArcSin}[c\,x]\right]+2\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{5}{2}\,\text{ArcSin}[c\,x]\right]\Bigg)\Bigg)\Bigg/$$
$$\left(8\,c\,e^2\,\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\sqrt{1-c^2\,x^2}\,\left(\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right)^2\right)$$

Problem 568: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^2}{(d+c\,d\,x)^{3/2}\,(e-c\,e\,x)^{3/2}}\,dx$$

Optimal (type 4, 217 leaves, 7 steps):

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

Result (type 4, 550 leaves):

$$\frac{1}{c\,d\,e\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}}\Bigg(a^2\,c\,x+2\,a\,b\,c\,x\,\text{ArcSin}[c\,x]+2\,i\,b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]+b^2\,c\,x\,\text{ArcSin}[c\,x]^2-i\,b^2\,\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]^2+$$
$$4\,b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]+b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b^2\,\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-$$
$$b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b^2\,\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-4\,b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]+$$
$$b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+2\,a\,b\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]+$$
$$2\,a\,b\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]-b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-$$
$$2\,i\,b^2\,\sqrt{1-c^2\,x^2}\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,i\,b^2\,\sqrt{1-c^2\,x^2}\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\Bigg)$$

Problem 570: Result more than twice size of optimal antiderivative.

$$\int \frac{(d+c\,d\,x)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])^2}{(e-c\,e\,x)^{5/2}}\,dx$$

Optimal (type 4, 730 leaves, 25 steps):

$$\frac{2\,a\,b\,d^5\,x\,\left(1-c^2 x^2\right)^{5/2}}{(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}+\frac{2\,b^2\,d^5\,\left(1-c^2 x^2\right)^3}{c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}+\frac{2\,b^2\,d^5\,x\,\left(1-c^2 x^2\right)^{5/2}\,\text{ArcSin}[c\,x]}{(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}-\frac{28\,i\,d^5\,\left(1-c^2 x^2\right)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])^2}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}-$$

$$\frac{d^5\,\left(1-c^2 x^2\right)^3\,(a+b\,\text{ArcSin}[c\,x])^2}{c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}+\frac{5\,d^5\,\left(1-c^2 x^2\right)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])^3}{3\,b\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}-\frac{112\,b\,d^5\,\left(1-c^2 x^2\right)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])\,\text{Log}\left[1-i\,e^{-i\,\text{ArcSin}[c\,x]}\right]}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}-$$

$$\frac{112\,i\,b^2\,d^5\,\left(1-c^2 x^2\right)^{5/2}\,\text{PolyLog}\left[2,\,i\,e^{-i\,\text{ArcSin}[c\,x]}\right]}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}-\frac{8\,b\,d^5\,\left(1-c^2 x^2\right)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])\,\text{Sec}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]^2}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}+$$

$$\frac{16\,b^2\,d^5\,\left(1-c^2 x^2\right)^{5/2}\,\text{Tan}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}-\frac{28\,d^5\,\left(1-c^2 x^2\right)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])^2\,\text{Tan}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}+$$

$$\frac{4\,d^5\,\left(1-c^2 x^2\right)^{5/2}\,(a+b\,\text{ArcSin}[c\,x])^2\,\text{Sec}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]^2\,\text{Tan}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]}{3\,c\,(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}$$

Result (type 4, 2300 leaves) :

$$\frac{\sqrt{-e\,(-1+c\,x)}\,\sqrt{d\,(1+c\,x)}\,\left(-\frac{a^2 d^2}{e^3}+\frac{8\,a^2 d^2}{3\,e^3\,(-1+c\,x)^2}+\frac{28\,a^2 d^2}{3\,e^3\,(-1+c\,x)}\right)}{c}-\frac{5\,a^2\,d^{5/2}\,\text{ArcTan}\left[\frac{c\,x\,\sqrt{-e\,(-1+c\,x)}\,\sqrt{d\,(1+c\,x)}}{\sqrt{d}\,\sqrt{e}\,(-1+c\,x)\,(1+c\,x)}\right]}{c\,e^{5/2}}+$$

$$\Bigg(a\,b\,d^2\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,\left(1-c^2 x^2\right)}\,\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\left(-4+3\,\text{ArcSin}[c\,x]-6\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)-\right.$$
$$\text{Cos}\left[\frac{3}{2}\text{ArcSin}[c\,x]\right]\left(\text{ArcSin}[c\,x]-2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+$$
$$2\left(2+2\,\text{ArcSin}[c\,x]+\sqrt{1-c^2 x^2}\,\text{ArcSin}[c\,x]+4\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+\right.$$
$$\left.\left.2\,\sqrt{1-c^2 x^2}\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\Bigg)\Bigg/$$
$$\left(3\,c\,e^3\,\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^4\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\right)+$$
$$\Bigg(a\,b\,d^2\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,\left(1-c^2 x^2\right)}$$
$$\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\left(-8-6\,\text{ArcSin}[c\,x]+9\,\text{ArcSin}[c\,x]^2-84\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+\right.$$
$$\text{Cos}\left[\frac{3}{2}\text{ArcSin}[c\,x]\right]\left(-\text{ArcSin}[c\,x]\,(14+3\,\text{ArcSin}[c\,x])+28\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+$$
$$2\left(4+4\,\text{ArcSin}[c\,x]-6\,\text{ArcSin}[c\,x]^2+56\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+\right.$$
$$\left.\left.\sqrt{1-c^2 x^2}\,\left((14-3\,\text{ArcSin}[c\,x])\,\text{ArcSin}[c\,x]+28\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)\right)\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\Bigg)\Bigg/$$

$$\left(3\,c\,e^3\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^4\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\right)+$$

$$\Bigg(b^2\,d^2\,(1+c\,x)\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2\,x^2)}$$

$$\Bigg(-3\,\text{i}\,\pi\,\text{ArcSin}[c\,x]+\frac{4\,\text{ArcSin}[c\,x]}{-1+c\,x}-(1-\text{i})\,\text{ArcSin}[c\,x]^2-\frac{2\,\text{ArcSin}[c\,x]^2}{-1+c\,x}-4\,\pi\,\text{Log}\left[1+e^{-\text{i}\,\text{ArcSin}[c\,x]}\right]+2\,\pi\,\text{Log}\left[1+\text{i}\,e^{\text{i}\,\text{ArcSin}[c\,x]}\right]-$$

$$4\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+\text{i}\,e^{\text{i}\,\text{ArcSin}[c\,x]}\right]+4\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-2\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+$$

$$4\,\text{i}\,\text{PolyLog}\left[2,-\text{i}\,e^{\text{i}\,\text{ArcSin}[c\,x]}\right]+\frac{2\,\left(4+\text{ArcSin}[c\,x]^2+c\,x\,\left(-4+\text{ArcSin}[c\,x]^2\right)\right)\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^3}\Bigg)\Bigg)\Bigg/$$

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

$$\Bigg(b^2\,d^2\,(1+c\,x)\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2\,x^2)}$$

$$\Bigg(6+\frac{6\,c\,x\,\text{ArcSin}[c\,x]}{\sqrt{1-c^2\,x^2}}-\frac{2\,(-2+\text{ArcSin}[c\,x])\,\text{ArcSin}[c\,x]}{(-1+c\,x)\,\sqrt{1-c^2\,x^2}}-3\,\text{ArcSin}[c\,x]^2-\frac{(13-13\,\text{i})\,\text{ArcSin}[c\,x]^2}{\sqrt{1-c^2\,x^2}}+\frac{3\,\text{ArcSin}[c\,x]^3}{\sqrt{1-c^2\,x^2}}+$$

$$\frac{1}{\sqrt{1-c^2\,x^2}}13\,\Bigg(-3\,\text{i}\,\pi\,\text{ArcSin}[c\,x]-4\,\pi\,\text{Log}\left[1+e^{-\text{i}\,\text{ArcSin}[c\,x]}\right]+2\,(\pi-2\,\text{ArcSin}[c\,x])\,\text{Log}\left[1+\text{i}\,e^{\text{i}\,\text{ArcSin}[c\,x]}\right]+$$

$$4\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-2\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+4\,\text{i}\,\text{PolyLog}\left[2,-\text{i}\,e^{\text{i}\,\text{ArcSin}[c\,x]}\right]\Bigg)+$$

$$\frac{4\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\sqrt{1-c^2\,x^2}\,\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^3}+\frac{2\,\left(4-13\,\text{ArcSin}[c\,x]^2\right)\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\sqrt{1-c^2\,x^2}\,\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)}\Bigg)\Bigg)\Bigg/$$

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

$$\Bigg(2\,b^2\,d^2\,(1+c\,x)\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2\,x^2)}$$

$$\Bigg(-21\,\text{i}\,\pi\,\text{ArcSin}[c\,x]-\frac{2\,(-2+\text{ArcSin}[c\,x])\,\text{ArcSin}[c\,x]}{-1+c\,x}-(7-7\,\text{i})\,\text{ArcSin}[c\,x]^2+\text{ArcSin}[c\,x]^3-28\,\pi\,\text{Log}\left[1+e^{-\text{i}\,\text{ArcSin}[c\,x]}\right]+$$

$$14\left(\pi-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+28\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]-14\,\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right]+$$
$$28\,i\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+\frac{4\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^3}+\frac{2\left(4-7\,\text{ArcSin}[c\,x]^2\right)\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}\Bigg)\Bigg)\Bigg/$$
$$\left(3\,c\,e^3\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\sqrt{1-c^2x^2}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^2\right)+$$
$$\Bigg(a\,b\,d^2\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\,(1-c^2x^2)}\,\Bigg(3\,\text{Cos}\left[\frac{5}{2}\text{ArcSin}[c\,x]\right]+3\,\text{ArcSin}[c\,x]\,\text{Cos}\left[\frac{5}{2}\text{ArcSin}[c\,x]\right]+$$
$$\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\left(-20-24\,\text{ArcSin}[c\,x]+27\,\text{ArcSin}[c\,x]^2-156\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+$$
$$\text{Cos}\left[\frac{3}{2}\text{ArcSin}[c\,x]\right]\left(9-35\,\text{ArcSin}[c\,x]-9\,\text{ArcSin}[c\,x]^2+52\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+20\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-$$
$$24\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-27\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+156\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]$$
$$\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+9\,\text{Sin}\left[\frac{3}{2}\text{ArcSin}[c\,x]\right]+35\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{3}{2}\text{ArcSin}[c\,x]\right]-9\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{3}{2}\text{ArcSin}[c\,x]\right]+$$
$$52\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\text{Sin}\left[\frac{3}{2}\text{ArcSin}[c\,x]\right]-3\,\text{Sin}\left[\frac{5}{2}\text{ArcSin}[c\,x]\right]+3\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{5}{2}\text{ArcSin}[c\,x]\right]\Bigg)\Bigg)\Bigg/$$
$$\left(6\,c\,e^3\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^4\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\right)$$

Problem 571: Result more than twice size of optimal antiderivative.

$$\int\frac{(d+c\,d\,x)^{3/2}\,(a+b\,\text{ArcSin}[c\,x])^2}{(e-c\,e\,x)^{5/2}}\,dx$$

Optimal (type 4, 544 leaves, 21 steps):

$$-\frac{8\,i\,d^4\left(1-c^2x^2\right)^{5/2}\left(a+b\,\text{ArcSin}[c\,x]\right)^2}{3\,c\left(d+c\,d\,x\right)^{5/2}\left(e-c\,e\,x\right)^{5/2}}+\frac{d^4\left(1-c^2x^2\right)^{5/2}\left(a+b\,\text{ArcSin}[c\,x]\right)^3}{3\,b\,c\left(d+c\,d\,x\right)^{5/2}\left(e-c\,e\,x\right)^{5/2}}-\frac{32\,b\,d^4\left(1-c^2x^2\right)^{5/2}\left(a+b\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1-i\,e^{-i\,\text{ArcSin}[c\,x]}\right]}{3\,c\left(d+c\,d\,x\right)^{5/2}\left(e-c\,e\,x\right)^{5/2}}-$$

$$\frac{32\,i\,b^2d^4\left(1-c^2x^2\right)^{5/2}\text{PolyLog}\left[2,\,i\,e^{-i\,\text{ArcSin}[c\,x]}\right]}{3\,c\left(d+c\,d\,x\right)^{5/2}\left(e-c\,e\,x\right)^{5/2}}-\frac{4\,b\,d^4\left(1-c^2x^2\right)^{5/2}\left(a+b\,\text{ArcSin}[c\,x]\right)\text{Sec}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]^2}{3\,c\left(d+c\,d\,x\right)^{5/2}\left(e-c\,e\,x\right)^{5/2}}+$$

$$\frac{8\,b^2d^4\left(1-c^2x^2\right)^{5/2}\text{Tan}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]}{3\,c\left(d+c\,d\,x\right)^{5/2}\left(e-c\,e\,x\right)^{5/2}}-\frac{8\,d^4\left(1-c^2x^2\right)^{5/2}\left(a+b\,\text{ArcSin}[c\,x]\right)^2\text{Tan}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]}{3\,c\left(d+c\,d\,x\right)^{5/2}\left(e-c\,e\,x\right)^{5/2}}+$$

$$\frac{2\,d^4\left(1-c^2x^2\right)^{5/2}\left(a+b\,\text{ArcSin}[c\,x]\right)^2\text{Sec}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]^2\text{Tan}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]}{3\,c\left(d+c\,d\,x\right)^{5/2}\left(e-c\,e\,x\right)^{5/2}}$$

Result (type 4, 1411 leaves):

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

$$\left(a\,b\,d\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}\,\sqrt{-d\,e\left(1-c^2x^2\right)}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\left(-4+3\,\text{ArcSin}[c\,x]-6\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)-\right.\right.$$

$$\text{Cos}\left[\frac{3}{2}\text{ArcSin}[c\,x]\right]\left(\text{ArcSin}[c\,x]-2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+$$

$$2\left(2+2\,\text{ArcSin}[c\,x]+\sqrt{1-c^2x^2}\,\text{ArcSin}[c\,x]+4\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+\right.$$

$$\left.\left.\left.2\,\sqrt{1-c^2x^2}\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\right)\Big/$$

$$\left(3\,c\,e^3\,\sqrt{-\left(d+c\,d\,x\right)\left(e-c\,e\,x\right)}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^4\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\right)+$$

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

$$\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\left(-8-6\,\text{ArcSin}[c\,x]+9\,\text{ArcSin}[c\,x]^2-84\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+\right.$$

$$\text{Cos}\left[\frac{3}{2}\text{ArcSin}[c\,x]\right]\left(-\text{ArcSin}[c\,x]\left(14+3\,\text{ArcSin}[c\,x]\right)+28\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)+$$

$$2\left(4+4\,\text{ArcSin}[c\,x]-6\,\text{ArcSin}[c\,x]^2+56\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]+\right.$$

$$\left.\left.\left.\sqrt{1-c^2x^2}\left(\left(14-3\,\text{ArcSin}[c\,x]\right)\text{ArcSin}[c\,x]+28\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]\right)\right)\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\right)\Big/$$

$$\left(6\,c\,e^3\,\sqrt{-\left(d+c\,d\,x\right)\left(e-c\,e\,x\right)}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)^4\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\right)+$$

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

$$\left(-3\,\mathrm{i}\,\pi\,\mathrm{ArcSin}[c\,x]+\frac{4\,\mathrm{ArcSin}[c\,x]}{-1+c\,x}-(1-\mathrm{i})\,\mathrm{ArcSin}[c\,x]^2-\frac{2\,\mathrm{ArcSin}[c\,x]^2}{-1+c\,x}-4\,\pi\,\mathrm{Log}\left[1+e^{-\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\right]+2\,\pi\,\mathrm{Log}\left[1+\mathrm{i}\,e^{\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\right]-\right.$$

$$4\,\mathrm{ArcSin}[c\,x]\,\mathrm{Log}\left[1+\mathrm{i}\,e^{\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\right]+4\,\pi\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right]-2\,\pi\,\mathrm{Log}\left[-\mathrm{Cos}\left[\frac{1}{4}\,(\pi+2\,\mathrm{ArcSin}[c\,x])\right]\right]+$$

$$\left.\left.4\,\mathrm{i}\,\mathrm{PolyLog}\left[2,-\mathrm{i}\,e^{\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\right]+\frac{2\,\left(4+\mathrm{ArcSin}[c\,x]^2+c\,x\,\left(-4+\mathrm{ArcSin}[c\,x]^2\right)\right)\,\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]}{\left(\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]-\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right)^3}\right)\right)\Big/$$

$$\left(3\,c\,e^3\,\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\sqrt{1-c^2 x^2}\,\left(\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right)^2\right)+$$

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

$$\left(-21\,\mathrm{i}\,\pi\,\mathrm{ArcSin}[c\,x]-\frac{2\,(-2+\mathrm{ArcSin}[c\,x])\,\mathrm{ArcSin}[c\,x]}{-1+c\,x}-(7-7\,\mathrm{i})\,\mathrm{ArcSin}[c\,x]^2+\mathrm{ArcSin}[c\,x]^3-28\,\pi\,\mathrm{Log}\left[1+e^{-\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\right]+\right.$$

$$14\,(\pi-2\,\mathrm{ArcSin}[c\,x])\,\mathrm{Log}\left[1+\mathrm{i}\,e^{\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\right]+28\,\pi\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right]-14\,\pi\,\mathrm{Log}\left[-\mathrm{Cos}\left[\frac{1}{4}\,(\pi+2\,\mathrm{ArcSin}[c\,x])\right]\right]+$$

$$\left.\left.28\,\mathrm{i}\,\mathrm{PolyLog}\left[2,-\mathrm{i}\,e^{\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\right]+\frac{4\,\mathrm{ArcSin}[c\,x]^2\,\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]}{\left(\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]-\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right)^3}+\frac{2\,\left(4-7\,\mathrm{ArcSin}[c\,x]^2\right)\,\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]}{\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]-\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]}\right)\right)\Big/$$

$$\left(3\,c\,e^3\,\sqrt{-(d+c\,d\,x)\,(e-c\,e\,x)}\,\sqrt{1-c^2 x^2}\,\left(\mathrm{Cos}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\,\mathrm{ArcSin}[c\,x]\right]\right)^2\right)$$

Problem 575: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\mathrm{ArcSin}[c\,x])^2}{(d+c\,d\,x)^{5/2}\,(e-c\,e\,x)^{5/2}}\,dx$$

Optimal (type 4, 366 leaves, 10 steps):

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

Result (type 4, 1243 leaves) :

$$\frac{\sqrt{-e (-1+c x)} \sqrt{d (1+c x)} \left(\frac{a^2}{12 d^3 e^3 (-1+c x)^2}-\frac{a^2}{3 d^3 e^3 (-1+c x)}-\frac{a^2}{12 d^3 e^3 (1+c x)^2}-\frac{a^2}{3 d^3 e^3 (1+c x)}\right)}{c}+$$

$$\frac{1}{c d^2 e^2} b^2 \left(\frac{\text{ArcSin}[c x]^2 \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right) \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]}{6 \sqrt{d (1+c x)} \sqrt{e-c e x} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)^2}-\right.$$

$$\frac{\text{ArcSin}[c x] (2+\text{ArcSin}[c x]) \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)}{12 \sqrt{d (1+c x)} \sqrt{e-c e x} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)}+$$

$$\frac{(-2+\text{ArcSin}[c x]) \text{ArcSin}[c x] \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)}{12 \sqrt{d (1+c x)} \sqrt{e-c e x} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)}+$$

$$\left(4 \sqrt{2} \left(\frac{1}{4} e^{-\frac{i \pi}{4}} \text{ArcSin}[c x]^2-\frac{1}{\sqrt{2}}\left(-\frac{3}{4} i \pi \text{ArcSin}[c x]-2 \left(-\frac{\pi}{4}+\frac{1}{2} \text{ArcSin}[c x]\right) \text{Log}\left[1-e^{2 i \left(-\frac{\pi}{4}+\frac{1}{2} \text{ArcSin}[c x]\right)}\right]-\pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]+\right.\right.\right.$$

$$\left.\left.\pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]-\frac{1}{2} \pi \text{Log}\left[-\text{Sin}\left[\frac{\pi}{4}-\frac{1}{2} \text{ArcSin}[c x]\right]\right]+i \text{PolyLog}\left[2, e^{2 i \left(-\frac{\pi}{4}+\frac{1}{2} \text{ArcSin}[c x]\right)}\right]\right)\right)$$

$$\left.\left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right) \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)\right) \Big/ \left(3 \sqrt{d (1+c x)} \sqrt{e-c e x}\right)-$$

$$\left(4 \sqrt{2} \left(\frac{1}{4} e^{\frac{i \pi}{4}} \text{ArcSin}[c x]^2+\frac{1}{\sqrt{2}}\left(-\frac{1}{4} i \pi \text{ArcSin}[c x]-2 \left(\frac{\pi}{4}+\frac{1}{2} \text{ArcSin}[c x]\right) \text{Log}\left[1-e^{2 i \left(\frac{\pi}{4}+\frac{1}{2} \text{ArcSin}[c x]\right)}\right]-\pi \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]+\right.\right.\right.$$

$$\left.\left.\pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+\frac{1}{2} \pi \text{Log}\left[\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2} \text{ArcSin}[c x]\right]\right]+i \text{PolyLog}\left[2, e^{2 i \left(\frac{\pi}{4}+\frac{1}{2} \text{ArcSin}[c x]\right)}\right]\right)\right)$$

$$\left.\left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right) \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)\right) \Big/ \left(3 \sqrt{d (1+c x)} \sqrt{e-c e x}\right)+$$

$$\frac{\text{ArcSin}[c x]^2 \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right] \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)}{6 \sqrt{d (1+c x)} \sqrt{e-c e x} \left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)^2}+$$

$$\left(\left(\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right) \left(\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+2 \text{ArcSin}[c x]^2 \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right)\right) \Big/ \left(3 \sqrt{d (1+c x)} \sqrt{e-c e x}\right)+$$

$$\left(\left(\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\left(\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+2\,\text{ArcSin}[c\,x]^2\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)\right)\Big/\left(3\sqrt{d\,(1+c\,x)}\,\sqrt{e-c\,e\,x}\right)\right)+$$

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

Problem 588: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\text{ArcSin}[c\,x])^2}{\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}}\,dx$$

Optimal (type 3, 55 leaves, 2 steps):

$$\frac{\sqrt{1-c^2\,x^2}\,(a+b\,\text{ArcSin}[c\,x])^3}{3\,b\,c\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}}$$

Result (type 3, 159 leaves):

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

Problem 591: Result more than twice size of optimal antiderivative.

$$\int\frac{x^2\,(a+b\,\text{ArcSin}[c\,x])^2}{(d+c\,d\,x)^{3/2}\,(e-c\,e\,x)^{3/2}}\,dx$$

Optimal (type 4, 295 leaves, 8 steps):

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

Result (type 4, 636 leaves):

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

$$\left.\left(-\text{ArcSin}[c x]^2+2 \left(\text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]-\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+\text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]+\text{Sin}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]\right)\right)\right)+$$

$$b^2 \sqrt{d}\, e \left(6 i \pi \sqrt{1-c^2 x^2}\, \text{ArcSin}[c x]+3 c x \text{ArcSin}[c x]^2-3 i \sqrt{1-c^2 x^2}\, \text{ArcSin}[c x]^2-\sqrt{1-c^2 x^2}\, \text{ArcSin}[c x]^3+\right.$$

$$12 \pi \sqrt{1-c^2 x^2}\, \text{Log}\left[1+e^{-i \text{ArcSin}[c x]}\right]+3 \pi \sqrt{1-c^2 x^2}\, \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]+6 \sqrt{1-c^2 x^2}\, \text{ArcSin}[c x] \text{Log}\left[1-i e^{i \text{ArcSin}[c x]}\right]-$$

$$3 \pi \sqrt{1-c^2 x^2}\, \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]+6 \sqrt{1-c^2 x^2}\, \text{ArcSin}[c x] \text{Log}\left[1+i e^{i \text{ArcSin}[c x]}\right]-12 \pi \sqrt{1-c^2 x^2}\, \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right]+$$

$$3 \pi \sqrt{1-c^2 x^2}\, \text{Log}\left[-\text{Cos}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]-3 \pi \sqrt{1-c^2 x^2}\, \text{Log}\left[\text{Sin}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right]-$$

$$\left.\left.6 i \sqrt{1-c^2 x^2}\, \text{PolyLog}\left[2,-i e^{i \text{ArcSin}[c x]}\right]-6 i \sqrt{1-c^2 x^2}\, \text{PolyLog}\left[2, i e^{i \text{ArcSin}[c x]}\right]\right)\right)$$

Problem 593: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b \text{ArcSin}[c x])^2}{(d+c d x)^{3/2} (e-c e x)^{3/2}} \, dx$$

Optimal (type 4, 217 leaves, 7 steps):

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

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

Result (type 4, 550 leaves):

$$\frac{1}{c\,d\,e\,\sqrt{d+c\,d\,x}\,\sqrt{e-c\,e\,x}}\Big(a^2\,c\,x+2\,a\,b\,c\,x\,\text{ArcSin}[c\,x]+2\,i\,b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]+b^2\,c\,x\,\text{ArcSin}[c\,x]^2-i\,b^2\,\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]^2+4\,b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]+b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b^2\,\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]+2\,b^2\,\sqrt{1-c^2\,x^2}\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-4\,b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]+b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]+2\,a\,b\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]+2\,a\,b\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]-b^2\,\pi\,\sqrt{1-c^2\,x^2}\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-2\,i\,b^2\,\sqrt{1-c^2\,x^2}\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,i\,b^2\,\sqrt{1-c^2\,x^2}\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\Big)$$

Problem 641: Result more than twice size of optimal antiderivative.

$$\int\frac{x^5\,(a+b\,\text{ArcSin}[c\,x])}{(d+e\,x^2)^3}\,dx$$

Optimal (type 4, 705 leaves, 27 steps):

$$\frac{b\,c\,d\,x\,\sqrt{1-c^2\,x^2}}{8\,e^2\,(c^2\,d+e)\,(d+e\,x^2)}-\frac{d^2\,(a+b\,\text{ArcSin}[c\,x])}{4\,e^3\,(d+e\,x^2)^2}+\frac{d\,(a+b\,\text{ArcSin}[c\,x])}{e^3\,(d+e\,x^2)}-\frac{i\,(a+b\,\text{ArcSin}[c\,x])^2}{2\,b\,e^3}-\frac{b\,c\,\sqrt{d}\,\text{ArcTan}\left[\frac{\sqrt{c^2\,d+e}\,x}{\sqrt{d}\,\sqrt{1-c^2\,x^2}}\right]}{e^3\,\sqrt{c^2\,d+e}}+\frac{b\,c\,\sqrt{d}\,(2\,c^2\,d+e)\,\text{ArcTan}\left[\frac{\sqrt{c^2\,d+e}\,x}{\sqrt{d}\,\sqrt{1-c^2\,x^2}}\right]}{8\,e^3\,(c^2\,d+e)^{3/2}}+\frac{(a+b\,\text{ArcSin}[c\,x])\,\text{Log}\left[1-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}-\sqrt{c^2\,d+e}}\right]}{2\,e^3}+\frac{(a+b\,\text{ArcSin}[c\,x])\,\text{Log}\left[1+\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}-\sqrt{c^2\,d+e}}\right]}{2\,e^3}+\frac{(a+b\,\text{ArcSin}[c\,x])\,\text{Log}\left[1-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}+\sqrt{c^2\,d+e}}\right]}{2\,e^3}+\frac{(a+b\,\text{ArcSin}[c\,x])\,\text{Log}\left[1+\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}+\sqrt{c^2\,d+e}}\right]}{2\,e^3}-\frac{i\,b\,\text{PolyLog}\left[2,-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}-\sqrt{c^2\,d+e}}\right]}{2\,e^3}-\frac{i\,b\,\text{PolyLog}\left[2,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}-\sqrt{c^2\,d+e}}\right]}{2\,e^3}-\frac{i\,b\,\text{PolyLog}\left[2,-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}+\sqrt{c^2\,d+e}}\right]}{2\,e^3}-\frac{i\,b\,\text{PolyLog}\left[2,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}+\sqrt{c^2\,d+e}}\right]}{2\,e^3}$$

Result (type 4, 1547 leaves):

$$-\frac{a\,d^2}{4\,e^3\,\left(d+e\,x^2\right)^2}+\frac{a\,d}{e^3\,\left(d+e\,x^2\right)}+\frac{a\,\text{Log}\left[d+e\,x^2\right]}{2\,e^3}+b\left(-\frac{7\,\mathbb{i}\,\sqrt{d}\,\left(\frac{\text{ArcSin}[c\,x]}{-\mathbb{i}\,\sqrt{d}+\sqrt{e}\,x}+\frac{c\,\text{Log}\left[-\frac{2\,e\,\left(\sqrt{e}-\mathbb{i}\,c^2\,\sqrt{d}\,x+\sqrt{c^2\,d+e}\,\sqrt{1-c^2\,x^2}\right)}{c\,\sqrt{c^2\,d+e}\,\left(-\mathbb{i}\,\sqrt{d}+\sqrt{e}\,x\right)}\right]}{\sqrt{c^2\,d+e}}\right)}{16\,e^3}-\right.$$

$$\frac{d\,\left(-\frac{c\,\sqrt{1-c^2\,x^2}}{\left(c^2\,d+e\right)\,\left(-\mathbb{i}\,\sqrt{d}+\sqrt{e}\,x\right)}-\frac{\text{ArcSin}[c\,x]}{\sqrt{e}\,\left(-\mathbb{i}\,\sqrt{d}+\sqrt{e}\,x\right)^2}-\frac{\mathbb{i}\,c^3\,\sqrt{d}\,\left(\text{Log}[4]+\text{Log}\left[\frac{e\,\sqrt{c^2\,d+e}\,\left(\sqrt{e}-\mathbb{i}\,c^2\,\sqrt{d}\,x+\sqrt{c^2\,d+e}\,\sqrt{1-c^2\,x^2}\right)}{c^3\,\left(d+\mathbb{i}\,\sqrt{d}\,\sqrt{e}\,x\right)}\right]\right)}{\sqrt{e}\,\left(c^2\,d+e\right)^{3/2}}\right)}{16\,e^{5/2}}-$$

$$\frac{7\,\mathbb{i}\,\sqrt{d}\,\left(-\frac{\text{ArcSin}[c\,x]}{\mathbb{i}\,\sqrt{d}+\sqrt{e}\,x}-\frac{c\,\text{Log}\left[\frac{2\,e\,\left(\sqrt{e}+\mathbb{i}\,c^2\,\sqrt{d}\,x+\sqrt{c^2\,d+e}\,\sqrt{1-c^2\,x^2}\right)}{c\,\sqrt{c^2\,d+e}\,\left(\mathbb{i}\,\sqrt{d}+\sqrt{e}\,x\right)}\right]}{\sqrt{c^2\,d+e}}\right)}{16\,e^3}-$$

$$\frac{d\,\left(-\frac{c\,\sqrt{1-c^2\,x^2}}{\left(c^2\,d+e\right)\,\left(\mathbb{i}\,\sqrt{d}+\sqrt{e}\,x\right)}-\frac{\text{ArcSin}[c\,x]}{\sqrt{e}\,\left(\mathbb{i}\,\sqrt{d}+\sqrt{e}\,x\right)^2}+\frac{\mathbb{i}\,c^3\,\sqrt{d}\,\left(\text{Log}[4]+\text{Log}\left[\frac{e\,\sqrt{c^2\,d+e}\,\left(\sqrt{e}+\mathbb{i}\,c^2\,\sqrt{d}\,x+\sqrt{c^2\,d+e}\,\sqrt{1-c^2\,x^2}\right)}{c^3\,\left(d-\mathbb{i}\,\sqrt{d}\,\sqrt{e}\,x\right)}\right]\right)}{\sqrt{e}\,\left(c^2\,d+e\right)^{3/2}}\right)}{16\,e^{5/2}}+$$

$$\frac{1}{16\,e^3}\left(\mathbb{i}\,\left(\pi-2\,\text{ArcSin}[c\,x]\right)^2-32\,\mathbb{i}\,\text{ArcSin}\left[\frac{\sqrt{1-\frac{\mathbb{i}\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]\,\text{ArcTan}\left[\frac{\left(c\,\sqrt{d}-\mathbb{i}\,\sqrt{e}\right)\,\text{Cot}\left[\frac{1}{4}\,\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2\,d+e}}\right]-\right.$$

$$4\,\left(\pi+4\,\text{ArcSin}\left[\frac{\sqrt{1-\frac{\mathbb{i}\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\,\text{Log}\left[\frac{e^{-\mathbb{i}\,\text{ArcSin}[c\,x]}\,\left(c\,\sqrt{d}-\sqrt{c^2\,d+e}+\sqrt{e}\,e^{\mathbb{i}\,\text{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right]-$$

$$4\left(\pi-4\,\text{ArcSin}\left[\frac{\sqrt{1-\frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[\frac{e^{-i\,\text{ArcSin}[c\,x]}\left(c\,\sqrt{d}+\sqrt{c^2\,d+e}+\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right]+$$

$$4\left(\pi-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[c\,\sqrt{d}+i\,c\,\sqrt{e}\,x\right]+8\,\text{ArcSin}[c\,x]\,\text{Log}\left[c\,\sqrt{d}+i\,c\,\sqrt{e}\,x\right]+$$

$$\left.8\,i\left(\text{PolyLog}\left[2,\frac{\left(-c\,\sqrt{d}+\sqrt{c^2\,d+e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right]+\text{PolyLog}\left[2,-\frac{\left(c\,\sqrt{d}+\sqrt{c^2\,d+e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right]\right)\right)+$$

$$\frac{1}{16\,e^3}\left(i\left(\pi-2\,\text{ArcSin}[c\,x]\right)^2-32\,i\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{\left(c\,\sqrt{d}+i\,\sqrt{e}\right)\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2\,d+e}}\right]-\right.$$

$$4\left(\pi-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1-\frac{\left(c\,\sqrt{d}+\sqrt{c^2\,d+e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right]-4\left(\pi+4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)$$

$$\text{Log}\left[\frac{e^{-i\,\text{ArcSin}[c\,x]}\left(-c\,\sqrt{d}+\sqrt{c^2\,d+e}+\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right]+4\left(\pi-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[c\,\sqrt{d}-i\,c\,\sqrt{e}\,x\right]+$$

$$\left.8\,\text{ArcSin}[c\,x]\,\text{Log}\left[c\,\sqrt{d}-i\,c\,\sqrt{e}\,x\right]+8\,i\left(\text{PolyLog}\left[2,\frac{\left(c\,\sqrt{d}-\sqrt{c^2\,d+e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right]+\text{PolyLog}\left[2,\frac{\left(c\,\sqrt{d}+\sqrt{c^2\,d+e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right]\right)\right)$$

Problem 644: Result more than twice size of optimal antiderivative.

$$\int \frac{a+b\,\text{ArcSin}[c\,x]}{x\left(d+e\,x^2\right)^3}\,dx$$

Optimal (type 4, 727 leaves, 32 steps):

$$-\frac{b\,c\,e\,x\sqrt{1-c^2x^2}}{8\,d^2\left(c^2d+e\right)\left(d+e\,x^2\right)}+\frac{a+b\,\text{ArcSin}[c\,x]}{4\,d\left(d+e\,x^2\right)^2}+\frac{a+b\,\text{ArcSin}[c\,x]}{2\,d^2\left(d+e\,x^2\right)}-\frac{b\,c\,\text{ArcTan}\left[\frac{\sqrt{c^2d+e}\,x}{\sqrt{d}\sqrt{1-c^2x^2}}\right]}{2\,d^{5/2}\sqrt{c^2d+e}}-\frac{b\,c\left(2\,c^2d+e\right)\text{ArcTan}\left[\frac{\sqrt{c^2d+e}\,x}{\sqrt{d}\sqrt{1-c^2x^2}}\right]}{8\,d^{5/2}\left(c^2d+e\right)^{3/2}}-$$
$$\frac{\left(a+b\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\sqrt{-d}-\sqrt{c^2d+e}}\right]}{2\,d^3}-\frac{\left(a+b\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1+\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\sqrt{-d}-\sqrt{c^2d+e}}\right]}{2\,d^3}-\frac{\left(a+b\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\sqrt{-d}+\sqrt{c^2d+e}}\right]}{2\,d^3}-$$
$$\frac{\left(a+b\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1+\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\sqrt{-d}+\sqrt{c^2d+e}}\right]}{2\,d^3}+\frac{\left(a+b\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1-e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{d^3}+\frac{i\,b\,\text{PolyLog}\left[2,-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\sqrt{-d}-\sqrt{c^2d+e}}\right]}{2\,d^3}+$$
$$\frac{i\,b\,\text{PolyLog}\left[2,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\sqrt{-d}-\sqrt{c^2d+e}}\right]}{2\,d^3}+\frac{i\,b\,\text{PolyLog}\left[2,-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\sqrt{-d}+\sqrt{c^2d+e}}\right]}{2\,d^3}+\frac{i\,b\,\text{PolyLog}\left[2,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\sqrt{-d}+\sqrt{c^2d+e}}\right]}{2\,d^3}-\frac{i\,b\,\text{PolyLog}\left[2,e^{2\,i\,\text{ArcSin}[c\,x]}\right]}{2\,d^3}$$

Result (type 4, 1601 leaves):

$$\frac{a}{4\,d\left(d+e\,x^2\right)^2}+\frac{a}{2\,d^2\left(d+e\,x^2\right)}+\frac{a\,\text{Log}[x]}{d^3}-\frac{a\,\text{Log}\left[d+e\,x^2\right]}{2\,d^3}+b\left(-\frac{5\,i\left(\frac{\text{ArcSin}[c\,x]}{-i\sqrt{d}+\sqrt{e}\,x}+\frac{c\,\text{Log}\left[-\frac{2\,e\left(\sqrt{e}-i\,c^2\sqrt{d}\,x+\sqrt{c^2d+e}\,\sqrt{1-c^2x^2}\right)}{c\sqrt{c^2d+e}\left(-i\sqrt{d}+\sqrt{e}\,x\right)}\right]}{\sqrt{c^2d+e}}\right)}{16\,d^{5/2}}+\frac{1}{16\,d^2}\right.$$
$$\sqrt{e}\left(-\frac{c\sqrt{1-c^2x^2}}{\left(c^2d+e\right)\left(-i\sqrt{d}+\sqrt{e}\,x\right)}-\frac{\text{ArcSin}[c\,x]}{\sqrt{e}\left(-i\sqrt{d}+\sqrt{e}\,x\right)^2}-\frac{i\,c^3\sqrt{d}\left(\text{Log}[4]+\text{Log}\left[\frac{e\sqrt{c^2d+e}\left(\sqrt{e}-i\,c^2\sqrt{d}\,x+\sqrt{c^2d+e}\,\sqrt{1-c^2x^2}\right)}{c^3\left(d+i\sqrt{d}\,\sqrt{e}\,x\right)}\right]\right)}{\sqrt{e}\left(c^2d+e\right)^{3/2}}\right)-$$

$$\frac{5\,\mathbb{i}\left(-\frac{\mathrm{ArcSin}[c\,x]}{\mathbb{i}\sqrt{d}+\sqrt{e}\,x}-\frac{c\,\mathrm{Log}\left[\frac{2\,e\left(\sqrt{e}+\mathbb{i}\,c^2\sqrt{d}\,x+\sqrt{c^2\,d+e}\,\sqrt{1-c^2\,x^2}\right)}{c\sqrt{c^2\,d+e}\,\left(\mathbb{i}\sqrt{d}+\sqrt{e}\,x\right)}\right]}{\sqrt{c^2\,d+e}}\right)}{16\,d^{5/2}}+\frac{\sqrt{e}\left(-\frac{c\sqrt{1-c^2\,x^2}}{\left(c^2\,d+e\right)\left(\mathbb{i}\sqrt{d}+\sqrt{e}\,x\right)}-\frac{\mathrm{ArcSin}[c\,x]}{\sqrt{e}\,\left(\mathbb{i}\sqrt{d}+\sqrt{e}\,x\right)^2}+\frac{\mathbb{i}\,c^3\sqrt{d}\left(\mathrm{Log}[4]+\mathrm{Log}\left[\frac{e\sqrt{c^2\,d+e}\,\left(\sqrt{e}+\mathbb{i}\,c^2\sqrt{d}\,x+\sqrt{c^2\,d+e}\,\sqrt{1-c^2\,x^2}\right)}{c^3\left(d-\mathbb{i}\sqrt{d}\,\sqrt{e}\,x\right)}\right]\right)}{\sqrt{e}\,\left(c^2\,d+e\right)^{3/2}}\right)}{16\,d^2}-$$

$$\frac{1}{16\,d^3}\Bigg(\mathbb{i}\left(\pi-2\,\mathrm{ArcSin}[c\,x]\right)^2-32\,\mathbb{i}\,\mathrm{ArcSin}\left[\frac{\sqrt{1-\frac{\mathbb{i}\,c\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]\mathrm{ArcTan}\left[\frac{\left(c\sqrt{d}-\mathbb{i}\sqrt{e}\right)\mathrm{Cot}\left[\frac{1}{4}\left(\pi+2\,\mathrm{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2\,d+e}}\right]-$$

$$4\left(\pi+4\,\mathrm{ArcSin}\left[\frac{\sqrt{1-\frac{\mathbb{i}\,c\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\mathrm{ArcSin}[c\,x]\right)\mathrm{Log}\left[\frac{\mathbb{e}^{-\mathbb{i}\,\mathrm{ArcSin}[c\,x]}\left(c\sqrt{d}-\sqrt{c^2\,d+e}+\sqrt{e}\,\mathbb{e}^{\mathbb{i}\,\mathrm{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right]-$$

$$4\left(\pi-4\,\mathrm{ArcSin}\left[\frac{\sqrt{1-\frac{\mathbb{i}\,c\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\mathrm{ArcSin}[c\,x]\right)\mathrm{Log}\left[\frac{\mathbb{e}^{-\mathbb{i}\,\mathrm{ArcSin}[c\,x]}\left(c\sqrt{d}+\sqrt{c^2\,d+e}+\sqrt{e}\,\mathbb{e}^{\mathbb{i}\,\mathrm{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right]+$$

$$4\left(\pi-2\,\mathrm{ArcSin}[c\,x]\right)\mathrm{Log}\left[c\sqrt{d}+\mathbb{i}\,c\sqrt{e}\,x\right]+8\,\mathrm{ArcSin}[c\,x]\,\mathrm{Log}\left[c\sqrt{d}+\mathbb{i}\,c\sqrt{e}\,x\right]+$$

$$8\,\mathbb{i}\left(\mathrm{PolyLog}\left[2,\frac{\left(-c\sqrt{d}+\sqrt{c^2\,d+e}\right)\mathbb{e}^{-\mathbb{i}\,\mathrm{ArcSin}[c\,x]}}{\sqrt{e}}\right]+\mathrm{PolyLog}\left[2,-\frac{\left(c\sqrt{d}+\sqrt{c^2\,d+e}\right)\mathbb{e}^{-\mathbb{i}\,\mathrm{ArcSin}[c\,x]}}{\sqrt{e}}\right]\right)\Bigg)-$$

$$\frac{1}{16\,d^3}\Bigg(\mathbb{i}\left(\pi-2\,\mathrm{ArcSin}[c\,x]\right)^2-32\,\mathbb{i}\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{\mathbb{i}\,c\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]\mathrm{ArcTan}\left[\frac{\left(c\sqrt{d}+\mathbb{i}\sqrt{e}\right)\mathrm{Cot}\left[\frac{1}{4}\left(\pi+2\,\mathrm{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2\,d+e}}\right]-$$

$$4\left(\pi-4\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{\mathbb{i}\,c\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\mathrm{ArcSin}[c\,x]\right)\mathrm{Log}\left[1-\frac{\left(c\sqrt{d}+\sqrt{c^2\,d+e}\right)\mathbb{e}^{-\mathbb{i}\,\mathrm{ArcSin}[c\,x]}}{\sqrt{e}}\right]-$$

$$4\left(\pi+4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[\frac{e^{-i\,\text{ArcSin}[c\,x]}\left(-c\,\sqrt{d}+\sqrt{c^2\,d+e}+\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right]+$$

$$4\,(\pi-2\,\text{ArcSin}[c\,x])\,\text{Log}\left[c\,\sqrt{d}-i\,c\,\sqrt{e}\,x\right]+8\,\text{ArcSin}[c\,x]\,\text{Log}\left[c\,\sqrt{d}-i\,c\,\sqrt{e}\,x\right]+$$

$$8\,i\left(\text{PolyLog}\left[2,\frac{\left(c\,\sqrt{d}-\sqrt{c^2\,d+e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right]+\text{PolyLog}\left[2,\frac{\left(c\,\sqrt{d}+\sqrt{c^2\,d+e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right]\right)\Bigg)+$$

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

Problem 645: Result more than twice size of optimal antiderivative.

$$\int\frac{a+b\,\text{ArcSin}[c\,x]}{x^3\,\left(d+e\,x^2\right)^3}\,dx$$

Optimal (type 4, 783 leaves, 34 steps) :

$$-\frac{b\,c\,\sqrt{1-c^2 x^2}}{2\,d^3\,x}+\frac{b\,c\,e^2\,x\,\sqrt{1-c^2 x^2}}{8\,d^3\,\left(c^2 d+e\right)\,\left(d+e\,x^2\right)}-\frac{a+b\,\mathrm{ArcSin}[c\,x]}{2\,d^3\,x^2}-\frac{e\,\left(a+b\,\mathrm{ArcSin}[c\,x]\right)}{4\,d^2\,\left(d+e\,x^2\right)^2}-\frac{e\,\left(a+b\,\mathrm{ArcSin}[c\,x]\right)}{d^3\,\left(d+e\,x^2\right)}+$$

$$\frac{b\,c\,e\,\mathrm{ArcTan}\left[\frac{\sqrt{c^2 d+e}\;x}{\sqrt{d}\;\sqrt{1-c^2 x^2}}\right]}{d^{7/2}\,\sqrt{c^2 d+e}}+\frac{b\,c\,e\,\left(2\,c^2 d+e\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{c^2 d+e}\;x}{\sqrt{d}\;\sqrt{1-c^2 x^2}}\right]}{8\,d^{7/2}\,\left(c^2 d+e\right)^{3/2}}+\frac{3\,e\,\left(a+b\,\mathrm{ArcSin}[c\,x]\right)\,\mathrm{Log}\left[1-\frac{\sqrt{e}\;e^{i\,\mathrm{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}-\sqrt{c^2 d+e}}\right]}{2\,d^4}+$$

$$\frac{3\,e\,\left(a+b\,\mathrm{ArcSin}[c\,x]\right)\,\mathrm{Log}\left[1+\frac{\sqrt{e}\;e^{i\,\mathrm{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}-\sqrt{c^2 d+e}}\right]}{2\,d^4}+\frac{3\,e\,\left(a+b\,\mathrm{ArcSin}[c\,x]\right)\,\mathrm{Log}\left[1-\frac{\sqrt{e}\;e^{i\,\mathrm{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}+\sqrt{c^2 d+e}}\right]}{2\,d^4}+\frac{3\,e\,\left(a+b\,\mathrm{ArcSin}[c\,x]\right)\,\mathrm{Log}\left[1+\frac{\sqrt{e}\;e^{i\,\mathrm{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}+\sqrt{c^2 d+e}}\right]}{2\,d^4}-$$

$$\frac{3\,e\,\left(a+b\,\mathrm{ArcSin}[c\,x]\right)\,\mathrm{Log}\left[1-e^{2\,i\,\mathrm{ArcSin}[c\,x]}\right]}{d^4}-\frac{3\,i\,b\,e\,\mathrm{PolyLog}\left[2,-\frac{\sqrt{e}\;e^{i\,\mathrm{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}-\sqrt{c^2 d+e}}\right]}{2\,d^4}-\frac{3\,i\,b\,e\,\mathrm{PolyLog}\left[2,\frac{\sqrt{e}\;e^{i\,\mathrm{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}-\sqrt{c^2 d+e}}\right]}{2\,d^4}-$$

$$\frac{3\,i\,b\,e\,\mathrm{PolyLog}\left[2,-\frac{\sqrt{e}\;e^{i\,\mathrm{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}+\sqrt{c^2 d+e}}\right]}{2\,d^4}-\frac{3\,i\,b\,e\,\mathrm{PolyLog}\left[2,\frac{\sqrt{e}\;e^{i\,\mathrm{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}+\sqrt{c^2 d+e}}\right]}{2\,d^4}+\frac{3\,i\,b\,e\,\mathrm{PolyLog}\left[2,e^{2\,i\,\mathrm{ArcSin}[c\,x]}\right]}{2\,d^4}$$

Result (type 4, 1653 leaves) :

$$-\frac{a}{2\,d^3\,x^2}-\frac{a\,e}{4\,d^2\,\left(d+e\,x^2\right)^2}-\frac{a\,e}{d^3\,\left(d+e\,x^2\right)}-\frac{3\,a\,e\,\mathrm{Log}[x]}{d^4}+\frac{3\,a\,e\,\mathrm{Log}\left[d+e\,x^2\right]}{2\,d^4}+$$

$$b\left(-\frac{c\,x\,\sqrt{1-c^2 x^2}+\mathrm{ArcSin}[c\,x]}{2\,d^3\,x^2}+\frac{9\,i\,e\left(\frac{\mathrm{ArcSin}[c\,x]}{-i\,\sqrt{d}+\sqrt{e}\;x}+\frac{c\,\mathrm{Log}\left[-\frac{2\,e\,\left(\sqrt{e}-i\,c^2\,\sqrt{d}\;x+\sqrt{c^2 d+e}\;\sqrt{1-c^2 x^2}\right)}{c\,\sqrt{c^2 d+e}\;\left(-i\,\sqrt{d}+\sqrt{e}\;x\right)}\right]}{\sqrt{c^2 d+e}}\right)}{16\,d^{7/2}}-\frac{1}{16\,d^3}\right.$$

$$e^{3/2}\left(-\frac{c\,\sqrt{1-c^2 x^2}}{\left(c^2 d+e\right)\,\left(-i\,\sqrt{d}+\sqrt{e}\;x\right)}-\frac{\mathrm{ArcSin}[c\,x]}{\sqrt{e}\;\left(-i\,\sqrt{d}+\sqrt{e}\;x\right)^2}-\frac{i\,c^3\,\sqrt{d}\;\left(\mathrm{Log}[4]+\mathrm{Log}\left[\frac{e\,\sqrt{c^2 d+e}\;\left(\sqrt{e}-i\,c^2\,\sqrt{d}\;x+\sqrt{c^2 d+e}\;\sqrt{1-c^2 x^2}\right)}{c^3\,\left(d+i\,\sqrt{d}\;\sqrt{e}\;x\right)}\right]\right)}{\sqrt{e}\;\left(c^2 d+e\right)^{3/2}}\right)+$$

$$\frac{9\,i\,e\left(-\frac{\text{ArcSin}[c\,x]}{i\sqrt{d}+\sqrt{e}\,x}-\frac{c\,\text{Log}\left[\frac{2\,e\left(\sqrt{e}+i\,c^2\sqrt{d}\,x+\sqrt{c^2\,d+e}\,\sqrt{1-c^2\,x^2}\right)}{c\sqrt{c^2\,d+e}\left(i\sqrt{d}+\sqrt{e}\,x\right)}\right]}{\sqrt{c^2\,d+e}}\right)}{16\,d^{7/2}}-$$

$$\frac{e^{3/2}\left(-\frac{c\sqrt{1-c^2\,x^2}}{\left(c^2\,d+e\right)\left(i\sqrt{d}+\sqrt{e}\,x\right)}-\frac{\text{ArcSin}[c\,x]}{\sqrt{e}\left(i\sqrt{d}+\sqrt{e}\,x\right)^2}+\frac{i\,c^3\sqrt{d}\left(\text{Log}[4]+\text{Log}\left[\frac{e\sqrt{c^2\,d+e}\left(\sqrt{e}+i\,c^2\sqrt{d}\,x+\sqrt{c^2\,d+e}\,\sqrt{1-c^2\,x^2}\right)}{c^3\left(d-i\sqrt{d}\,\sqrt{e}\,x\right)}\right]\right)}{\sqrt{e}\left(c^2\,d+e\right)^{3/2}}\right)}{16\,d^3}+$$

$$\frac{1}{16\,d^4}3\,e\left(i\left(\pi-2\,\text{ArcSin}[c\,x]\right)^2-32\,i\,\text{ArcSin}\left[\frac{\sqrt{1-\frac{i\,c\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{\left(c\sqrt{d}-i\sqrt{e}\right)\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2\,d+e}}\right]-\right.$$

$$4\left(\pi+4\,\text{ArcSin}\left[\frac{\sqrt{1-\frac{i\,c\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[\frac{e^{-i\,\text{ArcSin}[c\,x]}\left(c\sqrt{d}-\sqrt{c^2\,d+e}+\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right]-$$

$$4\left(\pi-4\,\text{ArcSin}\left[\frac{\sqrt{1-\frac{i\,c\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[\frac{e^{-i\,\text{ArcSin}[c\,x]}\left(c\sqrt{d}+\sqrt{c^2\,d+e}+\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right]+$$

$$4\left(\pi-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[c\sqrt{d}+i\,c\sqrt{e}\,x\right]+8\,\text{ArcSin}[c\,x]\,\text{Log}\left[c\sqrt{d}+i\,c\sqrt{e}\,x\right]+$$

$$\left.8\,i\left(\text{PolyLog}\left[2,\frac{\left(-c\sqrt{d}+\sqrt{c^2\,d+e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right]+\text{PolyLog}\left[2,-\frac{\left(c\sqrt{d}+\sqrt{c^2\,d+e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right]\right)\right)+$$

$$\frac{1}{16\,d^4}3\,e\left(i\,(\pi-2\,\mathrm{ArcSin}[c\,x])^2-32\,i\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]\mathrm{ArcTan}\left[\frac{\left(c\,\sqrt{d}+i\,\sqrt{e}\right)\mathrm{Cot}\left[\frac{1}{4}\,(\pi+2\,\mathrm{ArcSin}[c\,x])\right]}{\sqrt{c^2\,d+e}}\right]-\right.$$

$$4\left(\pi-4\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\mathrm{ArcSin}[c\,x]\right)\mathrm{Log}\left[1-\frac{\left(c\,\sqrt{d}+\sqrt{c^2\,d+e}\right)e^{-i\,\mathrm{ArcSin}[c\,x]}}{\sqrt{e}}\right]-4\left(\pi+4\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\mathrm{ArcSin}[c\,x]\right)$$

$$\mathrm{Log}\left[\frac{e^{-i\,\mathrm{ArcSin}[c\,x]}\left(-c\,\sqrt{d}+\sqrt{c^2\,d+e}+\sqrt{e}\,e^{i\,\mathrm{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right]+4\,(\pi-2\,\mathrm{ArcSin}[c\,x])\,\mathrm{Log}\left[c\,\sqrt{d}-i\,c\,\sqrt{e}\,x\right]+8\,\mathrm{ArcSin}[c\,x]$$

$$\left.\mathrm{Log}\left[c\,\sqrt{d}-i\,c\,\sqrt{e}\,x\right]+8\,i\left(\mathrm{PolyLog}\left[2,\frac{\left(c\,\sqrt{d}-\sqrt{c^2\,d+e}\right)e^{-i\,\mathrm{ArcSin}[c\,x]}}{\sqrt{e}}\right]+\mathrm{PolyLog}\left[2,\frac{\left(c\,\sqrt{d}+\sqrt{c^2\,d+e}\right)e^{-i\,\mathrm{ArcSin}[c\,x]}}{\sqrt{e}}\right]\right)\right)-$$

$$\left.\frac{3\,e\left(\mathrm{ArcSin}[c\,x]\,\mathrm{Log}\left[1-e^{2\,i\,\mathrm{ArcSin}[c\,x]}\right]-\frac{1}{2}\,i\left(\mathrm{ArcSin}[c\,x]^2+\mathrm{PolyLog}\left[2,e^{2\,i\,\mathrm{ArcSin}[c\,x]}\right]\right)\right)}{d^4}\right)$$

Problem 651: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{a+b\,\mathrm{ArcSin}[c\,x]}{\left(d+e\,x^2\right)^{3/2}}\,dx$$

Optimal (type 3, 70 leaves, 6 steps):

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

Result (type 6, 164 leaves):

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

Problem 652: Result unnecessarily involves higher level functions.

$$\int\frac{a+b\,\text{ArcSin}[c\,x]}{\left(d+e\,x^2\right)^{5/2}}\,dx$$

Optimal (type 3, 146 leaves, 7 steps):

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

Result (type 6, 231 leaves):

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

Problem 653: Result unnecessarily involves higher level functions.

$$\int\frac{a+b\,\text{ArcSin}[c\,x]}{\left(d+e\,x^2\right)^{7/2}}\,dx$$

Optimal (type 3, 226 leaves, 8 steps):

$$\frac{b\,c\,\sqrt{1-c^2 x^2}}{15\,d\,(c^2 d+e)\,(d+e x^2)^{3/2}}+\frac{2\,b\,c\,(3\,c^2 d+2\,e)\,\sqrt{1-c^2 x^2}}{15\,d^2\,(c^2 d+e)^2\,\sqrt{d+e x^2}}+$$

$$\frac{x\,(a+b\,\text{ArcSin}[c\,x])}{5\,d\,(d+e x^2)^{5/2}}+\frac{4\,x\,(a+b\,\text{ArcSin}[c\,x])}{15\,d^2\,(d+e x^2)^{3/2}}+\frac{8\,x\,(a+b\,\text{ArcSin}[c\,x])}{15\,d^3\,\sqrt{d+e x^2}}+\frac{8\,b\,\text{ArcTan}\left[\frac{\sqrt{e}\,\sqrt{1-c^2 x^2}}{c\,\sqrt{d+e x^2}}\right]}{15\,d^3\,\sqrt{e}}$$

Result (type 6, 304 leaves) :

$$\frac{1}{15\,d^3\,(d+e x^2)^{5/2}}\left(\frac{b\,c\,d^2\,\sqrt{1-c^2 x^2}\,(d+e x^2)}{c^2 d+e}+\frac{2\,b\,c\,d\,(3\,c^2 d+2\,e)\,\sqrt{1-c^2 x^2}\,(d+e x^2)^2}{(c^2 d+e)^2}+a\,x\,(15\,d^2+20\,d\,e\,x^2+8\,e^2 x^4)-\right.$$
$$\left(16\,b\,c\,d\,x^2\,(d+e x^2)^2\,\text{AppellF1}\left[1,\frac{1}{2},\frac{1}{2},2,c^2 x^2,-\frac{e x^2}{d}\right]\right)\Big/\left(\sqrt{1-c^2 x^2}\,\left(4\,d\,\text{AppellF1}\left[1,\frac{1}{2},\frac{1}{2},2,c^2 x^2,-\frac{e x^2}{d}\right]+\right.\right.$$
$$\left.\left.\left.x^2\left(-e\,\text{AppellF1}\left[2,\frac{1}{2},\frac{3}{2},3,c^2 x^2,-\frac{e x^2}{d}\right]+c^2 d\,\text{AppellF1}\left[2,\frac{3}{2},\frac{1}{2},3,c^2 x^2,-\frac{e x^2}{d}\right]\right)\right)\right)+b\,x\,(15\,d^2+20\,d\,e\,x^2+8\,e^2 x^4)\,\text{ArcSin}[c\,x]\right)$$

Problem 663: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\text{ArcSin}[c\,x])^2}{d+e x^2}\,dx$$

Optimal (type 4, 821 leaves, 22 steps) :

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

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

$$\frac{i\,b\,\left(a+b\,\text{ArcSin}[c\,x]\right)\,\text{PolyLog}\!\left[2,-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}-\sqrt{c^2\,d+e}}\right]}{\sqrt{-d}\,\sqrt{e}}-\frac{i\,b\,\left(a+b\,\text{ArcSin}[c\,x]\right)\,\text{PolyLog}\!\left[2,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}-\sqrt{c^2\,d+e}}\right]}{\sqrt{-d}\,\sqrt{e}}+$$

$$\frac{i\,b\,\left(a+b\,\text{ArcSin}[c\,x]\right)\,\text{PolyLog}\!\left[2,-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}+\sqrt{c^2\,d+e}}\right]}{\sqrt{-d}\,\sqrt{e}}-\frac{i\,b\,\left(a+b\,\text{ArcSin}[c\,x]\right)\,\text{PolyLog}\!\left[2,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}+\sqrt{c^2\,d+e}}\right]}{\sqrt{-d}\,\sqrt{e}}-$$

$$\frac{b^2\,\text{PolyLog}\!\left[3,-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}-\sqrt{c^2\,d+e}}\right]}{\sqrt{-d}\,\sqrt{e}}+\frac{b^2\,\text{PolyLog}\!\left[3,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}-\sqrt{c^2\,d+e}}\right]}{\sqrt{-d}\,\sqrt{e}}-\frac{b^2\,\text{PolyLog}\!\left[3,-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}+\sqrt{c^2\,d+e}}\right]}{\sqrt{-d}\,\sqrt{e}}+\frac{b^2\,\text{PolyLog}\!\left[3,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{i\,c\,\sqrt{-d}+\sqrt{c^2\,d+e}}\right]}{\sqrt{-d}\,\sqrt{e}}$$

Result (type 4, 3335 leaves):

$$\frac{1}{8\,\sqrt{d}\,\sqrt{e}}$$

$$\Bigg(8\,a^2\,\text{ArcTan}\!\left[\frac{\sqrt{e}\,x}{\sqrt{d}}\right]+4\,i\,a\,b\,\Bigg(8\,i\,\text{ArcSin}\!\left[\frac{\sqrt{1-\frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]\,\text{ArcTan}\!\left[\frac{\left(c\,\sqrt{d}-i\,\sqrt{e}\right)\,\text{Cot}\!\left[\frac{1}{4}\,\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2\,d+e}}\right]-8\,i\,\text{ArcSin}\!\left[\frac{\sqrt{1+\frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]\,\text{ArcTan}\Bigg[$$

$$\frac{\left(c\,\sqrt{d}+i\,\sqrt{e}\right)\,\text{Cot}\!\left[\frac{1}{4}\,\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2\,d+e}}\Bigg]-\left(\pi-4\,\text{ArcSin}\!\left[\frac{\sqrt{1+\frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\,\text{Log}\!\left[1-\frac{\left(c\,\sqrt{d}+\sqrt{c^2\,d+e}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right]+$$

$$\left(\pi+4\,\text{ArcSin}\!\left[\frac{\sqrt{1-\frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\,\text{Log}\!\left[\frac{e^{-i\,\text{ArcSin}[c\,x]}\,\left(c\,\sqrt{d}-\sqrt{c^2\,d+e}+\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right]-$$

$$\left(\pi + 4\,\text{ArcSin}\left[\frac{\sqrt{1 + \frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right] - 2\,\text{ArcSin}[c\,x]\right) \text{Log}\left[\frac{e^{-i\,\text{ArcSin}[c\,x]}\left(-c\,\sqrt{d} + \sqrt{c^2\,d + e} + \sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right] +$$

$$\left(\pi - 4\,\text{ArcSin}\left[\frac{\sqrt{1 - \frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right] - 2\,\text{ArcSin}[c\,x]\right) \text{Log}\left[\frac{e^{-i\,\text{ArcSin}[c\,x]}\left(c\,\sqrt{d} + \sqrt{c^2\,d + e} + \sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right] +$$

$$(\pi - 2\,\text{ArcSin}[c\,x])\,\text{Log}\left[c\left(\sqrt{d} - i\,\sqrt{e}\,x\right)\right] + 2\,\text{ArcSin}[c\,x]\,\text{Log}\left[c\left(\sqrt{d} - i\,\sqrt{e}\,x\right)\right] -$$

$$(\pi - 2\,\text{ArcSin}[c\,x])\,\text{Log}\left[c\left(\sqrt{d} + i\,\sqrt{e}\,x\right)\right] - 2\,\text{ArcSin}[c\,x]\,\text{Log}\left[c\left(\sqrt{d} + i\,\sqrt{e}\,x\right)\right] -$$

$$2\,i\left(\text{PolyLog}\left[2, \frac{\left(-c\,\sqrt{d} + \sqrt{c^2\,d + e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right] + \text{PolyLog}\left[2, -\frac{\left(c\,\sqrt{d} + \sqrt{c^2\,d + e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right]\right) +$$

$$2\,i\left(\text{PolyLog}\left[2, \frac{\left(c\,\sqrt{d} - \sqrt{c^2\,d + e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right] + \text{PolyLog}\left[2, \frac{\left(c\,\sqrt{d} + \sqrt{c^2\,d + e}\right)e^{-i\,\text{ArcSin}[c\,x]}}{\sqrt{e}}\right]\right)\Bigg) -$$

$$4\,i\,b^2\Bigg(\text{ArcSin}[c\,x]^2\,\text{Log}\left[\frac{-c\,\sqrt{d} + \sqrt{c^2\,d + e} - \sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{-c\,\sqrt{d} + \sqrt{c^2\,d + e}}\right] - \text{ArcSin}[c\,x]^2\,\text{Log}\left[\frac{c\,\sqrt{d} + \sqrt{c^2\,d + e} - \sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{c\,\sqrt{d} + \sqrt{c^2\,d + e}}\right] +$$

$$\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[-\frac{e^{-i\,\text{ArcSin}[c\,x]}\left(c\,\sqrt{d} + \sqrt{c^2\,d + e} - \sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right] - 4\,\text{ArcSin}\left[\frac{\sqrt{1 + \frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]$$

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

$$\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\frac{e^{-i\,\text{ArcSin}[c\,x]}\left(c\,\sqrt{d} - \sqrt{c^2\,d + e} + \sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right] - 4\,\text{ArcSin}\left[\frac{\sqrt{1 - \frac{i\,c\,\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]$$

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

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

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

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

$$\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[\frac{e^{-i\,\text{ArcSin}[c\,x]}\left(c\sqrt{d}+\sqrt{c^2 d+e}+\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}\right)}{\sqrt{e}}\right]+4\,\text{ArcSin}\left[\frac{\sqrt{1-\frac{i\,c\sqrt{d}}{\sqrt{e}}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]$$

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

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

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

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

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

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

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

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

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

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

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

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

$$2\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{c\sqrt{d}-\sqrt{c^2d+e}}\Big]-2\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{-c\sqrt{d}+\sqrt{c^2d+e}}\Big]-$$

$$2\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{c\sqrt{d}+\sqrt{c^2d+e}}\Big]+2\,i\,\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{c\sqrt{d}+\sqrt{c^2d+e}}\Big]-2\,\text{PolyLog}\Big[3,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{c\sqrt{d}-\sqrt{c^2d+e}}\Big]+$$

$$2\,\text{PolyLog}\Big[3,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{-c\sqrt{d}+\sqrt{c^2d+e}}\Big]+2\,\text{PolyLog}\Big[3,-\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{c\sqrt{d}+\sqrt{c^2d+e}}\Big]-2\,\text{PolyLog}\Big[3,\frac{\sqrt{e}\,e^{i\,\text{ArcSin}[c\,x]}}{c\sqrt{d}+\sqrt{c^2d+e}}\Big]\Bigg)\Bigg)$$

Test results for the 474 problems in "5.1.5 Inverse sine functions.m"

Problem 7: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{a+b\,\text{ArcSin}[c\,x]}{(d+e\,x)^3}\,dx$$

Optimal (type 3, 135 leaves, 4 steps):

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

Result (type 3, 207 leaves):

$$\frac{1}{2}\left(-\frac{a}{e\,(d+e x)^2}+\frac{b\,c\,\sqrt{1-c^2 x^2}}{(c^2 d^2-e^2)\,(d+e x)}-\frac{b\,\mathrm{ArcSin}[c\,x]}{e\,(d+e x)^2}-\frac{i\,b\,c^3\,d\left(\mathrm{Log}[4]+\mathrm{Log}\left[\frac{e^2\sqrt{c^2 d^2-e^2}\left(i\,e+i\,c^2 d x+\sqrt{c^2 d^2-e^2}\,\sqrt{1-c^2 x^2}\right)}{b\,c^3\,d\,(d+e x)}\right]\right)}{(c\,d-e)\,e\,(c\,d+e)\,\sqrt{c^2 d^2-e^2}}\right)$$

Problem 13: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\mathrm{ArcSin}[c\,x])^2}{d+e x}\,dx$$

Optimal (type 4, 347 leaves, 10 steps):

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

Result (type 4, 2763 leaves):

$$\frac{a^2\,\mathrm{Log}[d+e x]}{e}+\frac{1}{4\,e}$$
$$a\,b\left(i\,(\pi-2\,\mathrm{ArcSin}[c\,x])^2-32\,i\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\mathrm{ArcTan}\left[\frac{(c\,d-e)\,\mathrm{Cot}\left[\frac{1}{4}\,(\pi+2\,\mathrm{ArcSin}[c\,x])\right]}{\sqrt{c^2 d^2-e^2}}\right]-4\left(\pi+4\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]-2\,\mathrm{ArcSin}[c\,x]\right)\right.$$

$$\text{Log}\left[1-\frac{i\left(-c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]-4\left(\pi-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+$$

$$4\left(\pi-2\,\text{ArcSin}[c\,x]\right)\text{Log}[c\,d+c\,e\,x]+8\,\text{ArcSin}[c\,x]\,\text{Log}[c\,d+c\,e\,x]+$$

$$8\,i\left(\text{PolyLog}\left[2,\frac{i\left(-c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+\text{PolyLog}\left[2,-\frac{i\left(c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]\right)\Bigg)+\frac{1}{3\,e\sqrt{-\left(-c^2 d^2+e^2\right)^2}}$$

$$b^2\Bigg(-i\sqrt{-\left(-c^2 d^2+e^2\right)^2}\,\text{ArcSin}[c\,x]^3-24\,i\sqrt{-\left(-c^2 d^2+e^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\,\text{ArcTan}\left[\frac{(c\,d-e)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2 d^2-e^2}}\right]+$$

$$24\,i\sqrt{-\left(-c^2 d^2+e^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\,\text{ArcTan}\left[\frac{(c\,d-e)\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)}{\sqrt{c^2 d^2-e^2}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)}\right]-$$

$$3\sqrt{-\left(-c^2 d^2+e^2\right)^2}\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\left(-c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]-12\sqrt{-\left(-c^2 d^2+e^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]$$

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

$$3\sqrt{-\left(-c^2 d^2+e^2\right)^2}\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+12\sqrt{-\left(-c^2 d^2+e^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]$$

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

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

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

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

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

$$12 \sqrt{-\left(-c^2 d^2 + e^2\right)^2}\ \mathrm{ArcSin}\Big[\frac{\sqrt{1 + \frac{c\,d}{e}}}{\sqrt{2}}\Big]\, \mathrm{ArcSin}[c\, x]\, \mathrm{Log}\Big[1 + \frac{\left(c\, d - \sqrt{c^2 d^2 - e^2}\right)\left(c\, x + i \sqrt{1 - c^2 x^2}\right)}{e}\Big] -$$

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

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

$$12 \sqrt{-\left(-c^2 d^2 + e^2\right)^2}\ \mathrm{ArcSin}\Big[\frac{\sqrt{1 + \frac{c\,d}{e}}}{\sqrt{2}}\Big]\, \mathrm{ArcSin}[c\, x]\, \mathrm{Log}\Big[1 + \frac{\left(c\, d + \sqrt{c^2 d^2 - e^2}\right)\left(c\, x + i \sqrt{1 - c^2 x^2}\right)}{e}\Big] -$$

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

$$6\, i\, c\, d \sqrt{-c^2 d^2 + e^2}\ \mathrm{ArcSin}[c\, x]\, \mathrm{PolyLog}\Big[2, \frac{i\, e\, e^{i\,\mathrm{ArcSin}[c\,x]}}{c\, d - \sqrt{c^2 d^2 - e^2}}\Big] + 6\, i\, c\, d \sqrt{-c^2 d^2 + e^2}\ \mathrm{ArcSin}[c\, x]\, \mathrm{PolyLog}\Big[2, \frac{i\, e\, e^{i\,\mathrm{ArcSin}[c\,x]}}{c\, d + \sqrt{c^2 d^2 - e^2}}\Big] -$$

$$6\, c\, d \sqrt{c^2 d^2 - e^2}\ \mathrm{ArcSin}[c\, x]\, \mathrm{PolyLog}\Big[2, \frac{e\, e^{i\,\mathrm{ArcSin}[c\,x]}}{-i\, c\, d + \sqrt{-c^2 d^2 + e^2}}\Big] - 6\, i \sqrt{-\left(-c^2 d^2 + e^2\right)^2}\ \mathrm{ArcSin}[c\, x]\, \mathrm{PolyLog}\Big[2, \frac{e\, e^{i\,\mathrm{ArcSin}[c\,x]}}{-i\, c\, d + \sqrt{-c^2 d^2 + e^2}}\Big] +$$

$$6\, c\, d \sqrt{c^2 d^2 - e^2}\ \mathrm{ArcSin}[c\, x]\, \mathrm{PolyLog}\Big[2, -\frac{e\, e^{i\,\mathrm{ArcSin}[c\,x]}}{i\, c\, d + \sqrt{-c^2 d^2 + e^2}}\Big] - 6\, i \sqrt{-\left(-c^2 d^2 + e^2\right)^2}\ \mathrm{ArcSin}[c\, x]\, \mathrm{PolyLog}\Big[2, -\frac{e\, e^{i\,\mathrm{ArcSin}[c\,x]}}{i\, c\, d + \sqrt{-c^2 d^2 + e^2}}\Big] +$$

$$6\, c\, d \sqrt{-c^2 d^2 + e^2}\ \mathrm{PolyLog}\Big[3, \frac{i\, e\, e^{i\,\mathrm{ArcSin}[c\,x]}}{c\, d - \sqrt{c^2 d^2 - e^2}}\Big] - 6\, c\, d \sqrt{-c^2 d^2 + e^2}\ \mathrm{PolyLog}\Big[3, \frac{i\, e\, e^{i\,\mathrm{ArcSin}[c\,x]}}{c\, d + \sqrt{c^2 d^2 - e^2}}\Big] -$$

$$6\, i\, c\, d \sqrt{c^2 d^2 - e^2}\ \mathrm{PolyLog}\Big[3, \frac{e\, e^{i\,\mathrm{ArcSin}[c\,x]}}{-i\, c\, d + \sqrt{-c^2 d^2 + e^2}}\Big] + 6 \sqrt{-\left(-c^2 d^2 + e^2\right)^2}\ \mathrm{PolyLog}\Big[3, \frac{e\, e^{i\,\mathrm{ArcSin}[c\,x]}}{-i\, c\, d + \sqrt{-c^2 d^2 + e^2}}\Big] +$$

$$\left.6\, i\, c\, d \sqrt{c^2 d^2 - e^2}\ \mathrm{PolyLog}\Big[3, -\frac{e\, e^{i\,\mathrm{ArcSin}[c\,x]}}{i\, c\, d + \sqrt{-c^2 d^2 + e^2}}\Big] + 6 \sqrt{-\left(-c^2 d^2 + e^2\right)^2}\ \mathrm{PolyLog}\Big[3, -\frac{e\, e^{i\,\mathrm{ArcSin}[c\,x]}}{i\, c\, d + \sqrt{-c^2 d^2 + e^2}}\Big]\right)$$

Problem 14: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^2}{(d+e\,x)^2}\,dx$$

Optimal (type 4, 309 leaves, 10 steps):

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

Result (type 6, 1152 leaves):

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

$$\frac{1}{e}\,b^2\,c\left(-\frac{\text{ArcSin}[c\,x]^2}{c\,d+c\,e\,x}+\frac{2\,\pi\,\text{ArcTan}\left[\frac{e+c\,d\,\text{Tan}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]}{\sqrt{c^2\,d^2-e^2}}\right]}{\sqrt{c^2\,d^2-e^2}}+\frac{1}{\sqrt{-c^2\,d^2+e^2}}\right.$$

$$2\left(2\,\text{ArcCos}\left[-\frac{c\,d}{e}\right]\,\text{ArcTanh}\left[\frac{(c\,d-e)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,d^2+e^2}}\right]+(\pi-2\,\text{ArcSin}[c\,x])\,\text{ArcTanh}\left[\frac{(c\,d+e)\,\text{Tan}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,d^2+e^2}}\right]+\right.$$

$$\left(\text{ArcCos}\left[-\frac{c\,d}{e}\right]+2\,i\left(\text{ArcTanh}\left[\frac{(c\,d-e)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,d^2+e^2}}\right]+\text{ArcTanh}\left[\frac{(c\,d+e)\,\text{Tan}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,d^2+e^2}}\right]\right)\right)$$

$$\text{Log}\left[\frac{\sqrt{-c^2\,d^2+e^2}\;e^{\frac{1}{4}\,i\,(\pi-2\,\text{ArcSin}[c\,x])}}{\sqrt{2}\,\sqrt{e}\,\sqrt{c\,d+c\,e\,x}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{c\,d}{e}\right]-2\,i\,\text{ArcTanh}\left[\frac{(c\,d-e)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,d^2+e^2}}\right]-2\,i\,\text{ArcTanh}\left[\frac{(c\,d+e)\,\text{Tan}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,d^2+e^2}}\right]\right)$$

$$\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\sqrt{-c^2 d^2+e^2}\, e^{\frac{1}{2} i \,\text{ArcSin}[c x]}}{\sqrt{e}\,\sqrt{c d+c e x}}\right]-\left(\text{ArcCos}\left[-\frac{c d}{e}\right]+2 i \,\text{ArcTanh}\left[\frac{(c d-e)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 d^2+e^2}}\right]\right)$$

$$\text{Log}\left[\frac{(c d+e)\left(-c d+e-i\sqrt{-c^2 d^2+e^2}\right)\left(1+i\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{e\left(c d+e+\sqrt{-c^2 d^2+e^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]-\left(\text{ArcCos}\left[-\frac{c d}{e}\right]-\right.$$

$$\left.2 i\,\text{ArcTanh}\left[\frac{(c d-e)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 d^2+e^2}}\right]\right)\text{Log}\left[\frac{(c d+e)\left(i c d-i e+\sqrt{-c^2 d^2+e^2}\right)\left(i+\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{e\left(c d+e+\sqrt{-c^2 d^2+e^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]+$$

$$i\left(\text{PolyLog}\left[2,\frac{\left(c d-i\sqrt{-c^2 d^2+e^2}\right)\left(c d+e-\sqrt{-c^2 d^2+e^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{e\left(c d+e+\sqrt{-c^2 d^2+e^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]-\right.$$

$$\left.\left.\left.\text{PolyLog}\left[2,\frac{\left(c d+i\sqrt{-c^2 d^2+e^2}\right)\left(c d+e-\sqrt{-c^2 d^2+e^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{e\left(c d+e+\sqrt{-c^2 d^2+e^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]\right)\right)\right)$$

Problem 15: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{ArcSin}[c x])^2}{(d+e x)^3}\,dx$$

Optimal (type 4, 401 leaves, 13 steps):

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

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

Result (type 6, 1363 leaves):

$$-\frac{a^2}{2e(d+ex)^2}+2ab\left(-\frac{c\sqrt{1+\frac{-d-\sqrt{\frac{1}{c^2}}e}{d+ex}}\sqrt{1+\frac{-d+\sqrt{\frac{1}{c^2}}e}{d+ex}}\,\text{AppellF1}\left[2,\frac{1}{2},\frac{1}{2},3,-\frac{-d+\sqrt{\frac{1}{c^2}}e}{d+ex},-\frac{-d-\sqrt{\frac{1}{c^2}}e}{d+ex}\right]}{4e^2(d+ex)\sqrt{1-c^2x^2}}-\frac{\text{ArcSin}[cx]}{2e(d+ex)^2}\right)+$$

$$b^2c^2\left(\frac{\sqrt{1-c^2x^2}\,\text{ArcSin}[cx]}{(cd-e)(cd+e)(cd+cex)}-\frac{\text{ArcSin}[cx]^2}{2e(cd+cex)^2}+\frac{\text{Log}\left[1+\frac{ex}{d}\right]}{e(-c^2d^2+e^2)}-\right.$$

$$\frac{1}{e(-c^2d^2+e^2)}cd\left(\frac{\pi\,\text{ArcTan}\left[\frac{e+cd\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[cx]\right]}{\sqrt{c^2d^2-e^2}}\right]}{\sqrt{c^2d^2-e^2}}+\frac{1}{\sqrt{-c^2d^2+e^2}}\left(2\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\text{ArcTanh}\left[\frac{(cd+e)\,\text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]-\right.\right.$$

$$2\,\text{ArcCos}\left[-\frac{cd}{e}\right]\text{ArcTanh}\left[\frac{(-cd+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]+\left(\text{ArcCos}\left[-\frac{cd}{e}\right]-2\,i\left(\text{ArcTanh}\left[\frac{(cd+e)\,\text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]-\right.\right.$$

$$\left.\left.\text{ArcTanh}\left[\frac{(-cd+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]\right)\right)\text{Log}\left[\frac{\sqrt{-c^2d^2+e^2}\,e^{-\frac{1}{2}i\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)}}{\sqrt{2}\sqrt{e}\sqrt{cd+cex}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{cd}{e}\right]+2\,i\left(\text{ArcTanh}\left[\frac{(cd+e)\,\text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]-\text{ArcTanh}\left[\frac{(-cd+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]\right)\right)$$

$$\text{Log}\left[\frac{\sqrt{-c^2d^2+e^2}\,e^{\frac{1}{2}i\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)}}{\sqrt{2}\sqrt{e}\sqrt{cd+cex}}\right]-\left(\text{ArcCos}\left[-\frac{cd}{e}\right]+2\,i\,\text{ArcTanh}\left[\frac{(-cd+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]\right)$$

$$\text{Log}\left[1-\frac{\left(cd-i\sqrt{-c^2d^2+e^2}\right)\left(cd+e-\sqrt{-c^2d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]\right)}{e\left(cd+e+\sqrt{-c^2d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]\right)}\right]+\left(-\text{ArcCos}\left[-\frac{cd}{e}\right]+2\,i\,\text{ArcTanh}\left[\right.\right.$$

$$\left.\left.\frac{(-cd+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]\right)\text{Log}\left[1-\frac{\left(cd+i\sqrt{-c^2d^2+e^2}\right)\left(cd+e-\sqrt{-c^2d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]\right)}{e\left(cd+e+\sqrt{-c^2d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]\right)}\right]+$$

$$i\left(\text{PolyLog}\left[2,\frac{\left(cd-i\sqrt{-c^2d^2+e^2}\right)\left(cd+e-\sqrt{-c^2d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]\right)}{e\left(cd+e+\sqrt{-c^2d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[cx]\right)\right]\right)}\right]-\right.$$

$$\text{PolyLog}\left[2, \frac{\left(c\,d + i\sqrt{-c^2 d^2 + e^2}\right)\left(c\,d + e - \sqrt{-c^2 d^2 + e^2}\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\,x]\right)\right]\right)}{e\left(c\,d + e + \sqrt{-c^2 d^2 + e^2}\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\,x]\right)\right]\right)}\right]\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 28: Unable to integrate problem.

$$\int (d + e\,x)^m\,(a + b\,\text{ArcSin}[c\,x])\,dx$$

Optimal (type 6, 154 leaves, 3 steps):

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

Result (type 8, 18 leaves):

$$\int (d + e\,x)^m\,(a + b\,\text{ArcSin}[c\,x])\,dx$$

Problem 39: Result more than twice size of optimal antiderivative.

$$\int \frac{\left(d - c^2 d\,x^2\right)^{3/2}\,(a + b\,\text{ArcSin}[c\,x])}{f + g\,x}\,dx$$

Optimal (type 4, 1073 leaves, 29 steps):

$$-\frac{a\,d\,(c\,f-g)\,(c\,f+g)\,\sqrt{d-c^2\,d\,x^2}}{g^3}-\frac{b\,c\,d\,x\,\sqrt{d-c^2\,d\,x^2}}{3\,g\,\sqrt{1-c^2\,x^2}}+\frac{b\,c\,d\,(c\,f-g)\,(c\,f+g)\,x\,\sqrt{d-c^2\,d\,x^2}}{g^3\,\sqrt{1-c^2\,x^2}}-\frac{b\,c^3\,d\,f\,x^2\,\sqrt{d-c^2\,d\,x^2}}{4\,g^2\,\sqrt{1-c^2\,x^2}}+\frac{b\,c^3\,d\,x^3\,\sqrt{d-c^2\,d\,x^2}}{9\,g\,\sqrt{1-c^2\,x^2}}-$$

$$\frac{b\,d\,(c\,f-g)\,(c\,f+g)\,\sqrt{d-c^2\,d\,x^2}\,\text{ArcSin}[c\,x]}{g^3}+\frac{c^2\,d\,f\,x\,\sqrt{d-c^2\,d\,x^2}\,(a+b\,\text{ArcSin}[c\,x])}{2\,g^2}+\frac{d\,(1-c^2\,x^2)\,\sqrt{d-c^2\,d\,x^2}\,(a+b\,\text{ArcSin}[c\,x])}{3\,g}+$$

$$\frac{c\,d\,f\,\sqrt{d-c^2\,d\,x^2}\,(a+b\,\text{ArcSin}[c\,x])^2}{4\,b\,g^2\,\sqrt{1-c^2\,x^2}}-\frac{c\,d\,(c\,f-g)\,(c\,f+g)\,x\,\sqrt{d-c^2\,d\,x^2}\,(a+b\,\text{ArcSin}[c\,x])^2}{2\,b\,g^3\,\sqrt{1-c^2\,x^2}}-\frac{d\,(c^2\,f^2-g^2)^2\,\sqrt{d-c^2\,d\,x^2}\,(a+b\,\text{ArcSin}[c\,x])^2}{2\,b\,c\,g^4\,(f+g\,x)\,\sqrt{1-c^2\,x^2}}-$$

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

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

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

Result (type 4, 3456 leaves):

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

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

$$\frac{1}{2\,g^2}\,b\,d\,\sqrt{d\,(1-c^2\,x^2)}\,\left(-\frac{2\,c\,g\,x}{\sqrt{1-c^2\,x^2}}+2\,g\,\text{ArcSin}[c\,x]+\frac{c\,f\,\text{ArcSin}[c\,x]^2}{\sqrt{1-c^2\,x^2}}+\frac{1}{\sqrt{1-c^2\,x^2}}\,2\,(-c\,f+g)\,(c\,f+g)\right.$$

$$\left(\frac{\pi\,\text{ArcTan}\left[\frac{g+c\,f\,\text{Tan}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]}{\sqrt{c^2\,f^2-g^2}}\right]}{\sqrt{c^2\,f^2-g^2}}+\frac{1}{\sqrt{-c^2\,f^2+g^2}}\left(2\,\text{ArcCos}\left[-\frac{c\,f}{g}\right]\,\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]+(\pi-2\,\text{ArcSin}[c\,x])\right.\right.$$

$$\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]+\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\,\left(\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]+\right.\right.$$

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

$$\Big(\text{ArcCos}\left[-\frac{c\,f}{g}\right]-2\,i\,\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]-2\,i\,\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]\Big)$$

$$\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\,e^{\frac{1}{2}\,i\,\text{ArcSin}[c\,x]}\,\sqrt{-c^2\,f^2+g^2}}{\sqrt{g}\,\sqrt{c\,f+c\,g\,x}}\right]-\Big(\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\,\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]\Big)$$

$$\text{Log}\left[\frac{(c\,f+g)\,\left(-c\,f+g-i\,\sqrt{-c^2\,f^2+g^2}\right)\,\left(1+i\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}{g\,\left(c\,f+g+\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}\right]-\Big(\text{ArcCos}\left[-\frac{c\,f}{g}\right]-2\,i$$

$$\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]\Big)\,\text{Log}\left[\frac{(c\,f+g)\,\left(i\,c\,f-i\,g+\sqrt{-c^2\,f^2+g^2}\right)\,\left(i+\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}{g\,\left(c\,f+g+\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}\right]+$$

$$i\,\Big(\text{PolyLog}\left[2,\,\frac{\left(c\,f-i\,\sqrt{-c^2\,f^2+g^2}\right)\,\left(c\,f+g-\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}{g\,\left(c\,f+g+\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}\right]-\text{PolyLog}\Big[2,$$

$$\frac{\left(c\,f+i\,\sqrt{-c^2\,f^2+g^2}\right)\,\left(c\,f+g-\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}{g\,\left(c\,f+g+\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}\Big]\Big)\Big)\Big)\Big)+$$

$$b\,d\,\Bigg(-\frac{1}{8\,\sqrt{1-c^2\,x^2}}\,\sqrt{d\,\left(1-c^2\,x^2\right)}\,\Bigg(\frac{\pi\,\text{ArcTan}\left[\frac{g+c\,f\,\text{Tan}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]}{\sqrt{c^2\,f^2-g^2}}\right]}{\sqrt{c^2\,f^2-g^2}}+\frac{1}{\sqrt{-c^2\,f^2+g^2}}\,\Bigg(2\,\text{ArcCos}\left[-\frac{c\,f}{g}\right]$$

$$\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]+(\pi-2\,\text{ArcSin}[c\,x])\,\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]+$$

$$\Big(\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\,\Big(\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]+\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]\Big)\Big)$$

$$\text{Log}\left[\frac{e^{\frac{1}{4} i (\pi-2 \text{ArcSin}[c x])} \sqrt{-c^2 f^2+g^2}}{\sqrt{2} \sqrt{g} \sqrt{c f+c g x}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{c f}{g}\right]-2 i \text{ArcTanh}\left[\frac{(c f-g) \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]-2 i \text{ArcTanh}\left[\frac{(c f+g) \text{Tan}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right) e^{\frac{1}{2} i \text{ArcSin}[c x]} \sqrt{-c^2 f^2+g^2}}{\sqrt{g} \sqrt{c f+c g x}}\right]-\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2 i \text{ArcTanh}\left[\frac{(c f-g) \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\text{Log}\left[\frac{(c f+g) \left(-c f+g-i \sqrt{-c^2 f^2+g^2}\right) \left(1+i \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}{g \left(c f+g+\sqrt{-c^2 f^2+g^2} \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}\right]-\left(\text{ArcCos}\left[-\frac{c f}{g}\right]-2 i\right.$$

$$\left.\text{ArcTanh}\left[\frac{(c f-g) \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right) \text{Log}\left[\frac{(c f+g) \left(i c f-i g+\sqrt{-c^2 f^2+g^2}\right) \left(i+\text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}{g \left(c f+g+\sqrt{-c^2 f^2+g^2} \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}\right]+$$

$$i \left(\text{PolyLog}\left[2, \frac{\left(c f-i \sqrt{-c^2 f^2+g^2}\right) \left(c f+g-\sqrt{-c^2 f^2+g^2} \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}{g \left(c f+g+\sqrt{-c^2 f^2+g^2} \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}\right]-\text{PolyLog}\left[2,\right.\right.$$

$$\left.\left.\left.\left.\frac{\left(c f+i \sqrt{-c^2 f^2+g^2}\right) \left(c f+g-\sqrt{-c^2 f^2+g^2} \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}{g \left(c f+g+\sqrt{-c^2 f^2+g^2} \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}\right]\right)\right)\right)+$$

$$\frac{1}{72 g^4 \sqrt{1-c^2 x^2}} \sqrt{d \left(1-c^2 x^2\right)} \left(-18 c g \left(-4 c^2 f^2+g^2\right) x+18 g \left(-4 c^2 f^2+g^2\right) \sqrt{1-c^2 x^2} \text{ArcSin}[c x]-\right.$$

$$18 c f \left(2 c^2 f^2-g^2\right) \text{ArcSin}[c x]^2+9 c f g^2 \text{Cos}[2 \text{ArcSin}[c x]]+$$
$$6 g^3 \text{ArcSin}[c x] \text{Cos}[3 \text{ArcSin}[c x]]+9 \left(8 c^4 f^4-8 c^2 f^2 g^2+g^4\right)$$

$$\left(\frac{\pi \text{ArcTan}\left[\frac{g+c f \text{Tan}\left[\frac{1}{2} \text{ArcSin}[c x]\right]}{\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}}+\frac{1}{\sqrt{-c^2 f^2+g^2}} \left(2 \text{ArcCos}\left[-\frac{c f}{g}\right] \text{ArcTanh}\left[\frac{(c f-g) \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]+(\pi-2 \text{ArcSin}[c x])\right.\right.$$

$$\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]+\Bigg(\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\,\Bigg(\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]+$$

$$\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]\Bigg)\Bigg)\,\text{Log}\left[\frac{e^{\frac{1}{4}\,i\,(\pi-2\,\text{ArcSin}[c\,x])}\,\sqrt{-c^2\,f^2+g^2}}{\sqrt{2}\,\sqrt{g}\,\sqrt{c\,f+c\,g\,x}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]-2\,i\,\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]-2\,i\,\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]\right)$$

$$\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\,e^{\frac{1}{2}\,i\,\text{ArcSin}[c\,x]}\,\sqrt{-c^2\,f^2+g^2}}{\sqrt{g}\,\sqrt{c\,f+c\,g\,x}}\right]-\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\,\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]\right)\,\text{Log}\Bigg[$$

$$\frac{(c\,f+g)\,\left(-c\,f+g-i\,\sqrt{-c^2\,f^2+g^2}\right)\,\left(1+i\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}{g\,\left(c\,f+g+\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}\Bigg]-\Bigg(\text{ArcCos}\left[-\frac{c\,f}{g}\right]-2\,i$$

$$\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{-c^2\,f^2+g^2}}\right]\Bigg)\,\text{Log}\left[\frac{(c\,f+g)\,\left(i\,c\,f-i\,g+\sqrt{-c^2\,f^2+g^2}\right)\,\left(i+\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}{g\,\left(c\,f+g+\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}\right]+$$

$$i\,\Bigg(\text{PolyLog}\left[2,\frac{\left(c\,f-i\,\sqrt{-c^2\,f^2+g^2}\right)\,\left(c\,f+g-\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}{g\,\left(c\,f+g+\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}\right]-$$

$$\text{PolyLog}\left[2,\frac{\left(c\,f+i\,\sqrt{-c^2\,f^2+g^2}\right)\,\left(c\,f+g-\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}{g\,\left(c\,f+g+\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right)}\right]\Bigg)\Bigg)\Bigg)+$$

$$18\,c\,f\,g^2\,\text{ArcSin}[c\,x]\,\text{Sin}[2\,\text{ArcSin}[c\,x]]-2\,g^3\,\text{Sin}[3\,\text{ArcSin}[c\,x]]\Bigg)\Bigg)$$

Problem 43: Result more than twice size of optimal antiderivative.

$$\int \frac{\left(d-c^2 d x^2\right)^{5/2} (a+b \text{ArcSin}[c x])}{f+g x} \, dx$$

Optimal (type 4, 1648 leaves, 37 steps):

$$\frac{a d^2 \left(c^2 f^2-g^2\right)^2 \sqrt{d-c^2 d x^2}}{g^5}+\frac{2 b c d^2 x \sqrt{d-c^2 d x^2}}{15 g \sqrt{1-c^2 x^2}}+\frac{b c d^2 \left(c^2 f^2-2 g^2\right) x \sqrt{d-c^2 d x^2}}{3 g^3 \sqrt{1-c^2 x^2}}-\frac{b c d^2 \left(c^2 f^2-g^2\right)^2 x \sqrt{d-c^2 d x^2}}{g^5 \sqrt{1-c^2 x^2}}-\frac{b c^3 d^2 f x^2 \sqrt{d-c^2 d x^2}}{16 g^2 \sqrt{1-c^2 x^2}}+\frac{b c^3 d^2 f \left(c^2 f^2-2 g^2\right) x^2 \sqrt{d-c^2 d x^2}}{4 g^4 \sqrt{1-c^2 x^2}}+\frac{b c^3 d^2 x^3 \sqrt{d-c^2 d x^2}}{45 g \sqrt{1-c^2 x^2}}-\frac{b c^3 d^2 \left(c^2 f^2-2 g^2\right) x^3 \sqrt{d-c^2 d x^2}}{9 g^3 \sqrt{1-c^2 x^2}}+\frac{b c^5 d^2 f x^4 \sqrt{d-c^2 d x^2}}{16 g^2 \sqrt{1-c^2 x^2}}-\frac{b c^5 d^2 x^5 \sqrt{d-c^2 d x^2}}{25 g \sqrt{1-c^2 x^2}}+\frac{b d^2 \left(c^2 f^2-g^2\right)^2 \sqrt{d-c^2 d x^2} \text{ArcSin}[c x]}{g^5}+\frac{c^2 d^2 f x \sqrt{d-c^2 d x^2} (a+b \text{ArcSin}[c x])}{8 g^2}-\frac{c^2 d^2 f \left(c^2 f^2-2 g^2\right) x \sqrt{d-c^2 d x^2} (a+b \text{ArcSin}[c x])}{2 g^4}-\frac{c^4 d^2 f x^3 \sqrt{d-c^2 d x^2} (a+b \text{ArcSin}[c x])}{4 g^2}-\frac{d^2 \left(1-c^2 x^2\right) \sqrt{d-c^2 d x^2} (a+b \text{ArcSin}[c x])}{3 g}-\frac{d^2 \left(c^2 f^2-2 g^2\right) \left(1-c^2 x^2\right) \sqrt{d-c^2 d x^2} (a+b \text{ArcSin}[c x])}{3 g^3}+\frac{d^2 \left(1-c^2 x^2\right)^2 \sqrt{d-c^2 d x^2} (a+b \text{ArcSin}[c x])}{5 g}-\frac{c d^2 f \sqrt{d-c^2 d x^2} (a+b \text{ArcSin}[c x])^2}{16 b g^2 \sqrt{1-c^2 x^2}}-\frac{c d^2 f \left(c^2 f^2-2 g^2\right) \sqrt{d-c^2 d x^2} (a+b \text{ArcSin}[c x])^2}{4 b g^4 \sqrt{1-c^2 x^2}}+\frac{c d^2 \left(c^2 f^2-g^2\right)^2 x \sqrt{d-c^2 d x^2} (a+b \text{ArcSin}[c x])^2}{2 b g^5 \sqrt{1-c^2 x^2}}+\frac{d^2 \left(c^2 f^2-g^2\right)^3 \sqrt{d-c^2 d x^2} (a+b \text{ArcSin}[c x])^2}{2 b c g^6 (f+g x) \sqrt{1-c^2 x^2}}+\frac{d^2 \left(c^2 f^2-g^2\right)^2 \sqrt{1-c^2 x^2} \sqrt{d-c^2 d x^2} (a+b \text{ArcSin}[c x])^2}{2 b c g^4 (f+g x)}-\frac{a d^2 \left(c^2 f^2-g^2\right)^{5/2} \sqrt{d-c^2 d x^2} \text{ArcTan}\left[\frac{g+c^2 f x}{\sqrt{c^2 f^2-g^2} \sqrt{1-c^2 x^2}}\right]}{g^6 \sqrt{1-c^2 x^2}}+\frac{i b d^2 \left(c^2 f^2-g^2\right)^{5/2} \sqrt{d-c^2 d x^2} \text{ArcSin}[c x] \text{Log}\left[1-\frac{i e^{i \text{ArcSin}[c x]} g}{c f-\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}}-\frac{i b d^2 \left(c^2 f^2-g^2\right)^{5/2} \sqrt{d-c^2 d x^2} \text{ArcSin}[c x] \text{Log}\left[1-\frac{i e^{i \text{ArcSin}[c x]} g}{c f+\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}}+\frac{b d^2 \left(c^2 f^2-g^2\right)^{5/2} \sqrt{d-c^2 d x^2} \text{PolyLog}\left[2,\frac{i e^{i \text{ArcSin}[c x]} g}{c f-\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}}-\frac{b d^2 \left(c^2 f^2-g^2\right)^{5/2} \sqrt{d-c^2 d x^2} \text{PolyLog}\left[2,\frac{i e^{i \text{ArcSin}[c x]} g}{c f+\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}}$$

Result (type 4, 8113 leaves):

$$\sqrt{-d \left(-1+c^2 x^2\right)} \left(\frac{a d^2 \left(15 c^4 f^4-35 c^2 f^2 g^2+23 g^4\right)}{15 g^5}-\frac{a c^2 d^2 f \left(4 c^2 f^2-9 g^2\right) x}{8 g^4}-\frac{a c^2 d^2 \left(-5 c^2 f^2+11 g^2\right) x^2}{15 g^3}-\frac{a c^4 d^2 f x^3}{4 g^2}+\frac{a c^4 d^2 x^4}{5 g}\right)-$$

$$\frac{a\,c\,d^{5/2}\,f\left(8\,c^4\,f^4-20\,c^2\,f^2\,g^2+15\,g^4\right)\,\text{ArcTan}\left[\frac{c\,x\,\sqrt{-d\left(-1+c^2\,x^2\right)}}{\sqrt{d}\left(-1+c^2\,x^2\right)}\right]}{8\,g^6}+\frac{a\,d^{5/2}\left(-c^2\,f^2+g^2\right)^{5/2}\,\text{Log}[f+g\,x]}{g^6}-$$

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

$$\frac{1}{2\,g^2}\,b\,d^2\,\sqrt{d\left(1-c^2\,x^2\right)}\left(-\frac{2\,c\,g\,x}{\sqrt{1-c^2\,x^2}}+2\,g\,\text{ArcSin}[c\,x]+\frac{c\,f\,\text{ArcSin}[c\,x]^2}{\sqrt{1-c^2\,x^2}}+\frac{1}{\sqrt{1-c^2\,x^2}}\,2\left(-c\,f+g\right)\left(c\,f+g\right)\right.$$

$$\left(\frac{\pi\,\text{ArcTan}\left[\frac{g+c\,f\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\sqrt{c^2\,f^2-g^2}}\right]}{\sqrt{c^2\,f^2-g^2}}+\frac{1}{\sqrt{-c^2\,f^2+g^2}}\left(2\,\text{ArcCos}\left[-\frac{c\,f}{g}\right]\,\text{ArcTanh}\left[\frac{\left(c\,f-g\right)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2\,f^2+g^2}}\right]+\left(\pi-2\,\text{ArcSin}[c\,x]\right)\right.\right.$$

$$\text{ArcTanh}\left[\frac{\left(c\,f+g\right)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2\,f^2+g^2}}\right]+\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\left(\text{ArcTanh}\left[\frac{\left(c\,f-g\right)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2\,f^2+g^2}}\right]+\right.\right.$$

$$\left.\left.\text{ArcTanh}\left[\frac{\left(c\,f+g\right)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2\,f^2+g^2}}\right]\right)\right)\,\text{Log}\left[\frac{e^{\frac{1}{4}i\left(\pi-2\,\text{ArcSin}[c\,x]\right)}\sqrt{-c^2\,f^2+g^2}}{\sqrt{2}\,\sqrt{g}\,\sqrt{c\,f+c\,g\,x}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]-2\,i\,\text{ArcTanh}\left[\frac{\left(c\,f-g\right)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2\,f^2+g^2}}\right]-2\,i\,\text{ArcTanh}\left[\frac{\left(c\,f+g\right)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2\,f^2+g^2}}\right]\right)$$

$$\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right)e^{\frac{1}{2}i\,\text{ArcSin}[c\,x]}\sqrt{-c^2\,f^2+g^2}}{\sqrt{g}\,\sqrt{c\,f+c\,g\,x}}\right]-\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\,\text{ArcTanh}\left[\frac{\left(c\,f-g\right)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2\,f^2+g^2}}\right]\right)$$

$$\text{Log}\left[\frac{\left(c\,f+g\right)\left(-c\,f+g-i\,\sqrt{-c^2\,f^2+g^2}\right)\left(1+i\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}{g\left(c\,f+g+\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}\right]-\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]-2\,i\right.$$

$$\left.\text{ArcTanh}\left[\frac{\left(c\,f-g\right)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2\,f^2+g^2}}\right]\right)\,\text{Log}\left[\frac{\left(c\,f+g\right)\left(i\,c\,f-i\,g+\sqrt{-c^2\,f^2+g^2}\right)\left(i+\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}{g\left(c\,f+g+\sqrt{-c^2\,f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}\right]+$$

$$i \left(\text{PolyLog}\left[2, \frac{\left(c f - i \sqrt{-c^2 f^2 + g^2}\right) \left(c f + g - \sqrt{-c^2 f^2 + g^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]\right)}{g \left(c f + g + \sqrt{-c^2 f^2 + g^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]\right)}\right] - \text{PolyLog}\left[2,\right.\right.$$

$$\left.\left.\frac{\left(c f + i \sqrt{-c^2 f^2 + g^2}\right) \left(c f + g - \sqrt{-c^2 f^2 + g^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]\right)}{g \left(c f + g + \sqrt{-c^2 f^2 + g^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]\right)}\right]\right)\Bigg)\Bigg)\Bigg) +$$

$$2 b d^2 \left(-\frac{1}{8 \sqrt{1 - c^2 x^2}} \sqrt{d \left(1 - c^2 x^2\right)} \left(\frac{\pi \text{ArcTan}\left[\frac{g + c f \text{Tan}\left[\frac{1}{2} \text{ArcSin}[c x]\right]}{\sqrt{c^2 f^2 - g^2}}\right]}{\sqrt{c^2 f^2 - g^2}} + \frac{1}{\sqrt{-c^2 f^2 + g^2}} \left(2 \text{ArcCos}\left[-\frac{c f}{g}\right]\right.\right.\right.$$

$$\text{ArcTanh}\left[\frac{(c f - g) \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2 + g^2}}\right] + \left(\pi - 2 \text{ArcSin}[c x]\right) \text{ArcTanh}\left[\frac{(c f + g) \text{Tan}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2 + g^2}}\right] +$$

$$\left(\text{ArcCos}\left[-\frac{c f}{g}\right] + 2 i \left(\text{ArcTanh}\left[\frac{(c f - g) \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2 + g^2}}\right] + \text{ArcTanh}\left[\frac{(c f + g) \text{Tan}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2 + g^2}}\right]\right)\right)$$

$$\text{Log}\left[\frac{e^{\frac{1}{4} i \left(\pi - 2 \text{ArcSin}[c x]\right)} \sqrt{-c^2 f^2 + g^2}}{\sqrt{2} \sqrt{g} \sqrt{c f + c g x}}\right] +$$

$$\left(\text{ArcCos}\left[-\frac{c f}{g}\right] - 2 i \text{ArcTanh}\left[\frac{(c f - g) \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2 + g^2}}\right] - 2 i \text{ArcTanh}\left[\frac{(c f + g) \text{Tan}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2 + g^2}}\right]\right)$$

$$\text{Log}\left[\frac{\left(\frac{1}{2} - \frac{i}{2}\right) e^{\frac{1}{2} i \text{ArcSin}[c x]} \sqrt{-c^2 f^2 + g^2}}{\sqrt{g} \sqrt{c f + c g x}}\right] - \left(\text{ArcCos}\left[-\frac{c f}{g}\right] + 2 i \text{ArcTanh}\left[\frac{(c f - g) \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2 + g^2}}\right]\right)$$

$$\text{Log}\left[\frac{(c f + g) \left(-c f + g - i \sqrt{-c^2 f^2 + g^2}\right) \left(1 + i \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]\right)}{g \left(c f + g + \sqrt{-c^2 f^2 + g^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]\right)}\right] - \left(\text{ArcCos}\left[-\frac{c f}{g}\right] - 2 i\right.$$

$$\left.\text{ArcTanh}\left[\frac{(c f - g) \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2 + g^2}}\right]\right) \text{Log}\left[\frac{(c f + g) \left(i c f - i g + \sqrt{-c^2 f^2 + g^2}\right) \left(i + \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]\right)}{g \left(c f + g + \sqrt{-c^2 f^2 + g^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi + 2 \text{ArcSin}[c x]\right)\right]\right)}\right] +$$

$$\mathrm{i}\left(\text{PolyLog}\left[2,\frac{\left(c f-\mathrm{i}\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]-\text{PolyLog}\left[2,\right.\right.$$

$$\left.\left.\frac{\left(c f+\mathrm{i}\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]\right)\Bigg)\Bigg)+$$

$$\frac{1}{72 g^4\sqrt{1-c^2 x^2}}\sqrt{d\left(1-c^2 x^2\right)}\left(-18 c g\left(-4 c^2 f^2+g^2\right) x+18 g\left(-4 c^2 f^2+g^2\right)\sqrt{1-c^2 x^2}\ \text{ArcSin}[c x]-18 c f\left(2 c^2 f^2-g^2\right)\text{ArcSin}[c x]^2+\right.$$

$$9 c f g^2\,\text{Cos}[2\,\text{ArcSin}[c x]]+6 g^3\,\text{ArcSin}[c x]\,\text{Cos}[3\,\text{ArcSin}[c x]]+9\left(8 c^4 f^4-8 c^2 f^2 g^2+g^4\right)$$

$$\left(\frac{\pi\,\text{ArcTan}\left[\frac{g+c f\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c x]\right]}{\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}}+\frac{1}{\sqrt{-c^2 f^2+g^2}}\left(2\,\text{ArcCos}\left[-\frac{c f}{g}\right]\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\left(\pi-2\,\text{ArcSin}[c x]\right)\right.\right.$$

$$\text{ArcTanh}\left[\frac{(c f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2\,\mathrm{i}\left(\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\right.\right.$$

$$\left.\left.\text{ArcTanh}\left[\frac{(c f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\right)\text{Log}\left[\frac{e^{\frac{1}{4}\mathrm{i}\left(\pi-2\,\text{ArcSin}[c x]\right)}\sqrt{-c^2 f^2+g^2}}{\sqrt{2}\sqrt{g}\sqrt{c f+c g x}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{c f}{g}\right]-2\,\mathrm{i}\,\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-2\,\mathrm{i}\,\text{ArcTanh}\left[\frac{(c f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{\mathrm{i}}{2}\right)e^{\frac{1}{2}\mathrm{i}\,\text{ArcSin}[c x]}\sqrt{-c^2 f^2+g^2}}{\sqrt{g}\sqrt{c f+c g x}}\right]-\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2\,\mathrm{i}\,\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\text{Log}\left[\right.$$

$$\left.\frac{(c f+g)\left(-c f+g-\mathrm{i}\sqrt{-c^2 f^2+g^2}\right)\left(1+\mathrm{i}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]-\left(\text{ArcCos}\left[-\frac{c f}{g}\right]-2\,\mathrm{i}\right.$$

$$\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\Bigg)\,\text{Log}\left[\frac{(c f+g)\left(\mathrm{i}\,c f-\mathrm{i}\,g+\sqrt{-c^2 f^2+g^2}\right)\left(\mathrm{i}+\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]+$$

$$\mathrm{i}\left(\text{PolyLog}\left[2,\frac{\left(c f-\mathrm{i}\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]-\right.$$

$$\left.\text{PolyLog}\left[2,\frac{\left(c f+\mathrm{i}\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]\right)\Bigg)\Bigg)+$$

$$18\,c f g^2\,\text{ArcSin}[c x]\,\text{Sin}[2\,\text{ArcSin}[c x]]-2\,g^3\,\text{Sin}[3\,\text{ArcSin}[c x]]\Bigg)\Bigg)-b\,d^2$$

$$\left(\frac{1}{32\,g^2\sqrt{1-c^2 x^2}}\sqrt{d\left(1-c^2 x^2\right)}\left(-2\,c g x+2\,g\sqrt{1-c^2 x^2}\,\text{ArcSin}[c x]+c f\,\text{ArcSin}[c x]^2+\left(-2\,c^2 f^2+g^2\right)\right.\right.$$

$$\left(\frac{\pi\,\text{ArcTan}\left[\frac{g+c f\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c x]\right]}{\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}}+\frac{1}{\sqrt{-c^2 f^2+g^2}}\left(2\,\text{ArcCos}\left[-\frac{c f}{g}\right]\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\left(\pi-2\,\text{ArcSin}[c x]\right)\right.\right.$$

$$\text{ArcTanh}\left[\frac{(c f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2\,\mathrm{i}\left(\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\right.\right.$$

$$\left.\left.\text{ArcTanh}\left[\frac{(c f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\right)\text{Log}\left[\frac{e^{\frac{1}{4}\mathrm{i}\,(\pi-2\,\text{ArcSin}[c x])}\sqrt{-c^2 f^2+g^2}}{\sqrt{2}\,\sqrt{g}\,\sqrt{c f+c g x}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{c f}{g}\right]-2\,\mathrm{i}\,\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-2\,\mathrm{i}\,\text{ArcTanh}\left[\frac{(c f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\mathrm{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right) e^{\frac{1}{2} i \,\mathrm{ArcSin}[c x]} \sqrt{-c^2 f^2+g^2}}{\sqrt{g} \sqrt{c f+c g x}}\right]-\left(\mathrm{ArcCos}\left[-\frac{c f}{g}\right]+2 i \,\mathrm{ArcTanh}\left[\frac{(c f-g) \,\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right) \mathrm{Log}\left[\right.$$

$$\left.\frac{(c f+g) \left(-c f+g-i \sqrt{-c^2 f^2+g^2}\right) \left(1+i \,\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]\right)}{g \left(c f+g+\sqrt{-c^2 f^2+g^2} \,\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]\right)}\right]-\left(\mathrm{ArcCos}\left[-\frac{c f}{g}\right]-2 i\right.$$

$$\left.\mathrm{ArcTanh}\left[\frac{(c f-g) \,\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right) \mathrm{Log}\left[\frac{(c f+g) \left(i c f-i g+\sqrt{-c^2 f^2+g^2}\right) \left(i+\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]\right)}{g \left(c f+g+\sqrt{-c^2 f^2+g^2} \,\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]\right)}\right]+$$

$$i \left(\mathrm{PolyLog}\left[2,\frac{\left(c f-i \sqrt{-c^2 f^2+g^2}\right) \left(c f+g-\sqrt{-c^2 f^2+g^2} \,\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]\right)}{g \left(c f+g+\sqrt{-c^2 f^2+g^2} \,\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]\right)}\right]-\right.$$

$$\left.\left.\left.\left.\mathrm{PolyLog}\left[2,\frac{\left(c f+i \sqrt{-c^2 f^2+g^2}\right) \left(c f+g-\sqrt{-c^2 f^2+g^2} \,\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]\right)}{g \left(c f+g+\sqrt{-c^2 f^2+g^2} \,\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]\right)}\right]\right)\right)\right)\right)-$$

$$\frac{1}{16 \sqrt{1-c^2 x^2}} \sqrt{d \left(1-c^2 x^2\right)} \left(\frac{\pi \,\mathrm{ArcTan}\left[\frac{g+c f \,\mathrm{Tan}\left[\frac{1}{2} \mathrm{ArcSin}[c x]\right]}{\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}}+\frac{1}{\sqrt{-c^2 f^2+g^2}} \left(2 \,\mathrm{ArcCos}\left[-\frac{c f}{g}\right] \mathrm{ArcTanh}\left[\frac{(c f-g) \,\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\right.\right.$$

$$(\pi-2 \,\mathrm{ArcSin}[c x]) \,\mathrm{ArcTanh}\left[\frac{(c f+g) \,\mathrm{Tan}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]+$$

$$\left(\mathrm{ArcCos}\left[-\frac{c f}{g}\right]+2 i \left(\mathrm{ArcTanh}\left[\frac{(c f-g) \,\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\mathrm{ArcTanh}\left[\frac{(c f+g) \,\mathrm{Tan}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\right)$$

$$\mathrm{Log}\left[\frac{e^{\frac{1}{4} i (\pi-2 \,\mathrm{ArcSin}[c x])} \sqrt{-c^2 f^2+g^2}}{\sqrt{2} \sqrt{g} \sqrt{c f+c g x}}\right]+$$

$$\left(\mathrm{ArcCos}\left[-\frac{c f}{g}\right]-2 i \,\mathrm{ArcTanh}\left[\frac{(c f-g) \,\mathrm{Cot}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]-2 i \,\mathrm{ArcTanh}\left[\frac{(c f+g) \,\mathrm{Tan}\left[\frac{1}{4} (\pi+2 \,\mathrm{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right) e^{\frac{1}{2} i \text{ArcSin}[c x]} \sqrt{-c^2 f^2+g^2}}{\sqrt{g} \sqrt{c f+c g x}}\right]-\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2 i \text{ArcTanh}\left[\frac{(c f-g) \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\text{Log}\left[\frac{(c f+g) \left(-c f+g-i \sqrt{-c^2 f^2+g^2}\right) \left(1+i \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}{g \left(c f+g+\sqrt{-c^2 f^2+g^2} \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}\right]-\left(\text{ArcCos}\left[-\frac{c f}{g}\right]-\right.$$

$$\left.2 i \text{ArcTanh}\left[\frac{(c f-g) \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right) \text{Log}\left[\frac{(c f+g) \left(i c f-i g+\sqrt{-c^2 f^2+g^2}\right) \left(i+\text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}{g \left(c f+g+\sqrt{-c^2 f^2+g^2} \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}\right]+$$

$$i \left(\text{PolyLog}\left[2, \frac{\left(c f-i \sqrt{-c^2 f^2+g^2}\right) \left(c f+g-\sqrt{-c^2 f^2+g^2} \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}{g \left(c f+g+\sqrt{-c^2 f^2+g^2} \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}\right]-\right.$$

$$\left.\left.\left.\text{PolyLog}\left[2, \frac{\left(c f+i \sqrt{-c^2 f^2+g^2}\right) \left(c f+g-\sqrt{-c^2 f^2+g^2} \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}{g \left(c f+g+\sqrt{-c^2 f^2+g^2} \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]\right)}\right]\right)\right)\right)+$$

$$\frac{1}{144 g^4 \sqrt{1-c^2 x^2}} \sqrt{d \left(1-c^2 x^2\right)} \left(-18 c g \left(-4 c^2 f^2+g^2\right) x+18 g \left(-4 c^2 f^2+g^2\right) \sqrt{1-c^2 x^2} \text{ArcSin}[c x]-\right.$$

$$18 c f \left(2 c^2 f^2-g^2\right) \text{ArcSin}[c x]^2+9 c f g^2 \text{Cos}[2 \text{ArcSin}[c x]]+$$
$$6 g^3 \text{ArcSin}[c x] \text{Cos}[3 \text{ArcSin}[c x]]+9 \left(8 c^4 f^4-8 c^2 f^2 g^2+g^4\right)$$

$$\left(\frac{\pi \text{ArcTan}\left[\frac{g+c f \text{Tan}\left[\frac{1}{2} \text{ArcSin}[c x]\right]}{\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}}+\frac{1}{\sqrt{-c^2 f^2+g^2}} \left(2 \text{ArcCos}\left[-\frac{c f}{g}\right] \text{ArcTanh}\left[\frac{(c f-g) \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]+(\pi-2 \text{ArcSin}[c x])\right.\right.$$

$$\text{ArcTanh}\left[\frac{(c f+g) \text{Tan}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2 i \left(\text{ArcTanh}\left[\frac{(c f-g) \text{Cot}\left[\frac{1}{4} (\pi+2 \text{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\right.\right.$$

$$\left.\left.\text{ArcTanh}\left[\frac{(c f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\right)\text{Log}\left[\frac{e^{\frac{1}{4} i \left(\pi-2\,\text{ArcSin}[c x]\right)}\sqrt{-c^2 f^2+g^2}}{\sqrt{2}\,\sqrt{g}\,\sqrt{c f+c g x}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{c f}{g}\right]-2 i\,\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-2 i\,\text{ArcTanh}\left[\frac{(c f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right)e^{\frac{1}{2} i\,\text{ArcSin}[c x]}\sqrt{-c^2 f^2+g^2}}{\sqrt{g}\,\sqrt{c f+c g x}}\right]-\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2 i\,\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\text{Log}\Big[$$

$$\frac{(c f+g)\left(-c f+g-i\sqrt{-c^2 f^2+g^2}\right)\left(1+i\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\Bigg]-\Bigg(\text{ArcCos}\left[-\frac{c f}{g}\right]-2 i$$

$$\left.\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\text{Log}\left[\frac{(c f+g)\left(i c f-i g+\sqrt{-c^2 f^2+g^2}\right)\left(i+\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]+$$

$$i\left(\text{PolyLog}\left[2,\frac{\left(c f-i\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]-\right.$$

$$\left.\left.\left.\text{PolyLog}\left[2,\frac{\left(c f+i\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]\right)}\right]\right)\right)\right)+$$

$$\left.18 c f g^2\,\text{ArcSin}[c x]\,\text{Sin}[2\,\text{ArcSin}[c x]]-2 g^3\,\text{Sin}[3\,\text{ArcSin}[c x]]\right)-\frac{1}{32\sqrt{1-c^2 x^2}}\sqrt{d\left(1-c^2 x^2\right)}$$

$$\left(-\frac{32 c^5 f^4 x}{g^5}+\frac{24 c^3 f^2 x}{g^3}-\frac{2 c x}{g}+\frac{2\left(16 c^4 f^4-12 c^2 f^2 g^2+g^4\right)\sqrt{1-c^2 x^2}\,\text{ArcSin}[c x]}{g^5}+\right.$$

$$\frac{16\,c^5 f^5\,\text{ArcSin}[c\,x]^2}{g^6}-\frac{16\,c^3 f^3\,\text{ArcSin}[c\,x]^2}{g^4}+$$
$$\frac{3\,c\,f\,\text{ArcSin}[c\,x]^2}{g^2}+\frac{2\,c\,f\left(-2\,c^2 f^2+g^2\right)\text{Cos}[2\,\text{ArcSin}[c\,x]]}{g^4}-$$
$$\frac{8\,c^2 f^2\,\text{ArcSin}[c\,x]\,\text{Cos}[3\,\text{ArcSin}[c\,x]]}{3\,g^3}+$$
$$\frac{2\,\text{ArcSin}[c\,x]\,\text{Cos}[3\,\text{ArcSin}[c\,x]]}{3\,g}+$$
$$\frac{c\,f\,\text{Cos}[4\,\text{ArcSin}[c\,x]]}{4\,g^2}+\frac{2\,\text{ArcSin}[c\,x]\,\text{Cos}[5\,\text{ArcSin}[c\,x]]}{5\,g}+$$
$$\frac{1}{g^6}\left(-2\,c^2 f^2+g^2\right)\left(16\,c^4 f^4-16\,c^2 f^2 g^2+g^4\right)$$
$$\left(\frac{\pi\,\text{ArcTan}\left[\frac{g+c\,f\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}}+\frac{1}{\sqrt{-c^2 f^2+g^2}}\left(2\,\text{ArcCos}\left[-\frac{c\,f}{g}\right]\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\left(\pi-2\,\text{ArcSin}[c\,x]\right)\right.\right.$$
$$\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\left(\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\right.\right.$$
$$\left.\left.\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\right)\text{Log}\left[\frac{e^{\frac{1}{4}i\left(\pi-2\,\text{ArcSin}[c\,x]\right)}\sqrt{-c^2 f^2+g^2}}{\sqrt{2}\,\sqrt{g}\,\sqrt{c\,f+c\,g\,x}}\right]+$$
$$\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]-2\,i\,\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-2\,i\,\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$
$$\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right)e^{\frac{1}{2}i\,\text{ArcSin}[c\,x]}\sqrt{-c^2 f^2+g^2}}{\sqrt{g}\,\sqrt{c\,f+c\,g\,x}}\right]-\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\,\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$
$$\text{Log}\left[\frac{(c\,f+g)\left(-c\,f+g-i\sqrt{-c^2 f^2+g^2}\right)\left(1+i\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}{g\left(c\,f+g+\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}\right]-\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]-2\,i\,\text{ArcTanh}\left[\right.\right.$$

$$\frac{(c f-g)\,\mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\Bigg]\Bigg)\ \mathrm{Log}\left[\frac{(c f+g)\left(i c f-i g+\sqrt{-c^2 f^2+g^2}\right)\left(i+\mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\ \mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}\right]+i$$

$$\left(\mathrm{PolyLog}\left[2,\frac{\left(c f-i\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\ \mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\ \mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}\right]-\right.$$

$$\left.\mathrm{PolyLog}\left[2,\frac{\left(c f+i\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\ \mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\ \mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}\right]\right)\Bigg)\Bigg)-$$

$$\frac{8 c^3 f^3\,\mathrm{ArcSin}[c x]\,\mathrm{Sin}[2\,\mathrm{ArcSin}[c x]]}{g^4}+\frac{4 c f\,\mathrm{ArcSin}[c x]\,\mathrm{Sin}[2\,\mathrm{ArcSin}[c x]]}{g^2}+\frac{8 c^2 f^2\,\mathrm{Sin}[3\,\mathrm{ArcSin}[c x]]}{9 g^3}-$$
$$\frac{2\,\mathrm{Sin}[3\,\mathrm{ArcSin}[c x]]}{9 g}+\frac{c f\,\mathrm{ArcSin}[c x]\,\mathrm{Sin}[4\,\mathrm{ArcSin}[c x]]}{g^2}-$$
$$\left.\left.\frac{2\,\mathrm{Sin}[5\,\mathrm{ArcSin}[c x]]}{25 g}\right)\right)$$

Problem 47: Result more than twice size of optimal antiderivative.

$$\int\frac{a+b\,\mathrm{ArcSin}[c x]}{(f+g x)\sqrt{d-c^2 d x^2}}\,dx$$

Optimal (type 4, 380 leaves, 10 steps):

$$-\frac{i\sqrt{1-c^2x^2}\,(a+b\,\mathrm{ArcSin}[c x])\,\mathrm{Log}\left[1-\frac{i e^{i\,\mathrm{ArcSin}[c x]}\,g}{c f-\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}\,\sqrt{d-c^2 d x^2}}+\frac{i\sqrt{1-c^2x^2}\,(a+b\,\mathrm{ArcSin}[c x])\,\mathrm{Log}\left[1-\frac{i e^{i\,\mathrm{ArcSin}[c x]}\,g}{c f+\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}\,\sqrt{d-c^2 d x^2}}-$$
$$\frac{b\sqrt{1-c^2x^2}\,\mathrm{PolyLog}\left[2,\frac{i e^{i\,\mathrm{ArcSin}[c x]}\,g}{c f-\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}\,\sqrt{d-c^2 d x^2}}+\frac{b\sqrt{1-c^2x^2}\,\mathrm{PolyLog}\left[2,\frac{i e^{i\,\mathrm{ArcSin}[c x]}\,g}{c f+\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}\,\sqrt{d-c^2 d x^2}}$$

Result (type 4, 1090 leaves):

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

$$\frac{1}{\sqrt{d-c^2 d\,x^2}}\,b\,\sqrt{1-c^2 x^2}\left(\frac{\pi\,\text{ArcTan}\left[\frac{g+c\,f\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}}+\frac{1}{\sqrt{-c^2 f^2+g^2}}\left(2\,\text{ArcCos}\left[-\frac{c\,f}{g}\right]\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\right.\right.$$

$$(\pi-2\,\text{ArcSin}[c\,x])\,\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\left(\text{ArcTanh}\left[\right.\right.\right.$$

$$\left.\left.\left.\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\right)\text{Log}\left[\frac{e^{\frac{1}{4}i\,(\pi-2\,\text{ArcSin}[c\,x])}\sqrt{-c^2 f^2+g^2}}{\sqrt{2}\,\sqrt{g}\,\sqrt{c\,(f+g\,x)}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]-2\,i\,\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-2\,i\,\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right)e^{\frac{1}{2}i\,\text{ArcSin}[c\,x]}\sqrt{-c^2 f^2+g^2}}{\sqrt{g}\,\sqrt{c\,(f+g\,x)}}\right]-\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\,\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\text{Log}\left[\frac{(c\,f+g)\left(-c\,f+g-i\,\sqrt{-c^2 f^2+g^2}\right)\left(1+i\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}{g\left(c\,f+g+\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}\right]-\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]-\right.$$

$$\left.2\,i\,\text{ArcTanh}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\text{Log}\left[\frac{(c\,f+g)\left(i\,c\,f-i\,g+\sqrt{-c^2 f^2+g^2}\right)\left(i+\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}{g\left(c\,f+g+\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}\right]+$$

$$i\left(\text{PolyLog}\left[2,\frac{\left(c\,f-i\,\sqrt{-c^2 f^2+g^2}\right)\left(c\,f+g-\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}{g\left(c\,f+g+\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}\right]-\right.$$

$$\left.\left.\left.\text{PolyLog}\left[2,\frac{\left(c\,f+i\,\sqrt{-c^2 f^2+g^2}\right)\left(c\,f+g-\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}{g\left(c\,f+g+\sqrt{-c^2 f^2+g^2}\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]\right)}\right]\right)\right)\right)$$

Problem 48: Result more than twice size of optimal antiderivative.

$$\int \frac{a+b\,\text{ArcSin}[c\,x]}{(f+g\,x)^2\sqrt{d-c^2 d\,x^2}}\,dx$$

Optimal (type 4, 507 leaves, 13 steps):

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

Result (type 4, 1414 leaves):

$$-\frac{a\,g\sqrt{-d\left(-1+c^2x^2\right)}}{d\left(-c^2f^2+g^2\right)(f+g\,x)}+\frac{a\,c^2f\,\text{Log}[f+g\,x]}{\sqrt{d}\,(c\,f-g)\,(c\,f+g)\sqrt{-c^2f^2+g^2}}-\frac{a\,c^2f\,\text{Log}\left[d\,g+c^2d\,f\,x+\sqrt{d}\sqrt{-c^2f^2+g^2}\sqrt{-d\left(-1+c^2x^2\right)}\right]}{\sqrt{d}\,(c\,f-g)\,(c\,f+g)\sqrt{-c^2f^2+g^2}}+$$
$$b\,c\left(\frac{g\left(1-c^2x^2\right)\text{ArcSin}[c\,x]}{(c\,f-g)\,(c\,f+g)\,(c\,f+c\,g\,x)\sqrt{d\left(1-c^2x^2\right)}}-\frac{\sqrt{1-c^2x^2}\,\text{Log}\left[1+\frac{g\,x}{f}\right]}{\left(c^2f^2-g^2\right)\sqrt{d\left(1-c^2x^2\right)}}+\frac{1}{\left(c^2f^2-g^2\right)\sqrt{d\left(1-c^2x^2\right)}}\right.$$
$$c\,f\sqrt{1-c^2x^2}\left(\frac{\pi\,\text{ArcTan}\left[\frac{g+c\,f\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\sqrt{c^2f^2-g^2}}\right]}{\sqrt{c^2f^2-g^2}}+\frac{1}{\sqrt{-c^2f^2+g^2}}\left(2\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2f^2+g^2}}\right]-\right.\right.$$
$$2\,\text{ArcCos}\left[-\frac{c\,f}{g}\right]\text{ArcTanh}\left[\frac{(-c\,f+g)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2f^2+g^2}}\right]+\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]-2\,i\left(\text{ArcTanh}\left[\frac{(c\,f+g)\,\text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2f^2+g^2}}\right]-\right.\right.$$
$$\left.\left.\text{ArcTanh}\left[\frac{(-c\,f+g)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2f^2+g^2}}\right]\right)\right)\text{Log}\left[\frac{e^{-\frac{1}{2}i\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)}\sqrt{-c^2f^2+g^2}}{\sqrt{2}\sqrt{g}\sqrt{c\,f+c\,g\,x}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2 i \left(\text{ArcTanh}\left[\frac{(c f+g) \text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-\text{ArcTanh}\left[\frac{(-c f+g) \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\right)$$

$$\text{Log}\left[\frac{e^{\frac{1}{2} i \left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)} \sqrt{-c^2 f^2+g^2}}{\sqrt{2} \sqrt{g} \sqrt{c f+c g x}}\right]-\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2 i \text{ArcTanh}\left[\frac{(-c f+g) \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\text{Log}\left[1-\frac{\left(c f-i \sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2} \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2} \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}\right]+\left(-\text{ArcCos}\left[-\frac{c f}{g}\right]+2 i \text{ArcTanh}\left[\right.\right.$$

$$\left.\left.\frac{(-c f+g) \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right) \text{Log}\left[1-\frac{\left(c f+i \sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2} \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2} \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}\right]+$$

$$i \left(\text{PolyLog}\left[2, \frac{\left(c f-i \sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2} \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2} \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}\right]-\right.$$

$$\left.\text{PolyLog}\left[2, \frac{\left(c f+i \sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2} \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2} \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}\right]\right)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 51: Result unnecessarily involves higher level functions.

$$\int \frac{(f+g x)\,(a+b \text{ArcSin}[c x])}{\left(d-c^2 d x^2\right)^{3/2}}\,dx$$

Optimal (type 3, 144 leaves, 6 steps):

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

Result (type 4, 147 leaves):

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

Problem 52: Result more than twice size of optimal antiderivative.

$$\int\frac{a+b\,\text{ArcSin}[c\,x]}{(f+g\,x)\left(d-c^2 d x^2\right)^{3/2}}\,dx$$

Optimal (type 4, 654 leaves, 20 steps):

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

$$\frac{i\,g^2\sqrt{1-c^2 x^2}\left(a+b\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1-\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f+\sqrt{c^2 f^2-g^2}}\right]}{d\left(c^2 f^2-g^2\right)^{3/2}\sqrt{d-c^2 d x^2}}+\frac{b\sqrt{1-c^2 x^2}\;\text{Log}\left[\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]}{d\,(c\,f+g)\sqrt{d-c^2 d x^2}}+\frac{b\sqrt{1-c^2 x^2}\;\text{Log}\left[\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]}{d\,(c\,f-g)\sqrt{d-c^2 d x^2}}+$$

$$\frac{b\,g^2\sqrt{1-c^2 x^2}\;\text{PolyLog}\left[2,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f-\sqrt{c^2 f^2-g^2}}\right]}{d\left(c^2 f^2-g^2\right)^{3/2}\sqrt{d-c^2 d x^2}}-\frac{b\,g^2\sqrt{1-c^2 x^2}\;\text{PolyLog}\left[2,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f+\sqrt{c^2 f^2-g^2}}\right]}{d\left(c^2 f^2-g^2\right)^{3/2}\sqrt{d-c^2 d x^2}}+\frac{\sqrt{1-c^2 x^2}\left(a+b\,\text{ArcSin}[c\,x]\right)\text{Tan}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]}{2\,d\,(c\,f+g)\sqrt{d-c^2 d x^2}}$$

Result (type 4, 1637 leaves):

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

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

$$\frac{\sqrt{1-c^2 x^2}\;\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]}{(c\,f+g)\sqrt{d\left(1-c^2 x^2\right)}}-\frac{\sqrt{1-c^2 x^2}\;\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right]}{(c\,f-g)\sqrt{d\left(1-c^2 x^2\right)}}-$$

$$\frac{1}{(-c f+g)\ (c f+g)\ \sqrt{d\ (1-c^2 x^2)}}\ g^2 \sqrt{1-c^2 x^2}\ \left(\frac{\pi\ \text{ArcTan}\left[\frac{g+c f \text{Tan}\left[\frac{1}{2} \text{ArcSin}[c x]\right]}{\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}}+\frac{1}{\sqrt{-c^2 f^2+g^2}}\right.$$

$$\left(2\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right) \text{ArcTanh}\left[\frac{(c f+g)\ \text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-2\,\text{ArcCos}\left[-\frac{c f}{g}\right] \text{ArcTanh}\left[\frac{(-c f+g)\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\right.$$

$$\left(\text{ArcCos}\left[-\frac{c f}{g}\right]-2\,\mathrm{i}\left(\text{ArcTanh}\left[\frac{(c f+g)\ \text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-\text{ArcTanh}\left[\frac{(-c f+g)\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\right)$$

$$\text{Log}\left[\frac{e^{-\frac{1}{2}\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)}\sqrt{-c^2 f^2+g^2}}{\sqrt{2}\ \sqrt{g}\ \sqrt{c f+c g x}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2\,\mathrm{i}\left(\text{ArcTanh}\left[\frac{(c f+g)\ \text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-\text{ArcTanh}\left[\frac{(-c f+g)\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\right)$$

$$\text{Log}\left[\frac{e^{\frac{1}{2}\mathrm{i}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)}\sqrt{-c^2 f^2+g^2}}{\sqrt{2}\ \sqrt{g}\ \sqrt{c f+c g x}}\right]-\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2\,\mathrm{i}\,\text{ArcTanh}\left[\frac{(-c f+g)\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\text{Log}\left[1-\frac{\left(c f-\mathrm{i}\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}\right]+\left(-\text{ArcCos}\left[-\frac{c f}{g}\right]+2\,\mathrm{i}\,\text{ArcTanh}\left[\right.\right.$$

$$\left.\left.\frac{(-c f+g)\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\text{Log}\left[1-\frac{\left(c f+\mathrm{i}\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}\right]+$$

$$\mathrm{i}\left(\text{PolyLog}\left[2,\ \frac{\left(c f-\mathrm{i}\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\ \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]\right)}\right]-\text{PolyLog}\left[2,\right.\right.$$

$$\left.\left.\left.\frac{\left(c\,f+i\sqrt{-c^2 f^2+g^2}\right)\left(c\,f+g-\sqrt{-c^2 f^2+g^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{g\left(c\,f+g+\sqrt{-c^2 f^2+g^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\right]\right)\right)\right) -$$

$$\left.\frac{\sqrt{1-c^2 x^2}\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{(c\,f+g)\sqrt{d\,(1-c^2 x^2)}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)} - \frac{\sqrt{1-c^2 x^2}\,\text{ArcSin}[c\,x]\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{(c\,f-g)\sqrt{d\,(1-c^2 x^2)}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)}\right)$$

Problem 54: Result unnecessarily involves higher level functions.

$$\int \frac{(f+g\,x)^3\,(a+b\,\text{ArcSin}[c\,x])}{(d-c^2 d\,x^2)^{5/2}}\,dx$$

Optimal (type 3, 410 leaves, 10 steps):

$$-\frac{b\,(f+g\,x)\,(c^2 f^2+g^2+2\,c^2 f\,g\,x)}{6\,c^3 d^2\sqrt{1-c^2 x^2}\,\sqrt{d-c^2 d\,x^2}} + \frac{2\,(c\,f-g)\,(c\,f+g)\,(g+c^2 f\,x)\,(a+b\,\text{ArcSin}[c\,x])}{3\,c^4 d^2\sqrt{d-c^2 d\,x^2}} +$$
$$\frac{(g+c^2 f\,x)\,(f+g\,x)^2\,(a+b\,\text{ArcSin}[c\,x])}{3\,c^2 d^2\,(1-c^2 x^2)\sqrt{d-c^2 d\,x^2}} + \frac{b\,(c\,f-g)\,(c\,f+g)^2\sqrt{1-c^2 x^2}\,\text{Log}[1-c\,x]}{3\,c^4 d^2\sqrt{d-c^2 d\,x^2}} -$$
$$\frac{b\,g\,(c\,f+g)^2\sqrt{1-c^2 x^2}\,\text{Log}[1-c\,x]}{12\,c^4 d^2\sqrt{d-c^2 d\,x^2}} + \frac{b\,(c\,f-g)^2\,g\sqrt{1-c^2 x^2}\,\text{Log}[1+c\,x]}{12\,c^4 d^2\sqrt{d-c^2 d\,x^2}} + \frac{b\,(c\,f-g)^2\,(c\,f+g)\sqrt{1-c^2 x^2}\,\text{Log}[1+c\,x]}{3\,c^4 d^2\sqrt{d-c^2 d\,x^2}}$$

Result (type 4, 366 leaves):

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

Problem 55: Result unnecessarily involves higher level functions.

$$\int \frac{(f+g x)^2 (a+b \operatorname{ArcSin}[c x])}{(d-c^2 d x^2)^{5/2}} \, dx$$

Optimal (type 3, 271 leaves, 10 steps):

$$-\frac{b x \left(2 f g+\left(c^2 f^2+g^2\right) x\right)}{6 c d^2 \sqrt{1-c^2 x^2} \sqrt{d-c^2 d x^2}}+\frac{2 f \left(g+c^2 f x\right) (a+b \operatorname{ArcSin}[c x])}{3 c^2 d^2 \sqrt{d-c^2 d x^2}}+\frac{x (f+g x)^2 (a+b \operatorname{ArcSin}[c x])}{3 d^2 \left(1-c^2 x^2\right) \sqrt{d-c^2 d x^2}}+$$
$$\frac{b (2 c f-g) (c f+g) \sqrt{1-c^2 x^2} \operatorname{Log}[1-c x]}{6 c^3 d^2 \sqrt{d-c^2 d x^2}}+\frac{b (c f-g) (2 c f+g) \sqrt{1-c^2 x^2} \operatorname{Log}[1+c x]}{6 c^3 d^2 \sqrt{d-c^2 d x^2}}$$

Result (type 4, 285 leaves):

$$\frac{1}{6 \left(-c^2\right)^{5/2} d^3 \left(-1+c^2 x^2\right)^2} c \sqrt{d-c^2 d x^2} \left(2 i b c^2 f g \left(1-c^2 x^2\right)^{3/2} \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\sqrt{-c^2} x\right], 1\right]-\right.$$
$$\sqrt{-c^2} \left(-4 a c f g-6 a c^3 f^2 x+4 a c^5 f^2 x^3-2 a c^3 g^2 x^3+b c^2 f^2 \sqrt{1-c^2 x^2}+b g^2 \sqrt{1-c^2 x^2}+2 b c^2 f g x \sqrt{1-c^2 x^2}+\right.$$
$$\left.\left.2 b c \left(-2 f g-c^2 g^2 x^3+c^2 f^2 x \left(-3+2 c^2 x^2\right)\right) \operatorname{ArcSin}[c x]-b \left(2 c^2 f^2-g^2\right) \left(1-c^2 x^2\right)^{3/2} \operatorname{Log}\left[-1+c^2 x^2\right]\right)\right)$$

Problem 56: Result unnecessarily involves higher level functions.

$$\int \frac{(f+g x) (a+b \operatorname{ArcSin}[c x])}{(d-c^2 d x^2)^{5/2}} \, dx$$

Optimal (type 3, 228 leaves, 6 steps):

$$-\frac{b (f+g x)}{6 c d^2 \sqrt{1-c^2 x^2} \sqrt{d-c^2 d x^2}}+\frac{2 f x (a+b \operatorname{ArcSin}[c x])}{3 d^2 \sqrt{d-c^2 d x^2}}+$$
$$\frac{\left(g+c^2 f x\right) (a+b \operatorname{ArcSin}[c x])}{3 c^2 d^2 \left(1-c^2 x^2\right) \sqrt{d-c^2 d x^2}}-\frac{b g \sqrt{1-c^2 x^2} \operatorname{ArcTanh}[c x]}{6 c^2 d^2 \sqrt{d-c^2 d x^2}}+\frac{b f \sqrt{1-c^2 x^2} \operatorname{Log}\left[1-c^2 x^2\right]}{3 c d^2 \sqrt{d-c^2 d x^2}}$$

Result (type 4, 208 leaves):

$$-\left(\left(\sqrt{d-c^2 d x^2} \left(i b c g \left(1-c^2 x^2\right)^{3/2} \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\sqrt{-c^2} x\right], 1\right]+\sqrt{-c^2} \left(2 a g+6 a c^2 f x-4 a c^4 f x^3-b c f \sqrt{1-c^2 x^2}-b c g x \sqrt{1-c^2 x^2}+\right.\right.\right.\right.$$
$$\left.\left.\left.\left.2 b \left(g+c^2 f x \left(3-2 c^2 x^2\right)\right) \operatorname{ArcSin}[c x]+2 b c f \left(1-c^2 x^2\right)^{3/2} \operatorname{Log}\left[-1+c^2 x^2\right]\right)\right)\right) \Big/ \left(6 \left(-c^2\right)^{3/2} d^3 \left(-1+c^2 x^2\right)^2\right)\right)$$

Problem 61: Unable to integrate problem.

$$\int \frac{\sqrt{d-c^2 d x^2}\,(a+b\,\text{ArcSin}[c x])^2}{f+g x}\,dx$$

Optimal (type 4, 1442 leaves, 38 steps):

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

Result (type 8, 35 leaves):

$$\int \frac{\sqrt{d-c^2 d x^2}\,(a+b\,\text{ArcSin}[c x])^2}{f+g x}\,dx$$

Problem 65: Unable to integrate problem.

$$\int \frac{\left(d - c^2 d x^2\right)^{3/2} \left(a + b \operatorname{ArcSin}[c x]\right)^2}{f + g x} \, dx$$

Optimal (type 4, 1992 leaves, 50 steps) :

$$-\frac{4 b^2 d \sqrt{d-c^2 d x^2}}{9 g}-\frac{a^2 d (c f-g) (c f+g) \sqrt{d-c^2 d x^2}}{g^3}+\frac{2 b^2 d (c f-g) (c f+g) \sqrt{d-c^2 d x^2}}{g^3}-\frac{b^2 c^2 d f x \sqrt{d-c^2 d x^2}}{4 g^2}+$$

$$\frac{2 a b c d (c f-g) (c f+g) x \sqrt{d-c^2 d x^2}}{g^3 \sqrt{1-c^2 x^2}}-\frac{2 b^2 d \left(1-c^2 x^2\right) \sqrt{d-c^2 d x^2}}{27 g}-\frac{2 a b d (c f-g) (c f+g) \sqrt{d-c^2 d x^2}\ \text{ArcSin}[c x]}{g^3}+$$

$$\frac{b^2 c d f \sqrt{d-c^2 d x^2}\ \text{ArcSin}[c x]}{4 g^2 \sqrt{1-c^2 x^2}}+\frac{2 b^2 c d (c f-g) (c f+g) x \sqrt{d-c^2 d x^2}\ \text{ArcSin}[c x]}{g^3 \sqrt{1-c^2 x^2}}-\frac{b^2 d (c f-g) (c f+g) \sqrt{d-c^2 d x^2}\ \text{ArcSin}[c x]^2}{g^3}-$$

$$\frac{2 b c d x \sqrt{d-c^2 d x^2}\ (a+b\,\text{ArcSin}[c x])}{3 g \sqrt{1-c^2 x^2}}-\frac{b c^3 d f x^2 \sqrt{d-c^2 d x^2}\ (a+b\,\text{ArcSin}[c x])}{2 g^2 \sqrt{1-c^2 x^2}}+\frac{2 b c^3 d x^3 \sqrt{d-c^2 d x^2}\ (a+b\,\text{ArcSin}[c x])}{9 g \sqrt{1-c^2 x^2}}+$$

$$\frac{c^2 d f x \sqrt{d-c^2 d x^2}\ (a+b\,\text{ArcSin}[c x])^2}{2 g^2}+\frac{d \left(1-c^2 x^2\right) \sqrt{d-c^2 d x^2}\ (a+b\,\text{ArcSin}[c x])^2}{3 g}+\frac{c d f \sqrt{d-c^2 d x^2}\ (a+b\,\text{ArcSin}[c x])^3}{6 b g^2 \sqrt{1-c^2 x^2}}-$$

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

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

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

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

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

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

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

Result (type 8, 35 leaves) :

$$\int \frac{\left(d-c^2 d x^2\right)^{3/2} (a+b \operatorname{ArcSin}[c x])^2}{f+g x} \, dx$$

Problem 69: Unable to integrate problem.

$$\int \frac{\left(d-c^2 d x^2\right)^{5/2} (a+b \operatorname{ArcSin}[c x])^2}{f+g x} \, dx$$

Optimal (type 4, 2989 leaves, 74 steps):

$$\frac{52 b^2 d^2 \sqrt{d-c^2 d x^2}}{225 g}+\frac{4 b^2 d^2 \left(c^2 f^2-2 g^2\right) \sqrt{d-c^2 d x^2}}{9 g^3}+\frac{a^2 d^2 \left(c^2 f^2-g^2\right)^2 \sqrt{d-c^2 d x^2}}{g^5}-\frac{2 b^2 d^2 \left(c^2 f^2-g^2\right)^2 \sqrt{d-c^2 d x^2}}{g^5}-$$

$$\frac{b^2 c^2 d^2 f x \sqrt{d-c^2 d x^2}}{64 g^2}+\frac{b^2 c^2 d^2 f \left(c^2 f^2-2 g^2\right) x \sqrt{d-c^2 d x^2}}{4 g^4}+\frac{b^2 c^4 d^2 f x^3 \sqrt{d-c^2 d x^2}}{32 g^2}+\frac{4 a b c d^2 x \sqrt{d-c^2 d x^2}}{15 g \sqrt{1-c^2 x^2}}-$$

$$\frac{2 a b c d^2 \left(c^2 f^2-g^2\right)^2 x \sqrt{d-c^2 d x^2}}{g^5 \sqrt{1-c^2 x^2}}+\frac{26 b^2 d^2 \left(1-c^2 x^2\right) \sqrt{d-c^2 d x^2}}{675 g}+\frac{2 b^2 d^2 \left(c^2 f^2-2 g^2\right) \left(1-c^2 x^2\right) \sqrt{d-c^2 d x^2}}{27 g^3}-$$

$$\frac{2 b^2 d^2 \left(1-c^2 x^2\right)^2 \sqrt{d-c^2 d x^2}}{125 g}+\frac{2 a b d^2 \left(c^2 f^2-g^2\right)^2 \sqrt{d-c^2 d x^2} \operatorname{ArcSin}[c x]}{g^5}+\frac{b^2 c d^2 f \sqrt{d-c^2 d x^2} \operatorname{ArcSin}[c x]}{64 g^2 \sqrt{1-c^2 x^2}}-$$

$$\frac{b^2 c d^2 f \left(c^2 f^2-2 g^2\right) \sqrt{d-c^2 d x^2} \operatorname{ArcSin}[c x]}{4 g^4 \sqrt{1-c^2 x^2}}+\frac{4 b^2 c d^2 x \sqrt{d-c^2 d x^2} \operatorname{ArcSin}[c x]}{15 g \sqrt{1-c^2 x^2}}-\frac{2 b^2 c d^2 \left(c^2 f^2-g^2\right)^2 x \sqrt{d-c^2 d x^2} \operatorname{ArcSin}[c x]}{g^5 \sqrt{1-c^2 x^2}}+$$

$$\frac{b^2 d^2 \left(c^2 f^2-g^2\right)^2 \sqrt{d-c^2 d x^2} \operatorname{ArcSin}[c x]^2}{g^5}+\frac{2 b c d^2 \left(c^2 f^2-2 g^2\right) x \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])}{3 g^3 \sqrt{1-c^2 x^2}}-\frac{b c^3 d^2 f x^2 \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])}{8 g^2 \sqrt{1-c^2 x^2}}+$$

$$\frac{b c^3 d^2 f \left(c^2 f^2-2 g^2\right) x^2 \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])}{2 g^4 \sqrt{1-c^2 x^2}}+\frac{2 b c^3 d^2 x^3 \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])}{45 g \sqrt{1-c^2 x^2}}-$$

$$\frac{2 b c^3 d^2 \left(c^2 f^2-2 g^2\right) x^3 \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])}{9 g^3 \sqrt{1-c^2 x^2}}+\frac{b c^5 d^2 f x^4 \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])}{8 g^2 \sqrt{1-c^2 x^2}}-$$

$$\frac{2 b c^5 d^2 x^5 \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])}{25 g \sqrt{1-c^2 x^2}}-\frac{2 d^2 \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])^2}{15 g}+\frac{c^2 d^2 f x \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])^2}{8 g^2}-$$

$$\frac{c^2 d^2 f \left(c^2 f^2-2 g^2\right) x \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])^2}{2 g^4}-\frac{c^2 d^2 x^2 \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])^2}{15 g}-\frac{c^4 d^2 f x^3 \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])^2}{4 g^2}+$$

$$\frac{c^4 d^2 x^4 \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])^2}{5 g}-\frac{d^2 \left(c^2 f^2-2 g^2\right) \left(1-c^2 x^2\right) \sqrt{d-c^2 d x^2} (a+b \operatorname{ArcSin}[c x])^2}{3 g^3}-$$

$$\frac{c\, d^2 f \sqrt{d-c^2 d x^2}\, (a+b \operatorname{ArcSin}[c x])^3}{24\, b\, g^2 \sqrt{1-c^2 x^2}} - \frac{c\, d^2 f\, (c^2 f^2 - 2 g^2) \sqrt{d-c^2 d x^2}\, (a+b \operatorname{ArcSin}[c x])^3}{6\, b\, g^4 \sqrt{1-c^2 x^2}} +$$

$$\frac{c\, d^2 (c^2 f^2 - g^2)^2 x \sqrt{d-c^2 d x^2}\, (a+b \operatorname{ArcSin}[c x])^3}{3\, b\, g^5 \sqrt{1-c^2 x^2}} + \frac{d^2 (c^2 f^2 - g^2)^3 \sqrt{d-c^2 d x^2}\, (a+b \operatorname{ArcSin}[c x])^3}{3\, b\, c\, g^6 (f+g x) \sqrt{1-c^2 x^2}} +$$

$$\frac{d^2 (c^2 f^2 - g^2)^2 \sqrt{1-c^2 x^2} \sqrt{d-c^2 d x^2}\, (a+b \operatorname{ArcSin}[c x])^3}{3\, b\, c\, g^4 (f+g x)} - \frac{a^2 d^2 (c^2 f^2 - g^2)^{5/2} \sqrt{d-c^2 d x^2}\, \operatorname{ArcTan}\left[\frac{g+c^2 f x}{\sqrt{c^2 f^2-g^2} \sqrt{1-c^2 x^2}}\right]}{g^6 \sqrt{1-c^2 x^2}} +$$

$$\frac{2\, i\, a\, b\, d^2 (c^2 f^2 - g^2)^{5/2} \sqrt{d-c^2 d x^2}\, \operatorname{ArcSin}[c x] \operatorname{Log}\left[1-\frac{i\, e^{i \operatorname{ArcSin}[c x]} g}{c f-\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}} + \frac{i\, b^2 d^2 (c^2 f^2 - g^2)^{5/2} \sqrt{d-c^2 d x^2}\, \operatorname{ArcSin}[c x]^2 \operatorname{Log}\left[1-\frac{i\, e^{i \operatorname{ArcSin}[c x]} g}{c f-\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}} -$$

$$\frac{2\, i\, a\, b\, d^2 (c^2 f^2 - g^2)^{5/2} \sqrt{d-c^2 d x^2}\, \operatorname{ArcSin}[c x] \operatorname{Log}\left[1-\frac{i\, e^{i \operatorname{ArcSin}[c x]} g}{c f+\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}} - \frac{i\, b^2 d^2 (c^2 f^2 - g^2)^{5/2} \sqrt{d-c^2 d x^2}\, \operatorname{ArcSin}[c x]^2 \operatorname{Log}\left[1-\frac{i\, e^{i \operatorname{ArcSin}[c x]} g}{c f+\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}} +$$

$$\frac{2\, a\, b\, d^2 (c^2 f^2 - g^2)^{5/2} \sqrt{d-c^2 d x^2}\, \operatorname{PolyLog}\left[2, \frac{i\, e^{i \operatorname{ArcSin}[c x]} g}{c f-\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}} + \frac{2\, b^2 d^2 (c^2 f^2 - g^2)^{5/2} \sqrt{d-c^2 d x^2}\, \operatorname{ArcSin}[c x] \operatorname{PolyLog}\left[2, \frac{i\, e^{i \operatorname{ArcSin}[c x]} g}{c f-\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}} -$$

$$\frac{2\, a\, b\, d^2 (c^2 f^2 - g^2)^{5/2} \sqrt{d-c^2 d x^2}\, \operatorname{PolyLog}\left[2, \frac{i\, e^{i \operatorname{ArcSin}[c x]} g}{c f+\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}} - \frac{2\, b^2 d^2 (c^2 f^2 - g^2)^{5/2} \sqrt{d-c^2 d x^2}\, \operatorname{ArcSin}[c x] \operatorname{PolyLog}\left[2, \frac{i\, e^{i \operatorname{ArcSin}[c x]} g}{c f+\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}} +$$

$$\frac{2\, i\, b^2 d^2 (c^2 f^2 - g^2)^{5/2} \sqrt{d-c^2 d x^2}\, \operatorname{PolyLog}\left[3, \frac{i\, e^{i \operatorname{ArcSin}[c x]} g}{c f-\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}} - \frac{2\, i\, b^2 d^2 (c^2 f^2 - g^2)^{5/2} \sqrt{d-c^2 d x^2}\, \operatorname{PolyLog}\left[3, \frac{i\, e^{i \operatorname{ArcSin}[c x]} g}{c f+\sqrt{c^2 f^2-g^2}}\right]}{g^6 \sqrt{1-c^2 x^2}}$$

Result (type 8, 35 leaves):

$$\int \frac{(d-c^2 d x^2)^{5/2} (a+b \operatorname{ArcSin}[c x])^2}{f+g x}\, dx$$

Problem 73: Unable to integrate problem.

$$\int \frac{(a+b \operatorname{ArcSin}[c x])^2}{(f+g x) \sqrt{d-c^2 d x^2}}\, dx$$

Optimal (type 4, 589 leaves, 12 steps):

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

$$\frac{2\,b\sqrt{1-c^2x^2}\,\left(a+b\,\text{ArcSin}[c\,x]\right)\,\text{PolyLog}\left[2,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f-\sqrt{c^2f^2-g^2}}\right]}{\sqrt{c^2f^2-g^2}\,\sqrt{d-c^2d\,x^2}}+\frac{2\,b\sqrt{1-c^2x^2}\,\left(a+b\,\text{ArcSin}[c\,x]\right)\,\text{PolyLog}\left[2,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f+\sqrt{c^2f^2-g^2}}\right]}{\sqrt{c^2f^2-g^2}\,\sqrt{d-c^2d\,x^2}}-$$

$$\frac{2\,i\,b^2\sqrt{1-c^2x^2}\,\text{PolyLog}\left[3,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f-\sqrt{c^2f^2-g^2}}\right]}{\sqrt{c^2f^2-g^2}\,\sqrt{d-c^2d\,x^2}}+\frac{2\,i\,b^2\sqrt{1-c^2x^2}\,\text{PolyLog}\left[3,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f+\sqrt{c^2f^2-g^2}}\right]}{\sqrt{c^2f^2-g^2}\,\sqrt{d-c^2d\,x^2}}$$

Result (type 8, 35 leaves):

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

Problem 74: Attempted integration timed out after 120 seconds.

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

Optimal (type 4, 1113 leaves, 20 steps):

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

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

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

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

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

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

Result (type 1, 1 leaves):

???

Problem 78: Unable to integrate problem.

$$\int \frac{\left(a+b \text{ArcSin}[c x]\right)^2}{(f+g x) \left(d-c^2 d x^2\right)^{3/2}} \, dx$$

Optimal (type 4, 1137 leaves, 28 steps):

$$-\frac{i\sqrt{1-c^2x^2}\,(a+b\,\text{ArcSin}[c\,x])^2}{2\,d\,(c\,f-g)\,\sqrt{d-c^2\,d\,x^2}}+\frac{i\sqrt{1-c^2x^2}\,(a+b\,\text{ArcSin}[c\,x])^2}{2\,d\,(c\,f+g)\,\sqrt{d-c^2\,d\,x^2}}-$$

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

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

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

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

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

$$\frac{2\,i\,b^2\,g^2\,\sqrt{1-c^2x^2}\,\text{PolyLog}\left[3,\,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f+\sqrt{c^2\,f^2-g^2}}\right]}{d\,(c^2\,f^2-g^2)^{3/2}\,\sqrt{d-c^2\,d\,x^2}}+\frac{\sqrt{1-c^2x^2}\,(a+b\,\text{ArcSin}[c\,x])^2\,\text{Tan}\left[\frac{\pi}{4}+\frac{1}{2}\text{ArcSin}[c\,x]\right]}{2\,d\,(c\,f+g)\,\sqrt{d-c^2\,d\,x^2}}$$

Result (type 8, 35 leaves) :

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^2}{(f+g\,x)\,(d-c^2\,d\,x^2)^{3/2}}\,dx$$

Problem 83: Unable to integrate problem.

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^3\,\text{Log}\left[h\,(f+g\,x)^m\right]}{\sqrt{1-c^2\,x^2}}\,dx$$

Optimal (type 4, 634 leaves, 15 steps) :

$$\frac{i\, m\, (a+b\,\text{ArcSin}[c\,x])^5}{20\, b^2\, c} - \frac{m\, (a+b\,\text{ArcSin}[c\,x])^4\, \text{Log}\left[1-\frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f-\sqrt{c^2 f^2-g^2}}\right]}{4\, b\, c} - \frac{m\, (a+b\,\text{ArcSin}[c\,x])^4\, \text{Log}\left[1-\frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f+\sqrt{c^2 f^2-g^2}}\right]}{4\, b\, c} +$$

$$\frac{(a+b\,\text{ArcSin}[c\,x])^4\, \text{Log}\left[h\, (f+g\,x)^m\right]}{4\, b\, c} + \frac{i\, m\, (a+b\,\text{ArcSin}[c\,x])^3\, \text{PolyLog}\left[2, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f-\sqrt{c^2 f^2-g^2}}\right]}{c} +$$

$$\frac{i\, m\, (a+b\,\text{ArcSin}[c\,x])^3\, \text{PolyLog}\left[2, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f+\sqrt{c^2 f^2-g^2}}\right]}{c} - \frac{3\, b\, m\, (a+b\,\text{ArcSin}[c\,x])^2\, \text{PolyLog}\left[3, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f-\sqrt{c^2 f^2-g^2}}\right]}{c} -$$

$$\frac{3\, b\, m\, (a+b\,\text{ArcSin}[c\,x])^2\, \text{PolyLog}\left[3, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f+\sqrt{c^2 f^2-g^2}}\right]}{c} - \frac{6\, i\, b^2\, m\, (a+b\,\text{ArcSin}[c\,x])\, \text{PolyLog}\left[4, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f-\sqrt{c^2 f^2-g^2}}\right]}{c} -$$

$$\frac{6\, i\, b^2\, m\, (a+b\,\text{ArcSin}[c\,x])\, \text{PolyLog}\left[4, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f+\sqrt{c^2 f^2-g^2}}\right]}{c} + \frac{6\, b^3\, m\, \text{PolyLog}\left[5, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f-\sqrt{c^2 f^2-g^2}}\right]}{c} + \frac{6\, b^3\, m\, \text{PolyLog}\left[5, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f+\sqrt{c^2 f^2-g^2}}\right]}{c}$$

Result (type 8, 37 leaves):

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^3\, \text{Log}\left[h\, (f+g\,x)^m\right]}{\sqrt{1-c^2 x^2}}\, dx$$

Problem 84: Unable to integrate problem.

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^2\, \text{Log}\left[h\, (f+g\,x)^m\right]}{\sqrt{1-c^2 x^2}}\, dx$$

Optimal (type 4, 514 leaves, 13 steps):

$$\frac{i\, m\, (a+b\,\text{ArcSin}[c\,x])^4}{12\, b^2\, c} - \frac{m\, (a+b\,\text{ArcSin}[c\,x])^3\, \text{Log}\left[1-\frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f-\sqrt{c^2 f^2-g^2}}\right]}{3\, b\, c} - \frac{m\, (a+b\,\text{ArcSin}[c\,x])^3\, \text{Log}\left[1-\frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f+\sqrt{c^2 f^2-g^2}}\right]}{3\, b\, c} +$$

$$\frac{(a+b\,\text{ArcSin}[c\,x])^3\, \text{Log}\left[h\, (f+g\,x)^m\right]}{3\, b\, c} + \frac{i\, m\, (a+b\,\text{ArcSin}[c\,x])^2\, \text{PolyLog}\left[2, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f-\sqrt{c^2 f^2-g^2}}\right]}{c} +$$

$$\frac{i\, m\, (a+b\,\text{ArcSin}[c\,x])^2\, \text{PolyLog}\left[2, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f+\sqrt{c^2 f^2-g^2}}\right]}{c} - \frac{2\, b\, m\, (a+b\,\text{ArcSin}[c\,x])\, \text{PolyLog}\left[3, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f-\sqrt{c^2 f^2-g^2}}\right]}{c} -$$

$$\frac{2\, b\, m\, (a+b\,\text{ArcSin}[c\,x])\, \text{PolyLog}\left[3, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f+\sqrt{c^2 f^2-g^2}}\right]}{c} - \frac{2\, i\, b^2\, m\, \text{PolyLog}\left[4, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f-\sqrt{c^2 f^2-g^2}}\right]}{c} - \frac{2\, i\, b^2\, m\, \text{PolyLog}\left[4, \frac{i\, e^{i\,\text{ArcSin}[c\,x]}\, g}{c\, f+\sqrt{c^2 f^2-g^2}}\right]}{c}$$

Result (type 8, 37 leaves):

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])^2\,\text{Log}[h\,(f+g\,x)^m]}{\sqrt{1-c^2\,x^2}}\,dx$$

Problem 85: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{ArcSin}[c\,x])\,\text{Log}[h\,(f+g\,x)^m]}{\sqrt{1-c^2\,x^2}}\,dx$$

Optimal (type 4, 390 leaves, 11 steps):

$$\frac{i\,m\,(a+b\,\text{ArcSin}[c\,x])^3}{6\,b^2\,c}-\frac{m\,(a+b\,\text{ArcSin}[c\,x])^2\,\text{Log}\left[1-\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f-\sqrt{c^2\,f^2-g^2}}\right]}{2\,b\,c}-\frac{m\,(a+b\,\text{ArcSin}[c\,x])^2\,\text{Log}\left[1-\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f+\sqrt{c^2\,f^2-g^2}}\right]}{2\,b\,c}+\frac{(a+b\,\text{ArcSin}[c\,x])^2\,\text{Log}[h\,(f+g\,x)^m]}{2\,b\,c}+\frac{i\,m\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f-\sqrt{c^2\,f^2-g^2}}\right]}{c}+\frac{i\,m\,(a+b\,\text{ArcSin}[c\,x])\,\text{PolyLog}\left[2,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f+\sqrt{c^2\,f^2-g^2}}\right]}{c}-\frac{b\,m\,\text{PolyLog}\left[3,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f-\sqrt{c^2\,f^2-g^2}}\right]}{c}-\frac{b\,m\,\text{PolyLog}\left[3,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f+\sqrt{c^2\,f^2-g^2}}\right]}{c}$$

Result (type 4, 5941 leaves):

$$\frac{m\,\text{ArcSin}[c\,x]\,(2\,a+b\,\text{ArcSin}[c\,x])\,\text{Log}[f+g\,x]}{2\,c}+\frac{a\,\text{ArcSin}[c\,x]\,(-m\,\text{Log}[f+g\,x]+\text{Log}[h\,(f+g\,x)^m])}{c}-$$

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

$$\left.\text{Log}\left[1+i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]+\pi\,\text{Log}\left[-\text{Cos}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-2\,i\,\text{PolyLog}\left[2,-i\,e^{i\,\text{ArcSin}[c\,x]}\right]\right)+$$

$$\frac{1}{2\,c^3\left(\frac{1}{c}-\frac{f}{g}\right)g}\left(\frac{1}{2}\,i\,\pi\,\text{ArcSin}[c\,x]-\frac{1}{2}\,i\,\text{ArcSin}[c\,x]^2+2\,\pi\,\text{Log}\left[1+e^{-i\,\text{ArcSin}[c\,x]}\right]+\pi\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]+\right.$$

$$\left.2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-i\,e^{i\,\text{ArcSin}[c\,x]}\right]-2\,\pi\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\text{ArcSin}[c\,x]\right]\right]-\pi\,\text{Log}\left[\text{Sin}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]\right]-2\,i\,\text{PolyLog}\left[2,i\,e^{i\,\text{ArcSin}[c\,x]}\right]\right)+$$

$$\frac{1}{8 c^2 \left(-\frac{1}{c}-\frac{f}{g}\right) \left(\frac{1}{c}-\frac{f}{g}\right) g^3} f^2 \left(\mathrm{i} (\pi - 2 \text{ArcSin}[c x])^2 - 32 \mathrm{i} \text{ArcSin}\left[\frac{\sqrt{1+\frac{c f}{g}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(c f - g) \text{Cot}\left[\frac{1}{4} (\pi + 2 \text{ArcSin}[c x])\right]}{\sqrt{c^2 f^2 - g^2}}\right] - \right.$$

$$4 \left(\pi + 4 \text{ArcSin}\left[\frac{\sqrt{1+\frac{c f}{g}}}{\sqrt{2}}\right] - 2 \text{ArcSin}[c x]\right) \text{Log}\left[1 - \frac{\mathrm{i}\, e^{-\mathrm{i} \text{ArcSin}[c x]} \left(-c f + \sqrt{c^2 f^2 - g^2}\right)}{g}\right] - 4 \left(\pi - 4 \text{ArcSin}\left[\frac{\sqrt{1+\frac{c f}{g}}}{\sqrt{2}}\right] - 2 \text{ArcSin}[c x]\right)$$

$$\text{Log}\left[1 + \frac{\mathrm{i}\, e^{-\mathrm{i} \text{ArcSin}[c x]} \left(c f + \sqrt{c^2 f^2 - g^2}\right)}{g}\right] + 4 (\pi - 2 \text{ArcSin}[c x]) \text{Log}[c f + c g x] + 8 \text{ArcSin}[c x] \text{Log}[c f + c g x] +$$

$$\left.\left. 8 \mathrm{i} \left(\text{PolyLog}\left[2, \frac{\mathrm{i}\, e^{-\mathrm{i} \text{ArcSin}[c x]} \left(-c f + \sqrt{c^2 f^2 - g^2}\right)}{g}\right] + \text{PolyLog}\left[2, -\frac{\mathrm{i}\, e^{-\mathrm{i} \text{ArcSin}[c x]} \left(c f + \sqrt{c^2 f^2 - g^2}\right)}{g}\right]\right)\right)\right) +$$

$$\frac{1}{c} a g m \left(-\frac{1}{2 c \left(-\frac{1}{c}-\frac{f}{g}\right) g} \left(\frac{3}{2} \mathrm{i} \pi \text{ArcSin}[c x] - \frac{1}{2} \mathrm{i} \text{ArcSin}[c x]^2 + 2 \pi \text{Log}\left[1 + e^{-\mathrm{i} \text{ArcSin}[c x]}\right] - \pi \text{Log}\left[1 + \mathrm{i}\, e^{\mathrm{i} \text{ArcSin}[c x]}\right] + 2 \text{ArcSin}[c x]\right.\right.$$

$$\left.\text{Log}\left[1 + \mathrm{i}\, e^{\mathrm{i} \text{ArcSin}[c x]}\right] - 2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right] + \pi \text{Log}\left[-\text{Cos}\left[\frac{1}{4} (\pi + 2 \text{ArcSin}[c x])\right]\right] - 2 \mathrm{i} \text{PolyLog}\left[2, -\mathrm{i}\, e^{\mathrm{i} \text{ArcSin}[c x]}\right]\right) +$$

$$\frac{1}{2 c \left(\frac{1}{c}-\frac{f}{g}\right) g} \left(\frac{1}{2} \mathrm{i} \pi \text{ArcSin}[c x] - \frac{1}{2} \mathrm{i} \text{ArcSin}[c x]^2 + 2 \pi \text{Log}\left[1 + e^{-\mathrm{i} \text{ArcSin}[c x]}\right] + \pi \text{Log}\left[1 - \mathrm{i}\, e^{\mathrm{i} \text{ArcSin}[c x]}\right] + \right.$$

$$\left.2 \text{ArcSin}[c x] \text{Log}\left[1 - \mathrm{i}\, e^{\mathrm{i} \text{ArcSin}[c x]}\right] - 2 \pi \text{Log}\left[\text{Cos}\left[\frac{1}{2} \text{ArcSin}[c x]\right]\right] - \pi \text{Log}\left[\text{Sin}\left[\frac{1}{4} (\pi + 2 \text{ArcSin}[c x])\right]\right] - 2 \mathrm{i} \text{PolyLog}\left[2, \mathrm{i}\, e^{\mathrm{i} \text{ArcSin}[c x]}\right]\right) +$$

$$\frac{1}{8 c^2 \left(-\frac{1}{c}-\frac{f}{g}\right) \left(\frac{1}{c}-\frac{f}{g}\right) g} \left(\mathrm{i} (\pi - 2 \text{ArcSin}[c x])^2 - 32 \mathrm{i} \text{ArcSin}\left[\frac{\sqrt{1+\frac{c f}{g}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(c f - g) \text{Cot}\left[\frac{1}{4} (\pi + 2 \text{ArcSin}[c x])\right]}{\sqrt{c^2 f^2 - g^2}}\right] - \right.$$

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

$$\text{Log}\left[1+\frac{i\,e^{-i\,\text{ArcSin}[c x]}\left(c f+\sqrt{c^2 f^2-g^2}\right)}{g}\right]+4\left(\pi-2\,\text{ArcSin}[c x]\right)\text{Log}[c f+c g x]+8\,\text{ArcSin}[c x]\,\text{Log}[c f+c g x]+$$

$$8\,i\left(\text{PolyLog}\left[2,\frac{i\,e^{-i\,\text{ArcSin}[c x]}\left(-c f+\sqrt{c^2 f^2-g^2}\right)}{g}\right]+\text{PolyLog}\left[2,-\frac{i\,e^{-i\,\text{ArcSin}[c x]}\left(c f+\sqrt{c^2 f^2-g^2}\right)}{g}\right]\right)\Bigg)\Bigg)+$$

$$b f\left(-m\,\text{Log}[f+g x]+\text{Log}\left[h\,(f+g x)^m\right]\right)\left(\frac{\pi\,\text{ArcTan}\left[\frac{g+c f\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c x]\right]}{\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}}+\frac{1}{\sqrt{-c^2 f^2+g^2}}\right.$$

$$\left(2\,\text{ArcCos}\left[-\frac{c f}{g}\right]\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\left(\pi-2\,\text{ArcSin}[c x]\right)\text{ArcTanh}\left[\frac{(c f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\right.$$

$$\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2\,i\left(\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\text{ArcTanh}\left[\frac{(c f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\right)$$

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

$$\left(\text{ArcCos}\left[-\frac{c f}{g}\right]-2\,i\,\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-2\,i\,\text{ArcTanh}\left[\frac{(c f+g)\,\text{Tan}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right)e^{\frac{1}{2}i\,\text{ArcSin}[c x]}\sqrt{-c^2 f^2+g^2}}{\sqrt{g}\,\sqrt{c f+c g x}}\right]-\left(\text{ArcCos}\left[-\frac{c f}{g}\right]+2\,i\,\text{ArcTanh}\left[\frac{(c f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)$$

$$\mathrm{Log}\left[\frac{(c f+g)\left(-c f+g-i\sqrt{-c^2 f^2+g^2}\right)\left(1+i\,\mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\,\mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}\right]-\left(\mathrm{ArcCos}\left[-\frac{c f}{g}\right]-\right.$$

$$\left.2 i\,\mathrm{ArcTanh}\left[\frac{(c f-g)\,\mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\mathrm{Log}\left[\frac{(c f+g)\left(i c f-i g+\sqrt{-c^2 f^2+g^2}\right)\left(i+\mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\,\mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}\right]+$$

$$i\left(\mathrm{PolyLog}\left[2,\frac{\left(c f-i\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\,\mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\,\mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}\right]-\right.$$

$$\left.\left.\left.\mathrm{PolyLog}\left[2,\frac{\left(c f+i\sqrt{-c^2 f^2+g^2}\right)\left(c f+g-\sqrt{-c^2 f^2+g^2}\,\mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}{g\left(c f+g+\sqrt{-c^2 f^2+g^2}\,\mathrm{Cot}\left[\frac{1}{4}(\pi+2\,\mathrm{ArcSin}[c x])\right]\right)}\right]\right)\right)\right)+$$

$$\frac{1}{c} b g\left(-m\,\mathrm{Log}[f+g x]+\mathrm{Log}\left[h(f+g x)^m\right]\right)\left(\frac{\mathrm{ArcSin}[c x]^2}{2 g}-\frac{1}{g} c f\left(\frac{\pi\,\mathrm{ArcTan}\left[\frac{g+c f\,\mathrm{Tan}\left[\frac{1}{2}\mathrm{ArcSin}[c x]\right]}{\sqrt{c^2 f^2-g^2}}\right]}{\sqrt{c^2 f^2-g^2}}+\frac{1}{\sqrt{-c^2 f^2+g^2}}\right.\right.$$

$$\left(2\left(\frac{\pi}{2}-\mathrm{ArcSin}[c x]\right)\mathrm{ArcTanh}\left[\frac{(c f+g)\,\mathrm{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\mathrm{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-2\,\mathrm{ArcCos}\left[-\frac{c f}{g}\right]\mathrm{ArcTanh}\left[\frac{(-c f+g)\,\mathrm{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\mathrm{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]+\right.$$

$$\left(\mathrm{ArcCos}\left[-\frac{c f}{g}\right]-2 i\left(\mathrm{ArcTanh}\left[\frac{(c f+g)\,\mathrm{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\mathrm{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-\mathrm{ArcTanh}\left[\frac{(-c f+g)\,\mathrm{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\mathrm{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\right)$$

$$\mathrm{Log}\left[\frac{e^{-\frac{1}{2} i\left(\frac{\pi}{2}-\mathrm{ArcSin}[c x]\right)}\sqrt{-c^2 f^2+g^2}}{\sqrt{2}\,\sqrt{g}\,\sqrt{c f+c g x}}\right]+$$

$$\left(\mathrm{ArcCos}\left[-\frac{c f}{g}\right]+2 i\left(\mathrm{ArcTanh}\left[\frac{(c f+g)\,\mathrm{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\mathrm{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]-\mathrm{ArcTanh}\left[\frac{(-c f+g)\,\mathrm{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\mathrm{ArcSin}[c x]\right)\right]}{\sqrt{-c^2 f^2+g^2}}\right]\right)\right)$$

$$\text{Log}\left[\frac{e^{\frac{1}{2}i\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)}\sqrt{-c^2f^2+g^2}}{\sqrt{2}\sqrt{g}\sqrt{c\,f+c\,g\,x}}\right]-\left(\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\,\text{ArcTanh}\left[\frac{(-c\,f+g)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2f^2+g^2}}\right]\right)$$

$$\text{Log}\left[1-\frac{\left(c\,f-i\sqrt{-c^2f^2+g^2}\right)\left(c\,f+g-\sqrt{-c^2f^2+g^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{g\left(c\,f+g+\sqrt{-c^2f^2+g^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\right]+\left(-\text{ArcCos}\left[-\frac{c\,f}{g}\right]+2\,i\,\text{ArcTanh}\left[\right.\right.$$

$$\left.\left.\frac{(-c\,f+g)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2f^2+g^2}}\right]\right)\text{Log}\left[1-\frac{\left(c\,f+i\sqrt{-c^2f^2+g^2}\right)\left(c\,f+g-\sqrt{-c^2f^2+g^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{g\left(c\,f+g+\sqrt{-c^2f^2+g^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\right]+$$

$$i\left(\text{PolyLog}\left[2,\frac{\left(c\,f-i\sqrt{-c^2f^2+g^2}\right)\left(c\,f+g-\sqrt{-c^2f^2+g^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{g\left(c\,f+g+\sqrt{-c^2f^2+g^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\right]-\text{PolyLog}\left[2,\right.\right.$$

$$\left.\left.\frac{\left(c\,f+i\sqrt{-c^2f^2+g^2}\right)\left(c\,f+g-\sqrt{-c^2f^2+g^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{g\left(c\,f+g+\sqrt{-c^2f^2+g^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\right]\right)\Bigg)\Bigg)\Bigg)-$$

$$\frac{1}{6\,c\sqrt{-\left(-c^2f^2+g^2\right)^2}}\,b\,m\left(-i\sqrt{-\left(-c^2f^2+g^2\right)^2}\,\text{ArcSin}[c\,x]^3-24\,i\sqrt{-\left(-c^2f^2+g^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,f}{g}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\right.$$

$$\text{ArcTan}\left[\frac{(c\,f-g)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2f^2-g^2}}\right]+$$

$$24\,i\sqrt{-\left(-c^2f^2+g^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,f}{g}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\,\text{ArcTan}\left[\frac{(c\,f-g)\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)}{\sqrt{c^2f^2-g^2}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)}\right]+$$

$$3\,c\,f\sqrt{-c^2f^2+g^2}\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{-c\,f+\sqrt{c^2f^2-g^2}}\right]-$$

$$3\sqrt{-\left(-c^2 f^2+g^2\right)^2}\;\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(-c\,f+\sqrt{c^2 f^2-g^2}\right)}{g}\right]-$$

$$12\sqrt{-\left(-c^2 f^2+g^2\right)^2}\;\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,f}{g}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(-c\,f+\sqrt{c^2 f^2-g^2}\right)}{g}\right]+$$

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

$$3\,c\,f\sqrt{-c^2 f^2+g^2}\;\text{ArcSin}[c\,x]^2\,\text{Log}\left[1-\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f+\sqrt{c^2 f^2-g^2}}\right]-$$

$$3\sqrt{-\left(-c^2 f^2+g^2\right)^2}\;\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(c\,f+\sqrt{c^2 f^2-g^2}\right)}{g}\right]+$$

$$12\sqrt{-\left(-c^2 f^2+g^2\right)^2}\;\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,f}{g}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\,\text{Log}\left[1+\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(c\,f+\sqrt{c^2 f^2-g^2}\right)}{g}\right]+$$

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

$$3\,i\,c\,f\sqrt{c^2 f^2-g^2}\;\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+\frac{e^{i\,\text{ArcSin}[c\,x]}\,g}{i\,c\,f-\sqrt{-c^2 f^2+g^2}}\right]+$$

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

$$3\,i\,c\,f\sqrt{c^2 f^2-g^2}\;\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+\frac{e^{i\,\text{ArcSin}[c\,x]}\,g}{i\,c\,f+\sqrt{-c^2 f^2+g^2}}\right]+$$

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

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

$$12\sqrt{-\left(-c^2 f^2+g^2\right)^2}\ \text{ArcSin}\left[\frac{\sqrt{1+\frac{c f}{g}}}{\sqrt{2}}\right] \text{ArcSin}[c x] \text{Log}\left[1+\frac{\left(c f-\sqrt{c^2 f^2-g^2}\right)\left(c x+\mathbb{i}\sqrt{1-c^2 x^2}\right)}{g}\right]-$$

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

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

$$12\sqrt{-\left(-c^2 f^2+g^2\right)^2}\ \text{ArcSin}\left[\frac{\sqrt{1+\frac{c f}{g}}}{\sqrt{2}}\right] \text{ArcSin}[c x] \text{Log}\left[1+\frac{\left(c f+\sqrt{c^2 f^2-g^2}\right)\left(c x+\mathbb{i}\sqrt{1-c^2 x^2}\right)}{g}\right]-$$

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

$$6\,\mathbb{i}\,c f\sqrt{-c^2 f^2+g^2}\ \text{ArcSin}[c x]\,\text{PolyLog}\left[2,\frac{\mathbb{i}\,e^{\mathbb{i}\,\text{ArcSin}[c x]}\,g}{c f-\sqrt{c^2 f^2-g^2}}\right]+$$

$$6\,\mathbb{i}\,c f\sqrt{-c^2 f^2+g^2}\ \text{ArcSin}[c x]\,\text{PolyLog}\left[2,\frac{\mathbb{i}\,e^{\mathbb{i}\,\text{ArcSin}[c x]}\,g}{c f+\sqrt{c^2 f^2-g^2}}\right]-$$

$$6\,c f\sqrt{c^2 f^2-g^2}\ \text{ArcSin}[c x]\,\text{PolyLog}\left[2,\frac{e^{\mathbb{i}\,\text{ArcSin}[c x]}\,g}{-\mathbb{i}\,c f+\sqrt{-c^2 f^2+g^2}}\right]-$$

$$6\,\mathbb{i}\sqrt{-\left(-c^2 f^2+g^2\right)^2}\ \text{ArcSin}[c x]\,\text{PolyLog}\left[2,\frac{e^{\mathbb{i}\,\text{ArcSin}[c x]}\,g}{-\mathbb{i}\,c f+\sqrt{-c^2 f^2+g^2}}\right]+$$

$$6\,c f\sqrt{c^2 f^2-g^2}\ \text{ArcSin}[c x]\,\text{PolyLog}\left[2,-\frac{e^{\mathbb{i}\,\text{ArcSin}[c x]}\,g}{\mathbb{i}\,c f+\sqrt{-c^2 f^2+g^2}}\right]-$$

$$6\,\mathbb{i}\sqrt{-\left(-c^2 f^2+g^2\right)^2}\ \text{ArcSin}[c x]\,\text{PolyLog}\left[2,-\frac{e^{\mathbb{i}\,\text{ArcSin}[c x]}\,g}{\mathbb{i}\,c f+\sqrt{-c^2 f^2+g^2}}\right]+$$

$$6\,c f\sqrt{-c^2 f^2+g^2}\ \text{PolyLog}\left[3,\frac{\mathbb{i}\,e^{\mathbb{i}\,\text{ArcSin}[c x]}\,g}{c f-\sqrt{c^2 f^2-g^2}}\right]-6\,c f\sqrt{-c^2 f^2+g^2}\ \text{PolyLog}\left[3,\frac{\mathbb{i}\,e^{\mathbb{i}\,\text{ArcSin}[c x]}\,g}{c f+\sqrt{c^2 f^2-g^2}}\right]-$$

$$6\,i\,c\,f\sqrt{c^2 f^2-g^2}\;\text{PolyLog}\left[3,\frac{e^{i\,\text{ArcSin}[c\,x]}\,g}{-i\,c\,f+\sqrt{-c^2 f^2+g^2}}\right]+6\sqrt{-\left(-c^2 f^2+g^2\right)^2}\;\text{PolyLog}\left[3,\frac{e^{i\,\text{ArcSin}[c\,x]}\,g}{-i\,c\,f+\sqrt{-c^2 f^2+g^2}}\right]+$$

$$6\,i\,c\,f\sqrt{c^2 f^2-g^2}\;\text{PolyLog}\left[3,-\frac{e^{i\,\text{ArcSin}[c\,x]}\,g}{i\,c\,f+\sqrt{-c^2 f^2+g^2}}\right]+6\sqrt{-\left(-c^2 f^2+g^2\right)^2}\;\text{PolyLog}\left[3,-\frac{e^{i\,\text{ArcSin}[c\,x]}\,g}{i\,c\,f+\sqrt{-c^2 f^2+g^2}}\right]\Bigg)$$

Problem 86: Attempted integration timed out after 120 seconds.

$$\int\frac{\text{Log}\left[h\,(f+g\,x)^m\right]}{\sqrt{1-c^2 x^2}}\,dx$$

Optimal (type 4, 237 leaves, 9 steps):

$$\frac{i\,m\,\text{ArcSin}[c\,x]^2}{2\,c}-\frac{m\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f-\sqrt{c^2 f^2-g^2}}\right]}{c}-\frac{m\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f+\sqrt{c^2 f^2-g^2}}\right]}{c}+$$

$$\frac{\text{ArcSin}[c\,x]\,\text{Log}\left[h\,(f+g\,x)^m\right]}{c}+\frac{i\,m\,\text{PolyLog}\left[2,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f-\sqrt{c^2 f^2-g^2}}\right]}{c}+\frac{i\,m\,\text{PolyLog}\left[2,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,g}{c\,f+\sqrt{c^2 f^2-g^2}}\right]}{c}$$

Result (type 1, 1 leaves):

???

Problem 91: Result more than twice size of optimal antiderivative.

$$\int\frac{(f+g\,x)\,(a+b\,\text{ArcSin}[c\,x])}{d+e\,x}\,dx$$

Optimal (type 4, 344 leaves, 14 steps):

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

Result (type 4, 750 leaves) :

$$\frac{1}{8 e^2}\Bigg(8 a e g x + 8 a (e f - d g) \text{Log}[d + e x] + b e f \Bigg(\mathbb{i} (\pi - 2 \text{ArcSin}[c x])^2 - 32 \mathbb{i} \text{ArcSin}\Big[\frac{\sqrt{1 + \frac{c d}{e}}}{\sqrt{2}}\Big] \text{ArcTan}\Big[\frac{(c d - e) \text{Cot}\big[\frac{1}{4} (\pi + 2 \text{ArcSin}[c x])\big]}{\sqrt{c^2 d^2 - e^2}}\Big] -$$

$$4 \Big(\pi + 4 \text{ArcSin}\Big[\frac{\sqrt{1 + \frac{c d}{e}}}{\sqrt{2}}\Big] - 2 \text{ArcSin}[c x]\Big) \text{Log}\Big[1 - \frac{\mathbb{i} \left(-c d + \sqrt{c^2 d^2 - e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\Big] -$$

$$4 \Big(\pi - 4 \text{ArcSin}\Big[\frac{\sqrt{1 + \frac{c d}{e}}}{\sqrt{2}}\Big] - 2 \text{ArcSin}[c x]\Big) \text{Log}\Big[1 + \frac{\mathbb{i} \left(c d + \sqrt{c^2 d^2 - e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\Big] + 4 (\pi - 2 \text{ArcSin}[c x]) \text{Log}[c (d + e x)] +$$

$$8 \text{ArcSin}[c x] \text{Log}[c (d + e x)] + 8 \mathbb{i} \Big(\text{PolyLog}\Big[2, \frac{\mathbb{i} \left(-c d + \sqrt{c^2 d^2 - e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\Big] + \text{PolyLog}\Big[2, -\frac{\mathbb{i} \left(c d + \sqrt{c^2 d^2 - e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\Big]\Big)\Bigg) +$$

$$b g \Bigg(\frac{8 e \sqrt{1 - c^2 x^2}}{c} + 8 e x \text{ArcSin}[c x] - d \Bigg(\mathbb{i} (\pi - 2 \text{ArcSin}[c x])^2 - 32 \mathbb{i} \text{ArcSin}\Big[\frac{\sqrt{1 + \frac{c d}{e}}}{\sqrt{2}}\Big] \text{ArcTan}\Big[\frac{(c d - e) \text{Cot}\big[\frac{1}{4} (\pi + 2 \text{ArcSin}[c x])\big]}{\sqrt{c^2 d^2 - e^2}}\Big] -$$

$$4 \Big(\pi + 4 \text{ArcSin}\Big[\frac{\sqrt{1 + \frac{c d}{e}}}{\sqrt{2}}\Big] - 2 \text{ArcSin}[c x]\Big) \text{Log}\Big[1 - \frac{\mathbb{i} \left(-c d + \sqrt{c^2 d^2 - e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\Big] - 4 \Big(\pi - 4 \text{ArcSin}\Big[\frac{\sqrt{1 + \frac{c d}{e}}}{\sqrt{2}}\Big] - 2 \text{ArcSin}[c x]\Big)$$

$$\text{Log}\Big[1 + \frac{\mathbb{i} \left(c d + \sqrt{c^2 d^2 - e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\Big] + 4 (\pi - 2 \text{ArcSin}[c x]) \text{Log}[c (d + e x)] + 8 \text{ArcSin}[c x] \text{Log}[c (d + e x)] +$$

$$8 \mathbb{i} \Big(\text{PolyLog}\Big[2, \frac{\mathbb{i} \left(-c d + \sqrt{c^2 d^2 - e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\Big] + \text{PolyLog}\Big[2, -\frac{\mathbb{i} \left(c d + \sqrt{c^2 d^2 - e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\Big]\Big)\Bigg)\Bigg)\Bigg)$$

Problem 92: Result unnecessarily involves higher level functions.

$$\int \frac{(f+g x)\,(a+b \operatorname{ArcSin}[c x])}{(d+e x)^2}\, dx$$

Optimal (type 4, 358 leaves, 15 steps):

$$-\frac{i b g \operatorname{ArcSin}[c x]^2}{2 e^2}-\frac{(e f-d g)\,(a+b \operatorname{ArcSin}[c x])}{e^2\,(d+e x)}+\frac{b c\,(e f-d g) \operatorname{ArcTan}\left[\frac{e+c^2 d x}{\sqrt{c^2 d^2-e^2}\,\sqrt{1-c^2 x^2}}\right]}{e^2 \sqrt{c^2 d^2-e^2}}+$$

$$\frac{b g \operatorname{ArcSin}[c x] \operatorname{Log}\left[1-\frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d-\sqrt{c^2 d^2-e^2}}\right]}{e^2}+\frac{b g \operatorname{ArcSin}[c x] \operatorname{Log}\left[1-\frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d+\sqrt{c^2 d^2-e^2}}\right]}{e^2}-\frac{b g \operatorname{ArcSin}[c x] \operatorname{Log}[d+e x]}{e^2}+$$

$$\frac{g\,(a+b \operatorname{ArcSin}[c x]) \operatorname{Log}[d+e x]}{e^2}-\frac{i b g \operatorname{PolyLog}\left[2,\frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d-\sqrt{c^2 d^2-e^2}}\right]}{e^2}-\frac{i b g \operatorname{PolyLog}\left[2,\frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d+\sqrt{c^2 d^2-e^2}}\right]}{e^2}$$

Result (type 6, 590 leaves):

$$\frac{1}{8 e^2}\left(\frac{8 a (-e f+d g)}{d+e x}-8 b f\left(\frac{c \sqrt{\frac{e\left(-\sqrt{\frac{1}{c^2}}+x\right)}{d+e x}} \sqrt{\frac{e\left(\sqrt{\frac{1}{c^2}}+x\right)}{d+e x}} \text{AppellF1}\left[1,\frac{1}{2},\frac{1}{2},2,\frac{d-\sqrt{\frac{1}{c^2}} e}{d+e x},\frac{d+\sqrt{\frac{1}{c^2}} e}{d+e x}\right]}{\sqrt{1-c^2 x^2}}+\frac{e \text{ArcSin}[c x]}{d+e x}\right)+8 a g \text{Log}[d+e x]+\right.$$

$$b g\left(i (\pi-2 \text{ArcSin}[c x])^2+\frac{8 d \text{ArcSin}[c x]}{d+e x}-32 i \text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(c d-e) \text{Cot}\left[\frac{1}{4}(\pi+2 \text{ArcSin}[c x])\right]}{\sqrt{c^2 d^2-e^2}}\right]-\right.$$

$$4\left(\pi+4 \text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]-2 \text{ArcSin}[c x]\right) \text{Log}\left[1-\frac{i\left(-c d+\sqrt{c^2 d^2-e^2}\right) e^{-i \text{ArcSin}[c x]}}{e}\right]-$$

$$4\left(\pi-4 \text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]-2 \text{ArcSin}[c x]\right) \text{Log}\left[1+\frac{i\left(c d+\sqrt{c^2 d^2-e^2}\right) e^{-i \text{ArcSin}[c x]}}{e}\right]+4(\pi-2 \text{ArcSin}[c x]) \text{Log}[c(d+e x)]+$$

$$8 \text{ArcSin}[c x] \text{Log}[c(d+e x)]-\frac{8 c d\left(\text{Log}[d+e x]-\text{Log}\left[e+c^2 d x+\sqrt{-c^2 d^2+e^2} \sqrt{1-c^2 x^2}\right]\right)}{\sqrt{-c^2 d^2+e^2}}+$$

$$\left.\left.8 i\left(\text{PolyLog}\left[2,\frac{i\left(-c d+\sqrt{c^2 d^2-e^2}\right) e^{-i \text{ArcSin}[c x]}}{e}\right]+\text{PolyLog}\left[2,-\frac{i\left(c d+\sqrt{c^2 d^2-e^2}\right) e^{-i \text{ArcSin}[c x]}}{e}\right]\right)\right)\right)$$

Problem 100: Result more than twice size of optimal antiderivative.

$$\int \frac{\left(f+g x+h x^2\right)(a+b \text{ArcSin}[c x])}{d+e x} \, dx$$

Optimal (type 4, 459 leaves, 15 steps):

$$\frac{b\,(4\,(e\,g-d\,h)+e\,h\,x)\,\sqrt{1-c^2\,x^2}}{4\,c\,e^2}-\frac{b\,h\,\text{ArcSin}[c\,x]}{4\,c^2\,e}-\frac{i\,b\,(e^2\,f-d\,e\,g+d^2\,h)\,\text{ArcSin}[c\,x]^2}{2\,e^3}+\frac{(e\,g-d\,h)\,x\,(a+b\,\text{ArcSin}[c\,x])}{e^2}+$$

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

$$\frac{b\,(e^2\,f-d\,e\,g+d^2\,h)\,\text{ArcSin}[c\,x]\,\text{Log}[d+e\,x]}{e^3}+\frac{(e^2\,f-d\,e\,g+d^2\,h)\,(a+b\,\text{ArcSin}[c\,x])\,\text{Log}[d+e\,x]}{e^3}-$$

$$\frac{i\,b\,(e^2\,f-d\,e\,g+d^2\,h)\,\text{PolyLog}\Big[2,\frac{i\,e\,e^{i\,\text{ArcSin}[c\,x]}}{c\,d-\sqrt{c^2\,d^2-e^2}}\Big]}{e^3}-\frac{i\,b\,(e^2\,f-d\,e\,g+d^2\,h)\,\text{PolyLog}\Big[2,\frac{i\,e\,e^{i\,\text{ArcSin}[c\,x]}}{c\,d+\sqrt{c^2\,d^2-e^2}}\Big]}{e^3}$$

Result (type 4, 1436 leaves):

$$\frac{a\,(e\,g-d\,h)\,x}{e^2}+\frac{a\,h\,x^2}{2\,e}+\frac{(a\,e^2\,f-a\,d\,e\,g+a\,d^2\,h)\,\text{Log}[d+e\,x]}{e^3}+$$

$$\frac{1}{8\,e}\,b\,f\,\Bigg(i\,(\pi-2\,\text{ArcSin}[c\,x])^2-32\,i\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\Big]\,\text{ArcTan}\Big[\frac{(c\,d-e)\,\text{Cot}\big[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\big]}{\sqrt{c^2\,d^2-e^2}}\Big]-$$

$$4\,\Bigg(\pi+4\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\Big]-2\,\text{ArcSin}[c\,x]\Bigg)\,\text{Log}\Big[1-\frac{i\,\big(-c\,d+\sqrt{c^2\,d^2-e^2}\big)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\Big]-$$

$$4\,\Bigg(\pi-4\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\Big]-2\,\text{ArcSin}[c\,x]\Bigg)\,\text{Log}\Big[1+\frac{i\,\big(c\,d+\sqrt{c^2\,d^2-e^2}\big)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\Big]+4\,(\pi-2\,\text{ArcSin}[c\,x])\,\text{Log}[c\,d+c\,e\,x]+$$

$$8\,\text{ArcSin}[c\,x]\,\text{Log}[c\,d+c\,e\,x]+8\,i\,\Bigg(\text{PolyLog}\Big[2,\frac{i\,\big(-c\,d+\sqrt{c^2\,d^2-e^2}\big)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\Big]+\text{PolyLog}\Big[2,-\frac{i\,\big(c\,d+\sqrt{c^2\,d^2-e^2}\big)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\Big]\Bigg)\Bigg)+$$

$$\frac{1}{c\,e} b\,g \left(\sqrt{1-c^2 x^2} + c\,x\,\text{ArcSin}[c\,x] - \frac{1}{8\,e} c\,d \left(i\,(\pi - 2\,\text{ArcSin}[c\,x])^2 - 32\,i\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(c\,d-e)\,\text{Cot}\left[\frac{1}{4}\,(\pi + 2\,\text{ArcSin}[c\,x])\right]}{\sqrt{c^2 d^2 - e^2}}\right] -\right.\right.$$

$$4\left(\pi + 4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right] - 2\,\text{ArcSin}[c\,x]\right) \text{Log}\left[1 - \frac{i\left(-c\,d + \sqrt{c^2 d^2 - e^2}\right) e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] - 4\left(\pi - 4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right] - 2\,\text{ArcSin}[c\,x]\right)$$

$$\text{Log}\left[1 + \frac{i\left(c\,d + \sqrt{c^2 d^2 - e^2}\right) e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] + 4\,(\pi - 2\,\text{ArcSin}[c\,x])\,\text{Log}[c\,d + c\,e\,x] + 8\,\text{ArcSin}[c\,x]\,\text{Log}[c\,d + c\,e\,x] +$$

$$\left.\left.8\,i\left(\text{PolyLog}\left[2, \frac{i\left(-c\,d + \sqrt{c^2 d^2 - e^2}\right) e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] + \text{PolyLog}\left[2, -\frac{i\left(c\,d + \sqrt{c^2 d^2 - e^2}\right) e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]\right)\right)\right) +$$

$$\frac{1}{8\,c^2 e^3} b\,h \left(i\,c^2 d^2 \pi^2 - 8\,c\,d\,e\sqrt{1-c^2 x^2} - 4\,i\,c^2 d^2 \pi\,\text{ArcSin}[c\,x] - 8\,c^2 d\,e\,x\,\text{ArcSin}[c\,x] + 4\,i\,c^2 d^2\,\text{ArcSin}[c\,x]^2 -\right.$$

$$32\,i\,c^2 d^2\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(c\,d-e)\,\text{Cot}\left[\frac{1}{4}\,(\pi + 2\,\text{ArcSin}[c\,x])\right]}{\sqrt{c^2 d^2 - e^2}}\right] - 2\,e^2\,\text{ArcSin}[c\,x]\,\text{Cos}[2\,\text{ArcSin}[c\,x]] -$$

$$4\,c^2 d^2 \pi\,\text{Log}\left[1 - \frac{i\left(-c\,d + \sqrt{c^2 d^2 - e^2}\right) e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] - 16\,c^2 d^2\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right] \text{Log}\left[1 - \frac{i\left(-c\,d + \sqrt{c^2 d^2 - e^2}\right) e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] +$$

$$8\,c^2 d^2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1 - \frac{i\left(-c\,d + \sqrt{c^2 d^2 - e^2}\right) e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] - 4\,c^2 d^2 \pi\,\text{Log}\left[1 + \frac{i\left(c\,d + \sqrt{c^2 d^2 - e^2}\right) e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] +$$

$$16\,c^2 d^2\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right] \text{Log}\left[1 + \frac{i\left(c\,d + \sqrt{c^2 d^2 - e^2}\right) e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] + 8\,c^2 d^2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1 + \frac{i\left(c\,d + \sqrt{c^2 d^2 - e^2}\right) e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] +$$

$$4 c^2 d^2 \pi \operatorname{Log}[c d + c e x] + 8 i c^2 d^2 \operatorname{PolyLog}\left[2, \frac{i \left(-c d + \sqrt{c^2 d^2 - e^2}\right) e^{-i \operatorname{ArcSin}[c x]}}{e}\right] +$$

$$\left. 8 i c^2 d^2 \operatorname{PolyLog}\left[2, -\frac{i \left(c d + \sqrt{c^2 d^2 - e^2}\right) e^{-i \operatorname{ArcSin}[c x]}}{e}\right] + e^2 \operatorname{Sin}[2 \operatorname{ArcSin}[c x]]\right)$$

Problem 101: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(f + g x + h x^2) (a + b \operatorname{ArcSin}[c x])}{(d + e x)^2} \, dx$$

Optimal (type 4, 460 leaves, 16 steps):

$$\frac{b h \sqrt{1 - c^2 x^2}}{c e^2} - \frac{i b (e g - 2 d h) \operatorname{ArcSin}[c x]^2}{2 e^3} + \frac{h x (a + b \operatorname{ArcSin}[c x])}{e^2} - \frac{(e^2 f - d e g + d^2 h) (a + b \operatorname{ArcSin}[c x])}{e^3 (d + e x)} +$$

$$\frac{b c (e^2 f - d e g + d^2 h) \operatorname{ArcTan}\left[\frac{e + c^2 d x}{\sqrt{c^2 d^2 - e^2} \sqrt{1 - c^2 x^2}}\right]}{e^3 \sqrt{c^2 d^2 - e^2}} + \frac{b (e g - 2 d h) \operatorname{ArcSin}[c x] \operatorname{Log}\left[1 - \frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d - \sqrt{c^2 d^2 - e^2}}\right]}{e^3} +$$

$$\frac{b (e g - 2 d h) \operatorname{ArcSin}[c x] \operatorname{Log}\left[1 - \frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d + \sqrt{c^2 d^2 - e^2}}\right]}{e^3} - \frac{b (e g - 2 d h) \operatorname{ArcSin}[c x] \operatorname{Log}[d + e x]}{e^3} +$$

$$\frac{(e g - 2 d h) (a + b \operatorname{ArcSin}[c x]) \operatorname{Log}[d + e x]}{e^3} - \frac{i b (e g - 2 d h) \operatorname{PolyLog}\left[2, \frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d - \sqrt{c^2 d^2 - e^2}}\right]}{e^3} - \frac{i b (e g - 2 d h) \operatorname{PolyLog}\left[2, \frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d + \sqrt{c^2 d^2 - e^2}}\right]}{e^3}$$

Result (type 6, 1119 leaves):

$$\frac{a h x}{e^2} + \frac{-a e^2 f + a d e g - a d^2 h}{e^3 (d + e x)} + b f \left(- \frac{c \sqrt{1 + \frac{-d - \sqrt{\frac{1}{c^2}} e}{d + e x}} \sqrt{1 + \frac{-d + \sqrt{\frac{1}{c^2}} e}{d + e x}} \operatorname{AppellF1}\left[1, \frac{1}{2}, \frac{1}{2}, 2, -\frac{-d + \sqrt{\frac{1}{c^2}} e}{d + e x}, -\frac{-d - \sqrt{\frac{1}{c^2}} e}{d + e x}\right]}{e^2 \sqrt{1 - c^2 x^2}} - \frac{\operatorname{ArcSin}[c x]}{e (d + e x)} \right) +$$

$$\frac{(a e g-2 a d h) \operatorname{Log}[d+e x]}{e^3}+b h\left(\frac{\sqrt{1-c^2 x^2}+c x \operatorname{ArcSin}[c x]}{c e^2}+\frac{d^2\left(-\frac{\operatorname{ArcSin}[c x]}{d+e x}+\frac{c\left(\operatorname{Log}[d+e x]-\operatorname{Log}\left[e+c^2 d x+\sqrt{-c^2 d^2+e^2} \sqrt{1-c^2 x^2}\right]\right)}{\sqrt{-c^2 d^2+e^2}}\right)}{e^3}-\right.$$

$$\frac{1}{4 e^3} d\left(\mathrm{i}(\pi-2 \operatorname{ArcSin}[c x])^2-32 \mathrm{i} \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right] \operatorname{ArcTan}\left[\frac{(c d-e) \operatorname{Cot}\left[\frac{1}{4}(\pi+2 \operatorname{ArcSin}[c x])\right]}{\sqrt{c^2 d^2-e^2}}\right]-\right.$$

$$4\left(\pi+4 \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]-2 \operatorname{ArcSin}[c x]\right) \operatorname{Log}\left[1-\frac{\mathrm{i}\left(-c d+\sqrt{c^2 d^2-e^2}\right) e^{-\mathrm{i} \operatorname{ArcSin}[c x]}}{e}\right]-4\left(\pi-4 \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]-2 \operatorname{ArcSin}[c x]\right)$$

$$\operatorname{Log}\left[1+\frac{\mathrm{i}\left(c d+\sqrt{c^2 d^2-e^2}\right) e^{-\mathrm{i} \operatorname{ArcSin}[c x]}}{e}\right]+4(\pi-2 \operatorname{ArcSin}[c x]) \operatorname{Log}[c d+c e x]+8 \operatorname{ArcSin}[c x] \operatorname{Log}[c d+c e x]+$$

$$\left.\left.8 \mathrm{i}\left(\operatorname{PolyLog}\left[2, \frac{\mathrm{i}\left(-c d+\sqrt{c^2 d^2-e^2}\right) e^{-\mathrm{i} \operatorname{ArcSin}[c x]}}{e}\right]+\operatorname{PolyLog}\left[2,-\frac{\mathrm{i}\left(c d+\sqrt{c^2 d^2-e^2}\right) e^{-\mathrm{i} \operatorname{ArcSin}[c x]}}{e}\right]\right)\right)\right)+$$

$$b g\left(-\frac{d\left(-\frac{\operatorname{ArcSin}[c x]}{d+e x}+\frac{c\left(\operatorname{Log}[d+e x]-\operatorname{Log}\left[e+c^2 d x+\sqrt{-c^2 d^2+e^2} \sqrt{1-c^2 x^2}\right]\right)}{\sqrt{-c^2 d^2+e^2}}\right)}{e^2}+\frac{1}{8 e^2}\left(\mathrm{i}(\pi-2 \operatorname{ArcSin}[c x])^2-32 \mathrm{i} \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]\right.\right.$$

$$\operatorname{ArcTan}\left[\frac{(c d-e) \operatorname{Cot}\left[\frac{1}{4}(\pi+2 \operatorname{ArcSin}[c x])\right]}{\sqrt{c^2 d^2-e^2}}\right]-4\left(\pi+4 \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]-2 \operatorname{ArcSin}[c x]\right) \operatorname{Log}\left[1-\frac{\mathrm{i}\left(-c d+\sqrt{c^2 d^2-e^2}\right) e^{-\mathrm{i} \operatorname{ArcSin}[c x]}}{e}\right]-$$

$$4\left(\pi-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2\,d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+4\left(\pi-2\,\text{ArcSin}[c\,x]\right)\text{Log}[c\,d+c\,e\,x]+$$

$$8\,\text{ArcSin}[c\,x]\,\text{Log}[c\,d+c\,e\,x]+8\,i\left(\text{PolyLog}\left[2,\frac{i\left(-c\,d+\sqrt{c^2\,d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+\text{PolyLog}\left[2,-\frac{i\left(c\,d+\sqrt{c^2\,d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]\right)\Bigg)\Bigg)$$

Problem 102: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(f+g\,x+h\,x^2\right)\left(a+b\,\text{ArcSin}[c\,x]\right)}{(d+e\,x)^3}\,dx$$

Optimal (type 4, 488 leaves, 16 steps):

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

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

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

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

Result (type 6, 1144 leaves):

$$\frac{-a\,e^2\,f+a\,d\,e\,g-a\,d^2\,h}{2\,e^3\,(d+e\,x)^2}+\frac{-a\,e\,g+2\,a\,d\,h}{e^3\,(d+e\,x)}+$$

$$b f \left(-\frac{c \sqrt{1+\frac{-d-\sqrt{\frac{1}{c^2}}\, e}{d+e x}}\, \sqrt{1+\frac{-d+\sqrt{\frac{1}{c^2}}\, e}{d+e x}}\, \text{AppellF1}\left[2, \frac{1}{2}, \frac{1}{2}, 3, -\frac{-d+\sqrt{\frac{1}{c^2}}\, e}{d+e x}, -\frac{-d-\sqrt{\frac{1}{c^2}}\, e}{d+e x}\right]}{4 e^2 (d+e x) \sqrt{1-c^2 x^2}} - \frac{\text{ArcSin}[c x]}{2 e (d+e x)^2}\right) + \frac{a h \text{Log}[d+e x]}{e^3} +$$

$$b g \left(-\frac{d \left(\frac{c \sqrt{1-c^2 x^2}}{(c^2 d^2-e^2)(d+e x)} - \frac{\text{ArcSin}[c x]}{e (d+e x)^2} - \frac{i c^3 d \left(\text{Log}[4] + \text{Log}\left[\frac{e^2 \sqrt{c^2 d^2-e^2} \left(i e + i c^2 d x + \sqrt{c^2 d^2-e^2} \sqrt{1-c^2 x^2}\right)}{c^3 d (d+e x)}\right]\right)}{(c d-e) e (c d+e) \sqrt{c^2 d^2-e^2}}\right)}{2 e} + \frac{-\frac{\text{ArcSin}[c x]}{d+e x} + \frac{c \left(\text{Log}[d+e x] - \text{Log}\left[e + c^2 d x + \sqrt{-c^2 d^2+e^2} \sqrt{1-c^2 x^2}\right]\right)}{\sqrt{-c^2 d^2+e^2}}}{e^2}\right) +$$

$$b h \left(\frac{d^2 \left(\frac{c \sqrt{1-c^2 x^2}}{(c^2 d^2-e^2)(d+e x)} - \frac{\text{ArcSin}[c x]}{e (d+e x)^2} - \frac{i c^3 d \left(\text{Log}[4] + \text{Log}\left[\frac{e^2 \sqrt{c^2 d^2-e^2} \left(i e + i c^2 d x + \sqrt{c^2 d^2-e^2} \sqrt{1-c^2 x^2}\right)}{c^3 d (d+e x)}\right]\right)}{(c d-e) e (c d+e) \sqrt{c^2 d^2-e^2}}\right)}{2 e^2} - \frac{2 d \left(-\frac{\text{ArcSin}[c x]}{d+e x} + \frac{c \left(\text{Log}[d+e x] - \text{Log}\left[e + c^2 d x + \sqrt{-c^2 d^2+e^2} \sqrt{1-c^2 x^2}\right]\right)}{\sqrt{-c^2 d^2+e^2}}\right)}{e^3} +$$

$$\frac{1}{8 e^3} \left(i (\pi - 2 \text{ArcSin}[c x])^2 - 32 i \text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(c d-e) \text{Cot}\left[\frac{1}{4} (\pi + 2 \text{ArcSin}[c x])\right]}{\sqrt{c^2 d^2-e^2}}\right] -\right.$$

$$4 \left(\pi + 4 \text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right] - 2 \text{ArcSin}[c x]\right) \text{Log}\left[1 - \frac{i \left(-c d + \sqrt{c^2 d^2-e^2}\right) e^{-i \text{ArcSin}[c x]}}{e}\right] -$$

$$4\left(\pi-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2\,d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+4\left(\pi-2\,\text{ArcSin}[c\,x]\right)\text{Log}[c\,d+c\,e\,x]+$$

$$8\,\text{ArcSin}[c\,x]\,\text{Log}[c\,d+c\,e\,x]+8\,i\left(\text{PolyLog}\left[2,\frac{i\left(-c\,d+\sqrt{c^2\,d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+\text{PolyLog}\left[2,-\frac{i\left(c\,d+\sqrt{c^2\,d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]\right)\Bigg)$$

Problem 109: Result more than twice size of optimal antiderivative.

$$\int\frac{\left(f+g\,x+h\,x^2+i\,x^3\right)\left(a+b\,\text{ArcSin}[c\,x]\right)}{d+e\,x}\,dx$$

Optimal (type 4, 623 leaves, 16 steps):

$$\frac{b\,i\,x^2\sqrt{1-c^2\,x^2}}{9\,c\,e}+\frac{b\left(4\left(2\,e^2\,i+9\,c^2\left(e^2\,g-d\,e\,h+d^2\,i\right)\right)+9\,c^2\,e\left(e\,h-d\,i\right)x\right)\sqrt{1-c^2\,x^2}}{36\,c^3\,e^3}-$$
$$\frac{b\left(e\,h-d\,i\right)\text{ArcSin}[c\,x]}{4\,c^2\,e^2}-\frac{i\,b\left(e^3\,f-d\,e^2\,g+d^2\,e\,h-d^3\,i\right)\text{ArcSin}[c\,x]^2}{2\,e^4}+$$
$$\frac{\left(e^2\,g-d\,e\,h+d^2\,i\right)x\left(a+b\,\text{ArcSin}[c\,x]\right)}{e^3}+\frac{\left(e\,h-d\,i\right)x^2\left(a+b\,\text{ArcSin}[c\,x]\right)}{2\,e^2}+\frac{i\,x^3\left(a+b\,\text{ArcSin}[c\,x]\right)}{3\,e}+$$
$$\frac{b\left(e^3\,f-d\,e^2\,g+d^2\,e\,h-d^3\,i\right)\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\,e\,e^{i\,\text{ArcSin}[c\,x]}}{c\,d-\sqrt{c^2\,d^2-e^2}}\right]}{e^4}+\frac{b\left(e^3\,f-d\,e^2\,g+d^2\,e\,h-d^3\,i\right)\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\,e\,e^{i\,\text{ArcSin}[c\,x]}}{c\,d+\sqrt{c^2\,d^2-e^2}}\right]}{e^4}-$$
$$\frac{b\left(e^3\,f-d\,e^2\,g+d^2\,e\,h-d^3\,i\right)\text{ArcSin}[c\,x]\,\text{Log}[d+e\,x]}{e^4}+\frac{\left(e^3\,f-d\,e^2\,g+d^2\,e\,h-d^3\,i\right)\left(a+b\,\text{ArcSin}[c\,x]\right)\text{Log}[d+e\,x]}{e^4}-$$
$$\frac{i\,b\left(e^3\,f-d\,e^2\,g+d^2\,e\,h-d^3\,i\right)\text{PolyLog}\left[2,\frac{i\,e\,e^{i\,\text{ArcSin}[c\,x]}}{c\,d-\sqrt{c^2\,d^2-e^2}}\right]}{e^4}-\frac{i\,b\left(e^3\,f-d\,e^2\,g+d^2\,e\,h-d^3\,i\right)\text{PolyLog}\left[2,\frac{i\,e\,e^{i\,\text{ArcSin}[c\,x]}}{c\,d+\sqrt{c^2\,d^2-e^2}}\right]}{e^4}$$

Result (type 4, 2189 leaves):

$$\frac{a\left(e^2 g-d e h+d^2 i\right) x}{e^3}+\frac{a\left(e h-d i\right) x^2}{2 e^2}+\frac{a i x^3}{3 e}+\frac{\left(a e^3 f-a d e^2 g+a d^2 e h-a d^3 i\right) \text{Log}[d+e x]}{e^4}+$$

$$\frac{1}{8 e} b f \left(\mathbb{i} \left(\pi-2 \text{ArcSin}[c x]\right)^2-32 \mathbb{i} \text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(c d-e) \text{Cot}\left[\frac{1}{4}\left(\pi+2 \text{ArcSin}[c x]\right)\right]}{\sqrt{c^2 d^2-e^2}}\right]-\right.$$

$$4\left(\pi+4 \text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]-2 \text{ArcSin}[c x]\right) \text{Log}\left[1-\frac{\mathbb{i}\left(-c d+\sqrt{c^2 d^2-e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\right]-$$

$$4\left(\pi-4 \text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]-2 \text{ArcSin}[c x]\right) \text{Log}\left[1+\frac{\mathbb{i}\left(c d+\sqrt{c^2 d^2-e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\right]+4\left(\pi-2 \text{ArcSin}[c x]\right) \text{Log}[c d+c e x]+$$

$$\left.8 \text{ArcSin}[c x] \text{Log}[c d+c e x]+8 \mathbb{i}\left(\text{PolyLog}\left[2,\frac{\mathbb{i}\left(-c d+\sqrt{c^2 d^2-e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\right]+\text{PolyLog}\left[2,-\frac{\mathbb{i}\left(c d+\sqrt{c^2 d^2-e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\right]\right)\right)+$$

$$\frac{1}{c e} b g \left(\sqrt{1-c^2 x^2}+c x \text{ArcSin}[c x]-\frac{1}{8 e} c d \left(\mathbb{i}\left(\pi-2 \text{ArcSin}[c x]\right)^2-32 \mathbb{i} \text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(c d-e) \text{Cot}\left[\frac{1}{4}\left(\pi+2 \text{ArcSin}[c x]\right)\right]}{\sqrt{c^2 d^2-e^2}}\right]-\right.\right.$$

$$4\left(\pi+4 \text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]-2 \text{ArcSin}[c x]\right) \text{Log}\left[1-\frac{\mathbb{i}\left(-c d+\sqrt{c^2 d^2-e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\right]-4\left(\pi-4 \text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]-2 \text{ArcSin}[c x]\right)$$

$$\text{Log}\left[1+\frac{\mathbb{i}\left(c d+\sqrt{c^2 d^2-e^2}\right) e^{-\mathbb{i} \text{ArcSin}[c x]}}{e}\right]+4\left(\pi-2 \text{ArcSin}[c x]\right) \text{Log}[c d+c e x]+8 \text{ArcSin}[c x] \text{Log}[c d+c e x]+$$

$$8\,i\left(\text{PolyLog}\left[2,\frac{i\left(-c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+\text{PolyLog}\left[2,-\frac{i\left(c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]\right)\Bigg)\Bigg)+$$

$$\frac{1}{8\,c^2 e^3}\,b\,h\Bigg(i\,c^2 d^2\pi^2-8\,c\,d\,e\sqrt{1-c^2x^2}-4\,i\,c^2d^2\pi\,\text{ArcSin}[c\,x]-8\,c^2\,d\,e\,x\,\text{ArcSin}[c\,x]+4\,i\,c^2d^2\,\text{ArcSin}[c\,x]^2-$$

$$32\,i\,c^2d^2\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(c\,d-e)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2d^2-e^2}}\right]-2\,e^2\,\text{ArcSin}[c\,x]\,\text{Cos}[2\,\text{ArcSin}[c\,x]]-$$

$$4\,c^2d^2\pi\,\text{Log}\left[1-\frac{i\left(-c\,d+\sqrt{c^2d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]-16\,c^2d^2\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\text{Log}\left[1-\frac{i\left(-c\,d+\sqrt{c^2d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+$$

$$8\,c^2d^2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\left(-c\,d+\sqrt{c^2d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]-4\,c^2d^2\pi\,\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+$$

$$16\,c^2d^2\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+8\,c^2d^2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+$$

$$4\,c^2d^2\pi\,\text{Log}[c\,d+c\,e\,x]+8\,i\,c^2d^2\,\text{PolyLog}\left[2,\frac{i\left(-c\,d+\sqrt{c^2d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+$$

$$8\,i\,c^2d^2\,\text{PolyLog}\left[2,-\frac{i\left(c\,d+\sqrt{c^2d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+e^2\,\text{Sin}[2\,\text{ArcSin}[c\,x]]\Bigg)-$$

$$\frac{1}{72\,c^3e^4}\,b\,i\Bigg(9\,i\,c^3d^3\pi^2-72\,c^2d^2\,e\sqrt{1-c^2x^2}-18\,e^3\sqrt{1-c^2x^2}-36\,i\,c^3d^3\pi\,\text{ArcSin}[c\,x]-72\,c^3d^2\,e\,x\,\text{ArcSin}[c\,x]-$$

$$18\,c\,e^3\,x\,\text{ArcSin}[c\,x] + 36\,i\,c^3\,d^3\,\text{ArcSin}[c\,x]^2 - 288\,i\,c^3\,d^3\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\,\text{ArcTan}\left[\frac{(c\,d-e)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2\,d^2-e^2}}\right] -$$

$$18\,c\,d\,e^2\,\text{ArcSin}[c\,x]\,\text{Cos}[2\,\text{ArcSin}[c\,x]] + 2\,e^3\,\text{Cos}[3\,\text{ArcSin}[c\,x]] - 36\,c^3\,d^3\,\pi\,\text{Log}\left[1-\frac{i\left(-c\,d+\sqrt{c^2\,d^2-e^2}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] -$$

$$144\,c^3\,d^3\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\,\text{Log}\left[1-\frac{i\left(-c\,d+\sqrt{c^2\,d^2-e^2}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] +$$

$$72\,c^3\,d^3\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\left(-c\,d+\sqrt{c^2\,d^2-e^2}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] - 36\,c^3\,d^3\,\pi\,\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2\,d^2-e^2}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] +$$

$$144\,c^3\,d^3\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\,\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2\,d^2-e^2}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] + 72\,c^3\,d^3\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2\,d^2-e^2}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] +$$

$$36\,c^3\,d^3\,\pi\,\text{Log}[c\,d+c\,e\,x] + 72\,i\,c^3\,d^3\,\text{PolyLog}\left[2,\frac{i\left(-c\,d+\sqrt{c^2\,d^2-e^2}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] +$$

$$\left.72\,i\,c^3\,d^3\,\text{PolyLog}\left[2,-\frac{i\left(c\,d+\sqrt{c^2\,d^2-e^2}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\right] + 9\,c\,d\,e^2\,\text{Sin}[2\,\text{ArcSin}[c\,x]] + 6\,e^3\,\text{ArcSin}[c\,x]\,\text{Sin}[3\,\text{ArcSin}[c\,x]]\right)$$

Problem 110: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\left(f+g\,x+h\,x^2+i\,x^3\right)\,\left(a+b\,\text{ArcSin}[c\,x]\right)}{(d+e\,x)^2}\,dx$$

Optimal (type 4, 617 leaves, 18 steps):

$$\frac{b\,(e\,h-2\,d\,i)\,\sqrt{1-c^2\,x^2}}{c\,e^3}+\frac{b\,i\,x\,\sqrt{1-c^2\,x^2}}{4\,c\,e^2}-\frac{b\,i\,\text{ArcSin}[c\,x]}{4\,c^2\,e^2}-\frac{\mathrm{i}\,b\,(e^2\,g-2\,d\,e\,h+3\,d^2\,i)\,\text{ArcSin}[c\,x]^2}{2\,e^4}+\frac{(e\,h-2\,d\,i)\,x\,(a+b\,\text{ArcSin}[c\,x])}{e^3}+$$

$$\frac{i\,x^2\,(a+b\,\text{ArcSin}[c\,x])}{2\,e^2}-\frac{(e^3\,f-d\,e^2\,g+d^2\,e\,h-d^3\,i)\,(a+b\,\text{ArcSin}[c\,x])}{e^4\,(d+e\,x)}+\frac{b\,c\,(e^3\,f-d\,e^2\,g+d^2\,e\,h-d^3\,i)\,\text{ArcTan}\left[\frac{e+c^2\,d\,x}{\sqrt{c^2\,d^2-e^2}\,\sqrt{1-c^2\,x^2}}\right]}{e^4\,\sqrt{c^2\,d^2-e^2}}+$$

$$\frac{b\,(e^2\,g-2\,d\,e\,h+3\,d^2\,i)\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{\mathrm{i}\,e\,\mathrm{e}^{\mathrm{i}\,\text{ArcSin}[c\,x]}}{c\,d-\sqrt{c^2\,d^2-e^2}}\right]}{e^4}+\frac{b\,(e^2\,g-2\,d\,e\,h+3\,d^2\,i)\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{\mathrm{i}\,e\,\mathrm{e}^{\mathrm{i}\,\text{ArcSin}[c\,x]}}{c\,d+\sqrt{c^2\,d^2-e^2}}\right]}{e^4}-$$

$$\frac{b\,(e^2\,g-2\,d\,e\,h+3\,d^2\,i)\,\text{ArcSin}[c\,x]\,\text{Log}[d+e\,x]}{e^4}+\frac{(e^2\,g-2\,d\,e\,h+3\,d^2\,i)\,(a+b\,\text{ArcSin}[c\,x])\,\text{Log}[d+e\,x]}{e^4}-$$

$$\frac{\mathrm{i}\,b\,(e^2\,g-2\,d\,e\,h+3\,d^2\,i)\,\text{PolyLog}\left[2,\frac{\mathrm{i}\,e\,\mathrm{e}^{\mathrm{i}\,\text{ArcSin}[c\,x]}}{c\,d-\sqrt{c^2\,d^2-e^2}}\right]}{e^4}-\frac{\mathrm{i}\,b\,(e^2\,g-2\,d\,e\,h+3\,d^2\,i)\,\text{PolyLog}\left[2,\frac{\mathrm{i}\,e\,\mathrm{e}^{\mathrm{i}\,\text{ArcSin}[c\,x]}}{c\,d+\sqrt{c^2\,d^2-e^2}}\right]}{e^4}$$

Result (type 6, 1688 leaves):

$$\frac{a\,(e\,h-2\,d\,i)\,x}{e^3}+\frac{a\,i\,x^2}{2\,e^2}+\frac{-a\,e^3\,f+a\,d\,e^2\,g-a\,d^2\,e\,h+a\,d^3\,i}{e^4\,(d+e\,x)}+$$

$$b\,f\left(-\frac{c\,\sqrt{1+\frac{-d-\sqrt{\frac{1}{c^2}}\,e}{d+e\,x}}\,\sqrt{1+\frac{-d+\sqrt{\frac{1}{c^2}}\,e}{d+e\,x}}\,\text{AppellF1}\left[1,\frac{1}{2},\frac{1}{2},2,-\frac{-d+\sqrt{\frac{1}{c^2}}\,e}{d+e\,x},-\frac{-d-\sqrt{\frac{1}{c^2}}\,e}{d+e\,x}\right]}{e^2\,\sqrt{1-c^2\,x^2}}-\frac{\text{ArcSin}[c\,x]}{e\,(d+e\,x)}\right)+$$

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

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

$$\frac{1}{8 e^4} 3 d^2 \Bigg(i (\pi - 2 \text{ArcSin}[c x])^2 - 32 i \text{ArcSin}\Big[\frac{\sqrt{1 + \frac{c d}{e}}}{\sqrt{2}}\Big] \text{ArcTan}\Big[\frac{(c d - e) \text{Cot}\big[\frac{1}{4} (\pi + 2 \text{ArcSin}[c x])\big]}{\sqrt{c^2 d^2 - e^2}}\Big] -$$

$$4 \Big(\pi + 4 \text{ArcSin}\Big[\frac{\sqrt{1 + \frac{c d}{e}}}{\sqrt{2}}\Big] - 2 \text{ArcSin}[c x]\Big) \text{Log}\Big[1 - \frac{i \left(-c d + \sqrt{c^2 d^2 - e^2}\right) e^{-i \text{ArcSin}[c x]}}{e}\Big] - 4 \Big(\pi - 4 \text{ArcSin}\Big[\frac{\sqrt{1 + \frac{c d}{e}}}{\sqrt{2}}\Big] - 2 \text{ArcSin}[c x]\Big)$$

$$\text{Log}\Big[1 + \frac{i \left(c d + \sqrt{c^2 d^2 - e^2}\right) e^{-i \text{ArcSin}[c x]}}{e}\Big] + 4 (\pi - 2 \text{ArcSin}[c x]) \text{Log}[c d + c e x] + 8 \text{ArcSin}[c x] \text{Log}[c d + c e x] +$$

$$8 i \Big(\text{PolyLog}\Big[2, \frac{i \left(-c d + \sqrt{c^2 d^2 - e^2}\right) e^{-i \text{ArcSin}[c x]}}{e}\Big] + \text{PolyLog}\Big[2, -\frac{i \left(c d + \sqrt{c^2 d^2 - e^2}\right) e^{-i \text{ArcSin}[c x]}}{e}\Big]\Big)\Bigg)\Bigg) +$$

$$b h \Bigg(\frac{\sqrt{1 - c^2 x^2} + c x \text{ArcSin}[c x]}{c e^2} + \frac{d^2 \left(-\frac{\text{ArcSin}[c x]}{d+e x} + \frac{c \left(\text{Log}[d+e x] - \text{Log}\left[e + c^2 d x + \sqrt{-c^2 d^2 + e^2} \sqrt{1 - c^2 x^2}\right]\right)}{\sqrt{-c^2 d^2 + e^2}}\right)}{e^3} -$$

$$\frac{1}{4 e^3} d \Bigg(i (\pi - 2 \text{ArcSin}[c x])^2 - 32 i \text{ArcSin}\Big[\frac{\sqrt{1 + \frac{c d}{e}}}{\sqrt{2}}\Big] \text{ArcTan}\Big[\frac{(c d - e) \text{Cot}\big[\frac{1}{4} (\pi + 2 \text{ArcSin}[c x])\big]}{\sqrt{c^2 d^2 - e^2}}\Big] -$$

$$4 \Big(\pi + 4 \text{ArcSin}\Big[\frac{\sqrt{1 + \frac{c d}{e}}}{\sqrt{2}}\Big] - 2 \text{ArcSin}[c x]\Big) \text{Log}\Big[1 - \frac{i \left(-c d + \sqrt{c^2 d^2 - e^2}\right) e^{-i \text{ArcSin}[c x]}}{e}\Big] - 4 \Big(\pi - 4 \text{ArcSin}\Big[\frac{\sqrt{1 + \frac{c d}{e}}}{\sqrt{2}}\Big] - 2 \text{ArcSin}[c x]\Big)$$

$$\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+4\left(\pi-2\,\text{ArcSin}[c\,x]\right)\text{Log}[c\,d+c\,e\,x]+8\,\text{ArcSin}[c\,x]\,\text{Log}[c\,d+c\,e\,x]+$$

$$8\,i\left(\text{PolyLog}\left[2,\frac{i\left(-c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+\text{PolyLog}\left[2,-\frac{i\left(c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]\right)\Bigg)\Bigg)+$$

$$b\,g\left(-\frac{d\left(-\frac{\text{ArcSin}[c\,x]}{d+e\,x}+\frac{c\left(\text{Log}[d+e\,x]-\text{Log}\left[e+c^2 d\,x+\sqrt{-c^2 d^2+e^2}\sqrt{1-c^2 x^2}\right]\right)}{\sqrt{-c^2 d^2+e^2}}\right)}{e^2}+\frac{1}{8\,e^2}\left(i\left(\pi-2\,\text{ArcSin}[c\,x]\right)^2-32\,i\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\right.\right.$$

$$\text{ArcTan}\left[\frac{\left(c\,d-e\right)\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2 d^2-e^2}}\right]-4\left(\pi+4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1-\frac{i\left(-c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]-$$

$$4\left(\pi-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+4\left(\pi-2\,\text{ArcSin}[c\,x]\right)\text{Log}[c\,d+c\,e\,x]+$$

$$8\,\text{ArcSin}[c\,x]\,\text{Log}[c\,d+c\,e\,x]+8\,i\left(\text{PolyLog}\left[2,\frac{i\left(-c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+\text{PolyLog}\left[2,-\frac{i\left(c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]\right)\Bigg)\Bigg)$$

Problem 111: Result unnecessarily involves higher level functions.

$$\int\frac{\left(f+g\,x+h\,x^2+i\,x^3\right)\left(a+b\,\text{ArcSin}[c\,x]\right)}{\left(d+e\,x\right)^3}\,dx$$

Optimal (type 4, 1016 leaves, 30 steps):

$$\frac{b\,i\,\sqrt{1-c^2x^2}}{c\,e^3}+\frac{5\,b\,c\,d^3\,i\,\sqrt{1-c^2x^2}}{2\,e^3\,(c^2d^2-e^2)\,(d+e\,x)}-\frac{b\,c\,d^2\,(3\,e\,h+4\,d\,i)\,\sqrt{1-c^2x^2}}{2\,e^3\,(c^2d^2-e^2)\,(d+e\,x)}+\frac{b\,c\,d\,(e^2g+4\,d\,e\,h-4\,d^2i)\,\sqrt{1-c^2x^2}}{2\,e^3\,(c^2d^2-e^2)\,(d+e\,x)}+$$

$$\frac{b\,c\,(e^3f-2\,d\,e^2g+2\,d^3i)\,\sqrt{1-c^2x^2}}{2\,e^3\,(c^2d^2-e^2)\,(d+e\,x)}-\frac{i\,b\,(e\,h-3\,d\,i)\,\text{ArcSin}[c\,x]^2}{2\,e^4}+\frac{i\,x\,(a+b\,\text{ArcSin}[c\,x])}{e^3}-\frac{(e^3f-d\,e^2g+d^2e\,h-d^3i)\,(a+b\,\text{ArcSin}[c\,x])}{2\,e^4\,(d+e\,x)^2}-$$

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

$$\frac{b\,c\,d\,(4\,e^2(e\,h-2\,d\,i)+c^2(d\,e^2g+4\,d^3i))\,\text{ArcTan}\left[\frac{e+c^2d\,x}{\sqrt{c^2d^2-e^2}\,\sqrt{1-c^2x^2}}\right]}{2\,e^4\,(c^2d^2-e^2)^{3/2}}-\frac{b\,c\,(2\,e^4g-6\,d^2e^2i-c^2(d\,e^3f-4\,d^4i))\,\text{ArcTan}\left[\frac{e+c^2d\,x}{\sqrt{c^2d^2-e^2}\,\sqrt{1-c^2x^2}}\right]}{2\,e^4\,(c^2d^2-e^2)^{3/2}}+$$

$$\frac{b\,(e\,h-3\,d\,i)\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\,e\,e^{i\,\text{ArcSin}[c\,x]}}{c\,d-\sqrt{c^2d^2-e^2}}\right]}{e^4}+\frac{b\,(e\,h-3\,d\,i)\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\,e\,e^{i\,\text{ArcSin}[c\,x]}}{c\,d+\sqrt{c^2d^2-e^2}}\right]}{e^4}-\frac{b\,(e\,h-3\,d\,i)\,\text{ArcSin}[c\,x]\,\text{Log}[d+e\,x]}{e^4}+$$

$$\frac{(e\,h-3\,d\,i)\,(a+b\,\text{ArcSin}[c\,x])\,\text{Log}[d+e\,x]}{e^4}-\frac{i\,b\,(e\,h-3\,d\,i)\,\text{PolyLog}\left[2,\frac{i\,e\,e^{i\,\text{ArcSin}[c\,x]}}{c\,d-\sqrt{c^2d^2-e^2}}\right]}{e^4}-\frac{i\,b\,(e\,h-3\,d\,i)\,\text{PolyLog}\left[2,\frac{i\,e\,e^{i\,\text{ArcSin}[c\,x]}}{c\,d+\sqrt{c^2d^2-e^2}}\right]}{e^4}$$

Result (type 6, 1844 leaves):

$$\frac{a\,i\,x}{e^3}+\frac{-a\,e^3f+a\,d\,e^2g-a\,d^2e\,h+a\,d^3i}{2\,e^4\,(d+e\,x)^2}+\frac{-a\,e^2g+2\,a\,d\,e\,h-3\,a\,d^2i}{e^4\,(d+e\,x)}+$$

$$b\,f\left(-\frac{c\,\sqrt{1+\frac{-d-\sqrt{\frac{1}{c^2}}\,e}{d+e\,x}}\,\sqrt{1+\frac{-d+\sqrt{\frac{1}{c^2}}\,e}{d+e\,x}}\,\text{AppellF1}\left[2,\frac{1}{2},\frac{1}{2},3,-\frac{-d+\sqrt{\frac{1}{c^2}}\,e}{d+e\,x},-\frac{-d-\sqrt{\frac{1}{c^2}}\,e}{d+e\,x}\right]}{4\,e^2\,(d+e\,x)\,\sqrt{1-c^2x^2}}-\frac{\text{ArcSin}[c\,x]}{2\,e\,(d+e\,x)^2}\right)+\frac{(a\,e\,h-3\,a\,d\,i)\,\text{Log}[d+e\,x]}{e^4}+$$

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

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

$$\frac{3d^2\left(-\frac{\text{ArcSin}[c x]}{d+e x}+\frac{c\left(\text{Log}[d+e x]-\text{Log}\left[e+c^2 d x+\sqrt{-c^2d^2+e^2}\sqrt{1-c^2x^2}\right]\right)}{\sqrt{-c^2d^2+e^2}}\right)}{e^4}-$$

$$\frac{1}{8e^4}3d\left(i(\pi-2\,\text{ArcSin}[c x])^2-32\,i\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(c d-e)\,\text{Cot}\left[\frac{1}{4}(\pi+2\,\text{ArcSin}[c x])\right]}{\sqrt{c^2d^2-e^2}}\right]-\right.$$

$$4\left(\pi+4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c x]\right)\text{Log}\left[1-\frac{i\left(-c d+\sqrt{c^2d^2-e^2}\right)e^{-i\,\text{ArcSin}[c x]}}{e}\right]-4\left(\pi-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c d}{e}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c x]\right)$$

$$\text{Log}\left[1+\frac{i\left(c d+\sqrt{c^2d^2-e^2}\right)e^{-i\,\text{ArcSin}[c x]}}{e}\right]+4(\pi-2\,\text{ArcSin}[c x])\,\text{Log}[c d+c e x]+8\,\text{ArcSin}[c x]\,\text{Log}[c d+c e x]+$$

$$8\,i\left(\text{PolyLog}\left[2,\frac{i\left(-c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+\text{PolyLog}\left[2,-\frac{i\left(c\,d+\sqrt{c^2 d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]\right)\Bigg)\Bigg)\Bigg)+$$

$$b\,h\left(\frac{d^2\left(\frac{c\sqrt{1-c^2x^2}}{\left(c^2d^2-e^2\right)(d+e\,x)}-\frac{\text{ArcSin}[c\,x]}{e\,(d+e\,x)^2}-\frac{i\,c^3 d\left(\text{Log}[4]+\text{Log}\left[\frac{e^2\sqrt{c^2d^2-e^2}\left(i\,e+i\,c^2 d\,x+\sqrt{c^2d^2-e^2}\sqrt{1-c^2x^2}\right)}{c^3 d\,(d+e\,x)}\right]\right)}{(c\,d-e)\,e\,(c\,d+e)\sqrt{c^2d^2-e^2}}\right)}{2\,e^2}-\frac{2\,d\left(-\frac{\text{ArcSin}[c\,x]}{d+e\,x}+\frac{c\left(\text{Log}[d+e\,x]-\text{Log}\left[e+c^2 d\,x+\sqrt{-c^2d^2+e^2}\sqrt{1-c^2x^2}\right]\right)}{\sqrt{-c^2d^2+e^2}}\right)}{e^3}+\right.$$

$$\frac{1}{8\,e^3}\left(i\,(\pi-2\,\text{ArcSin}[c\,x])^2-32\,i\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(c\,d-e)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2d^2-e^2}}\right]-\right.$$

$$4\left(\pi+4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1-\frac{i\left(-c\,d+\sqrt{c^2d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]-$$

$$4\left(\pi-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1+\frac{i\left(c\,d+\sqrt{c^2d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+4\,(\pi-2\,\text{ArcSin}[c\,x])\,\text{Log}[c\,d+c\,e\,x]+$$

$$8\,\text{ArcSin}[c\,x]\,\text{Log}[c\,d+c\,e\,x]+8\,i\left(\text{PolyLog}\left[2,\,\frac{i\left(-c\,d+\sqrt{c^2\,d^2-e^2}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+\text{PolyLog}\left[2,\,-\frac{i\left(c\,d+\sqrt{c^2\,d^2-e^2}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]\right)\Bigg)\Bigg)$$

Problem 112: Result unnecessarily involves higher level functions.

$$\int\frac{\left(f+g\,x+h\,x^2+i\,x^3\right)\,\left(a+b\,\text{ArcSin}[c\,x]\right)}{\left(d+e\,x\right)^4}\,dx$$

Optimal (type 4, 1278 leaves, 29 steps) :

$$\frac{b c \left(2 e^2 f - 3 d e g + 6 d^2 h\right) \sqrt{1-c^2 x^2}}{12 e^2 \left(c^2 d^2 - e^2\right) (d+e x)^2} - \frac{11 b c d^3 i \sqrt{1-c^2 x^2}}{12 e^3 \left(c^2 d^2 - e^2\right) (d+e x)^2} + \frac{b c d^2 (2 e h + 27 d i) \sqrt{1-c^2 x^2}}{12 e^3 \left(c^2 d^2 - e^2\right) (d+e x)^2} +$$

$$\frac{b c d \left(e^2 g - 6 d e h - 18 d^2 i\right) \sqrt{1-c^2 x^2}}{12 e^3 \left(c^2 d^2 - e^2\right) (d+e x)^2} - \frac{b c \left(2 e^2 (e g - 4 d h) - c^2 d \left(2 e^2 f - d e g - 2 d^2 h\right)\right) \sqrt{1-c^2 x^2}}{4 e^2 \left(c^2 d^2 - e^2\right)^2 (d+e x)} - \frac{11 b c^3 d^4 i \sqrt{1-c^2 x^2}}{4 e^3 \left(c^2 d^2 - e^2\right)^2 (d+e x)} +$$

$$\frac{b c d^2 \left(18 e^2 i + c^2 d (2 e h + 9 d i)\right) \sqrt{1-c^2 x^2}}{4 e^3 \left(c^2 d^2 - e^2\right)^2 (d+e x)} - \frac{b c d \left(4 e^2 (e h + 6 d i) - c^2 d \left(e^2 g - 2 d e h + 6 d^2 i\right)\right) \sqrt{1-c^2 x^2}}{4 e^3 \left(c^2 d^2 - e^2\right)^2 (d+e x)} - \frac{\mathrm{i}\, b\, i\, \mathrm{ArcSin}[c x]^2}{2 e^4} -$$

$$\frac{\left(e^3 f - d e^2 g + d^2 e h - d^3 i\right) (a + b\, \mathrm{ArcSin}[c x])}{3 e^4 (d+e x)^3} - \frac{\left(e^2 g - 2 d e h + 3 d^2 i\right) (a + b\, \mathrm{ArcSin}[c x])}{2 e^4 (d+e x)^2} - \frac{(e h - 3 d i) (a + b\, \mathrm{ArcSin}[c x])}{e^4 (d+e x)} +$$

$$\frac{b c \left(4 c^4 d^2 f + 12 e^2 h + c^2 \left(2 e^2 f - 9 d e g + 6 d^2 h\right)\right) \mathrm{ArcTan}\left[\frac{e + c^2 d x}{\sqrt{c^2 d^2 - e^2} \sqrt{1 - c^2 x^2}}\right]}{12 e \left(c^2 d^2 - e^2\right)^{5/2}} - \frac{11 b c^3 d^3 \left(2 c^2 d^2 + e^2\right) i\, \mathrm{ArcTan}\left[\frac{e + c^2 d x}{\sqrt{c^2 d^2 - e^2} \sqrt{1 - c^2 x^2}}\right]}{12 e^4 \left(c^2 d^2 - e^2\right)^{5/2}} +$$

$$\frac{b c^3 d^2 \left(4 c^2 d^2 h + e (2 e h + 81 d i)\right) \mathrm{ArcTan}\left[\frac{e + c^2 d x}{\sqrt{c^2 d^2 - e^2} \sqrt{1 - c^2 x^2}}\right]}{12 e^3 \left(c^2 d^2 - e^2\right)^{5/2}} + \frac{b c d \left(2 c^4 d^2 g - 36 e^2 i + c^2 \left(e^2 g - 18 d e h - 18 d^2 i\right)\right) \mathrm{ArcTan}\left[\frac{e + c^2 d x}{\sqrt{c^2 d^2 - e^2} \sqrt{1 - c^2 x^2}}\right]}{12 e^2 \left(c^2 d^2 - e^2\right)^{5/2}} +$$

$$\frac{b\, i\, \mathrm{ArcSin}[c x]\, \mathrm{Log}\left[1 - \frac{\mathrm{i}\, e\, e^{\mathrm{i}\, \mathrm{ArcSin}[c x]}}{c d - \sqrt{c^2 d^2 - e^2}}\right]}{e^4} + \frac{b\, i\, \mathrm{ArcSin}[c x]\, \mathrm{Log}\left[1 - \frac{\mathrm{i}\, e\, e^{\mathrm{i}\, \mathrm{ArcSin}[c x]}}{c d + \sqrt{c^2 d^2 - e^2}}\right]}{e^4} - \frac{b\, i\, \mathrm{ArcSin}[c x]\, \mathrm{Log}[d + e x]}{e^4} +$$

$$\frac{i\, (a + b\, \mathrm{ArcSin}[c x])\, \mathrm{Log}[d + e x]}{e^4} - \frac{\mathrm{i}\, b\, i\, \mathrm{PolyLog}\left[2, \frac{\mathrm{i}\, e\, e^{\mathrm{i}\, \mathrm{ArcSin}[c x]}}{c d - \sqrt{c^2 d^2 - e^2}}\right]}{e^4} - \frac{\mathrm{i}\, b\, i\, \mathrm{PolyLog}\left[2, \frac{\mathrm{i}\, e\, e^{\mathrm{i}\, \mathrm{ArcSin}[c x]}}{c d + \sqrt{c^2 d^2 - e^2}}\right]}{e^4}$$

Result (type 6, 2069 leaves):

$$\frac{-a e^3 f + a d e^2 g - a d^2 e h + a d^3 i}{3 e^4 (d+e x)^3} + \frac{-a e^2 g + 2 a d e h - 3 a d^2 i}{2 e^4 (d+e x)^2} + \frac{-a e h + 3 a d i}{e^4 (d+e x)} +$$

$$b f \left(-\frac{c \sqrt{1 + \frac{-d - \sqrt{\frac{1}{c^2}}\, e}{d + e x}} \sqrt{1 + \frac{-d + \sqrt{\frac{1}{c^2}}\, e}{d + e x}}\, \mathrm{AppellF1}\left[3, \frac{1}{2}, \frac{1}{2}, 4, -\frac{-d + \sqrt{\frac{1}{c^2}}\, e}{d + e x}, -\frac{-d - \sqrt{\frac{1}{c^2}}\, e}{d + e x}\right]}{9 e^2 (d+e x)^2 \sqrt{1 - c^2 x^2}} - \frac{\mathrm{ArcSin}[c x]}{3 e (d+e x)^3}\right) +$$

$$\frac{a\,\mathrm{i}\,\text{Log}[d+e\,x]}{e^4}+b\,h\left(-\frac{d\left(\frac{c\sqrt{1-c^2x^2}}{\left(c^2d^2-e^2\right)(d+e\,x)}-\frac{\text{ArcSin}[c\,x]}{e\,(d+e\,x)^2}-\frac{\mathrm{i}\,c^3\,d\left(\text{Log}[4]+\text{Log}\left[\frac{e^2\sqrt{c^2d^2-e^2}\left(\mathrm{i}\,e+\mathrm{i}\,c^2\,d\,x+\sqrt{c^2d^2-e^2}\sqrt{1-c^2x^2}\right)}{c^3\,d\,(d+e\,x)}\right]\right)}{(c\,d-e)\,e\,(c\,d+e)\sqrt{c^2d^2-e^2}}\right)}{e^2}+\right.$$

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

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

$$b\,g\left(\frac{\frac{c\sqrt{1-c^2x^2}}{\left(c^2d^2-e^2\right)(d+e\,x)}-\frac{\text{ArcSin}[c\,x]}{e\,(d+e\,x)^2}-\frac{\mathrm{i}\,c^3\,d\left(\text{Log}[4]+\text{Log}\left[\frac{e^2\sqrt{c^2d^2-e^2}\left(\mathrm{i}\,e+\mathrm{i}\,c^2\,d\,x+\sqrt{c^2d^2-e^2}\sqrt{1-c^2x^2}\right)}{c^3\,d\,(d+e\,x)}\right]\right)}{(c\,d-e)\,e\,(c\,d+e)\sqrt{c^2d^2-e^2}}}{2\,e}-\frac{1}{6\,e}d\left(\frac{\sqrt{1-c^2x^2}\left(-c\,e^2+c^3\,d\,(4\,d+3\,e\,x)\right)}{\left(-c^2d^2+e^2\right)^2(d+e\,x)^2}-\right.\right.$$

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

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

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

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

$$\frac{1}{8\,e^4}\left(i\,(\pi-2\,\text{ArcSin}[c\,x])^2-32\,i\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(c\,d-e)\,\text{Cot}\left[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\right]}{\sqrt{c^2\,d^2-e^2}}\right]-\right.$$

$$4\left(\pi+4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1-\frac{i\,\left(-c\,d+\sqrt{c^2\,d^2-e^2}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]-$$

$$4\left(\pi-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,d}{e}}}{\sqrt{2}}\right]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\left[1+\frac{i\,\left(c\,d+\sqrt{c^2\,d^2-e^2}\right)\,e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+4\,(\pi-2\,\text{ArcSin}[c\,x])\,\text{Log}[c\,d+c\,e\,x]+$$

$$8\,\text{ArcSin}[c\,x]\,\text{Log}[c\,d+c\,e\,x]+8\,i\left(\text{PolyLog}\left[2,\frac{i\left(-c\,d+\sqrt{c^2\,d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]+\text{PolyLog}\left[2,-\frac{i\left(c\,d+\sqrt{c^2\,d^2-e^2}\right)e^{-i\,\text{ArcSin}[c\,x]}}{e}\right]\right)\Bigg)\Bigg)$$

Problem 113: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(f+g\,x)\,(a+b\,\text{ArcSin}[c\,x])^2}{(d+e\,x)^3}\,dx$$

Optimal (type 4, 935 leaves, 33 steps):

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

Result (type 6, 3976 leaves):

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

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

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

$$\frac{1}{-c^2d^2+e^2}\, 2 \left(\frac{\pi\, \text{ArcTan}\left[\frac{e+c d\, \text{Tan}\left[\frac{1}{2}\text{ArcSin}[c x]\right]}{\sqrt{c^2d^2-e^2}}\right]}{\sqrt{c^2d^2-e^2}}+\frac{1}{\sqrt{-c^2d^2+e^2}}\left(2\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\text{ArcTanh}\left[\frac{(c d+e)\,\text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]-\right.\right.$$

$$2\,\text{ArcCos}\left[-\frac{c d}{e}\right]\text{ArcTanh}\left[\frac{(-c d+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]+\left(\text{ArcCos}\left[-\frac{c d}{e}\right]-2 i\left(\text{ArcTanh}\left[\frac{(c d+e)\,\text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]-\right.\right.$$

$$\left.\left.\text{ArcTanh}\left[\frac{(-c d+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]\right)\right)\text{Log}\left[\frac{\sqrt{-c^2d^2+e^2}\; e^{-\frac{1}{2} i \left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)}}{\sqrt{2}\,\sqrt{e}\,\sqrt{c d+c e x}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{c d}{e}\right]+2 i\left(\text{ArcTanh}\left[\frac{(c d+e)\,\text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]-\text{ArcTanh}\left[\frac{(-c d+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]\right)\right)$$

$$\text{Log}\left[\frac{\sqrt{-c^2d^2+e^2}\; e^{\frac{1}{2} i \left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)}}{\sqrt{2}\,\sqrt{e}\,\sqrt{c d+c e x}}\right]-\left(\text{ArcCos}\left[-\frac{c d}{e}\right]+2 i\,\text{ArcTanh}\left[\frac{(-c d+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c x]\right)\right]}{\sqrt{-c^2d^2+e^2}}\right]\right)$$

$$\text{Log}\Big[1-\frac{\left(c\,d-i\sqrt{-c^2 d^2+e^2}\right)\left(c\,d+e-\sqrt{-c^2 d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{e\left(c\,d+e+\sqrt{-c^2 d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\Big]+\Bigg(-\text{ArcCos}\left[-\frac{c\,d}{e}\right]+2\,i\,\text{ArcTanh}\Big[$$

$$\frac{(-c\,d+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 d^2+e^2}}\Big]\Bigg)\,\text{Log}\Big[1-\frac{\left(c\,d+i\sqrt{-c^2 d^2+e^2}\right)\left(c\,d+e-\sqrt{-c^2 d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{e\left(c\,d+e+\sqrt{-c^2 d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\Big]+$$

$$i\,\Bigg(\text{PolyLog}\Big[2,\frac{\left(c\,d-i\sqrt{-c^2 d^2+e^2}\right)\left(c\,d+e-\sqrt{-c^2 d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{e\left(c\,d+e+\sqrt{-c^2 d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\Big]-$$

$$\text{PolyLog}\Big[2,\frac{\left(c\,d+i\sqrt{-c^2 d^2+e^2}\right)\left(c\,d+e-\sqrt{-c^2 d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{e\left(c\,d+e+\sqrt{-c^2 d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\Big]\Bigg)\Bigg)\Bigg)-$$

$$\frac{1}{e^2\left(-c^2 d^2+e^2\right)}\,c^2 d^2\Bigg(\frac{\pi\,\text{ArcTan}\Big[\frac{e+c\,d\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]}{\sqrt{c^2 d^2-e^2}}\Big]}{\sqrt{c^2 d^2-e^2}}+\frac{1}{\sqrt{-c^2 d^2+e^2}}\Bigg(2\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\text{ArcTanh}\Big[\frac{(c\,d+e)\,\text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 d^2+e^2}}\Big]-$$

$$2\,\text{ArcCos}\left[-\frac{c\,d}{e}\right]\text{ArcTanh}\Big[\frac{(-c\,d+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 d^2+e^2}}\Big]+\Bigg(\text{ArcCos}\left[-\frac{c\,d}{e}\right]-2\,i\,\Bigg(\text{ArcTanh}\Big[\frac{(c\,d+e)\,\text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 d^2+e^2}}\Big]-$$

$$\text{ArcTanh}\Big[\frac{(-c\,d+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 d^2+e^2}}\Big]\Bigg)\Bigg)\,\text{Log}\Big[\frac{\sqrt{-c^2 d^2+e^2}\,e^{-\frac{1}{2}i\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)}}{\sqrt{2}\,\sqrt{e}\,\sqrt{c\,d+c\,e\,x}}\Big]+$$

$$\Bigg(\text{ArcCos}\left[-\frac{c\,d}{e}\right]+2\,i\,\Bigg(\text{ArcTanh}\Big[\frac{(c\,d+e)\,\text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 d^2+e^2}}\Big]-\text{ArcTanh}\Big[\frac{(-c\,d+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 d^2+e^2}}\Big]\Bigg)\Bigg)$$

$$\text{Log}\Big[\frac{\sqrt{-c^2 d^2+e^2}\,e^{\frac{1}{2}i\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)}}{\sqrt{2}\,\sqrt{e}\,\sqrt{c\,d+c\,e\,x}}\Big]-\Bigg(\text{ArcCos}\left[-\frac{c\,d}{e}\right]+2\,i\,\text{ArcTanh}\Big[\frac{(-c\,d+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 d^2+e^2}}\Big]\Bigg)$$

$$\text{Log}\Big[1-\frac{\left(c\,d-i\sqrt{-c^2 d^2+e^2}\right)\left(c\,d+e-\sqrt{-c^2 d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{e\left(c\,d+e+\sqrt{-c^2 d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\Big]+\Bigg(-\text{ArcCos}\left[-\frac{c\,d}{e}\right]+2\,i\,\text{ArcTanh}\Big[$$

$$\frac{(-c\,d+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2 d^2+e^2}}\Big]\Bigg)\,\text{Log}\Big[1-\frac{\left(c\,d+i\sqrt{-c^2 d^2+e^2}\right)\left(c\,d+e-\sqrt{-c^2 d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{e\left(c\,d+e+\sqrt{-c^2 d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\Big]+$$

$$i \left(\text{PolyLog}\left[2, \frac{\left(c\, d - i \sqrt{-c^2 d^2 + e^2}\right) \left(c\, d + e - \sqrt{-c^2 d^2 + e^2}\, \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right)\right]\right)}{e \left(c\, d + e + \sqrt{-c^2 d^2 + e^2}\, \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right)\right]\right)}\right] - \right.$$

$$\left.\left.\left.\text{PolyLog}\left[2, \frac{\left(c\, d + i \sqrt{-c^2 d^2 + e^2}\right) \left(c\, d + e - \sqrt{-c^2 d^2 + e^2}\, \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right)\right]\right)}{e \left(c\, d + e + \sqrt{-c^2 d^2 + e^2}\, \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right)\right]\right)}\right]\right)\right)\right) +$$

$$b^2 c^2 f \left(\frac{\sqrt{1 - c^2 x^2}\, \text{ArcSin}[c\, x]}{(c\, d - e)\, (c\, d + e)\, (c\, d + c\, e\, x)} - \frac{\text{ArcSin}[c\, x]^2}{2\, e\, (c\, d + c\, e\, x)^2} + \frac{\text{Log}\left[1 + \frac{e\, x}{d}\right]}{e\, (-c^2 d^2 + e^2)} - \right.$$

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

$$c$$

$$d$$

$$\left(\frac{\pi\, \text{ArcTan}\left[\frac{e + c\, d\, \text{Tan}\left[\frac{1}{2} \text{ArcSin}[c\, x]\right]}{\sqrt{c^2 d^2 - e^2}}\right]}{\sqrt{c^2 d^2 - e^2}} + \frac{1}{\sqrt{-c^2 d^2 + e^2}}\right.$$

$$\left(2 \left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right) \text{ArcTanh}\left[\frac{(c\, d + e)\, \text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right)\right]}{\sqrt{-c^2 d^2 + e^2}}\right] - 2\, \text{ArcCos}\left[-\frac{c\, d}{e}\right] \text{ArcTanh}\left[\frac{(-c\, d + e)\, \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right)\right]}{\sqrt{-c^2 d^2 + e^2}}\right] + \right.$$

$$\left(\text{ArcCos}\left[-\frac{c\, d}{e}\right] - 2\, i \left(\text{ArcTanh}\left[\frac{(c\, d + e)\, \text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right)\right]}{\sqrt{-c^2 d^2 + e^2}}\right] - \text{ArcTanh}\left[\frac{(-c\, d + e)\, \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right)\right]}{\sqrt{-c^2 d^2 + e^2}}\right]\right)\right)$$

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

$$\left(\text{ArcCos}\left[-\frac{c\, d}{e}\right] + 2\, i \left(\text{ArcTanh}\left[\frac{(c\, d + e)\, \text{Cot}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right)\right]}{\sqrt{-c^2 d^2 + e^2}}\right] - \text{ArcTanh}\left[\frac{(-c\, d + e)\, \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right)\right]}{\sqrt{-c^2 d^2 + e^2}}\right]\right)\right)$$

$$\text{Log}\left[\frac{\sqrt{-c^2 d^2 + e^2}\, e^{\frac{1}{2} i \left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right)}}{\sqrt{2}\, \sqrt{e}\, \sqrt{c\, d + c\, e\, x}}\right] - \left(\text{ArcCos}\left[-\frac{c\, d}{e}\right] + 2\, i\, \text{ArcTanh}\left[\frac{(-c\, d + e)\, \text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2} - \text{ArcSin}[c\, x]\right)\right]}{\sqrt{-c^2 d^2 + e^2}}\right]\right)$$

$$\text{Log}\left[1-\frac{\left(c\,d-i\sqrt{-c^2\,d^2+e^2}\right)\left(c\,d+e-\sqrt{-c^2\,d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{e\left(c\,d+e+\sqrt{-c^2\,d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\right]+\left(-\text{ArcCos}\left[-\frac{c\,d}{e}\right]+2\,i\,\text{ArcTanh}\left[\frac{(-c\,d+e)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]}{\sqrt{-c^2\,d^2+e^2}}\right]\right)\text{Log}\left[1-\frac{\left(c\,d+i\sqrt{-c^2\,d^2+e^2}\right)\left(c\,d+e-\sqrt{-c^2\,d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{e\left(c\,d+e+\sqrt{-c^2\,d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\right]+$$

$$i\left(\text{PolyLog}\left[2,\frac{\left(c\,d-i\sqrt{-c^2\,d^2+e^2}\right)\left(c\,d+e-\sqrt{-c^2\,d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{e\left(c\,d+e+\sqrt{-c^2\,d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\right]-\right.$$

$$\left.\left.\left.\left.\text{PolyLog}\left[2,\frac{\left(c\,d+i\sqrt{-c^2\,d^2+e^2}\right)\left(c\,d+e-\sqrt{-c^2\,d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}{e\left(c\,d+e+\sqrt{-c^2\,d^2+e^2}\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-\text{ArcSin}[c\,x]\right)\right]\right)}\right]\right)\right)\right)\right)$$

Problem 114: Attempted integration timed out after 120 seconds.

$$\int\frac{(f+g\,x)^2\,(a+b\,\text{ArcSin}[c\,x])^2}{(d+e\,x)^3}\,dx$$

Optimal (type 4, 1678 leaves, 55 steps):

$$-\frac{a^2 (e f-d g)^2}{2 e^3 (d+e x)^2}-\frac{2 a^2 g (e f-d g)}{e^3 (d+e x)}+\frac{a b c (e f-d g)^2 \sqrt{1-c^2 x^2}}{e^2 \left(c^2 d^2-e^2\right) (d+e x)}-\frac{a b (e f-d g)^2 \text{ArcSin}[c x]}{e^3 (d+e x)^2}-\frac{4 a b g (e f-d g) \text{ArcSin}[c x]}{e^3 (d+e x)}+$$

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

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

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

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

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

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

$$\frac{b^2 c^3 d (e f-d g)^2 \text{PolyLog}\left[2,\frac{i e e^{i \text{ArcSin}[c x]}}{c d-\sqrt{c^2 d^2-e^2}}\right]}{e^3 \left(c^2 d^2-e^2\right)^{3/2}}-\frac{2 i b^2 g^2 \text{ArcSin}[c x] \text{PolyLog}\left[2,\frac{i e e^{i \text{ArcSin}[c x]}}{c d-\sqrt{c^2 d^2-e^2}}\right]}{e^3}-$$

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

$$\frac{2 i b^2 g^2 \text{ArcSin}[c x] \text{PolyLog}\left[2,\frac{i e e^{i \text{ArcSin}[c x]}}{c d+\sqrt{c^2 d^2-e^2}}\right]}{e^3}+\frac{2 b^2 g^2 \text{PolyLog}\left[3,\frac{i e e^{i \text{ArcSin}[c x]}}{c d-\sqrt{c^2 d^2-e^2}}\right]}{e^3}+\frac{2 b^2 g^2 \text{PolyLog}\left[3,\frac{i e e^{i \text{ArcSin}[c x]}}{c d+\sqrt{c^2 d^2-e^2}}\right]}{e^3}$$

Result (type 1, 1 leaves):

???

Problem 118: Result more than twice size of optimal antiderivative.

$$\int \frac{\left(d+e x+f x^2\right)\,(a+b\,\text{ArcSin}[c x])^2}{g+h x}\,dx$$

Optimal (type 4, 1067 leaves, 38 steps):

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

Result (type 4, 8787 leaves):

$$\frac{a^2 (-f g+e h) x}{h^2}+\frac{a^2 f x^2}{2 h}+\frac{\left(a^2 f g^2-a^2 e g h+a^2 d h^2\right) \text{Log}[g+h x]}{h^3}+$$

$$\frac{1}{4\,h}\,a\,b\,d\left(\mathbb{i}\,(\pi-2\,\text{ArcSin}[c\,x])^2-32\,\mathbb{i}\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\Big]\,\text{ArcTan}\Big[\frac{(c\,g-h)\,\text{Cot}\big[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\big]}{\sqrt{c^2\,g^2-h^2}}\Big]-\right.$$

$$4\left(\pi+4\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\Big]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\Big[1-\frac{\mathbb{i}\,e^{-\mathbb{i}\,\text{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2\,g^2-h^2}\right)}{h}\Big]-$$

$$4\left(\pi-4\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\Big]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\Big[1+\frac{\mathbb{i}\,e^{-\mathbb{i}\,\text{ArcSin}[c\,x]}\left(c\,g+\sqrt{c^2\,g^2-h^2}\right)}{h}\Big]+4\,(\pi-2\,\text{ArcSin}[c\,x])\,\text{Log}[c\,g+c\,h\,x]+$$

$$\left.8\,\text{ArcSin}[c\,x]\,\text{Log}[c\,g+c\,h\,x]+8\,\mathbb{i}\left(\text{PolyLog}\Big[2,\frac{\mathbb{i}\,e^{-\mathbb{i}\,\text{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2\,g^2-h^2}\right)}{h}\Big]+\text{PolyLog}\Big[2,-\frac{\mathbb{i}\,e^{-\mathbb{i}\,\text{ArcSin}[c\,x]}\left(c\,g+\sqrt{c^2\,g^2-h^2}\right)}{h}\Big]\right)\right)+$$

$$\frac{1}{c\,h}\,2\,a\,b\,e\left(\sqrt{1-c^2\,x^2}+c\,x\,\text{ArcSin}[c\,x]-\frac{1}{8\,h}\,c\,g\left(\mathbb{i}\,(\pi-2\,\text{ArcSin}[c\,x])^2-32\,\mathbb{i}\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\Big]\,\text{ArcTan}\Big[\frac{(c\,g-h)\,\text{Cot}\big[\frac{1}{4}\,(\pi+2\,\text{ArcSin}[c\,x])\big]}{\sqrt{c^2\,g^2-h^2}}\Big]-\right.\right.$$

$$4\left(\pi+4\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\Big]-2\,\text{ArcSin}[c\,x]\right)\text{Log}\Big[1-\frac{\mathbb{i}\,e^{-\mathbb{i}\,\text{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2\,g^2-h^2}\right)}{h}\Big]-4\left(\pi-4\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\Big]-2\,\text{ArcSin}[c\,x]\right)$$

$$\text{Log}\Big[1+\frac{\mathbb{i}\,e^{-\mathbb{i}\,\text{ArcSin}[c\,x]}\left(c\,g+\sqrt{c^2\,g^2-h^2}\right)}{h}\Big]+4\,(\pi-2\,\text{ArcSin}[c\,x])\,\text{Log}[c\,g+c\,h\,x]+8\,\text{ArcSin}[c\,x]\,\text{Log}[c\,g+c\,h\,x]+$$

$$8\,\mathrm{i}\left(\text{PolyLog}\left[2,\frac{\mathrm{i}\,e^{-\mathrm{i}\,\text{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2\,g^2-h^2}\right)}{h}\right]+\text{PolyLog}\left[2,-\frac{\mathrm{i}\,e^{-\mathrm{i}\,\text{ArcSin}[c\,x]}\left(c\,g+\sqrt{c^2\,g^2-h^2}\right)}{h}\right]\right)\Bigg)\Bigg)+\frac{1}{3\,h\,\sqrt{-\left(-c^2\,g^2+h^2\right)^2}}$$

$$b^2\,d\left(-\mathrm{i}\,\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\text{ArcSin}[c\,x]^3-24\,\mathrm{i}\,\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\,\text{ArcTan}\left[\frac{(c\,g-h)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2\,g^2-h^2}}\right]+\right.$$

$$24\,\mathrm{i}\,\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\,\text{ArcTan}\left[\frac{(c\,g-h)\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)}{\sqrt{c^2\,g^2-h^2}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)}\right]+$$

$$3\,c\,g\,\sqrt{-c^2\,g^2+h^2}\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1+\frac{\mathrm{i}\,e^{\mathrm{i}\,\text{ArcSin}[c\,x]}\,h}{-c\,g+\sqrt{c^2\,g^2-h^2}}\right]-3\,\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{\mathrm{i}\,e^{-\mathrm{i}\,\text{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2\,g^2-h^2}\right)}{h}\right]-$$

$$12\,\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{\mathrm{i}\,e^{-\mathrm{i}\,\text{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2\,g^2-h^2}\right)}{h}\right]+$$

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

$$3\,c\,g\,\sqrt{-c^2\,g^2+h^2}\,\text{ArcSin}[c\,x]^2\,\text{Log}\left[1-\frac{\mathrm{i}\,e^{\mathrm{i}\,\text{ArcSin}[c\,x]}\,h}{c\,g+\sqrt{c^2\,g^2-h^2}}\right]-3\,\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+\frac{\mathrm{i}\,e^{-\mathrm{i}\,\text{ArcSin}[c\,x]}\left(c\,g+\sqrt{c^2\,g^2-h^2}\right)}{h}\right]+$$

$$12\,\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\,\text{Log}\left[1+\frac{\mathrm{i}\,e^{-\mathrm{i}\,\text{ArcSin}[c\,x]}\left(c\,g+\sqrt{c^2\,g^2-h^2}\right)}{h}\right]+$$

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

$$3\,i\,c\,g\sqrt{c^2 g^2-h^2}\;\text{ArcSin}[c\,x]^2\,\text{Log}\Big[1+\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g-\sqrt{-c^2 g^2+h^2}}\Big]+3\sqrt{-\left(-c^2 g^2+h^2\right)^2}\;\text{ArcSin}[c\,x]^2\,\text{Log}\Big[1+\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g-\sqrt{-c^2 g^2+h^2}}\Big]+$$

$$3\,i\,c\,g\sqrt{c^2 g^2-h^2}\;\text{ArcSin}[c\,x]^2\,\text{Log}\Big[1+\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g+\sqrt{-c^2 g^2+h^2}}\Big]+3\sqrt{-\left(-c^2 g^2+h^2\right)^2}\;\text{ArcSin}[c\,x]^2\,\text{Log}\Big[1+\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g+\sqrt{-c^2 g^2+h^2}}\Big]+$$

$$3\sqrt{-\left(-c^2 g^2+h^2\right)^2}\;\pi\,\text{ArcSin}[c\,x]\,\text{Log}\Big[1+\frac{\left(c\,g-\sqrt{c^2 g^2-h^2}\right)\left(c\,x+i\sqrt{1-c^2 x^2}\right)}{h}\Big]+$$

$$12\sqrt{-\left(-c^2 g^2+h^2\right)^2}\;\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\Big]\,\text{ArcSin}[c\,x]\,\text{Log}\Big[1+\frac{\left(c\,g-\sqrt{c^2 g^2-h^2}\right)\left(c\,x+i\sqrt{1-c^2 x^2}\right)}{h}\Big]-$$

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

$$3\sqrt{-\left(-c^2 g^2+h^2\right)^2}\;\pi\,\text{ArcSin}[c\,x]\,\text{Log}\Big[1+\frac{\left(c\,g+\sqrt{c^2 g^2-h^2}\right)\left(c\,x+i\sqrt{1-c^2 x^2}\right)}{h}\Big]-$$

$$12\sqrt{-\left(-c^2 g^2+h^2\right)^2}\;\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\Big]\,\text{ArcSin}[c\,x]\,\text{Log}\Big[1+\frac{\left(c\,g+\sqrt{c^2 g^2-h^2}\right)\left(c\,x+i\sqrt{1-c^2 x^2}\right)}{h}\Big]-$$

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

$$6\,i\,c\,g\sqrt{-c^2 g^2+h^2}\;\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,h}{c\,g-\sqrt{c^2 g^2-h^2}}\Big]+6\,i\,c\,g\sqrt{-c^2 g^2+h^2}\;\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,h}{c\,g+\sqrt{c^2 g^2-h^2}}\Big]-$$

$$6\,c\,g\sqrt{c^2 g^2-h^2}\;\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{-i\,c\,g+\sqrt{-c^2 g^2+h^2}}\Big]-6\,i\sqrt{-\left(-c^2 g^2+h^2\right)^2}\;\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{-i\,c\,g+\sqrt{-c^2 g^2+h^2}}\Big]+$$

$$6\,c\,g\sqrt{c^2 g^2-h^2}\;\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,-\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g+\sqrt{-c^2 g^2+h^2}}\Big]-6\,i\sqrt{-\left(-c^2 g^2+h^2\right)^2}\;\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,-\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g+\sqrt{-c^2 g^2+h^2}}\Big]+$$

$$6\,c\,g\sqrt{-c^2 g^2+h^2}\;\text{PolyLog}\Big[3,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,h}{c\,g-\sqrt{c^2 g^2-h^2}}\Big]-6\,c\,g\sqrt{-c^2 g^2+h^2}\;\text{PolyLog}\Big[3,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,h}{c\,g+\sqrt{c^2 g^2-h^2}}\Big]-$$

$$6\,\mathrm{i}\,c\,g\sqrt{c^2 g^2-h^2}\,\mathrm{PolyLog}\left[3,\frac{e^{\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\,h}{-\mathrm{i}\,c\,g+\sqrt{-c^2 g^2+h^2}}\right]+6\sqrt{-\left(-c^2 g^2+h^2\right)^2}\,\mathrm{PolyLog}\left[3,\frac{e^{\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\,h}{-\mathrm{i}\,c\,g+\sqrt{-c^2 g^2+h^2}}\right]+$$

$$6\,\mathrm{i}\,c\,g\sqrt{c^2 g^2-h^2}\,\mathrm{PolyLog}\left[3,-\frac{e^{\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\,h}{\mathrm{i}\,c\,g+\sqrt{-c^2 g^2+h^2}}\right]+6\sqrt{-\left(-c^2 g^2+h^2\right)^2}\,\mathrm{PolyLog}\left[3,-\frac{e^{\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\,h}{\mathrm{i}\,c\,g+\sqrt{-c^2 g^2+h^2}}\right]\Bigg)+$$

$$\frac{1}{c}b^2 e\left(\frac{2\sqrt{1-c^2x^2}\,\mathrm{ArcSin}[c\,x]}{h}+\frac{c\,x\left(-2+\mathrm{ArcSin}[c\,x]^2\right)}{h}-\frac{1}{3h^2\sqrt{-\left(-c^2 g^2+h^2\right)^2}}\,c\,g\left(-\mathrm{i}\sqrt{-\left(-c^2 g^2+h^2\right)^2}\,\mathrm{ArcSin}[c\,x]^3-\right.\right.$$

$$24\,\mathrm{i}\sqrt{-\left(-c^2 g^2+h^2\right)^2}\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\mathrm{ArcSin}[c\,x]\,\mathrm{ArcTan}\left[\frac{(c\,g-h)\,\mathrm{Cot}\left[\frac{1}{4}\left(\pi+2\,\mathrm{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2 g^2-h^2}}\right]+$$

$$24\,\mathrm{i}\sqrt{-\left(-c^2 g^2+h^2\right)^2}\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\mathrm{ArcSin}[c\,x]\,\mathrm{ArcTan}\left[\frac{(c\,g-h)\left(\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]-\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right)}{\sqrt{c^2 g^2-h^2}\left(\mathrm{Cos}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]+\mathrm{Sin}\left[\frac{1}{2}\mathrm{ArcSin}[c\,x]\right]\right)}\right]+3\,c\,g$$

$$\sqrt{-c^2 g^2+h^2}\,\mathrm{ArcSin}[c\,x]^2\,\mathrm{Log}\left[1+\frac{\mathrm{i}\,e^{\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\,h}{-c\,g+\sqrt{c^2 g^2-h^2}}\right]-3\sqrt{-\left(-c^2 g^2+h^2\right)^2}\,\pi\,\mathrm{ArcSin}[c\,x]\,\mathrm{Log}\left[1-\frac{\mathrm{i}\,e^{-\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]-$$

$$12\sqrt{-\left(-c^2 g^2+h^2\right)^2}\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\mathrm{ArcSin}[c\,x]\,\mathrm{Log}\left[1-\frac{\mathrm{i}\,e^{-\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]+3\sqrt{-\left(-c^2 g^2+h^2\right)^2}$$

$$\mathrm{ArcSin}[c\,x]^2\,\mathrm{Log}\left[1-\frac{\mathrm{i}\,e^{-\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]-3\,c\,g\sqrt{-c^2 g^2+h^2}\,\mathrm{ArcSin}[c\,x]^2\,\mathrm{Log}\left[1-\frac{\mathrm{i}\,e^{\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\,h}{c\,g+\sqrt{c^2 g^2-h^2}}\right]-$$

$$3\sqrt{-\left(-c^2 g^2+h^2\right)^2}\,\pi\,\mathrm{ArcSin}[c\,x]\,\mathrm{Log}\left[1+\frac{\mathrm{i}\,e^{-\mathrm{i}\,\mathrm{ArcSin}[c\,x]}\left(c\,g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]+12\sqrt{-\left(-c^2 g^2+h^2\right)^2}\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]$$

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

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

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

$$\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\Big[1+\frac{\left(c\,g-\sqrt{c^2\,g^2-h^2}\right)\left(c\,x+i\sqrt{1-c^2\,x^2}\right)}{h}\Big]+12\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\Big]\,\text{ArcSin}[c\,x]$$

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

$$\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\pi\,\text{ArcSin}[c\,x]\,\text{Log}\Big[1+\frac{\left(c\,g+\sqrt{c^2\,g^2-h^2}\right)\left(c\,x+i\sqrt{1-c^2\,x^2}\right)}{h}\Big]-12\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\Big]\,\text{ArcSin}[c\,x]$$

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

$$6\,i\,c\,g\sqrt{-c^2\,g^2+h^2}\,\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,h}{c\,g-\sqrt{c^2\,g^2-h^2}}\Big]+6\,i\,c\,g\sqrt{-c^2\,g^2+h^2}\,\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,h}{c\,g+\sqrt{c^2\,g^2-h^2}}\Big]-$$

$$6\,c\,g\sqrt{c^2\,g^2-h^2}\,\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{-i\,c\,g+\sqrt{-c^2\,g^2+h^2}}\Big]-6\,i\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{-i\,c\,g+\sqrt{-c^2\,g^2+h^2}}\Big]+$$

$$6\,c\,g\sqrt{c^2\,g^2-h^2}\,\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,-\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g+\sqrt{-c^2\,g^2+h^2}}\Big]-6\,i\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\text{ArcSin}[c\,x]\,\text{PolyLog}\Big[2,-\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g+\sqrt{-c^2\,g^2+h^2}}\Big]+$$

$$6\,c\,g\sqrt{-c^2\,g^2+h^2}\,\text{PolyLog}\Big[3,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,h}{c\,g-\sqrt{c^2\,g^2-h^2}}\Big]-6\,c\,g\sqrt{-c^2\,g^2+h^2}\,\text{PolyLog}\Big[3,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,h}{c\,g+\sqrt{c^2\,g^2-h^2}}\Big]-$$

$$6\,i\,c\,g\sqrt{c^2\,g^2-h^2}\,\text{PolyLog}\Big[3,\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{-i\,c\,g+\sqrt{-c^2\,g^2+h^2}}\Big]+6\sqrt{-\left(-c^2\,g^2+h^2\right)^2}\,\text{PolyLog}\Big[3,\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{-i\,c\,g+\sqrt{-c^2\,g^2+h^2}}\Big]+$$

$$6\,i\,c\,g\sqrt{c^2 g^2-h^2}\;\text{PolyLog}\left[3,-\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g+\sqrt{-c^2 g^2+h^2}}\right]+6\sqrt{-\left(-c^2 g^2+h^2\right)^2}\;\text{PolyLog}\left[3,-\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g+\sqrt{-c^2 g^2+h^2}}\right]\Bigg)\Bigg)+$$

$$\frac{1}{4\,c^2\,h^3}\,a\,b\,f\,\Bigg(i\,c^2 g^2\pi^2-8\,c\,g\,h\sqrt{1-c^2 x^2}-4\,i\,c^2 g^2\pi\,\text{ArcSin}[c\,x]-8\,c^2 g\,h\,x\,\text{ArcSin}[c\,x]+4\,i\,c^2 g^2\,\text{ArcSin}[c\,x]^2-$$

$$32\,i\,c^2 g^2\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(c\,g-h)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2 g^2-h^2}}\right]-$$

$$2\,h^2\,\text{ArcSin}[c\,x]\,\text{Cos}[2\,\text{ArcSin}[c\,x]]-4\,c^2 g^2\pi\,\text{Log}\left[1-\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]-$$

$$16\,c^2 g^2\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\text{Log}\left[1-\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]+$$

$$8\,c^2 g^2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]-4\,c^2 g^2\pi\,\text{Log}\left[1+\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(c\,g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]+$$

$$16\,c^2 g^2\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\text{Log}\left[1+\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(c\,g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]+$$

$$8\,c^2 g^2\,\text{ArcSin}[c\,x]\,\text{Log}\left[1+\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(c\,g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]+$$

$$4\,c^2 g^2\pi\,\text{Log}[c\,g+c\,h\,x]+8\,i\,c^2 g^2\,\text{PolyLog}\left[2,\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]+$$

$$8\,i\,c^2 g^2\,\text{PolyLog}\left[2,-\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(c\,g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]+h^2\,\text{Sin}[2\,\text{ArcSin}[c\,x]]\Bigg)+$$

$$\frac{1}{c^2}\,b^2 f\left(-\frac{2\,c\,g\sqrt{1-c^2x^2}\,\text{ArcSin}[c\,x]}{h^2}-\frac{c^2 g\,x\left(-2+\text{ArcSin}[c\,x]^2\right)}{h^2}-\frac{\left(-1+2\,\text{ArcSin}[c\,x]^2\right)\text{Cos}[2\,\text{ArcSin}[c\,x]]}{8\,h}+\right.$$

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

$$24\,i\sqrt{-\left(-c^2g^2+h^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\,\text{ArcTan}\left[\frac{(c\,g-h)\,\text{Cot}\left[\frac{1}{4}\left(\pi+2\,\text{ArcSin}[c\,x]\right)\right]}{\sqrt{c^2g^2-h^2}}\right]+$$

$$24\,i\sqrt{-\left(-c^2g^2+h^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\,\text{ArcTan}\left[\frac{(c\,g-h)\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]-\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)}{\sqrt{c^2g^2-h^2}\left(\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]+\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c\,x]\right]\right)}\right]+3\,c\,g$$

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

$$12\sqrt{-\left(-c^2g^2+h^2\right)^2}\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{c\,g}{h}}}{\sqrt{2}}\right]\text{ArcSin}[c\,x]\,\text{Log}\left[1-\frac{i\,e^{-i\,\text{ArcSin}[c\,x]}\left(-c\,g+\sqrt{c^2g^2-h^2}\right)}{h}\right]+3\sqrt{-\left(-c^2g^2+h^2\right)^2}$$

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

$$
\begin{aligned}
&3 \sqrt{-\left(-c^2 g^2+h^2\right)^2}\, \pi\, \text{ArcSin}[c x]\, \text{Log}\left[1+\frac{i\, e^{-i \text{ArcSin}[c x]} \left(c g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]+12 \sqrt{-\left(-c^2 g^2+h^2\right)^2}\, \text{ArcSin}\left[\frac{\sqrt{1+\frac{c g}{h}}}{\sqrt{2}}\right] \\
&\text{ArcSin}[c x]\, \text{Log}\left[1+\frac{i\, e^{-i \text{ArcSin}[c x]} \left(c g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]+3 \sqrt{-\left(-c^2 g^2+h^2\right)^2}\, \text{ArcSin}[c x]^2\, \text{Log}\left[1+\frac{i\, e^{-i \text{ArcSin}[c x]} \left(c g+\sqrt{c^2 g^2-h^2}\right)}{h}\right]- \\
&3\, i\, c g \sqrt{c^2 g^2-h^2}\, \text{ArcSin}[c x]^2\, \text{Log}\left[1+\frac{e^{i \text{ArcSin}[c x]}\, h}{i\, c g-\sqrt{-c^2 g^2+h^2}}\right]+3 \sqrt{-\left(-c^2 g^2+h^2\right)^2}\, \text{ArcSin}[c x]^2\, \text{Log}\left[1+\frac{e^{i \text{ArcSin}[c x]}\, h}{i\, c g-\sqrt{-c^2 g^2+h^2}}\right]+ \\
&3\, i\, c g \sqrt{c^2 g^2-h^2}\, \text{ArcSin}[c x]^2\, \text{Log}\left[1+\frac{e^{i \text{ArcSin}[c x]}\, h}{i\, c g+\sqrt{-c^2 g^2+h^2}}\right]+3 \sqrt{-\left(-c^2 g^2+h^2\right)^2}\, \text{ArcSin}[c x]^2\, \text{Log}\left[1+\frac{e^{i \text{ArcSin}[c x]}\, h}{i\, c g+\sqrt{-c^2 g^2+h^2}}\right]+ \\
&3 \sqrt{-\left(-c^2 g^2+h^2\right)^2}\, \pi\, \text{ArcSin}[c x]\, \text{Log}\left[1+\frac{\left(c g-\sqrt{c^2 g^2-h^2}\right) \left(c x+i \sqrt{1-c^2 x^2}\right)}{h}\right]+ \\
&12 \sqrt{-\left(-c^2 g^2+h^2\right)^2}\, \text{ArcSin}\left[\frac{\sqrt{1+\frac{c g}{h}}}{\sqrt{2}}\right] \text{ArcSin}[c x]\, \text{Log}\left[1+\frac{\left(c g-\sqrt{c^2 g^2-h^2}\right) \left(c x+i \sqrt{1-c^2 x^2}\right)}{h}\right]-3 \sqrt{-\left(-c^2 g^2+h^2\right)^2}\, \text{ArcSin}[c x]^2 \\
&\text{Log}\left[1+\frac{\left(c g-\sqrt{c^2 g^2-h^2}\right) \left(c x+i \sqrt{1-c^2 x^2}\right)}{h}\right]+3 \sqrt{-\left(-c^2 g^2+h^2\right)^2}\, \pi\, \text{ArcSin}[c x]\, \text{Log}\left[1+\frac{\left(c g+\sqrt{c^2 g^2-h^2}\right) \left(c x+i \sqrt{1-c^2 x^2}\right)}{h}\right]- \\
&12 \sqrt{-\left(-c^2 g^2+h^2\right)^2}\, \text{ArcSin}\left[\frac{\sqrt{1+\frac{c g}{h}}}{\sqrt{2}}\right] \text{ArcSin}[c x]\, \text{Log}\left[1+\frac{\left(c g+\sqrt{c^2 g^2-h^2}\right) \left(c x+i \sqrt{1-c^2 x^2}\right)}{h}\right]-3 \sqrt{-\left(-c^2 g^2+h^2\right)^2} \\
&\text{ArcSin}[c x]^2\, \text{Log}\left[1+\frac{\left(c g+\sqrt{c^2 g^2-h^2}\right) \left(c x+i \sqrt{1-c^2 x^2}\right)}{h}\right]-6\, i\, c g \sqrt{-c^2 g^2+h^2}\, \text{ArcSin}[c x]\, \text{PolyLog}\left[2,\frac{i\, e^{i \text{ArcSin}[c x]}\, h}{c g-\sqrt{c^2 g^2-h^2}}\right]+ \\
&6\, i\, c g \sqrt{-c^2 g^2+h^2}\, \text{ArcSin}[c x]\, \text{PolyLog}\left[2,\frac{i\, e^{i \text{ArcSin}[c x]}\, h}{c g+\sqrt{c^2 g^2-h^2}}\right]-6\, c g \sqrt{c^2 g^2-h^2}\, \text{ArcSin}[c x]\, \text{PolyLog}\left[2,\frac{e^{i \text{ArcSin}[c x]}\, h}{-i\, c g+\sqrt{-c^2 g^2+h^2}}\right]- \\
&6\, i \sqrt{-\left(-c^2 g^2+h^2\right)^2}\, \text{ArcSin}[c x]\, \text{PolyLog}\left[2,\frac{e^{i \text{ArcSin}[c x]}\, h}{-i\, c g+\sqrt{-c^2 g^2+h^2}}\right]+6\, c g \sqrt{c^2 g^2-h^2}\, \text{ArcSin}[c x]\, \text{PolyLog}\left[2,-\frac{e^{i \text{ArcSin}[c x]}\, h}{i\, c g+\sqrt{-c^2 g^2+h^2}}\right]-
\end{aligned}
$$

$$6\,i\sqrt{-\left(-c^2 g^2+h^2\right)^2}\ \text{ArcSin}[c\,x]\ \text{PolyLog}\left[2,-\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g+\sqrt{-c^2 g^2+h^2}}\right]+6\,c\,g\sqrt{-c^2 g^2+h^2}\ \text{PolyLog}\left[3,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,h}{c\,g-\sqrt{c^2 g^2-h^2}}\right]-$$

$$6\,c\,g\sqrt{-c^2 g^2+h^2}\ \text{PolyLog}\left[3,\frac{i\,e^{i\,\text{ArcSin}[c\,x]}\,h}{c\,g+\sqrt{c^2 g^2-h^2}}\right]-6\,i\,c\,g\sqrt{c^2 g^2-h^2}\ \text{PolyLog}\left[3,\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{-i\,c\,g+\sqrt{-c^2 g^2+h^2}}\right]+$$

$$6\sqrt{-\left(-c^2 g^2+h^2\right)^2}\ \text{PolyLog}\left[3,\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{-i\,c\,g+\sqrt{-c^2 g^2+h^2}}\right]+6\,i\,c\,g\sqrt{c^2 g^2-h^2}\ \text{PolyLog}\left[3,-\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g+\sqrt{-c^2 g^2+h^2}}\right]+$$

$$\left.\left.6\sqrt{-\left(-c^2 g^2+h^2\right)^2}\ \text{PolyLog}\left[3,-\frac{e^{i\,\text{ArcSin}[c\,x]}\,h}{i\,c\,g+\sqrt{-c^2 g^2+h^2}}\right]\right)+\frac{\text{ArcSin}[c\,x]\ \text{Sin}[2\,\text{ArcSin}[c\,x]]}{4\,h}\right)$$

Problem 119: Unable to integrate problem.

$$\int\frac{\left(d+e\,x+f\,x^2\right)\,\left(a+b\,\text{ArcSin}[c\,x]\right)^2}{\left(g+h\,x\right)^2}\,dx$$

Optimal (type 4, 1323 leaves, 45 steps):

$$\frac{a^2 f x}{h^2}-\frac{2 b^2 f x}{h^2}-\frac{a^2 \left(f g^2-e g h+d h^2\right)}{h^3 (g+h x)}+\frac{2 a b f \sqrt{1-c^2 x^2}}{c h^2}+\frac{2 a b f x \text{ArcSin}[c x]}{h^2}-\frac{2 a b \left(f g^2-e g h+d h^2\right) \text{ArcSin}[c x]}{h^3 (g+h x)}+$$

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

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

$$\frac{2 i b^2 c \left(f g^2-e g h+d h^2\right) \text{ArcSin}[c x] \text{Log}\left[1-\frac{i e^{i \text{ArcSin}[c x]} h}{c g-\sqrt{c^2 g^2-h^2}}\right]}{h^3 \sqrt{c^2 g^2-h^2}}-\frac{b^2 (2 f g-e h) \text{ArcSin}[c x]^2 \text{Log}\left[1-\frac{i e^{i \text{ArcSin}[c x]} h}{c g-\sqrt{c^2 g^2-h^2}}\right]}{h^3}-$$

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

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

$$\frac{2 b^2 c \left(f g^2-e g h+d h^2\right) \text{PolyLog}\left[2,\frac{i e^{i \text{ArcSin}[c x]} h}{c g-\sqrt{c^2 g^2-h^2}}\right]}{h^3 \sqrt{c^2 g^2-h^2}}+\frac{2 i b^2 (2 f g-e h) \text{ArcSin}[c x] \text{PolyLog}\left[2,\frac{i e^{i \text{ArcSin}[c x]} h}{c g-\sqrt{c^2 g^2-h^2}}\right]}{h^3}+$$

$$\frac{2 i a b (2 f g-e h) \text{PolyLog}\left[2,\frac{i e^{i \text{ArcSin}[c x]} h}{c g+\sqrt{c^2 g^2-h^2}}\right]}{h^3}+\frac{2 b^2 c \left(f g^2-e g h+d h^2\right) \text{PolyLog}\left[2,\frac{i e^{i \text{ArcSin}[c x]} h}{c g+\sqrt{c^2 g^2-h^2}}\right]}{h^3 \sqrt{c^2 g^2-h^2}}+$$

$$\frac{2 i b^2 (2 f g-e h) \text{ArcSin}[c x] \text{PolyLog}\left[2,\frac{i e^{i \text{ArcSin}[c x]} h}{c g+\sqrt{c^2 g^2-h^2}}\right]}{h^3}-\frac{2 b^2 (2 f g-e h) \text{PolyLog}\left[3,\frac{i e^{i \text{ArcSin}[c x]} h}{c g-\sqrt{c^2 g^2-h^2}}\right]}{h^3}-\frac{2 b^2 (2 f g-e h) \text{PolyLog}\left[3,\frac{i e^{i \text{ArcSin}[c x]} h}{c g+\sqrt{c^2 g^2-h^2}}\right]}{h^3}$$

Result (type 8, 30 leaves):

$$\int \frac{\left(d+e x+f x^2\right) (a+b \text{ArcSin}[c x])^2}{(g+h x)^2}\, dx$$

Problem 120: Unable to integrate problem.

$$\int \frac{\left(e f + 2 d h x + e h x^2\right) \left(a + b \operatorname{ArcSin}[c x]\right)^2}{(d + e x)^2} \, dx$$

Optimal (type 4, 520 leaves, 20 steps):

$$-\frac{2 b^2 h x}{e} + \frac{2 a b h \sqrt{1 - c^2 x^2}}{c e} + \frac{2 b^2 h \sqrt{1 - c^2 x^2} \operatorname{ArcSin}[c x]}{c e} + \frac{h x \left(a + b \operatorname{ArcSin}[c x]\right)^2}{e} - \frac{\left(f - \frac{d^2 h}{e^2}\right) \left(a + b \operatorname{ArcSin}[c x]\right)^2}{d + e x} +$$
$$\frac{2 a b c \left(e^2 f - d^2 h\right) \operatorname{ArcTan}\left[\frac{e + c^2 d x}{\sqrt{c^2 d^2 - e^2} \sqrt{1 - c^2 x^2}}\right]}{e^2 \sqrt{c^2 d^2 - e^2}} - \frac{2 i b^2 c \left(e^2 f - d^2 h\right) \operatorname{ArcSin}[c x] \operatorname{Log}\left[1 - \frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d - \sqrt{c^2 d^2 - e^2}}\right]}{e^2 \sqrt{c^2 d^2 - e^2}} +$$
$$\frac{2 i b^2 c \left(e^2 f - d^2 h\right) \operatorname{ArcSin}[c x] \operatorname{Log}\left[1 - \frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d + \sqrt{c^2 d^2 - e^2}}\right]}{e^2 \sqrt{c^2 d^2 - e^2}} - \frac{2 b^2 c \left(e^2 f - d^2 h\right) \operatorname{PolyLog}\left[2, \frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d - \sqrt{c^2 d^2 - e^2}}\right]}{e^2 \sqrt{c^2 d^2 - e^2}} + \frac{2 b^2 c \left(e^2 f - d^2 h\right) \operatorname{PolyLog}\left[2, \frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d + \sqrt{c^2 d^2 - e^2}}\right]}{e^2 \sqrt{c^2 d^2 - e^2}}$$

Result (type 8, 35 leaves):

$$\int \frac{\left(e f + 2 d h x + e h x^2\right) \left(a + b \operatorname{ArcSin}[c x]\right)^2}{(d + e x)^2} \, dx$$

Problem 121: Unable to integrate problem.

$$\int \frac{\left(e f + 2 d h x + e h x^2\right)^2 \left(a + b \operatorname{ArcSin}[c x]\right)^2}{(d + e x)^2} \, dx$$

Optimal (type 4, 920 leaves, 32 steps):

$$-\frac{4 b^2 h^2 x}{9 c^2}-\frac{2 b^2 h\left(2 e^2 f-d^2 h\right) x}{e^2}-\frac{b^2 d h^2 x^2}{2 e}-\frac{2}{27} b^2 h^2 x^3+\frac{a b h\left(4 e^2 h+c^2\left(36 e^2 f-25 d^2 h\right)\right) \sqrt{1-c^2 x^2}}{9 c^3 e^2}+$$
$$\frac{5 a b d h^2 (d+e x) \sqrt{1-c^2 x^2}}{9 c e^2}+\frac{2 a b h^2 (d+e x)^2 \sqrt{1-c^2 x^2}}{9 c e^2}-\frac{a b d\left(2 c^2 d^2+3 e^2\right) h^2 \operatorname{ArcSin}[c x]}{3 c^2 e^3}+\frac{4 b^2 h^2 \sqrt{1-c^2 x^2} \operatorname{ArcSin}[c x]}{9 c^3}+$$
$$\frac{2 b^2 h\left(2 e^2 f-d^2 h\right) \sqrt{1-c^2 x^2} \operatorname{ArcSin}[c x]}{c e^2}+\frac{b^2 d h^2 x \sqrt{1-c^2 x^2} \operatorname{ArcSin}[c x]}{c e}+\frac{2 b^2 h^2 x^2 \sqrt{1-c^2 x^2} \operatorname{ArcSin}[c x]}{9 c}-$$
$$\frac{b^2 d^3 h^2 \operatorname{ArcSin}[c x]^2}{3 e^3}-\frac{b^2 d h^2 \operatorname{ArcSin}[c x]^2}{2 c^2 e}+\frac{2 h\left(e^2 f-d^2 h\right) x(a+b \operatorname{ArcSin}[c x])^2}{e^2}-\frac{\left(e^2 f-d^2 h\right)^2(a+b \operatorname{ArcSin}[c x])^2}{e^3(d+e x)}+$$
$$\frac{h^2(d+e x)^3(a+b \operatorname{ArcSin}[c x])^2}{3 e^3}+\frac{2 a b c\left(e^2 f-d^2 h\right)^2 \operatorname{ArcTan}\left[\frac{e+c^2 d x}{\sqrt{c^2 d^2-e^2} \sqrt{1-c^2 x^2}}\right]}{e^3 \sqrt{c^2 d^2-e^2}}-\frac{2 i b^2 c\left(e^2 f-d^2 h\right)^2 \operatorname{ArcSin}[c x] \operatorname{Log}\left[1-\frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d-\sqrt{c^2 d^2-e^2}}\right]}{e^3 \sqrt{c^2 d^2-e^2}}+$$
$$\frac{2 i b^2 c\left(e^2 f-d^2 h\right)^2 \operatorname{ArcSin}[c x] \operatorname{Log}\left[1-\frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d+\sqrt{c^2 d^2-e^2}}\right]}{e^3 \sqrt{c^2 d^2-e^2}}-\frac{2 b^2 c\left(e^2 f-d^2 h\right)^2 \operatorname{PolyLog}\left[2, \frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d-\sqrt{c^2 d^2-e^2}}\right]}{e^3 \sqrt{c^2 d^2-e^2}}+\frac{2 b^2 c\left(e^2 f-d^2 h\right)^2 \operatorname{PolyLog}\left[2, \frac{i e e^{i \operatorname{ArcSin}[c x]}}{c d+\sqrt{c^2 d^2-e^2}}\right]}{e^3 \sqrt{c^2 d^2-e^2}}$$

Result (type 8, 37 leaves) :

$$\int \frac{\left(e f+2 d h x+e h x^2\right)^2(a+b \operatorname{ArcSin}[c x])^2}{(d+e x)^2} \, dx$$

Problem 135: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{ArcSin}[a+b x]^2}{x} \, dx$$

Optimal (type 4, 271 leaves, 11 steps) :

$$-\frac{1}{3} i \operatorname{ArcSin}[a+b x]^3+\operatorname{ArcSin}[a+b x]^2 \operatorname{Log}\left[1-\frac{e^{i \operatorname{ArcSin}[a+b x]}}{i a-\sqrt{1-a^2}}\right]+$$
$$\operatorname{ArcSin}[a+b x]^2 \operatorname{Log}\left[1-\frac{e^{i \operatorname{ArcSin}[a+b x]}}{i a+\sqrt{1-a^2}}\right]-2 i \operatorname{ArcSin}[a+b x] \operatorname{PolyLog}\left[2, \frac{e^{i \operatorname{ArcSin}[a+b x]}}{i a-\sqrt{1-a^2}}\right]-$$
$$2 i \operatorname{ArcSin}[a+b x] \operatorname{PolyLog}\left[2, \frac{e^{i \operatorname{ArcSin}[a+b x]}}{i a+\sqrt{1-a^2}}\right]+2 \operatorname{PolyLog}\left[3, \frac{e^{i \operatorname{ArcSin}[a+b x]}}{i a-\sqrt{1-a^2}}\right]+2 \operatorname{PolyLog}\left[3, \frac{e^{i \operatorname{ArcSin}[a+b x]}}{i a+\sqrt{1-a^2}}\right]$$

Result (type 4, 1014 leaves) :

$$-\frac{1}{3}\,\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]^3+8\,\mathrm{i}\,\mathrm{ArcSin}\Big[\frac{\sqrt{1-a}}{\sqrt{2}}\Big]\,\mathrm{ArcSin}[a+b\,x]\,\mathrm{ArcTan}\Big[\frac{(1+a)\,\mathrm{Cot}\big[\frac{1}{4}\,(\pi+2\,\mathrm{ArcSin}[a+b\,x])\big]}{\sqrt{-1+a^2}}\Big]-$$

$$8\,\mathrm{i}\,\mathrm{ArcSin}\Big[\frac{\sqrt{1-a}}{\sqrt{2}}\Big]\,\mathrm{ArcSin}[a+b\,x]\,\mathrm{ArcTan}\Big[\frac{(1+a)\,\big(\mathrm{Cos}\big[\frac{1}{2}\,\mathrm{ArcSin}[a+b\,x]\big]-\mathrm{Sin}\big[\frac{1}{2}\,\mathrm{ArcSin}[a+b\,x]\big]\big)}{\sqrt{-1+a^2}\,\big(\mathrm{Cos}\big[\frac{1}{2}\,\mathrm{ArcSin}[a+b\,x]\big]+\mathrm{Sin}\big[\frac{1}{2}\,\mathrm{ArcSin}[a+b\,x]\big]\big)}\Big]-$$

$$\pi\,\mathrm{ArcSin}[a+b\,x]\,\mathrm{Log}\Big[1+\mathrm{i}\,\big(-a+\sqrt{-1+a^2}\big)\,e^{-\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]}\Big]+4\,\mathrm{ArcSin}\Big[\frac{\sqrt{1-a}}{\sqrt{2}}\Big]\,\mathrm{ArcSin}[a+b\,x]\,\mathrm{Log}\Big[1+\mathrm{i}\,\big(-a+\sqrt{-1+a^2}\big)\,e^{-\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]}\Big]+$$

$$\mathrm{ArcSin}[a+b\,x]^2\,\mathrm{Log}\Big[1+\mathrm{i}\,\big(-a+\sqrt{-1+a^2}\big)\,e^{-\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]}\Big]-\pi\,\mathrm{ArcSin}[a+b\,x]\,\mathrm{Log}\Big[1-\mathrm{i}\,\big(a+\sqrt{-1+a^2}\big)\,e^{-\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]}\Big]-$$

$$4\,\mathrm{ArcSin}\Big[\frac{\sqrt{1-a}}{\sqrt{2}}\Big]\,\mathrm{ArcSin}[a+b\,x]\,\mathrm{Log}\Big[1-\mathrm{i}\,\big(a+\sqrt{-1+a^2}\big)\,e^{-\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]}\Big]+$$

$$\mathrm{ArcSin}[a+b\,x]^2\,\mathrm{Log}\Big[1-\mathrm{i}\,\big(a+\sqrt{-1+a^2}\big)\,e^{-\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]}\Big]+\mathrm{ArcSin}[a+b\,x]^2\,\mathrm{Log}\Big[1+\frac{e^{\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]}}{-\mathrm{i}\,a+\sqrt{1-a^2}}\Big]+$$

$$\mathrm{ArcSin}[a+b\,x]^2\,\mathrm{Log}\Big[1-\frac{e^{\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]}}{\mathrm{i}\,a+\sqrt{1-a^2}}\Big]+\pi\,\mathrm{ArcSin}[a+b\,x]\,\mathrm{Log}\Big[1+\big(a+\sqrt{-1+a^2}\big)\,\big(-a-b\,x-\mathrm{i}\,\sqrt{1-(a+b\,x)^2}\big)\Big]+$$

$$4\,\mathrm{ArcSin}\Big[\frac{\sqrt{1-a}}{\sqrt{2}}\Big]\,\mathrm{ArcSin}[a+b\,x]\,\mathrm{Log}\Big[1+\big(a+\sqrt{-1+a^2}\big)\,\big(-a-b\,x-\mathrm{i}\,\sqrt{1-(a+b\,x)^2}\big)\Big]-$$

$$\mathrm{ArcSin}[a+b\,x]^2\,\mathrm{Log}\Big[1+\big(a+\sqrt{-1+a^2}\big)\,\big(-a-b\,x-\mathrm{i}\,\sqrt{1-(a+b\,x)^2}\big)\Big]+\pi\,\mathrm{ArcSin}[a+b\,x]\,\mathrm{Log}\Big[1+\big(-a+\sqrt{-1+a^2}\big)\,\big(a+b\,x+\mathrm{i}\,\sqrt{1-(a+b\,x)^2}\big)\Big]-$$

$$4\,\mathrm{ArcSin}\Big[\frac{\sqrt{1-a}}{\sqrt{2}}\Big]\,\mathrm{ArcSin}[a+b\,x]\,\mathrm{Log}\Big[1+\big(-a+\sqrt{-1+a^2}\big)\,\big(a+b\,x+\mathrm{i}\,\sqrt{1-(a+b\,x)^2}\big)\Big]-$$

$$\mathrm{ArcSin}[a+b\,x]^2\,\mathrm{Log}\Big[1+\big(-a+\sqrt{-1+a^2}\big)\,\big(a+b\,x+\mathrm{i}\,\sqrt{1-(a+b\,x)^2}\big)\Big]-2\,\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]\,\mathrm{PolyLog}\Big[2,-\frac{e^{\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]}}{-\mathrm{i}\,a+\sqrt{1-a^2}}\Big]-$$

$$2\,\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]\,\mathrm{PolyLog}\Big[2,\frac{e^{\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]}}{\mathrm{i}\,a+\sqrt{1-a^2}}\Big]+2\,\mathrm{PolyLog}\Big[3,-\frac{e^{\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]}}{-\mathrm{i}\,a+\sqrt{1-a^2}}\Big]+2\,\mathrm{PolyLog}\Big[3,\frac{e^{\mathrm{i}\,\mathrm{ArcSin}[a+b\,x]}}{\mathrm{i}\,a+\sqrt{1-a^2}}\Big]$$

Problem 136: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{ArcSin}[a+b\,x]^2}{x^2}\,dx$$

Optimal (type 4, 230 leaves, 11 steps):

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

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

Result (type 4, 789 leaves) :

$$
\begin{aligned}
&-\frac{\text{ArcSin}[a+b x]^2}{x}+\frac{2 b \pi \,\text{ArcTan}\left[\frac{1-a \,\text{Tan}\left[\frac{1}{2} \text{ArcSin}[a+b x]\right]}{\sqrt{-1+a^2}}\right]}{\sqrt{-1+a^2}}+\frac{1}{\sqrt{1-a^2}} \\
&2 b \left(-2 \,\text{ArcCos}[a] \,\text{ArcTanh}\left[\frac{(1+a) \,\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]}{\sqrt{1-a^2}}\right]-(\pi-2 \,\text{ArcSin}[a+b x]) \,\text{ArcTanh}\left[\frac{(-1+a) \,\text{Tan}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]}{\sqrt{1-a^2}}\right]+\right. \\
&\left(\text{ArcCos}[a]-2 i \left(\text{ArcTanh}\left[\frac{(1+a) \,\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]}{\sqrt{1-a^2}}\right]+\text{ArcTanh}\left[\frac{(-1+a) \,\text{Tan}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]}{\sqrt{1-a^2}}\right]\right)\right) \\
&\text{Log}\left[\frac{\sqrt{1-a^2}\, e^{\frac{1}{4} i (\pi-2 \,\text{ArcSin}[a+b x])}}{\sqrt{2} \sqrt{b x}}\right]+ \\
&\left(\text{ArcCos}[a]+2 i \,\text{ArcTanh}\left[\frac{(1+a) \,\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]}{\sqrt{1-a^2}}\right]+2 i \,\text{ArcTanh}\left[\frac{(-1+a) \,\text{Tan}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]}{\sqrt{1-a^2}}\right]\right) \\
&\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right) \sqrt{1-a^2}\, e^{\frac{1}{2} i \,\text{ArcSin}[a+b x]}}{\sqrt{b x}}\right]-\left(\text{ArcCos}[a]-2 i \,\text{ArcTanh}\left[\frac{(1+a) \,\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]}{\sqrt{1-a^2}}\right]\right) \text{Log}\Bigg[\\
&-\frac{(-1+a) \left(i+i a+\sqrt{1-a^2}\right) \left(-i+\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]\right)}{1-a+\sqrt{1-a^2} \,\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]}\Bigg]-\left(\text{ArcCos}[a]+2 i \,\text{ArcTanh}\left[\frac{(1+a) \,\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]}{\sqrt{1-a^2}}\right]\right) \\
&\text{Log}\left[-\frac{(-1+a) \left(-i-i a+\sqrt{1-a^2}\right) \left(i+\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]\right)}{1-a+\sqrt{1-a^2} \,\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]}\right]+ \\
&i \left(-\text{PolyLog}\left[2,\frac{\left(a-i \sqrt{1-a^2}\right) \left(-1+a+\sqrt{1-a^2} \,\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]\right)}{1-a+\sqrt{1-a^2} \,\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]}\right]+\right. \\
&\left.\left.\text{PolyLog}\left[2,\frac{\left(a+i \sqrt{1-a^2}\right) \left(-1+a+\sqrt{1-a^2} \,\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]\right)}{1-a+\sqrt{1-a^2} \,\text{Cot}\left[\frac{1}{4} (\pi+2 \,\text{ArcSin}[a+b x])\right]}\right]\right)\right)
\end{aligned}
$$

Problem 137: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{ArcSin}[a+b x]^2}{x^3} \, dx$$

Optimal (type 4, 272 leaves, 14 steps):

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

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

Result (type 4, 859 leaves) :

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

$$\frac{1}{-1+a^2}\ a\ b^2\left(\frac{\pi\ \text{ArcTan}\left[\frac{1-a\ \text{Tan}\left[\frac{1}{2}\text{ArcSin}[a+b x]\right]}{\sqrt{-1+a^2}}\right]}{\sqrt{-1+a^2}}+\frac{1}{\sqrt{1-a^2}}\left(-2\ \text{ArcCos}[a]\ \text{ArcTanh}\left[\frac{(1+a)\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]}{\sqrt{1-a^2}}\right]-\left(\pi-2\ \text{ArcSin}[a+b x]\right)\right.\right.$$

$$\text{ArcTanh}\left[\frac{(-1+a)\ \text{Tan}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]}{\sqrt{1-a^2}}\right]+\left(\text{ArcCos}[a]-2\,\mathrm{i}\left(\text{ArcTanh}\left[\frac{(1+a)\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]}{\sqrt{1-a^2}}\right]+\right.\right.$$

$$\left.\left.\text{ArcTanh}\left[\frac{(-1+a)\ \text{Tan}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]}{\sqrt{1-a^2}}\right]\right)\right)\ \text{Log}\left[\frac{(-1)^{1/4}\sqrt{1-a^2}\ e^{-\frac{1}{2}\mathrm{i}\,\text{ArcSin}[a+b x]}}{\sqrt{2}\ \sqrt{b x}}\right]+$$

$$\left(\text{ArcCos}[a]+2\,\mathrm{i}\ \text{ArcTanh}\left[\frac{(1+a)\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]}{\sqrt{1-a^2}}\right]+2\,\mathrm{i}\ \text{ArcTanh}\left[\frac{(-1+a)\ \text{Tan}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]}{\sqrt{1-a^2}}\right]\right)$$

$$\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{\mathrm{i}}{2}\right)\sqrt{1-a^2}\ e^{\frac{1}{2}\mathrm{i}\,\text{ArcSin}[a+b x]}}{\sqrt{b x}}\right]-\left(\text{ArcCos}[a]-2\,\mathrm{i}\ \text{ArcTanh}\left[\frac{(1+a)\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]}{\sqrt{1-a^2}}\right]\right)$$

$$\text{Log}\left[-\frac{(-1+a)\left(\mathrm{i}+\mathrm{i}\,a+\sqrt{1-a^2}\right)\left(-\mathrm{i}+\text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]\right)}{1-a+\sqrt{1-a^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]}\right]-\left(\text{ArcCos}[a]+\right.$$

$$\left.2\,\mathrm{i}\ \text{ArcTanh}\left[\frac{(1+a)\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]}{\sqrt{1-a^2}}\right]\right)\text{Log}\left[-\frac{(-1+a)\left(-\mathrm{i}-\mathrm{i}\,a+\sqrt{1-a^2}\right)\left(\mathrm{i}+\text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]\right)}{1-a+\sqrt{1-a^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]}\right]+$$

$$\mathrm{i}\left(-\text{PolyLog}\left[2,\ \frac{\left(a-\mathrm{i}\sqrt{1-a^2}\right)\left(-1+a+\sqrt{1-a^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]\right)}{1-a+\sqrt{1-a^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]}\right]+\right.$$

$$\left.\left.\left.\text{PolyLog}\left[2,\ \frac{\left(a+\mathrm{i}\sqrt{1-a^2}\right)\left(-1+a+\sqrt{1-a^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]\right)}{1-a+\sqrt{1-a^2}\ \text{Cot}\left[\frac{1}{4}\left(\pi+2\ \text{ArcSin}[a+b x]\right)\right]}\right]\right)\right)\right)$$

Problem 141: Unable to integrate problem.

$$\int \frac{\text{ArcSin}[a+b x]^3}{x} \, dx$$

Optimal (type 4, 365 leaves, 13 steps):

$$-\frac{1}{4} i \,\text{ArcSin}[a+b x]^4+\text{ArcSin}[a+b x]^3 \,\text{Log}\left[1-\frac{e^{i \,\text{ArcSin}[a+b x]}}{i a-\sqrt{1-a^2}}\right]+\text{ArcSin}[a+b x]^3 \,\text{Log}\left[1-\frac{e^{i \,\text{ArcSin}[a+b x]}}{i a+\sqrt{1-a^2}}\right]-3 i \,\text{ArcSin}[a+b x]^2 \,\text{PolyLog}\left[2,\frac{e^{i \,\text{ArcSin}[a+b x]}}{i a-\sqrt{1-a^2}}\right]-3 i \,\text{ArcSin}[a+b x]^2 \,\text{PolyLog}\left[2,\frac{e^{i \,\text{ArcSin}[a+b x]}}{i a+\sqrt{1-a^2}}\right]+6 \,\text{ArcSin}[a+b x] \,\text{PolyLog}\left[3,\frac{e^{i \,\text{ArcSin}[a+b x]}}{i a-\sqrt{1-a^2}}\right]+6 \,\text{ArcSin}[a+b x] \,\text{PolyLog}\left[3,\frac{e^{i \,\text{ArcSin}[a+b x]}}{i a+\sqrt{1-a^2}}\right]+6 i \,\text{PolyLog}\left[4,\frac{e^{i \,\text{ArcSin}[a+b x]}}{i a-\sqrt{1-a^2}}\right]+6 i \,\text{PolyLog}\left[4,\frac{e^{i \,\text{ArcSin}[a+b x]}}{i a+\sqrt{1-a^2}}\right]$$

Result (type 8, 14 leaves):

$$\int \frac{\text{ArcSin}[a+b x]^3}{x} \, dx$$

Problem 142: Unable to integrate problem.

$$\int \frac{\text{ArcSin}[a+b x]^3}{x^2} \, dx$$

Optimal (type 4, 316 leaves, 13 steps):

$$-\frac{\text{ArcSin}[a+b x]^3}{x}+\frac{3 i b \,\text{ArcSin}[a+b x]^2 \,\text{Log}\left[1+\frac{i e^{i \,\text{ArcSin}[a+b x]}}{a-\sqrt{-1+a^2}}\right]}{\sqrt{-1+a^2}}-\frac{3 i b \,\text{ArcSin}[a+b x]^2 \,\text{Log}\left[1+\frac{i e^{i \,\text{ArcSin}[a+b x]}}{a+\sqrt{-1+a^2}}\right]}{\sqrt{-1+a^2}}+\frac{6 b \,\text{ArcSin}[a+b x] \,\text{PolyLog}\left[2,-\frac{i e^{i \,\text{ArcSin}[a+b x]}}{a-\sqrt{-1+a^2}}\right]}{\sqrt{-1+a^2}}-\frac{6 b \,\text{ArcSin}[a+b x] \,\text{PolyLog}\left[2,-\frac{i e^{i \,\text{ArcSin}[a+b x]}}{a+\sqrt{-1+a^2}}\right]}{\sqrt{-1+a^2}}+\frac{6 i b \,\text{PolyLog}\left[3,-\frac{i e^{i \,\text{ArcSin}[a+b x]}}{a-\sqrt{-1+a^2}}\right]}{\sqrt{-1+a^2}}-\frac{6 i b \,\text{PolyLog}\left[3,-\frac{i e^{i \,\text{ArcSin}[a+b x]}}{a+\sqrt{-1+a^2}}\right]}{\sqrt{-1+a^2}}$$

Result (type 8, 14 leaves):

$$\int \frac{\text{ArcSin}[a+b x]^3}{x^2} \, dx$$

Problem 173: Unable to integrate problem.

$$\int x^2 \left(a+b \text{ArcSin}[c+d x]\right)^n \, dx$$

Optimal (type 4, 611 leaves, 22 steps):

$$-\frac{i e^{-\frac{i a}{b}} \left(a+b \text{ArcSin}[c+d x]\right)^n \left(-\frac{i (a+b \text{ArcSin}[c+d x])}{b}\right)^{-n} \text{Gamma}\left[1+n,-\frac{i (a+b \text{ArcSin}[c+d x])}{b}\right]}{8 d^3}-\frac{i c^2 e^{-\frac{i a}{b}} \left(a+b \text{ArcSin}[c+d x]\right)^n \left(-\frac{i (a+b \text{ArcSin}[c+d x])}{b}\right)^{-n} \text{Gamma}\left[1+n,-\frac{i (a+b \text{ArcSin}[c+d x])}{b}\right]}{2 d^3}+\frac{i e^{\frac{i a}{b}} \left(a+b \text{ArcSin}[c+d x]\right)^n \left(\frac{i (a+b \text{ArcSin}[c+d x])}{b}\right)^{-n} \text{Gamma}\left[1+n,\frac{i (a+b \text{ArcSin}[c+d x])}{b}\right]}{8 d^3}+\frac{i c^2 e^{\frac{i a}{b}} \left(a+b \text{ArcSin}[c+d x]\right)^n \left(\frac{i (a+b \text{ArcSin}[c+d x])}{b}\right)^{-n} \text{Gamma}\left[1+n,\frac{i (a+b \text{ArcSin}[c+d x])}{b}\right]}{2 d^3}+\frac{2^{-2-n} c e^{-\frac{2 i a}{b}} \left(a+b \text{ArcSin}[c+d x]\right)^n \left(-\frac{i (a+b \text{ArcSin}[c+d x])}{b}\right)^{-n} \text{Gamma}\left[1+n,-\frac{2 i (a+b \text{ArcSin}[c+d x])}{b}\right]}{d^3}+\frac{2^{-2-n} c e^{\frac{2 i a}{b}} \left(a+b \text{ArcSin}[c+d x]\right)^n \left(\frac{i (a+b \text{ArcSin}[c+d x])}{b}\right)^{-n} \text{Gamma}\left[1+n,\frac{2 i (a+b \text{ArcSin}[c+d x])}{b}\right]}{d^3}+\frac{i 3^{-1-n} e^{-\frac{3 i a}{b}} \left(a+b \text{ArcSin}[c+d x]\right)^n \left(-\frac{i (a+b \text{ArcSin}[c+d x])}{b}\right)^{-n} \text{Gamma}\left[1+n,-\frac{3 i (a+b \text{ArcSin}[c+d x])}{b}\right]}{8 d^3}-\frac{i 3^{-1-n} e^{\frac{3 i a}{b}} \left(a+b \text{ArcSin}[c+d x]\right)^n \left(\frac{i (a+b \text{ArcSin}[c+d x])}{b}\right)^{-n} \text{Gamma}\left[1+n,\frac{3 i (a+b \text{ArcSin}[c+d x])}{b}\right]}{8 d^3}$$

Result (type 8, 18 leaves):

$$\int x^2 \left(a+b \text{ArcSin}[c+d x]\right)^n \, dx$$

Problem 205: Result more than twice size of optimal antiderivative.

$$\int \frac{\left(a+b \text{ArcSin}[c+d x]\right)^3}{(c e+d e x)^4} \, dx$$

Optimal (type 4, 291 leaves, 16 steps):

$$-\frac{b^2 (a+b \text{ArcSin}[c+d x])}{d e^4 (c+d x)}-\frac{b \sqrt{1-(c+d x)^2} (a+b \text{ArcSin}[c+d x])^2}{2 d e^4 (c+d x)^2}-\frac{(a+b \text{ArcSin}[c+d x])^3}{3 d e^4 (c+d x)^3}-\frac{b (a+b \text{ArcSin}[c+d x])^2 \text{ArcTanh}\left[e^{i \text{ArcSin}[c+d x]}\right]}{d e^4}-\frac{b^3 \text{ArcTanh}\left[\sqrt{1-(c+d x)^2}\right]}{d e^4}+\frac{i b^2 (a+b \text{ArcSin}[c+d x]) \text{PolyLog}\left[2,-e^{i \text{ArcSin}[c+d x]}\right]}{d e^4}-\frac{i b^2 (a+b \text{ArcSin}[c+d x]) \text{PolyLog}\left[2,e^{i \text{ArcSin}[c+d x]}\right]}{d e^4}-\frac{b^3 \text{PolyLog}\left[3,-e^{i \text{ArcSin}[c+d x]}\right]}{d e^4}+\frac{b^3 \text{PolyLog}\left[3,e^{i \text{ArcSin}[c+d x]}\right]}{d e^4}$$

Result (type 4, 732 leaves):

$$-\frac{a^3}{3 d e^4 (c+d x)^3}-\frac{a^2 b \sqrt{1-c^2-2 c d x-d^2 x^2}}{2 d e^4 (c+d x)^2}-\frac{a^2 b \text{ArcSin}[c+d x]}{d e^4 (c+d x)^3}+\frac{a^2 b \text{Log}[c+d x]}{2 d e^4}-\frac{a^2 b \text{Log}\left[1+\sqrt{1-c^2-2 c d x-d^2 x^2}\right]}{2 d e^4}+\frac{1}{8 d e^4} a b^2 \left(8 i \text{PolyLog}\left[2,-e^{i \text{ArcSin}[c+d x]}\right]-\frac{1}{(c+d x)^3} 2 \left(2+4 \text{ArcSin}[c+d x]^2-2 \text{Cos}[2 \text{ArcSin}[c+d x]]-3 (c+d x) \text{ArcSin}[c+d x] \text{Log}\left[1-e^{i \text{ArcSin}[c+d x]}\right]+3 (c+d x) \text{ArcSin}[c+d x] \text{Log}\left[1+e^{i \text{ArcSin}[c+d x]}\right]+4 i (c+d x)^3 \text{PolyLog}\left[2,e^{i \text{ArcSin}[c+d x]}\right]+2 \text{ArcSin}[c+d x] \text{Sin}[2 \text{ArcSin}[c+d x]]+\text{ArcSin}[c+d x] \text{Log}\left[1-e^{i \text{ArcSin}[c+d x]}\right] \text{Sin}[3 \text{ArcSin}[c+d x]]-\text{ArcSin}[c+d x] \text{Log}\left[1+e^{i \text{ArcSin}[c+d x]}\right] \text{Sin}[3 \text{ArcSin}[c+d x]]\right)\right)+\frac{1}{48 d e^4} b^3 \left(-24 \text{ArcSin}[c+d x] \text{Cot}\left[\frac{1}{2} \text{ArcSin}[c+d x]\right]-4 \text{ArcSin}[c+d x]^3 \text{Cot}\left[\frac{1}{2} \text{ArcSin}[c+d x]\right]-6 \text{ArcSin}[c+d x]^2 \text{Csc}\left[\frac{1}{2} \text{ArcSin}[c+d x]\right]^2-(c+d x) \text{ArcSin}[c+d x]^3 \text{Csc}\left[\frac{1}{2} \text{ArcSin}[c+d x]\right]^4+24 \text{ArcSin}[c+d x]^2 \text{Log}\left[1-e^{i \text{ArcSin}[c+d x]}\right]-24 \text{ArcSin}[c+d x]^2 \text{Log}\left[1+e^{i \text{ArcSin}[c+d x]}\right]+48 \text{Log}\left[\text{Tan}\left[\frac{1}{2} \text{ArcSin}[c+d x]\right]\right]+48 i \text{ArcSin}[c+d x] \text{PolyLog}\left[2,-e^{i \text{ArcSin}[c+d x]}\right]-48 i \text{ArcSin}[c+d x] \text{PolyLog}\left[2,e^{i \text{ArcSin}[c+d x]}\right]-48 \text{PolyLog}\left[3,-e^{i \text{ArcSin}[c+d x]}\right]+48 \text{PolyLog}\left[3,e^{i \text{ArcSin}[c+d x]}\right]+6 \text{ArcSin}[c+d x]^2 \text{Sec}\left[\frac{1}{2} \text{ArcSin}[c+d x]\right]^2-\frac{16 \text{ArcSin}[c+d x]^3 \text{Sin}\left[\frac{1}{2} \text{ArcSin}[c+d x]\right]^4}{(c+d x)^3}-24 \text{ArcSin}[c+d x] \text{Tan}\left[\frac{1}{2} \text{ArcSin}[c+d x]\right]-4 \text{ArcSin}[c+d x]^3 \text{Tan}\left[\frac{1}{2} \text{ArcSin}[c+d x]\right]\right)$$

Problem 210: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b \text{ArcSin}[c+d x])^4}{c e+d e x} \, dx$$

Optimal (type 4, 202 leaves, 10 steps):

$$-\frac{i\,(a+b\,\text{ArcSin}[c+d\,x])^5}{5\,b\,d\,e}+\frac{(a+b\,\text{ArcSin}[c+d\,x])^4\,\text{Log}\left[1-e^{2\,i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e}-\frac{2\,i\,b\,(a+b\,\text{ArcSin}[c+d\,x])^3\,\text{PolyLog}\left[2,\,e^{2\,i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e}+\frac{3\,b^2\,(a+b\,\text{ArcSin}[c+d\,x])^2\,\text{PolyLog}\left[3,\,e^{2\,i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e}+\frac{3\,i\,b^3\,(a+b\,\text{ArcSin}[c+d\,x])\,\text{PolyLog}\left[4,\,e^{2\,i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e}-\frac{3\,b^4\,\text{PolyLog}\left[5,\,e^{2\,i\,\text{ArcSin}[c+d\,x]}\right]}{2\,d\,e}$$

Result (type 4, 439 leaves):

$$\frac{1}{16\,d\,e}\left(16\,a^4\,\text{Log}[c+d\,x]+64\,a^3\,b\left(\text{ArcSin}[c+d\,x]\,\text{Log}\left[1-e^{2\,i\,\text{ArcSin}[c+d\,x]}\right]-\frac{1}{2}\,i\left(\text{ArcSin}[c+d\,x]^2+\text{PolyLog}\left[2,\,e^{2\,i\,\text{ArcSin}[c+d\,x]}\right]\right)\right)+4\,a^2\,b^2\left(-i\,\pi^3+8\,i\,\text{ArcSin}[c+d\,x]^3+24\,\text{ArcSin}[c+d\,x]^2\,\text{Log}\left[1-e^{-2\,i\,\text{ArcSin}[c+d\,x]}\right]+24\,i\,\text{ArcSin}[c+d\,x]\,\text{PolyLog}\left[2,\,e^{-2\,i\,\text{ArcSin}[c+d\,x]}\right]+12\,\text{PolyLog}\left[3,\,e^{-2\,i\,\text{ArcSin}[c+d\,x]}\right]\right)-i\,a\,b^3\left(\pi^4-16\,\text{ArcSin}[c+d\,x]^4+64\,i\,\text{ArcSin}[c+d\,x]^3\,\text{Log}\left[1-e^{-2\,i\,\text{ArcSin}[c+d\,x]}\right]-96\,\text{ArcSin}[c+d\,x]^2\,\text{PolyLog}\left[2,\,e^{-2\,i\,\text{ArcSin}[c+d\,x]}\right]+96\,i\,\text{ArcSin}[c+d\,x]\,\text{PolyLog}\left[3,\,e^{-2\,i\,\text{ArcSin}[c+d\,x]}\right]+48\,\text{PolyLog}\left[4,\,e^{-2\,i\,\text{ArcSin}[c+d\,x]}\right]\right)+16\,b^4\left(-\frac{i\,\pi^5}{160}+\frac{1}{5}\,i\,\text{ArcSin}[c+d\,x]^5+\text{ArcSin}[c+d\,x]^4\,\text{Log}\left[1-e^{-2\,i\,\text{ArcSin}[c+d\,x]}\right]+2\,i\,\text{ArcSin}[c+d\,x]^3\,\text{PolyLog}\left[2,\,e^{-2\,i\,\text{ArcSin}[c+d\,x]}\right]+3\,\text{ArcSin}[c+d\,x]^2\,\text{PolyLog}\left[3,\,e^{-2\,i\,\text{ArcSin}[c+d\,x]}\right]-3\,i\,\text{ArcSin}[c+d\,x]\,\text{PolyLog}\left[4,\,e^{-2\,i\,\text{ArcSin}[c+d\,x]}\right]-\frac{3}{2}\,\text{PolyLog}\left[5,\,e^{-2\,i\,\text{ArcSin}[c+d\,x]}\right]\right)\right)$$

Problem 211: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\text{ArcSin}[c+d\,x])^4}{(c\,e+d\,e\,x)^2}\,dx$$

Optimal (type 4, 270 leaves, 13 steps):

$$-\frac{(a+b\,\text{ArcSin}[c+d\,x])^4}{d\,e^2\,(c+d\,x)}-\frac{8\,b\,(a+b\,\text{ArcSin}[c+d\,x])^3\,\text{ArcTanh}\left[e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^2}+\frac{12\,i\,b^2\,(a+b\,\text{ArcSin}[c+d\,x])^2\,\text{PolyLog}\left[2,\,-e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^2}-\frac{12\,i\,b^2\,(a+b\,\text{ArcSin}[c+d\,x])^2\,\text{PolyLog}\left[2,\,e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^2}-\frac{24\,b^3\,(a+b\,\text{ArcSin}[c+d\,x])\,\text{PolyLog}\left[3,\,-e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^2}+\frac{24\,b^3\,(a+b\,\text{ArcSin}[c+d\,x])\,\text{PolyLog}\left[3,\,e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^2}-\frac{24\,i\,b^4\,\text{PolyLog}\left[4,\,-e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^2}+\frac{24\,i\,b^4\,\text{PolyLog}\left[4,\,e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^2}$$

Result (type 4, 575 leaves):

$$\frac{1}{d\,e^2}\left(-\frac{a^4}{c+d\,x}-4\,a^3\,b\left(\frac{\text{ArcSin}[c+d\,x]}{c+d\,x}+\text{Log}\left[\frac{1}{2}\,(c+d\,x)\,\text{Csc}\left[\frac{1}{2}\,\text{ArcSin}[c+d\,x]\right]\right]-\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,\text{ArcSin}[c+d\,x]\right]\right]\right)+\right.$$
$$6\,a^2\,b^2\left(\text{ArcSin}[c+d\,x]\left(-\frac{\text{ArcSin}[c+d\,x]}{c+d\,x}+2\,\text{Log}\left[1-e^{i\,\text{ArcSin}[c+d\,x]}\right]-2\,\text{Log}\left[1+e^{i\,\text{ArcSin}[c+d\,x]}\right]\right)+\right.$$
$$\left.2\,i\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c+d\,x]}\right]-2\,i\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c+d\,x]}\right]\right)+$$
$$4\,a\,b^3\left(-\frac{\text{ArcSin}[c+d\,x]^3}{c+d\,x}+3\,\text{ArcSin}[c+d\,x]^2\,\text{Log}\left[1-e^{i\,\text{ArcSin}[c+d\,x]}\right]-3\,\text{ArcSin}[c+d\,x]^2\,\text{Log}\left[1+e^{i\,\text{ArcSin}[c+d\,x]}\right]+6\,i\,\text{ArcSin}[c+d\,x]\right.$$
$$\left.\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c+d\,x]}\right]-6\,i\,\text{ArcSin}[c+d\,x]\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c+d\,x]}\right]-6\,\text{PolyLog}\left[3,-e^{i\,\text{ArcSin}[c+d\,x]}\right]+6\,\text{PolyLog}\left[3,e^{i\,\text{ArcSin}[c+d\,x]}\right]\right)+$$
$$b^4\left(-\frac{i\,\pi^4}{2}+i\,\text{ArcSin}[c+d\,x]^4-\frac{\text{ArcSin}[c+d\,x]^4}{c+d\,x}+4\,\text{ArcSin}[c+d\,x]^3\,\text{Log}\left[1-e^{-i\,\text{ArcSin}[c+d\,x]}\right]-4\,\text{ArcSin}[c+d\,x]^3\,\text{Log}\left[1+e^{i\,\text{ArcSin}[c+d\,x]}\right]+\right.$$
$$12\,i\,\text{ArcSin}[c+d\,x]^2\,\text{PolyLog}\left[2,e^{-i\,\text{ArcSin}[c+d\,x]}\right]+12\,i\,\text{ArcSin}[c+d\,x]^2\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c+d\,x]}\right]+$$
$$24\,\text{ArcSin}[c+d\,x]\,\text{PolyLog}\left[3,e^{-i\,\text{ArcSin}[c+d\,x]}\right]-24\,\text{ArcSin}[c+d\,x]\,\text{PolyLog}\left[3,-e^{i\,\text{ArcSin}[c+d\,x]}\right]-$$
$$\left.\left.24\,i\,\text{PolyLog}\left[4,e^{-i\,\text{ArcSin}[c+d\,x]}\right]-24\,i\,\text{PolyLog}\left[4,-e^{i\,\text{ArcSin}[c+d\,x]}\right]\right)\right)$$

Problem 213: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\text{ArcSin}[c+d\,x])^4}{(c\,e+d\,e\,x)^4}\,dx$$

Optimal (type 4, 439 leaves, 21 steps):

$$-\frac{2\,b^2\,(a+b\,\text{ArcSin}[c+d\,x])^2}{d\,e^4\,(c+d\,x)}-\frac{2\,b\,\sqrt{1-(c+d\,x)^2}\,(a+b\,\text{ArcSin}[c+d\,x])^3}{3\,d\,e^4\,(c+d\,x)^2}-\frac{(a+b\,\text{ArcSin}[c+d\,x])^4}{3\,d\,e^4\,(c+d\,x)^3}-$$
$$\frac{8\,b^3\,(a+b\,\text{ArcSin}[c+d\,x])\,\text{ArcTanh}\left[e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^4}-\frac{4\,b\,(a+b\,\text{ArcSin}[c+d\,x])^3\,\text{ArcTanh}\left[e^{i\,\text{ArcSin}[c+d\,x]}\right]}{3\,d\,e^4}+$$
$$\frac{4\,i\,b^4\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^4}+\frac{2\,i\,b^2\,(a+b\,\text{ArcSin}[c+d\,x])^2\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^4}-\frac{4\,i\,b^4\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^4}-$$
$$\frac{2\,i\,b^2\,(a+b\,\text{ArcSin}[c+d\,x])^2\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^4}-\frac{4\,b^3\,(a+b\,\text{ArcSin}[c+d\,x])\,\text{PolyLog}\left[3,-e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^4}+$$
$$\frac{4\,b^3\,(a+b\,\text{ArcSin}[c+d\,x])\,\text{PolyLog}\left[3,e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^4}-\frac{4\,i\,b^4\,\text{PolyLog}\left[4,-e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^4}+\frac{4\,i\,b^4\,\text{PolyLog}\left[4,e^{i\,\text{ArcSin}[c+d\,x]}\right]}{d\,e^4}$$

Result (type 4, 1274 leaves):

$$-\frac{a^4}{3\,d\,e^4\,(c+d\,x)^3}+\frac{1}{4\,d\,e^4}a^2\,b^2\left(8\,i\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c+d\,x]}\right]-\frac{1}{(c+d\,x)^3}2\left(2+4\,\text{ArcSin}[c+d\,x]^2-2\,\text{Cos}[2\,\text{ArcSin}[c+d\,x]]-3\,(c+d\,x)\,\text{ArcSin}[c+d\,x]\,\text{Log}\left[1-e^{i\,\text{ArcSin}[c+d\,x]}\right]+3\,(c+d\,x)\,\text{ArcSin}[c+d\,x]\,\text{Log}\left[1+e^{i\,\text{ArcSin}[c+d\,x]}\right]+4\,i\,(c+d\,x)^3\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c+d\,x]}\right]+2\,\text{ArcSin}[c+d\,x]\,\text{Sin}[2\,\text{ArcSin}[c+d\,x]]+\text{ArcSin}[c+d\,x]\,\text{Log}\left[1-e^{i\,\text{ArcSin}[c+d\,x]}\right]\text{Sin}[3\,\text{ArcSin}[c+d\,x]]-\text{ArcSin}[c+d\,x]\,\text{Log}\left[1+e^{i\,\text{ArcSin}[c+d\,x]}\right]\text{Sin}[3\,\text{ArcSin}[c+d\,x]]\right)\right)+$$

$$\frac{1}{12\,d\,e^4}a\,b^3\left(-24\,\text{ArcSin}[c+d\,x]\,\text{Cot}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]-4\,\text{ArcSin}[c+d\,x]^3\,\text{Cot}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]-6\,\text{ArcSin}[c+d\,x]^2\,\text{Csc}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]^2-(c+d\,x)\,\text{ArcSin}[c+d\,x]^3\,\text{Csc}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]^4+24\,\text{ArcSin}[c+d\,x]^2\,\text{Log}\left[1-e^{i\,\text{ArcSin}[c+d\,x]}\right]-24\,\text{ArcSin}[c+d\,x]^2\,\text{Log}\left[1+e^{i\,\text{ArcSin}[c+d\,x]}\right]+48\,\text{Log}\left[\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]\right]+48\,i\,\text{ArcSin}[c+d\,x]\,\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c+d\,x]}\right]-48\,i\,\text{ArcSin}[c+d\,x]\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c+d\,x]}\right]-48\,\text{PolyLog}\left[3,-e^{i\,\text{ArcSin}[c+d\,x]}\right]+48\,\text{PolyLog}\left[3,e^{i\,\text{ArcSin}[c+d\,x]}\right]+6\,\text{ArcSin}[c+d\,x]^2\,\text{Sec}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]^2-\frac{16\,\text{ArcSin}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]^4}{(c+d\,x)^3}-24\,\text{ArcSin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]-4\,\text{ArcSin}[c+d\,x]^3\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]\right)+$$

$$\frac{1}{24\,d\,e^4}b^4\left(-2\,i\,\pi^4+4\,i\,\text{ArcSin}[c+d\,x]^4-24\,\text{ArcSin}[c+d\,x]^2\,\text{Cot}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]-2\,\text{ArcSin}[c+d\,x]^4\,\text{Cot}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]-4\,\text{ArcSin}[c+d\,x]^3\,\text{Csc}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]^2-\frac{1}{2}(c+d\,x)\,\text{ArcSin}[c+d\,x]^4\,\text{Csc}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]^4+16\,\text{ArcSin}[c+d\,x]^3\,\text{Log}\left[1-e^{-i\,\text{ArcSin}[c+d\,x]}\right]+96\,\text{ArcSin}[c+d\,x]\,\text{Log}\left[1-e^{i\,\text{ArcSin}[c+d\,x]}\right]-96\,\text{ArcSin}[c+d\,x]\,\text{Log}\left[1+e^{i\,\text{ArcSin}[c+d\,x]}\right]-16\,\text{ArcSin}[c+d\,x]^3\,\text{Log}\left[1+e^{i\,\text{ArcSin}[c+d\,x]}\right]+48\,i\,\text{ArcSin}[c+d\,x]^2\,\text{PolyLog}\left[2,e^{-i\,\text{ArcSin}[c+d\,x]}\right]+48\,i\left(2+\text{ArcSin}[c+d\,x]^2\right)\text{PolyLog}\left[2,-e^{i\,\text{ArcSin}[c+d\,x]}\right]-96\,i\,\text{PolyLog}\left[2,e^{i\,\text{ArcSin}[c+d\,x]}\right]+96\,\text{ArcSin}[c+d\,x]\,\text{PolyLog}\left[3,e^{-i\,\text{ArcSin}[c+d\,x]}\right]-96\,\text{ArcSin}[c+d\,x]\,\text{PolyLog}\left[3,-e^{i\,\text{ArcSin}[c+d\,x]}\right]-96\,i\,\text{PolyLog}\left[4,e^{-i\,\text{ArcSin}[c+d\,x]}\right]-96\,i\,\text{PolyLog}\left[4,-e^{i\,\text{ArcSin}[c+d\,x]}\right]+4\,\text{ArcSin}[c+d\,x]^3\,\text{Sec}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]^2-\frac{8\,\text{ArcSin}[c+d\,x]^4\,\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]^4}{(c+d\,x)^3}-24\,\text{ArcSin}[c+d\,x]^2\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]-2\,\text{ArcSin}[c+d\,x]^4\,\text{Tan}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]\right)+$$

$$\frac{1}{d\,e^4}4\,a^3\,b\left(-\frac{1}{12}\text{ArcSin}[c+d\,x]\,\text{Cot}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]-\frac{1}{24}\text{Csc}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]^2-\frac{1}{24}\text{ArcSin}[c+d\,x]\,\text{Cot}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]\text{Csc}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]^2-\frac{1}{6}\text{Log}\left[\text{Cos}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]\right]+\frac{1}{6}\text{Log}\left[\text{Sin}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]\right]+\frac{1}{24}\text{Sec}\left[\frac{1}{2}\text{ArcSin}[c+d\,x]\right]^2-\right.$$

$$\frac{1}{12}\,\mathrm{ArcSin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,\mathrm{ArcSin}[c+d\,x]\right]-\frac{1}{24}\,\mathrm{ArcSin}[c+d\,x]\,\mathrm{Sec}\left[\frac{1}{2}\,\mathrm{ArcSin}[c+d\,x]\right]^2\,\mathrm{Tan}\left[\frac{1}{2}\,\mathrm{ArcSin}[c+d\,x]\right]\Bigg)$$

Problem 214: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\mathrm{ArcSin}[c+d\,x])^5\,dx$$

Optimal (type 3, 164 leaves, 8 steps):

$$120\,a\,b^4\,x+\frac{120\,b^5\,\sqrt{1-(c+d\,x)^2}}{d}+\frac{120\,b^5\,(c+d\,x)\,\mathrm{ArcSin}[c+d\,x]}{d}-\frac{60\,b^3\,\sqrt{1-(c+d\,x)^2}\,(a+b\,\mathrm{ArcSin}[c+d\,x])^2}{d}-\frac{20\,b^2\,(c+d\,x)\,(a+b\,\mathrm{ArcSin}[c+d\,x])^3}{d}+\frac{5\,b\,\sqrt{1-(c+d\,x)^2}\,(a+b\,\mathrm{ArcSin}[c+d\,x])^4}{d}+\frac{(c+d\,x)\,(a+b\,\mathrm{ArcSin}[c+d\,x])^5}{d}$$

Result (type 3, 332 leaves):

$$\frac{1}{d}\Big(a\,(a^4-20\,a^2\,b^2+120\,b^4)\,(c+d\,x)+5\,b\,(a^4-12\,a^2\,b^2+24\,b^4)\,\sqrt{1-(c+d\,x)^2}+$$
$$5\,b\left(a^4\,(c+d\,x)-12\,a^2\,b^2\,(c+d\,x)+24\,b^4\,(c+d\,x)+4\,a^3\,b\,\sqrt{1-(c+d\,x)^2}-24\,a\,b^3\,\sqrt{1-(c+d\,x)^2}\right)\mathrm{ArcSin}[c+d\,x]-$$
$$10\,b^2\left(-a^3\,(c+d\,x)+6\,a\,b^2\,(c+d\,x)-3\,a^2\,b\,\sqrt{1-(c+d\,x)^2}+6\,b^3\,\sqrt{1-(c+d\,x)^2}\right)\mathrm{ArcSin}[c+d\,x]^2-$$
$$10\,b^3\left(-a^2\,(c+d\,x)+2\,b^2\,(c+d\,x)-2\,a\,b\,\sqrt{1-(c+d\,x)^2}\right)\mathrm{ArcSin}[c+d\,x]^3+$$
$$5\,b^4\left(a\,c+a\,d\,x+b\,\sqrt{1-(c+d\,x)^2}\right)\mathrm{ArcSin}[c+d\,x]^4+b^5\,(c+d\,x)\,\mathrm{ArcSin}[c+d\,x]^5\Big)$$

Problem 292: Result more than twice size of optimal antiderivative.

$$\int (c\,e+d\,e\,x)^{5/2}\,(a+b\,\mathrm{ArcSin}[c+d\,x])^2\,dx$$

Optimal (type 5, 130 leaves, 3 steps):

$$\frac{2\,(e\,(c+d\,x))^{7/2}\,(a+b\,\mathrm{ArcSin}[c+d\,x])^2}{7\,d\,e}-\frac{8\,b\,(e\,(c+d\,x))^{9/2}\,(a+b\,\mathrm{ArcSin}[c+d\,x])\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\frac{9}{4},\frac{13}{4},(c+d\,x)^2\right]}{63\,d\,e^2}+\frac{16\,b^2\,(e\,(c+d\,x))^{11/2}\,\mathrm{HypergeometricPFQ}\left[\left\{1,\frac{11}{4},\frac{11}{4}\right\},\left\{\frac{13}{4},\frac{15}{4}\right\},(c+d\,x)^2\right]}{693\,d\,e^3}$$

Result (type 5, 328 leaves):

$$\frac{1}{6174\, d}\left(e\,(c+d\,x)\right)^{5/2}\Bigg(1764\, a^2\,(c+d\,x)+168\, a\, b\Bigg(21\,(c+d\,x)\,\text{ArcSin}[c+d\,x]+\Bigg(-2\sqrt{c+d\,x}\,\left(-5+2\,(c+d\,x)^2+3\,(c+d\,x)^4\right)+10\,(c+d\,x)\sqrt{1-\frac{1}{(c+d\,x)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{c+d\,x}}\right],-1\right]\Bigg)\Bigg/\left((c+d\,x)^{5/2}\sqrt{1-(c+d\,x)^2}\right)\Bigg)+$$

$$\frac{1}{(c+d\,x)^2}\, b^2\Bigg(-1336\,(c+d\,x)+1932\sqrt{1-(c+d\,x)^2}\,\text{ArcSin}[c+d\,x]+1323\,(c+d\,x)\,\text{ArcSin}[c+d\,x]^2-$$

$$252\,\text{ArcSin}[c+d\,x]\,\text{Cos}[3\,\text{ArcSin}[c+d\,x]]-1680\sqrt{1-(c+d\,x)^2}\,\text{ArcSin}[c+d\,x]\,\text{Hypergeometric2F1}\left[\frac{3}{4},1,\frac{5}{4},(c+d\,x)^2\right]+$$

$$\frac{210\sqrt{2}\,\pi\,(c+d\,x)\,\text{HypergeometricPFQ}\left[\left\{\frac{3}{4},\frac{3}{4},1\right\},\left\{\frac{5}{4},\frac{7}{4}\right\},(c+d\,x)^2\right]}{\text{Gamma}\left[\frac{5}{4}\right]\,\text{Gamma}\left[\frac{7}{4}\right]}+$$

$$72\,\text{Sin}[3\,\text{ArcSin}[c+d\,x]]-441\,\text{ArcSin}[c+d\,x]^2\,\text{Sin}[3\,\text{ArcSin}[c+d\,x]]\Bigg)\Bigg)$$

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

$$\int\sqrt{c\,e+d\,e\,x}\,\left(a+b\,\text{ArcSin}[c+d\,x]\right)^2\,dx$$

Optimal (type 5, 130 leaves, 3 steps):

$$\frac{2\,\left(e\,(c+d\,x)\right)^{3/2}\left(a+b\,\text{ArcSin}[c+d\,x]\right)^2}{3\,d\,e}-\frac{8\,b\,\left(e\,(c+d\,x)\right)^{5/2}\left(a+b\,\text{ArcSin}[c+d\,x]\right)\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{5}{4},\frac{9}{4},(c+d\,x)^2\right]}{15\,d\,e^2}+$$

$$\frac{16\,b^2\,\left(e\,(c+d\,x)\right)^{7/2}\,\text{HypergeometricPFQ}\left[\left\{1,\frac{7}{4},\frac{7}{4}\right\},\left\{\frac{9}{4},\frac{11}{4}\right\},(c+d\,x)^2\right]}{105\,d\,e^3}$$

Result (type 5, 267 leaves):

$$\frac{1}{27\,d}\sqrt{e\,(c+d\,x)}\left(18\,a^2\,(c+d\,x)+36\,a\,b\,(c+d\,x)\,\text{ArcSin}[c+d\,x]+24\,b^2\,\sqrt{1-(c+d\,x)^2}\,\text{ArcSin}[c+d\,x]+2\,b^2\,(c+d\,x)\,\left(-8+9\,\text{ArcSin}[c+d\,x]^2\right)-\right.$$

$$\frac{12\,a\,b\left(2\,\sqrt{c+d\,x}\,\left(-1+(c+d\,x)^2\right)-2\,(c+d\,x)\,\sqrt{1-\frac{1}{(c+d\,x)^2}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{c+d\,x}}\right],-1\right]\right)}{\sqrt{c+d\,x}\,\sqrt{1-(c+d\,x)^2}}-24\,b^2\,\sqrt{1-(c+d\,x)^2}$$

$$\left.\text{ArcSin}[c+d\,x]\,\text{Hypergeometric2F1}\left[\frac{3}{4},1,\frac{5}{4},(c+d\,x)^2\right]+\frac{3\,\sqrt{2}\,b^2\,\pi\,(c+d\,x)\,\text{HypergeometricPFQ}\left[\left\{\frac{3}{4},\frac{3}{4},1\right\},\left\{\frac{5}{4},\frac{7}{4}\right\},(c+d\,x)^2\right]}{\text{Gamma}\left[\frac{5}{4}\right]\,\text{Gamma}\left[\frac{7}{4}\right]}\right)$$

Problem 299: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\text{ArcSin}[c+d\,x])^2}{(c\,e+d\,e\,x)^{9/2}}\,dx$$

Optimal (type 5, 130 leaves, 3 steps):

$$-\frac{2\,(a+b\,\text{ArcSin}[c+d\,x])^2}{7\,d\,e\,(e\,(c+d\,x))^{7/2}}-\frac{8\,b\,(a+b\,\text{ArcSin}[c+d\,x])\,\text{Hypergeometric2F1}\left[-\frac{5}{4},\frac{1}{2},-\frac{1}{4},(c+d\,x)^2\right]}{35\,d\,e^2\,(e\,(c+d\,x))^{5/2}}-$$

$$\frac{16\,b^2\,\text{HypergeometricPFQ}\left[\left\{-\frac{3}{4},-\frac{3}{4},1\right\},\left\{-\frac{1}{4},\frac{1}{4}\right\},(c+d\,x)^2\right]}{105\,d\,e^3\,(e\,(c+d\,x))^{3/2}}$$

Result (type 5, 299 leaves):

$$\frac{1}{420\, d\, (e\,(c+d\,x))^{9/2}}\Bigg(-120\,a^2\,(c+d\,x)+48\,a\,b\Bigg(-5\,(c+d\,x)\,\text{ArcSin}[c+d\,x]+$$
$$2\,(c+d\,x)^{9/2}\left(-\frac{\sqrt{1-(c+d\,x)^2}\,\left(1+3\,(c+d\,x)^2\right)}{(c+d\,x)^{5/2}}-3\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{c+d\,x}\right],-1\right]+3\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{c+d\,x}\right],-1\right]\right)\Bigg)+$$
$$b^2\,(c+d\,x)\Bigg(\frac{9\,\sqrt{2}\,\pi\,(c+d\,x)^6\,\text{HypergeometricPFQ}\left[\left\{1,\frac{5}{4},\frac{5}{4}\right\},\left\{\frac{7}{4},\frac{9}{4}\right\},(c+d\,x)^2\right]}{\text{Gamma}\left[\frac{7}{4}\right]\,\text{Gamma}\left[\frac{9}{4}\right]}-$$
$$4\Big(-46+30\,\text{ArcSin}[c+d\,x]^2+64\,\text{Cos}[2\,\text{ArcSin}[c+d\,x]]-18\,\text{Cos}[4\,\text{ArcSin}[c+d\,x]]+24\,(c+d\,x)^5\,\sqrt{1-(c+d\,x)^2}\,\text{ArcSin}[c+d\,x]$$
$$\text{Hypergeometric2F1}\left[1,\frac{5}{4},\frac{7}{4},(c+d\,x)^2\right]+30\,\text{ArcSin}[c+d\,x]\,\text{Sin}[2\,\text{ArcSin}[c+d\,x]]-9\,\text{ArcSin}[c+d\,x]\,\text{Sin}[4\,\text{ArcSin}[c+d\,x]]\Big)\Bigg)\Bigg)$$

Problem 300: Attempted integration timed out after 120 seconds.

$$\int\sqrt{c\,e+d\,e\,x}\,(a+b\,\text{ArcSin}[c+d\,x])^3\,dx$$

Optimal (type 9, 81 leaves, 2 steps):

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

Result (type 1, 1 leaves):

???

Problem 304: Attempted integration timed out after 120 seconds.

$$\int\sqrt{c\,e+d\,e\,x}\,(a+b\,\text{ArcSin}[c+d\,x])^4\,dx$$

Optimal (type 9, 83 leaves, 2 steps):

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

Result (type 1, 1 leaves):

???

Problem 310: Unable to integrate problem.

$$\int (c\,e + d\,e\,x)^m\,(a + b\,\text{ArcSin}[c + d\,x])^2\,dx$$

Optimal (type 5, 183 leaves, 3 steps):

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

Result (type 8, 25 leaves):

$$\int (c\,e + d\,e\,x)^m\,(a + b\,\text{ArcSin}[c + d\,x])^2\,dx$$

Problem 352: Result unnecessarily involves imaginary or complex numbers.

$$\int x^6\,(a + b\,\text{ArcSin}[c\,x^2])\,dx$$

Optimal (type 4, 86 leaves, 5 steps):

$$\frac{10\,b\,x\,\sqrt{1 - c^2\,x^4}}{147\,c^3} + \frac{2\,b\,x^5\,\sqrt{1 - c^2\,x^4}}{49\,c} + \frac{1}{7}\,x^7\,(a + b\,\text{ArcSin}[c\,x^2]) - \frac{10\,b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{c}\,x\right], -1\right]}{147\,c^{7/2}}$$

Result (type 4, 82 leaves):

$$\frac{1}{147}\left(21\,a\,x^7 + \frac{2\,b\,x\,\sqrt{1 - c^2\,x^4}\,(5 + 3\,c^2\,x^4)}{c^3} + 21\,b\,x^7\,\text{ArcSin}[c\,x^2] - \frac{10\,i\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-c}\,x\right], -1\right]}{(-c)^{7/2}}\right)$$

Problem 353: Result unnecessarily involves imaginary or complex numbers.

$$\int x^4\,(a + b\,\text{ArcSin}[c\,x^2])\,dx$$

Optimal (type 4, 83 leaves, 7 steps):

$$\frac{2\,b\,x^3\,\sqrt{1 - c^2\,x^4}}{25\,c} + \frac{1}{5}\,x^5\,(a + b\,\text{ArcSin}[c\,x^2]) - \frac{6\,b\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{c}\,x\right], -1\right]}{25\,c^{5/2}} + \frac{6\,b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{c}\,x\right], -1\right]}{25\,c^{5/2}}$$

Result (type 4, 93 leaves):

$$\frac{1}{25}\left(5\,a\,x^5+\frac{2\,b\,x^3\,\sqrt{1-c^2\,x^4}}{c}+5\,b\,x^5\,\text{ArcSin}\left[c\,x^2\right]+\frac{6\,\mathrm{i}\,b\,\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-c}\,x\right],-1\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-c}\,x\right],-1\right]\right)}{(-c)^{5/2}}\right)$$

Problem 354: Result unnecessarily involves imaginary or complex numbers.

$$\int x^2\left(a+b\,\text{ArcSin}\left[c\,x^2\right]\right)\,dx$$

Optimal (type 4, 61 leaves, 4 steps):

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

Result (type 4, 72 leaves):

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

Problem 355: Result unnecessarily involves imaginary or complex numbers.

$$\int\left(a+b\,\text{ArcSin}\left[c\,x^2\right]\right)\,dx$$

Optimal (type 4, 49 leaves, 7 steps):

$$a\,x+b\,x\,\text{ArcSin}\left[c\,x^2\right]-\frac{2\,b\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{c}\,x\right],-1\right]}{\sqrt{c}}+\frac{2\,b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{c}\,x\right],-1\right]}{\sqrt{c}}$$

Result (type 4, 61 leaves):

$$a\,x+b\,x\,\text{ArcSin}\left[c\,x^2\right]-\frac{2\,\mathrm{i}\,b\,c\,\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-c}\,x\right],-1\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-c}\,x\right],-1\right]\right)}{(-c)^{3/2}}$$

Problem 356: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{a+b\,\text{ArcSin}\left[c\,x^2\right]}{x^2}\,dx$$

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

$$-\frac{a+b\,\text{ArcSin}[c\,x^2]}{x}+2\,b\,\sqrt{c}\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{c}\,x\right],-1\right]$$

Result (type 4, 44 leaves):

$$-\frac{a+b\,\text{ArcSin}[c\,x^2]-2\,i\,b\,\sqrt{-c}\,x\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-c}\,x\right],-1\right]}{x}$$

Problem 357: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{a+b\,\text{ArcSin}[c\,x^2]}{x^4}\,dx$$

Optimal (type 4, 81 leaves, 7 steps):

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

Result (type 4, 91 leaves):

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

Problem 358: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{a+b\,\text{ArcSin}[c\,x^2]}{x^6}\,dx$$

Optimal (type 4, 61 leaves, 4 steps):

$$-\frac{2\,b\,c\,\sqrt{1-c^2\,x^4}}{15\,x^3}-\frac{a+b\,\text{ArcSin}[c\,x^2]}{5\,x^5}+\frac{2}{15}\,b\,c^{5/2}\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{c}\,x\right],-1\right]$$

Result (type 4, 72 leaves):

$$-\frac{3\,a+2\,b\,c\,x^2\,\sqrt{1-c^2\,x^4}+3\,b\,\text{ArcSin}[c\,x^2]-2\,i\,b\,(-c)^{5/2}\,x^5\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-c}\,x\right],-1\right]}{15\,x^5}$$

Problem 359: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{a+b\,\text{ArcSin}[c\,x^2]}{x^8}\,dx$$

Optimal (type 4, 106 leaves, 8 steps):

$$-\frac{2 b c \sqrt{1-c^2 x^4}}{35 x^5}-\frac{6 b c^3 \sqrt{1-c^2 x^4}}{35 x}-\frac{a+b \text{ArcSin}[c x^2]}{7 x^7}-\frac{6}{35} b c^{7/2} \text{EllipticE}[\text{ArcSin}[\sqrt{c} x],-1]+\frac{6}{35} b c^{7/2} \text{EllipticF}[\text{ArcSin}[\sqrt{c} x],-1]$$

Result (type 4, 100 leaves):

$$\frac{1}{35}\left(-\frac{5 a}{x^7}-\frac{2 b \sqrt{1-c^2 x^4}\,(c+3 c^3 x^4)}{x^5}-\frac{5 b \text{ArcSin}[c x^2]}{x^7}+6 i b (-c)^{7/2} (\text{EllipticE}[i \text{ArcSinh}[\sqrt{-c} x],-1]-\text{EllipticF}[i \text{ArcSinh}[\sqrt{-c} x],-1])\right)$$

Problem 373: Result more than twice size of optimal antiderivative.

$$\int \left(a+b \text{ArcSin}\left[\frac{c}{x}\right]\right) dx$$

Optimal (type 3, 31 leaves, 6 steps):

$$a x+b x \text{ArcCsc}\left[\frac{x}{c}\right]+b c \text{ArcTanh}\left[\sqrt{1-\frac{c^2}{x^2}}\right]$$

Result (type 3, 89 leaves):

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

Problem 383: Result more than twice size of optimal antiderivative.

$$\int \frac{a+b \text{ArcSin}[c x^n]}{x} dx$$

Optimal (type 4, 75 leaves, 7 steps):

$$-\frac{i b \text{ArcSin}[c x^n]^2}{2 n}+\frac{b \text{ArcSin}[c x^n] \text{Log}\left[1-e^{2 i \text{ArcSin}[c x^n]}\right]}{n}+a \text{Log}[x]-\frac{i b \text{PolyLog}\left[2, e^{2 i \text{ArcSin}[c x^n]}\right]}{2 n}$$

Result (type 4, 157 leaves):

$$a \operatorname{Log}[x] + b \operatorname{ArcSin}[c x^n] \operatorname{Log}[x] - \frac{1}{\sqrt{-c^2}} b c \left(\operatorname{Log}[x] \operatorname{Log}\left[\sqrt{-c^2}\, x^n + \sqrt{1 - c^2 x^{2n}}\right] + \frac{1}{n} i \left(i \operatorname{ArcSinh}\left[\sqrt{-c^2}\, x^n\right] \operatorname{Log}\left[1 - e^{-2 \operatorname{ArcSinh}\left[\sqrt{-c^2}\, x^n\right]}\right] - \frac{1}{2} i \left(-\operatorname{ArcSinh}\left[\sqrt{-c^2}\, x^n\right]^2 + \operatorname{PolyLog}\left[2, e^{-2 \operatorname{ArcSinh}\left[\sqrt{-c^2}\, x^n\right]}\right]\right)\right)\right)$$

Problem 389: Unable to integrate problem.

$$\int \frac{a + b \operatorname{ArcSin}[c + d x^2]}{x} \, dx$$

Optimal (type 4, 214 leaves, 12 steps):

$$-\frac{1}{4} i b \operatorname{ArcSin}[c + d x^2]^2 + \frac{1}{2} b \operatorname{ArcSin}[c + d x^2] \operatorname{Log}\left[1 - \frac{e^{i \operatorname{ArcSin}[c+d x^2]}}{i c - \sqrt{1 - c^2}}\right] + \frac{1}{2} b \operatorname{ArcSin}[c + d x^2] \operatorname{Log}\left[1 - \frac{e^{i \operatorname{ArcSin}[c+d x^2]}}{i c + \sqrt{1 - c^2}}\right] + a \operatorname{Log}[x] - \frac{1}{2} i b \operatorname{PolyLog}\left[2, \frac{e^{i \operatorname{ArcSin}[c+d x^2]}}{i c - \sqrt{1 - c^2}}\right] - \frac{1}{2} i b \operatorname{PolyLog}\left[2, \frac{e^{i \operatorname{ArcSin}[c+d x^2]}}{i c + \sqrt{1 - c^2}}\right]$$

Result (type 8, 18 leaves):

$$\int \frac{a + b \operatorname{ArcSin}[c + d x^2]}{x} \, dx$$

Problem 393: Result unnecessarily involves imaginary or complex numbers.

$$\int x^4 \left(a + b \operatorname{ArcSin}[c + d x^2]\right) dx$$

Optimal (type 4, 336 leaves, 8 steps):

$$-\frac{16 b c x \sqrt{1 - c^2 - 2 c d x^2 - d^2 x^4}}{75 d^2} + \frac{2 b x^3 \sqrt{1 - c^2 - 2 c d x^2 - d^2 x^4}}{25 d} + \frac{1}{5} x^5 \left(a + b \operatorname{ArcSin}[c + d x^2]\right) - \frac{2 b \sqrt{1 - c}\, (1 + c)\, (9 + 23 c^2) \sqrt{1 - \frac{d x^2}{1-c}} \sqrt{1 + \frac{d x^2}{1+c}} \operatorname{EllipticE}\left[\operatorname{ArcSin}\left[\frac{\sqrt{d}\, x}{\sqrt{1-c}}\right], -\frac{1-c}{1+c}\right]}{75 d^{5/2} \sqrt{1 - c^2 - 2 c d x^2 - d^2 x^4}} + \frac{2 b \sqrt{1 - c}\, (1 + c)\, (9 + 8 c + 15 c^2) \sqrt{1 - \frac{d x^2}{1-c}} \sqrt{1 + \frac{d x^2}{1+c}} \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\sqrt{d}\, x}{\sqrt{1-c}}\right], -\frac{1-c}{1+c}\right]}{75 d^{5/2} \sqrt{1 - c^2 - 2 c d x^2 - d^2 x^4}}$$

Result (type 4, 349 leaves):

$$\frac{1}{75\,d^2\sqrt{\frac{d}{1+c}}\,\sqrt{1-c^2-2\,c\,d\,x^2-d^2\,x^4}}\left(\sqrt{\frac{d}{1+c}}\,x\right.$$
$$\left(15\,a\,d^2\,x^4\sqrt{1-c^2-2\,c\,d\,x^2-d^2\,x^4}+2\,b\left(-8\,c+8\,c^3+3\,d\,x^2+13\,c^2\,d\,x^2+2\,c\,d^2\,x^4-3\,d^3\,x^6\right)+15\,b\,d^2\,x^4\sqrt{1-c^2-2\,c\,d\,x^2-d^2\,x^4}\,\text{ArcSin}\left[c+d\,x^2\right]\right)+$$
$$2\,i\,b\left(-9+9\,c-23\,c^2+23\,c^3\right)\sqrt{\frac{-1+c+d\,x^2}{-1+c}}\sqrt{\frac{1+c+d\,x^2}{1+c}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{\frac{d}{1+c}}\,x\right],\frac{1+c}{-1+c}\right]-$$
$$\left.2\,i\,b\left(-9+17\,c-23\,c^2+15\,c^3\right)\sqrt{\frac{-1+c+d\,x^2}{-1+c}}\sqrt{\frac{1+c+d\,x^2}{1+c}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{\frac{d}{1+c}}\,x\right],\frac{1+c}{-1+c}\right]\right)$$

Problem 394: Result unnecessarily involves imaginary or complex numbers.

$$\int x^2\left(a+b\,\text{ArcSin}\left[c+d\,x^2\right]\right)dx$$

Optimal (type 4, 287 leaves, 7 steps):

$$\frac{2\,b\,x\sqrt{1-c^2-2\,c\,d\,x^2-d^2\,x^4}}{9\,d}+\frac{1}{3}\,x^3\left(a+b\,\text{ArcSin}\left[c+d\,x^2\right]\right)+\frac{8\,b\sqrt{1-c}\;c\,(1+c)\sqrt{1-\frac{d\,x^2}{1-c}}\sqrt{1+\frac{d\,x^2}{1+c}}\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,x}{\sqrt{1-c}}\right],-\frac{1-c}{1+c}\right]}{9\,d^{3/2}\sqrt{1-c^2-2\,c\,d\,x^2-d^2\,x^4}}-$$
$$\frac{2\,b\sqrt{1-c}\,(1+c)\,(1+3\,c)\sqrt{1-\frac{d\,x^2}{1-c}}\sqrt{1+\frac{d\,x^2}{1+c}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,x}{\sqrt{1-c}}\right],-\frac{1-c}{1+c}\right]}{9\,d^{3/2}\sqrt{1-c^2-2\,c\,d\,x^2-d^2\,x^4}}$$

Result (type 4, 307 leaves):

$$\left(\sqrt{\frac{d}{1+c}}\,x\left(3\,a\,d\,x^2\sqrt{1-c^2-2\,c\,d\,x^2-d^2\,x^4}-2\,b\left(-1+c^2+2\,c\,d\,x^2+d^2\,x^4\right)+3\,b\,d\,x^2\sqrt{1-c^2-2\,c\,d\,x^2-d^2\,x^4}\,\text{ArcSin}\left[c+d\,x^2\right]\right)-\right.$$
$$8\,i\,b\,(-1+c)\,c\sqrt{\frac{-1+c+d\,x^2}{-1+c}}\sqrt{\frac{1+c+d\,x^2}{1+c}}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{\frac{d}{1+c}}\,x\right],\frac{1+c}{-1+c}\right]+$$
$$\left.2\,i\,b\left(1-4\,c+3\,c^2\right)\sqrt{\frac{-1+c+d\,x^2}{-1+c}}\sqrt{\frac{1+c+d\,x^2}{1+c}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{\frac{d}{1+c}}\,x\right],\frac{1+c}{-1+c}\right]\right)\Big/\left(9\,d\sqrt{\frac{d}{1+c}}\sqrt{1-c^2-2\,c\,d\,x^2-d^2\,x^4}\right)$$

Problem 395: Result unnecessarily involves imaginary or complex numbers.

$$\int \left(a+b \operatorname{ArcSin}\left[c+d x^2\right]\right) dx$$

Optimal (type 4, 237 leaves, 7 steps):

$$a x+b x \operatorname{ArcSin}\left[c+d x^2\right]-\frac{2 b \sqrt{1-c}\ (1+c) \sqrt{1-\frac{d x^2}{1-c}} \sqrt{1+\frac{d x^2}{1+c}} \operatorname{EllipticE}\left[\operatorname{ArcSin}\left[\frac{\sqrt{d}\ x}{\sqrt{1-c}}\right],-\frac{1-c}{1+c}\right]}{\sqrt{d} \sqrt{1-c^2-2 c d x^2-d^2 x^4}}+\frac{2 b \sqrt{1-c}\ (1+c) \sqrt{1-\frac{d x^2}{1-c}} \sqrt{1+\frac{d x^2}{1+c}} \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\sqrt{d}\ x}{\sqrt{1-c}}\right],-\frac{1-c}{1+c}\right]}{\sqrt{d} \sqrt{1-c^2-2 c d x^2-d^2 x^4}}$$

Result (type 4, 155 leaves):

$$a x+b x \operatorname{ArcSin}\left[c+d x^2\right]+\left(2 i b (-1+c) \sqrt{\frac{-1+c+d x^2}{-1+c}} \sqrt{\frac{1+c+d x^2}{1+c}} \left(\operatorname{EllipticE}\left[i \operatorname{ArcSinh}\left[\sqrt{\frac{d}{1+c}}\ x\right],\frac{1+c}{-1+c}\right]-\operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\sqrt{\frac{d}{1+c}}\ x\right],\frac{1+c}{-1+c}\right]\right)\right)\Big/\left(\sqrt{\frac{d}{1+c}} \sqrt{1-c^2-2 c d x^2-d^2 x^4}\right)$$

Problem 396: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{a+b \operatorname{ArcSin}\left[c+d x^2\right]}{x^2} dx$$

Optimal (type 4, 126 leaves, 4 steps):

$$-\frac{a+b \operatorname{ArcSin}\left[c+d x^2\right]}{x}+\frac{2 b \sqrt{1-c} \sqrt{d} \sqrt{1-\frac{d x^2}{1-c}} \sqrt{1+\frac{d x^2}{1+c}} \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\sqrt{d}\ x}{\sqrt{1-c}}\right],-\frac{1-c}{1+c}\right]}{\sqrt{1-c^2-2 c d x^2-d^2 x^4}}$$

Result (type 4, 140 leaves):

$$-\frac{a}{x}-\frac{b\,\text{ArcSin}\left[c+d\,x^2\right]}{x}-\frac{2\,i\,b\,d\,\sqrt{1-\frac{d\,x^2}{-1-c}}\,\sqrt{1-\frac{d\,x^2}{1-c}}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{d}{-1-c}}\,x\right],\frac{-1-c}{1-c}\right]}{\sqrt{-\frac{d}{-1-c}}\,\sqrt{1-c^2-2\,c\,d\,x^2-d^2\,x^4}}$$

Problem 397: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{a+b\,\text{ArcSin}\left[c+d\,x^2\right]}{x^4}\,dx$$

Optimal (type 4, 284 leaves, 8 steps):

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

Result (type 4, 243 leaves):

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

Problem 398: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{a+b\,\text{ArcSin}\left[c+d\,x^2\right]}{x^6}\,dx$$

Optimal (type 4, 355 leaves, 8 steps):

$$-\frac{2 b d \sqrt{1-c^2-2 c d x^2-d^2 x^4}}{15 \left(1-c^2\right) x^3}-\frac{8 b c d^2 \sqrt{1-c^2-2 c d x^2-d^2 x^4}}{15 \left(1-c^2\right)^2 x}-\frac{a+b \operatorname{ArcSin}\left[c+d x^2\right]}{5 x^5}-$$

$$\frac{8 b c d^{5/2} \sqrt{1-\frac{d x^2}{1-c}} \sqrt{1+\frac{d x^2}{1+c}} \operatorname{EllipticE}\left[\operatorname{ArcSin}\left[\frac{\sqrt{d} x}{\sqrt{1-c}}\right],-\frac{1-c}{1+c}\right]}{15 \sqrt{1-c} \left(1-c^2\right) \sqrt{1-c^2-2 c d x^2-d^2 x^4}}+\frac{2 b (1+3 c) d^{5/2} \sqrt{1-\frac{d x^2}{1-c}} \sqrt{1+\frac{d x^2}{1+c}} \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\sqrt{d} x}{\sqrt{1-c}}\right],-\frac{1-c}{1+c}\right]}{15 \sqrt{1-c} \left(1-c^2\right) \sqrt{1-c^2-2 c d x^2-d^2 x^4}}$$

Result (type 4, 370 leaves) :

$$\frac{1}{15 \left(-1+c^2\right)^2 \sqrt{\frac{d}{1+c}} x^5 \sqrt{1-c^2-2 c d x^2-d^2 x^4}}$$

$$\left(\sqrt{\frac{d}{1+c}} \left(-3 a \left(-1+c^2\right)^2 \sqrt{1-c^2-2 c d x^2-d^2 x^4}+2 b d x^2 \left(-1-c^4+2 c^3 d x^2+d^2 x^4+c^2 \left(2+7 d^2 x^4\right)+c \left(-2 d x^2+4 d^3 x^6\right)\right)-\right.\right.$$
$$\left. 3 b \left(-1+c^2\right)^2 \sqrt{1-c^2-2 c d x^2-d^2 x^4} \operatorname{ArcSin}\left[c+d x^2\right]\right)+$$
$$8 i b (-1+c) c d^3 x^5 \sqrt{\frac{-1+c+d x^2}{-1+c}} \sqrt{\frac{1+c+d x^2}{1+c}} \operatorname{EllipticE}\left[i \operatorname{ArcSinh}\left[\sqrt{\frac{d}{1+c}} x\right],\frac{1+c}{-1+c}\right]-$$
$$\left. 2 i b \left(1-4 c+3 c^2\right) d^3 x^5 \sqrt{\frac{-1+c+d x^2}{-1+c}} \sqrt{\frac{1+c+d x^2}{1+c}} \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\sqrt{\frac{d}{1+c}} x\right],\frac{1+c}{-1+c}\right]\right)$$

Problem 432: Unable to integrate problem.

$$\int \frac{\left(a+b \operatorname{ArcSin}\left[\frac{\sqrt{1-c x}}{\sqrt{1+c x}}\right]\right)^3}{1-c^2 x^2} \, dx$$

Optimal (type 4, 275 leaves, 8 steps) :

$$\frac{i \left(a+b \operatorname{ArcSin}\left[\frac{\sqrt{1-c x}}{\sqrt{1+c x}}\right]\right)^4}{4 b c}-\frac{\left(a+b \operatorname{ArcSin}\left[\frac{\sqrt{1-c x}}{\sqrt{1+c x}}\right]\right)^3 \operatorname{Log}\left[1-e^{2 i \operatorname{ArcSin}\left[\frac{\sqrt{1-c x}}{\sqrt{1+c x}}\right]}\right]}{c}+\frac{3 i b \left(a+b \operatorname{ArcSin}\left[\frac{\sqrt{1-c x}}{\sqrt{1+c x}}\right]\right)^2 \operatorname{PolyLog}\left[2,e^{2 i \operatorname{ArcSin}\left[\frac{\sqrt{1-c x}}{\sqrt{1+c x}}\right]}\right]}{2 c}-$$

$$\frac{3 b^2 \left(a+b \operatorname{ArcSin}\left[\frac{\sqrt{1-c x}}{\sqrt{1+c x}}\right]\right) \operatorname{PolyLog}\left[3,e^{2 i \operatorname{ArcSin}\left[\frac{\sqrt{1-c x}}{\sqrt{1+c x}}\right]}\right]}{2 c}-\frac{3 i b^3 \operatorname{PolyLog}\left[4,e^{2 i \operatorname{ArcSin}\left[\frac{\sqrt{1-c x}}{\sqrt{1+c x}}\right]}\right]}{4 c}$$

Result (type 8, 42 leaves):

$$\int \frac{\left(a+b\,\mathrm{ArcSin}\left[\frac{\sqrt{1-c\,x}}{\sqrt{1+c\,x}}\right]\right)^3}{1-c^2\,x^2}\,dx$$

Problem 433: Unable to integrate problem.

$$\int \frac{\left(a+b\,\mathrm{ArcSin}\left[\frac{\sqrt{1-c\,x}}{\sqrt{1+c\,x}}\right]\right)^2}{1-c^2\,x^2}\,dx$$

Optimal (type 4, 205 leaves, 7 steps):

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

Result (type 8, 42 leaves):

$$\int \frac{\left(a+b\,\mathrm{ArcSin}\left[\frac{\sqrt{1-c\,x}}{\sqrt{1+c\,x}}\right]\right)^2}{1-c^2\,x^2}\,dx$$

Problem 434: Unable to integrate problem.

$$\int \frac{a+b\,\mathrm{ArcSin}\left[\frac{\sqrt{1-c\,x}}{\sqrt{1+c\,x}}\right]}{1-c^2\,x^2}\,dx$$

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

$$\frac{i\left(a+b\,\mathrm{ArcSin}\left[\frac{\sqrt{1-c\,x}}{\sqrt{1+c\,x}}\right]\right)^2}{2\,b\,c}-\frac{\left(a+b\,\mathrm{ArcSin}\left[\frac{\sqrt{1-c\,x}}{\sqrt{1+c\,x}}\right]\right)\,\mathrm{Log}\left[1-e^{2\,i\,\mathrm{ArcSin}\left[\frac{\sqrt{1-c\,x}}{\sqrt{1+c\,x}}\right]}\right]}{c}+\frac{i\,b\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,\mathrm{ArcSin}\left[\frac{\sqrt{1-c\,x}}{\sqrt{1+c\,x}}\right]}\right]}{2\,c}$$

Result (type 8, 40 leaves):

$$\int \frac{a + b\,\text{ArcSin}\left[\frac{\sqrt{1-c\,x}}{\sqrt{1+c\,x}}\right]}{1 - c^2 x^2}\,dx$$

Problem 438: Attempted integration timed out after 120 seconds.

$$\int \text{ArcSin}\left[c\,e^{a+b\,x}\right]\,dx$$

Optimal (type 4, 84 leaves, 6 steps):

$$-\frac{i\,\text{ArcSin}\left[c\,e^{a+b\,x}\right]^2}{2\,b} + \frac{\text{ArcSin}\left[c\,e^{a+b\,x}\right]\,\text{Log}\left[1 - e^{2\,i\,\text{ArcSin}\left[c\,e^{a+b\,x}\right]}\right]}{b} - \frac{i\,\text{PolyLog}\left[2, e^{2\,i\,\text{ArcSin}\left[c\,e^{a+b\,x}\right]}\right]}{2\,b}$$

Result (type 1, 1 leaves):

???

Problem 467: Result more than twice size of optimal antiderivative.

$$\int \frac{e^{\text{ArcSin}[a\,x]}}{\left(1 - a^2 x^2\right)^{3/2}}\,dx$$

Optimal (type 5, 45 leaves, 4 steps):

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

Result (type 5, 101 leaves):

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

Problem 469: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{ArcSin}\left[\frac{c}{a + b\,x}\right]\,dx$$

Optimal (type 3, 47 leaves, 6 steps):

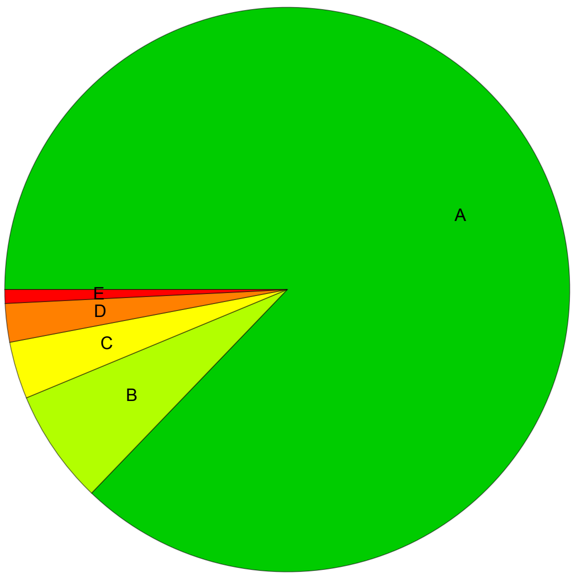
$$\frac{(a+b\,x)\,\text{ArcCsc}\left[\frac{a}{c}+\frac{b\,x}{c}\right]}{b}+\frac{c\,\text{ArcTanh}\left[\sqrt{1-\frac{c^2}{(a+b\,x)^2}}\right]}{b}$$

Result (type 3, 166 leaves):

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

Summary of Integration Test Results

1404 integration problems



A - 1224 optimal antiderivatives

B - 92 more than twice size of optimal antiderivatives

C - 46 unnecessarily complex antiderivatives

D - 31 unable to integrate problems

E - 11 integration timeouts