Mathematica 11.3 Integration Test Results

on the problems in the test-suite directory "6 Hyperbolic functions\6.1 Hyperbolic sine"

Test results for the 502 problems in "6.1.1 (c+d x)^m (a+b sinh)^n.m"

Problem 25: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 50 leaves, 5 steps):

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

Result (type 4, 174 leaves):

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

Problem 29: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 74 leaves, 5 steps):

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

Result (type 4, 277 leaves):

$$-\frac{2\,c\,d\,\mathrm{Csch}[a]\,\left(-b\,x\,\mathrm{Cosh}[a]+\mathrm{Log}[\mathrm{Cosh}[b\,x]\,\mathrm{Sinh}[a]+\mathrm{Cosh}[a]\,\mathrm{Sinh}[b\,x]]\,\mathrm{Sinh}[a]\right)}{b^2\,\left(-\mathrm{Cosh}[a]^2+\mathrm{Sinh}[a]^2\right)}+$$

$$\frac{\mathrm{Csch}[a]\,\mathrm{Csch}[a+b\,x]\,\left(c^2\,\mathrm{Sinh}[b\,x]+2\,c\,d\,x\,\mathrm{Sinh}[b\,x]+d^2\,x^2\,\mathrm{Sinh}[b\,x]\right)}{b}+$$

$$\left(d^2\,\mathrm{Csch}[a]\,\mathrm{Sech}[a]\,\left(-b^2\,e^{-\mathrm{ArcTanh}[\mathrm{Tanh}[a]]}\,x^2+\frac{1}{\sqrt{1-\mathrm{Tanh}[a]^2}}\,i\,\left(-b\,x\,\left(-\pi+2\,i\,\mathrm{ArcTanh}[\mathrm{Tanh}[a]]\right)-\pi\,\mathrm{Log}\left[1+e^{2\,b\,x}\right]-\right.\right.\right.$$
$$2\,\left(i\,b\,x+i\,\mathrm{ArcTanh}[\mathrm{Tanh}[a]]\right)\,\mathrm{Log}\left[1-e^{2\,i\,(i\,b\,x+i\,\mathrm{ArcTanh}[\mathrm{Tanh}[a]])}\right]+\pi\,\mathrm{Log}[\mathrm{Cosh}[b\,x]]+2\,i\,\mathrm{ArcTanh}[\mathrm{Tanh}[a]]$$
$$\left.\left.\left.\mathrm{Log}[i\,\mathrm{Sinh}[b\,x+\mathrm{ArcTanh}[\mathrm{Tanh}[a]]]]+i\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(i\,b\,x+i\,\mathrm{ArcTanh}[\mathrm{Tanh}[a]])}\right]\right)\,\mathrm{Tanh}[a]\right)\right)\Big/\left(b^3\,\sqrt{\mathrm{Sech}[a]^2\,\left(\mathrm{Cosh}[a]^2-\mathrm{Sinh}[a]^2\right)}\right)$$

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

$$\int (c+d\,x)^3\,\mathrm{Csch}[a+b\,x]^3\,dx$$

Optimal (type 4, 256 leaves, 15 steps):

$$-\frac{6\,d^2\,(c+d\,x)\,\mathrm{ArcTanh}\left[e^{a+b\,x}\right]}{b^3}+\frac{(c+d\,x)^3\,\mathrm{ArcTanh}\left[e^{a+b\,x}\right]}{b}-\frac{3\,d\,(c+d\,x)^2\,\mathrm{Csch}[a+b\,x]}{2\,b^2}-\frac{(c+d\,x)^3\,\mathrm{Coth}[a+b\,x]\,\mathrm{Csch}[a+b\,x]}{2\,b}-$$
$$\frac{3\,d^3\,\mathrm{PolyLog}\left[2,\,-e^{a+b\,x}\right]}{b^4}+\frac{3\,d\,(c+d\,x)^2\,\mathrm{PolyLog}\left[2,\,-e^{a+b\,x}\right]}{2\,b^2}+\frac{3\,d^3\,\mathrm{PolyLog}\left[2,\,e^{a+b\,x}\right]}{b^4}-\frac{3\,d\,(c+d\,x)^2\,\mathrm{PolyLog}\left[2,\,e^{a+b\,x}\right]}{2\,b^2}-$$
$$\frac{3\,d^2\,(c+d\,x)\,\mathrm{PolyLog}\left[3,\,-e^{a+b\,x}\right]}{b^3}+\frac{3\,d^2\,(c+d\,x)\,\mathrm{PolyLog}\left[3,\,e^{a+b\,x}\right]}{b^3}+\frac{3\,d^3\,\mathrm{PolyLog}\left[4,\,-e^{a+b\,x}\right]}{b^4}-\frac{3\,d^3\,\mathrm{PolyLog}\left[4,\,e^{a+b\,x}\right]}{b^4}$$

Result (type 4, 517 leaves):

$$\frac{1}{2\,b^4}\left(-b^3\,c^3\,\mathrm{Log}\left[1-e^{a+b\,x}\right]+6\,b\,c\,d^2\,\mathrm{Log}\left[1-e^{a+b\,x}\right]-3\,b^3\,c^2\,d\,x\,\mathrm{Log}\left[1-e^{a+b\,x}\right]+6\,b\,d^3\,x\,\mathrm{Log}\left[1-e^{a+b\,x}\right]-\right.$$
$$3\,b^3\,c\,d^2\,x^2\,\mathrm{Log}\left[1-e^{a+b\,x}\right]-b^3\,d^3\,x^3\,\mathrm{Log}\left[1-e^{a+b\,x}\right]+b^3\,c^3\,\mathrm{Log}\left[1+e^{a+b\,x}\right]-6\,b\,c\,d^2\,\mathrm{Log}\left[1+e^{a+b\,x}\right]+3\,b^3\,c^2\,d\,x\,\mathrm{Log}\left[1+e^{a+b\,x}\right]-$$
$$6\,b\,d^3\,x\,\mathrm{Log}\left[1+e^{a+b\,x}\right]+3\,b^3\,c\,d^2\,x^2\,\mathrm{Log}\left[1+e^{a+b\,x}\right]+b^3\,d^3\,x^3\,\mathrm{Log}\left[1+e^{a+b\,x}\right]+3\,d\,\left(-2\,d^2+b^2\,(c+d\,x)^2\right)\,\mathrm{PolyLog}\left[2,\,-e^{a+b\,x}\right]-$$
$$3\,d\,\left(-2\,d^2+b^2\,(c+d\,x)^2\right)\,\mathrm{PolyLog}\left[2,\,e^{a+b\,x}\right]-6\,b\,c\,d^2\,\mathrm{PolyLog}\left[3,\,-e^{a+b\,x}\right]-6\,b\,d^3\,x\,\mathrm{PolyLog}\left[3,\,-e^{a+b\,x}\right]+$$
$$\left.6\,b\,c\,d^2\,\mathrm{PolyLog}\left[3,\,e^{a+b\,x}\right]+6\,b\,d^3\,x\,\mathrm{PolyLog}\left[3,\,e^{a+b\,x}\right]+6\,d^3\,\mathrm{PolyLog}\left[4,\,-e^{a+b\,x}\right]-6\,d^3\,\mathrm{PolyLog}\left[4,\,e^{a+b\,x}\right]\right)-$$
$$\frac{1}{2\,b^2}\mathrm{Csch}[a+b\,x]^2\,\left(b\,c^3\,\mathrm{Cosh}[a+b\,x]+3\,b\,c^2\,d\,x\,\mathrm{Cosh}[a+b\,x]+3\,b\,c\,d^2\,x^2\,\mathrm{Cosh}[a+b\,x]+b\,d^3\,x^3\,\mathrm{Cosh}[a+b\,x]+\right.$$
$$\left.3\,c^2\,d\,\mathrm{Sinh}[a+b\,x]+6\,c\,d^2\,x\,\mathrm{Sinh}[a+b\,x]+3\,d^3\,x^2\,\mathrm{Sinh}[a+b\,x]\right)$$

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

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

Optimal (type 4, 154 leaves, 9 steps):

$$\frac{(c+d x)^2 \operatorname{ArcTanh}\left[e^{a+b x}\right]}{b}-\frac{d^2 \operatorname{ArcTanh}[\operatorname{Cosh}[a+b x]]}{b^3}-\frac{d (c+d x) \operatorname{Csch}[a+b x]}{b^2}-\frac{(c+d x)^2 \operatorname{Coth}[a+b x] \operatorname{Csch}[a+b x]}{2 b}+\frac{d (c+d x) \operatorname{PolyLog}\left[2,-e^{a+b x}\right]}{b^2}-\frac{d (c+d x) \operatorname{PolyLog}\left[2, e^{a+b x}\right]}{b^2}-\frac{d^2 \operatorname{PolyLog}\left[3,-e^{a+b x}\right]}{b^3}+\frac{d^2 \operatorname{PolyLog}\left[3, e^{a+b x}\right]}{b^3}$$

Result (type 4, 420 leaves):

$$-\frac{d (c+d x) \operatorname{Csch}[a]}{b^2}+\frac{\left(-c^2-2 c d x-d^2 x^2\right) \operatorname{Csch}\left[\frac{a}{2}+\frac{b x}{2}\right]^2}{8 b}+\frac{1}{2 b^3}\left(-b^2 c^2 \operatorname{Log}\left[1-e^{a+b x}\right]+2 d^2 \operatorname{Log}\left[1-e^{a+b x}\right]-2 b^2 c d x \operatorname{Log}\left[1-e^{a+b x}\right]-b^2 d^2 x^2 \operatorname{Log}\left[1-e^{a+b x}\right]+b^2 c^2 \operatorname{Log}\left[1+e^{a+b x}\right]-2 d^2 \operatorname{Log}\left[1+e^{a+b x}\right]+2 b^2 c d x \operatorname{Log}\left[1+e^{a+b x}\right]+b^2 d^2 x^2 \operatorname{Log}\left[1+e^{a+b x}\right]+2 b d (c+d x) \operatorname{PolyLog}\left[2,-e^{a+b x}\right]-2 b d (c+d x) \operatorname{PolyLog}\left[2, e^{a+b x}\right]-2 d^2 \operatorname{PolyLog}\left[3,-e^{a+b x}\right]+2 d^2 \operatorname{PolyLog}\left[3, e^{a+b x}\right]\right)+\frac{\left(-c^2-2 c d x-d^2 x^2\right) \operatorname{Sech}\left[\frac{a}{2}+\frac{b x}{2}\right]^2}{8 b}+\frac{\operatorname{Csch}\left[\frac{a}{2}\right] \operatorname{Csch}\left[\frac{a}{2}+\frac{b x}{2}\right]\left(c d \operatorname{Sinh}\left[\frac{b x}{2}\right]+d^2 x \operatorname{Sinh}\left[\frac{b x}{2}\right]\right)}{2 b^2}+\frac{\operatorname{Sech}\left[\frac{a}{2}\right] \operatorname{Sech}\left[\frac{a}{2}+\frac{b x}{2}\right]\left(c d \operatorname{Sinh}\left[\frac{b x}{2}\right]+d^2 x \operatorname{Sinh}\left[\frac{b x}{2}\right]\right)}{2 b^2}$$

Problem 35: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 92 leaves, 6 steps):

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

Result (type 4, 332 leaves):

$$-\frac{d\,x\,\text{Csch}\left[\frac{a}{2}+\frac{b\,x}{2}\right]^2}{8\,b}-\frac{c\,\text{Csch}\left[\frac{1}{2}\,(a+b\,x)\right]^2}{8\,b}+\frac{c\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(a+b\,x)\right]\right]}{2\,b}-\frac{c\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(a+b\,x)\right]\right]}{2\,b}-\frac{1}{2\,b^2}d\left(-a\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}\,(a+b\,x)\right]\right]-\right.$$

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

$$\frac{d\,x\,\text{Sech}\left[\frac{a}{2}+\frac{b\,x}{2}\right]^2}{8\,b}-\frac{c\,\text{Sech}\left[\frac{1}{2}\,(a+b\,x)\right]^2}{8\,b}+\frac{d\,\text{Csch}\left[\frac{a}{2}\right]\,\text{Csch}\left[\frac{a}{2}+\frac{b\,x}{2}\right]\,\text{Sinh}\left[\frac{b\,x}{2}\right]}{4\,b^2}+\frac{d\,\text{Sech}\left[\frac{a}{2}\right]\,\text{Sech}\left[\frac{a}{2}+\frac{b\,x}{2}\right]\,\text{Sinh}\left[\frac{b\,x}{2}\right]}{4\,b^2}$$

Problem 37: Attempted integration timed out after 120 seconds.

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

Optimal (type 9, 18 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Csch}[a+b\,x]^3}{(c+d\,x)^2},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 45: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 239 leaves, 10 steps):

$$-\frac{5\,d\,(c+d\,x)^{3/2}}{16\,b^2}-\frac{(c+d\,x)^{7/2}}{7\,d}+\frac{15\,d^{5/2}\,e^{-2\,a+\frac{2\,b\,c}{d}}\,\sqrt{\frac{\pi}{2}}\,\text{Erf}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]}{256\,b^{7/2}}-\frac{15\,d^{5/2}\,e^{2\,a-\frac{2\,b\,c}{d}}\,\sqrt{\frac{\pi}{2}}\,\text{Erfi}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]}{256\,b^{7/2}}+$$

$$\frac{(c+d\,x)^{5/2}\,\text{Cosh}[a+b\,x]\,\text{Sinh}[a+b\,x]}{2\,b}-\frac{5\,d\,(c+d\,x)^{3/2}\,\text{Sinh}[a+b\,x]^2}{8\,b^2}+\frac{15\,d^2\,\sqrt{c+d\,x}\,\text{Sinh}[2\,a+2\,b\,x]}{64\,b^3}$$

Result (type 4, 3531 leaves):

$$-\frac{(c+d\,x)^{7/2}}{7\,d}+\frac{1}{2}\,c^2\,\text{Cosh}[2\,a]\left(-\frac{2\left(\frac{d\,\sqrt{c+d\,x}\,\text{Cosh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]}{4\,b}-\frac{d^{3/2}\,\sqrt{\pi}\left(\text{Erf}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]+\text{Erfi}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]\right)}{16\,\sqrt{2}\,b^{3/2}}\right)\,\text{Sinh}\left[\frac{2\,b\,c}{d}\right]}{d}+\right.$$

$$\frac{2\,\text{Cosh}\left[\frac{2\,b\,c}{d}\right]\left(-\frac{d^{3/2}\sqrt{\pi}\left(-\text{Erf}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]+\text{Erfi}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]\right)}{16\,\sqrt{2}\,b^{3/2}}+\frac{d\,\sqrt{c+d\,x}\,\text{Sinh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]}{4\,b}\right)}{d}\Bigg)+$$

$$c^2\,\text{Cosh}[a]\,\text{Sinh}[a]\Bigg(\frac{2\,\text{Cosh}\left[\frac{2\,b\,c}{d}\right]\left(\frac{d\,\sqrt{c+d\,x}\,\text{Cosh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]}{4\,b}-\frac{d^{3/2}\sqrt{\pi}\left(\text{Erf}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]+\text{Erfi}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]\right)}{16\,\sqrt{2}\,b^{3/2}}\right)}{d}-$$

$$\frac{2\,\text{Sinh}\left[\frac{2\,b\,c}{d}\right]\left(-\frac{d^{3/2}\sqrt{\pi}\left(-\text{Erf}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]+\text{Erfi}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]\right)}{16\,\sqrt{2}\,b^{3/2}}+\frac{d\,\sqrt{c+d\,x}\,\text{Sinh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]}{4\,b}\right)}{d}\Bigg)+$$

$$c\,d\,\text{Cosh}[2\,a]\Bigg(\frac{2\,c\left(\frac{d\,\sqrt{c+d\,x}\,\text{Cosh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]}{4\,b}-\frac{d^{3/2}\sqrt{\pi}\left(\text{Erf}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]+\text{Erfi}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]\right)}{16\,\sqrt{2}\,b^{3/2}}\right)\text{Sinh}\left[\frac{2\,b\,c}{d}\right]}{d^2}-$$

$$\frac{2\,c\,\text{Cosh}\left[\frac{2\,b\,c}{d}\right]\left(-\frac{d^{3/2}\sqrt{\pi}\left(-\text{Erf}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]+\text{Erfi}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]\right)}{16\,\sqrt{2}\,b^{3/2}}+\frac{d\,\sqrt{c+d\,x}\,\text{Sinh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]}{4\,b}\right)}{d^2}+\frac{1}{32\,\sqrt{2}\,b^{5/2}\,d}\text{Sinh}\left[\frac{2\,b\,c}{d}\right]\Bigg(3\,d^{3/2}\sqrt{\pi}\,\text{Erf}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]-$$

$$3\,d^{3/2}\sqrt{\pi}\,\text{Erfi}\left[\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]+4\,\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}\left(-4\,b\,(c+d\,x)\,\text{Cosh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+3\,d\,\text{Sinh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\Bigg)\Bigg)+$$

$$\frac{1}{32\sqrt{2}\ b^{5/2}\ d}\text{Cosh}\left[\frac{2\,b\,c}{d}\right]\left(3\,d^{3/2}\sqrt{\pi}\ \text{Erf}\left[\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}}{\sqrt{d}}\right]+3\,d^{3/2}\sqrt{\pi}\ \text{Erfi}\left[\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}}{\sqrt{d}}\right]+\right.$$

$$\left.4\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}\ \left(-3\,d\,\text{Cosh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+4\,b\,(c+d\,x)\ \text{Sinh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)+$$

$$2\,c\,d\,\text{Cosh}[a]\ \text{Sinh}[a]\left(-\frac{2\,c\,\text{Cosh}\left[\frac{2\,b\,c}{d}\right]\left(\frac{d\sqrt{c+d\,x}\ \text{Cosh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]}{4\,b}-\frac{d^{3/2}\sqrt{\pi}\ \left(\text{Erf}\left[\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}}{\sqrt{d}}\right]+\text{Erfi}\left[\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}}{\sqrt{d}}\right]\right)}{16\sqrt{2}\ b^{3/2}}\right)}{d^2}+\right.$$

$$\frac{2\,c\,\text{Sinh}\left[\frac{2\,b\,c}{d}\right]\left(-\frac{d^{3/2}\sqrt{\pi}\ \left(-\text{Erf}\left[\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}}{\sqrt{d}}\right]+\text{Erfi}\left[\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}}{\sqrt{d}}\right]\right)}{16\sqrt{2}\ b^{3/2}}+\frac{d\sqrt{c+d\,x}\ \text{Sinh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]}{4\,b}\right)}{d^2}+\frac{1}{32\sqrt{2}\ b^{5/2}\ d}$$

$$\text{Cosh}\left[\frac{2\,b\,c}{d}\right]\left(-3\,d^{3/2}\sqrt{\pi}\ \text{Erf}\left[\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}}{\sqrt{d}}\right]+3\,d^{3/2}\sqrt{\pi}\ \text{Erfi}\left[\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}}{\sqrt{d}}\right]+\right.$$

$$\left.4\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}\ \left(4\,b\,(c+d\,x)\ \text{Cosh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]-3\,d\,\text{Sinh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)-$$

$$\frac{1}{32\sqrt{2}\ b^{5/2}\ d}\text{Sinh}\left[\frac{2\,b\,c}{d}\right]\left(3\,d^{3/2}\sqrt{\pi}\ \text{Erf}\left[\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}}{\sqrt{d}}\right]+3\,d^{3/2}\sqrt{\pi}\ \text{Erfi}\left[\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}}{\sqrt{d}}\right]+\right.$$

$$\left.4\sqrt{2}\ \sqrt{b}\ \sqrt{c+d\,x}\ \left(-3\,d\,\text{Cosh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+4\,b\,(c+d\,x)\ \text{Sinh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)+$$

$$\frac{1}{2} d^2 \operatorname{Cosh}[2 a] \Bigg(-\frac{2 c^2 \left(\frac{d \sqrt{c+d x} \operatorname{Cosh}\left[\frac{2 b (c+d x)}{d}\right]}{4 b}-\frac{d^{3/2} \sqrt{\pi} \left(\operatorname{Erf}\left[\frac{\sqrt{2} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]+\operatorname{Erfi}\left[\frac{\sqrt{2} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]\right)}{16 \sqrt{2} b^{3/2}}\right) \operatorname{Sinh}\left[\frac{2 b c}{d}\right]}{d^3}+$$

$$\frac{2 c^2 \operatorname{Cosh}\left[\frac{2 b c}{d}\right] \left(-\frac{d^{3/2} \sqrt{\pi} \left(-\operatorname{Erf}\left[\frac{\sqrt{2} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]+\operatorname{Erfi}\left[\frac{\sqrt{2} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]\right)}{16 \sqrt{2} b^{3/2}}+\frac{d \sqrt{c+d x} \operatorname{Sinh}\left[\frac{2 b (c+d x)}{d}\right]}{4 b}\right)}{d^3}+\frac{1}{16 \sqrt{2} b^{5/2} d^2}$$

$$c \operatorname{Sinh}\left[\frac{2 b c}{d}\right] \left(-3 d^{3/2} \sqrt{\pi} \operatorname{Erf}\left[\frac{\sqrt{2} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]+3 d^{3/2} \sqrt{\pi} \operatorname{Erfi}\left[\frac{\sqrt{2} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]+\right.$$

$$\left.4 \sqrt{2} \sqrt{b} \sqrt{c+d x} \left(4 b (c+d x) \operatorname{Cosh}\left[\frac{2 b (c+d x)}{d}\right]-3 d \operatorname{Sinh}\left[\frac{2 b (c+d x)}{d}\right]\right)\right)-$$

$$\frac{1}{16 \sqrt{2} b^{5/2} d^2} c \operatorname{Cosh}\left[\frac{2 b c}{d}\right] \left(3 d^{3/2} \sqrt{\pi} \operatorname{Erf}\left[\frac{\sqrt{2} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]+3 d^{3/2} \sqrt{\pi} \operatorname{Erfi}\left[\frac{\sqrt{2} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]+\right.$$

$$\left.4 \sqrt{2} \sqrt{b} \sqrt{c+d x} \left(-3 d \operatorname{Cosh}\left[\frac{2 b (c+d x)}{d}\right]+4 b (c+d x) \operatorname{Sinh}\left[\frac{2 b (c+d x)}{d}\right]\right)\right)-$$

$$\Bigg((c+d x)^{3/2} \operatorname{Sinh}\left[\frac{2 b c}{d}\right] \Bigg(-15 d^2 \sqrt{\pi} \operatorname{Erf}\left[\sqrt{2} \sqrt{\frac{b (c+d x)}{d}}\right]-15 d^2 \sqrt{\pi} \operatorname{Erfi}\left[\sqrt{2} \sqrt{\frac{b (c+d x)}{d}}\right]+4 \sqrt{2} \sqrt{\frac{b (c+d x)}{d}}$$

$$\left.\left.\left(\left(15 d^2+16 b^2 (c+d x)^2\right) \operatorname{Cosh}\left[\frac{2 b (c+d x)}{d}\right]-20 b d (c+d x) \operatorname{Sinh}\left[\frac{2 b (c+d x)}{d}\right]\right)\right)\right) \Bigg/ \left(128 \sqrt{2} b^2 d^3 \left(\frac{b (c+d x)}{d}\right)^{3/2}\right)+$$

$$\frac{1}{128 \sqrt{2} b^{7/2} d^2} \operatorname{Cosh}\left[\frac{2 b c}{d}\right] \left(15 d^{5/2} \sqrt{\pi} \operatorname{Erf}\left[\frac{\sqrt{2} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]-15 d^{5/2} \sqrt{\pi} \operatorname{Erfi}\left[\frac{\sqrt{2} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]+\right.$$

$$4\sqrt{2}\sqrt{b}\sqrt{c+dx}\left(-20\,b\,d\,(c+dx)\,\mathrm{Cosh}\left[\frac{2b(c+dx)}{d}\right]+\left(15d^2+16b^2(c+dx)^2\right)\mathrm{Sinh}\left[\frac{2b(c+dx)}{d}\right]\right)\Bigg)\Bigg)+$$

$$d^2\,\mathrm{Cosh}[a]\,\mathrm{Sinh}[a]\left(\frac{2c^2\,\mathrm{Cosh}\left[\frac{2bc}{d}\right]\left(\frac{d\sqrt{c+dx}\,\mathrm{Cosh}\left[\frac{2b(c+dx)}{d}\right]}{4b}-\frac{d^{3/2}\sqrt{\pi}\left(\mathrm{Erf}\left[\frac{\sqrt{2}\sqrt{b}\sqrt{c+dx}}{\sqrt{d}}\right]+\mathrm{Erfi}\left[\frac{\sqrt{2}\sqrt{b}\sqrt{c+dx}}{\sqrt{d}}\right]\right)}{16\sqrt{2}\,b^{3/2}}\right)}{d^3}-\right.$$

$$\frac{2c^2\,\mathrm{Sinh}\left[\frac{2bc}{d}\right]\left(-\frac{d^{3/2}\sqrt{\pi}\left(-\mathrm{Erf}\left[\frac{\sqrt{2}\sqrt{b}\sqrt{c+dx}}{\sqrt{d}}\right]+\mathrm{Erfi}\left[\frac{\sqrt{2}\sqrt{b}\sqrt{c+dx}}{\sqrt{d}}\right]\right)}{16\sqrt{2}\,b^{3/2}}+\frac{d\sqrt{c+dx}\,\mathrm{Sinh}\left[\frac{2b(c+dx)}{d}\right]}{4b}\right)}{d^3}+\frac{1}{16\sqrt{2}\,b^{5/2}d^2}$$

$$c\,\mathrm{Cosh}\left[\frac{2bc}{d}\right]\left(3d^{3/2}\sqrt{\pi}\,\mathrm{Erf}\left[\frac{\sqrt{2}\sqrt{b}\sqrt{c+dx}}{\sqrt{d}}\right]-3d^{3/2}\sqrt{\pi}\,\mathrm{Erfi}\left[\frac{\sqrt{2}\sqrt{b}\sqrt{c+dx}}{\sqrt{d}}\right]+\right.$$

$$\left.4\sqrt{2}\sqrt{b}\sqrt{c+dx}\left(-4b(c+dx)\,\mathrm{Cosh}\left[\frac{2b(c+dx)}{d}\right]+3d\,\mathrm{Sinh}\left[\frac{2b(c+dx)}{d}\right]\right)\right)+$$

$$\frac{1}{16\sqrt{2}\,b^{5/2}d^2}c\,\mathrm{Sinh}\left[\frac{2bc}{d}\right]\left(3d^{3/2}\sqrt{\pi}\,\mathrm{Erf}\left[\frac{\sqrt{2}\sqrt{b}\sqrt{c+dx}}{\sqrt{d}}\right]+3d^{3/2}\sqrt{\pi}\,\mathrm{Erfi}\left[\frac{\sqrt{2}\sqrt{b}\sqrt{c+dx}}{\sqrt{d}}\right]+\right.$$

$$\left.4\sqrt{2}\sqrt{b}\sqrt{c+dx}\left(-3d\,\mathrm{Cosh}\left[\frac{2b(c+dx)}{d}\right]+4b(c+dx)\,\mathrm{Sinh}\left[\frac{2b(c+dx)}{d}\right]\right)\right)+$$

$$\frac{1}{128\sqrt{2}\,b^{7/2}d^2}\mathrm{Cosh}\left[\frac{2bc}{d}\right]\left(-15d^{5/2}\sqrt{\pi}\,\mathrm{Erf}\left[\frac{\sqrt{2}\sqrt{b}\sqrt{c+dx}}{\sqrt{d}}\right]-15d^{5/2}\sqrt{\pi}\,\mathrm{Erfi}\left[\frac{\sqrt{2}\sqrt{b}\sqrt{c+dx}}{\sqrt{d}}\right]+\right.$$

$$\left.4\sqrt{2}\sqrt{b}\sqrt{c+dx}\left(\left(15d^2+16b^2(c+dx)^2\right)\mathrm{Cosh}\left[\frac{2b(c+dx)}{d}\right]-20\,b\,d\,(c+dx)\,\mathrm{Sinh}\left[\frac{2b(c+dx)}{d}\right]\right)\right)-$$

$$\frac{1}{128\sqrt{2}\,b^{7/2}d^2}\mathrm{Sinh}\left[\frac{2bc}{d}\right]\left(15d^{5/2}\sqrt{\pi}\,\mathrm{Erf}\left[\frac{\sqrt{2}\sqrt{b}\sqrt{c+dx}}{\sqrt{d}}\right]-15d^{5/2}\sqrt{\pi}\,\mathrm{Erfi}\left[\frac{\sqrt{2}\sqrt{b}\sqrt{c+dx}}{\sqrt{d}}\right]+\right.$$

$$4\sqrt{2}\,\sqrt{b}\,\sqrt{c+d\,x}\,\left(-20\,b\,d\,(c+d\,x)\,\text{Cosh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\left(15\,d^2+16\,b^2\,(c+d\,x)^2\right)\,\text{Sinh}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\Bigg)\Bigg)$$

Problem 58: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 277 leaves, 18 steps):

$$\frac{b^{3/2}\,e^{-a+\frac{b\,c}{d}}\,\sqrt{\pi}\,\text{Erf}\left[\frac{\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]}{2\,d^{5/2}}-\frac{b^{3/2}\,e^{-3\,a+\frac{3\,b\,c}{d}}\,\sqrt{3\,\pi}\,\text{Erf}\left[\frac{\sqrt{3}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]}{2\,d^{5/2}}-\frac{b^{3/2}\,e^{a-\frac{b\,c}{d}}\,\sqrt{\pi}\,\text{Erfi}\left[\frac{\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]}{2\,d^{5/2}}+$$
$$\frac{b^{3/2}\,e^{3\,a-\frac{3\,b\,c}{d}}\,\sqrt{3\,\pi}\,\text{Erfi}\left[\frac{\sqrt{3}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]}{2\,d^{5/2}}-\frac{4\,b\,\text{Cosh}[a+b\,x]\,\text{Sinh}[a+b\,x]^2}{d^2\,\sqrt{c+d\,x}}-\frac{2\,\text{Sinh}[a+b\,x]^3}{3\,d\,(c+d\,x)^{3/2}}$$

Result (type 4, 716 leaves):

$$\frac{1}{6 d^{5/2} (c+d x)^{3/2}} \Big(6 b c \sqrt{d}\, \text{Cosh}[a+b x] + 6 b d^{3/2} x\, \text{Cosh}[a+b x] - 6 b c \sqrt{d}\, \text{Cosh}[3 (a+b x)] - 6 b d^{3/2} x\, \text{Cosh}[3 (a+b x)] -$$
$$3 b^{3/2} c \sqrt{\pi} \sqrt{c+d x}\, \text{Cosh}\left[a-\frac{b c}{d}\right] \text{Erfi}\left[\frac{\sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right] - 3 b^{3/2} d \sqrt{\pi}\, x \sqrt{c+d x}\, \text{Cosh}\left[a-\frac{b c}{d}\right] \text{Erfi}\left[\frac{\sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right] +$$
$$3 b^{3/2} c \sqrt{3 \pi} \sqrt{c+d x}\, \text{Cosh}\left[3 a-\frac{3 b c}{d}\right] \text{Erfi}\left[\frac{\sqrt{3} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right] + 3 b^{3/2} d \sqrt{3 \pi}\, x \sqrt{c+d x}\, \text{Cosh}\left[3 a-\frac{3 b c}{d}\right] \text{Erfi}\left[\frac{\sqrt{3} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right] +$$
$$3 b^{3/2} c \sqrt{3 \pi} \sqrt{c+d x}\, \text{Erfi}\left[\frac{\sqrt{3} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right] \text{Sinh}\left[3 a-\frac{3 b c}{d}\right] + 3 b^{3/2} d \sqrt{3 \pi}\, x \sqrt{c+d x}\, \text{Erfi}\left[\frac{\sqrt{3} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right] \text{Sinh}\left[3 a-\frac{3 b c}{d}\right] +$$
$$3 b^{3/2} \sqrt{3 \pi} (c+d x)^{3/2}\, \text{Erf}\left[\frac{\sqrt{3} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right] \left(-\text{Cosh}\left[3 a-\frac{3 b c}{d}\right] + \text{Sinh}\left[3 a-\frac{3 b c}{d}\right]\right) +$$
$$3 b^{3/2} \sqrt{\pi} (c+d x)^{3/2}\, \text{Erf}\left[\frac{\sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right] \left(\text{Cosh}\left[a-\frac{b c}{d}\right] - \text{Sinh}\left[a-\frac{b c}{d}\right]\right) - 3 b^{3/2} c \sqrt{\pi} \sqrt{c+d x}\, \text{Erfi}\left[\frac{\sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right] \text{Sinh}\left[a-\frac{b c}{d}\right] -$$
$$3 b^{3/2} d \sqrt{\pi}\, x \sqrt{c+d x}\, \text{Erfi}\left[\frac{\sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right] \text{Sinh}\left[a-\frac{b c}{d}\right] + 3 d^{3/2}\, \text{Sinh}[a+b x] - d^{3/2}\, \text{Sinh}[3 (a+b x)]\Big)$$

Problem 59: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 331 leaves, 19 steps):

$$-\frac{b^{5/2} e^{-a+\frac{b c}{d}} \sqrt{\pi}\, \text{Erf}\left[\frac{\sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]}{5 d^{7/2}} + \frac{3 b^{5/2} e^{-3 a+\frac{3 b c}{d}} \sqrt{3 \pi}\, \text{Erf}\left[\frac{\sqrt{3} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]}{5 d^{7/2}} - \frac{b^{5/2} e^{a-\frac{b c}{d}} \sqrt{\pi}\, \text{Erfi}\left[\frac{\sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]}{5 d^{7/2}} +$$
$$\frac{3 b^{5/2} e^{3 a-\frac{3 b c}{d}} \sqrt{3 \pi}\, \text{Erfi}\left[\frac{\sqrt{3} \sqrt{b} \sqrt{c+d x}}{\sqrt{d}}\right]}{5 d^{7/2}} - \frac{16 b^2\, \text{Sinh}[a+b x]}{5 d^3 \sqrt{c+d x}} - \frac{4 b\, \text{Cosh}[a+b x]\, \text{Sinh}[a+b x]^2}{5 d^2 (c+d x)^{3/2}} - \frac{2\, \text{Sinh}[a+b x]^3}{5 d (c+d x)^{5/2}} - \frac{24 b^2\, \text{Sinh}[a+b x]^3}{5 d^3 \sqrt{c+d x}}$$

Result (type 4, 681 leaves):

$$\frac{1}{10\, d^{7/2}\, (c+d\,x)^{5/2}} \Big(2\,b\,c\,d^{3/2}\,\text{Cosh}[a+b\,x] + 2\,b\,d^{5/2}\,x\,\text{Cosh}[a+b\,x] - 2\,b\,c\,d^{3/2}\,\text{Cosh}[3\,(a+b\,x)] - 2\,b\,d^{5/2}\,x\,\text{Cosh}[3\,(a+b\,x)] -$$
$$2\,b^{5/2}\,\sqrt{\pi}\,(c+d\,x)^{5/2}\,\text{Cosh}\Big[a-\frac{b\,c}{d}\Big]\,\text{Erf}\Big[\frac{\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\Big] + 6\,b^{5/2}\,\sqrt{3\,\pi}\,(c+d\,x)^{5/2}\,\text{Cosh}\Big[3\,a-\frac{3\,b\,c}{d}\Big]\,\text{Erf}\Big[\frac{\sqrt{3}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\Big] -$$
$$2\,b^{5/2}\,\sqrt{\pi}\,(c+d\,x)^{5/2}\,\text{Cosh}\Big[a-\frac{b\,c}{d}\Big]\,\text{Erfi}\Big[\frac{\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\Big] + 6\,b^{5/2}\,\sqrt{3\,\pi}\,(c+d\,x)^{5/2}\,\text{Cosh}\Big[3\,a-\frac{3\,b\,c}{d}\Big]\,\text{Erfi}\Big[\frac{\sqrt{3}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\Big] -$$
$$6\,b^{5/2}\,\sqrt{3\,\pi}\,(c+d\,x)^{5/2}\,\text{Erf}\Big[\frac{\sqrt{3}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\Big]\,\text{Sinh}\Big[3\,a-\frac{3\,b\,c}{d}\Big] + 6\,b^{5/2}\,\sqrt{3\,\pi}\,(c+d\,x)^{5/2}\,\text{Erfi}\Big[\frac{\sqrt{3}\,\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\Big]\,\text{Sinh}\Big[3\,a-\frac{3\,b\,c}{d}\Big] +$$
$$2\,b^{5/2}\,\sqrt{\pi}\,(c+d\,x)^{5/2}\,\text{Erf}\Big[\frac{\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\Big]\,\text{Sinh}\Big[a-\frac{b\,c}{d}\Big] - 2\,b^{5/2}\,\sqrt{\pi}\,(c+d\,x)^{5/2}\,\text{Erfi}\Big[\frac{\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}}\Big]\,\text{Sinh}\Big[a-\frac{b\,c}{d}\Big] +$$
$$4\,b^2\,c^2\,\sqrt{d}\,\text{Sinh}[a+b\,x] + 3\,d^{5/2}\,\text{Sinh}[a+b\,x] + 8\,b^2\,c\,d^{3/2}\,x\,\text{Sinh}[a+b\,x] + 4\,b^2\,d^{5/2}\,x^2\,\text{Sinh}[a+b\,x] -$$
$$12\,b^2\,c^2\,\sqrt{d}\,\text{Sinh}[3\,(a+b\,x)] - d^{5/2}\,\text{Sinh}[3\,(a+b\,x)] - 24\,b^2\,c\,d^{3/2}\,x\,\text{Sinh}[3\,(a+b\,x)] - 12\,b^2\,d^{5/2}\,x^2\,\text{Sinh}[3\,(a+b\,x)]\Big)$$

Problem 71: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 58 leaves, 4 steps):

$$-\frac{2\,x^2\,\text{Cosh}[x]}{\sqrt{\text{Sinh}[x]}} + 8\,x\,\sqrt{\text{Sinh}[x]} - \frac{16\,i\,\text{EllipticE}\Big[\frac{\pi}{4}-\frac{i\,x}{2},\,2\Big]\,\sqrt{\text{Sinh}[x]}}{\sqrt{i\,\text{Sinh}[x]}}$$

Result (type 5, 68 leaves):

$$-\frac{1}{\sqrt{\text{Sinh}[x]}}2\,\Big(x^2\,\text{Cosh}[x] - 4\,(-2+x)\,\text{Sinh}[x] -$$
$$8\,\sqrt{2}\,\text{Hypergeometric2F1}\Big[-\frac{1}{4},\,\frac{1}{2},\,\frac{3}{4},\,\text{Cosh}[2\,x]+\text{Sinh}[2\,x]\Big]\,(-\text{Cosh}[x]+\text{Sinh}[x])\,\sqrt{-\text{Sinh}[x]\,(\text{Cosh}[x]+\text{Sinh}[x])}\Big)$$

Problem 73: Attempted integration timed out after 120 seconds.

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

Optimal (type 4, 237 leaves, 8 steps):

$$\frac{3^{-1-m}\, e^{3a-\frac{3bc}{d}}\,(c+d\,x)^m \left(-\frac{b(c+d\,x)}{d}\right)^{-m} \mathrm{Gamma}\left[1+m,\,-\frac{3b(c+d\,x)}{d}\right]}{8\,b} - \frac{3\,e^{a-\frac{bc}{d}}\,(c+d\,x)^m \left(-\frac{b(c+d\,x)}{d}\right)^{-m} \mathrm{Gamma}\left[1+m,\,-\frac{b(c+d\,x)}{d}\right]}{8\,b} - \frac{3\,e^{-a+\frac{bc}{d}}\,(c+d\,x)^m \left(\frac{b(c+d\,x)}{d}\right)^{-m} \mathrm{Gamma}\left[1+m,\,\frac{b(c+d\,x)}{d}\right]}{8\,b} + \frac{3^{-1-m}\, e^{-3a+\frac{3bc}{d}}\,(c+d\,x)^m \left(\frac{b(c+d\,x)}{d}\right)^{-m} \mathrm{Gamma}\left[1+m,\,\frac{3b(c+d\,x)}{d}\right]}{8\,b}$$

Result (type 1, 1 leaves):

???

Problem 110: Result more than twice size of optimal antiderivative.

$$\int \frac{c+d\,x}{a+i\,a\,\mathrm{Sinh}[e+f\,x]}\,dx$$

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

$$-\frac{2\,d\,\mathrm{Log}\left[\mathrm{Cosh}\left[\frac{e}{2}+\frac{i\,\pi}{4}+\frac{f\,x}{2}\right]\right]}{a\,f^2} + \frac{(c+d\,x)\,\mathrm{Tanh}\left[\frac{e}{2}+\frac{i\,\pi}{4}+\frac{f\,x}{2}\right]}{a\,f}$$

Result (type 3, 185 leaves):

$$\left(i\,d\,f\,x\,\mathrm{Cosh}\left[e+\frac{f\,x}{2}\right] + \mathrm{Cosh}\left[\frac{f\,x}{2}\right]\left(-2\,i\,d\,\mathrm{ArcTan}\left[\mathrm{Sech}\left[e+\frac{f\,x}{2}\right]\mathrm{Sinh}\left[\frac{f\,x}{2}\right]\right] - d\,\mathrm{Log}[\mathrm{Cosh}[e+f\,x]]\right) + 2\,c\,f\,\mathrm{Sinh}\left[\frac{f\,x}{2}\right] + d\,f\,x\,\mathrm{Sinh}\left[\frac{f\,x}{2}\right] + 2\,d\,\mathrm{ArcTan}\left[\mathrm{Sech}\left[e+\frac{f\,x}{2}\right]\mathrm{Sinh}\left[\frac{f\,x}{2}\right]\right]\mathrm{Sinh}\left[e+\frac{f\,x}{2}\right] - i\,d\,\mathrm{Log}[\mathrm{Cosh}[e+f\,x]]\,\mathrm{Sinh}\left[e+\frac{f\,x}{2}\right]\right) \Big/ \left(a\,f^2\left(\mathrm{Cosh}\left[\frac{e}{2}\right]+i\,\mathrm{Sinh}\left[\frac{e}{2}\right]\right)\left(\mathrm{Cosh}\left[\frac{1}{2}(e+f\,x)\right]+i\,\mathrm{Sinh}\left[\frac{1}{2}(e+f\,x)\right]\right)\right)$$

Problem 130: Result more than twice size of optimal antiderivative.

$$\int x^3\,(a+i\,a\,\mathrm{Sinh}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 638 leaves, 14 steps):

$$-\frac{265216\, a^2 \sqrt{a+i\, a \operatorname{Sinh}[c+d x]}}{1125\, d^4}-\frac{128\, a^2 x^2 \sqrt{a+i\, a \operatorname{Sinh}[c+d x]}}{5\, d^2}-$$

$$\frac{17408\, a^2 \operatorname{Cosh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right]^2 \sqrt{a+i\, a \operatorname{Sinh}[c+d x]}}{3375\, d^4}-\frac{64\, a^2 x^2 \operatorname{Cosh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right]^2 \sqrt{a+i\, a \operatorname{Sinh}[c+d x]}}{15\, d^2}-$$

$$\frac{384\, a^2 \operatorname{Cosh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right]^4 \sqrt{a+i\, a \operatorname{Sinh}[c+d x]}}{625\, d^4}-\frac{48\, a^2 x^2 \operatorname{Cosh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right]^4 \sqrt{a+i\, a \operatorname{Sinh}[c+d x]}}{25\, d^2}+$$

$$\frac{8704\, a^2 x \operatorname{Cosh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right] \operatorname{Sinh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right] \sqrt{a+i\, a \operatorname{Sinh}[c+d x]}}{1125\, d^3}+\frac{32\, a^2 x^3 \operatorname{Cosh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right] \operatorname{Sinh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right] \sqrt{a+i\, a \operatorname{Sinh}[c+d x]}}{15\, d}+$$

$$\frac{192\, a^2 x \operatorname{Cosh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right]^3 \operatorname{Sinh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right] \sqrt{a+i\, a \operatorname{Sinh}[c+d x]}}{125\, d^3}+\frac{8\, a^2 x^3 \operatorname{Cosh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right]^3 \operatorname{Sinh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right] \sqrt{a+i\, a \operatorname{Sinh}[c+d x]}}{5\, d}+$$

$$\frac{132608\, a^2 x \sqrt{a+i\, a \operatorname{Sinh}[c+d x]}\, \operatorname{Tanh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right]}{1125\, d^3}+\frac{64\, a^2 x^3 \sqrt{a+i\, a \operatorname{Sinh}[c+d x]}\, \operatorname{Tanh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right]}{15\, d}$$

Result (type 3, 2918 leaves) :

$$\frac{1}{d\left(\operatorname{Cosh}\left[\frac{c}{2}+\frac{d x}{2}\right]+i \operatorname{Sinh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^5}$$

$$2\left(-\frac{\left(\frac{1}{135000}+\frac{i}{135000}\right) \operatorname{Cosh}\left[5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]}{d^3}+\frac{\left(\frac{1}{135000}+\frac{i}{135000}\right) \operatorname{Sinh}\left[5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]}{d^3}\right)\Bigg(1296\, i-3240\, i\, c+4050\, i\, c^2-3375\, i\, c^3+$$

$$6480\, i\left(\frac{c}{2}+\frac{d x}{2}\right)-16200\, i\, c\left(\frac{c}{2}+\frac{d x}{2}\right)+20250\, i\, c^2\left(\frac{c}{2}+\frac{d x}{2}\right)+16200\, i\left(\frac{c}{2}+\frac{d x}{2}\right)^2-40500\, i\, c\left(\frac{c}{2}+\frac{d x}{2}\right)^2+27000\, i\left(\frac{c}{2}+\frac{d x}{2}\right)^3-$$

$$50000 \operatorname{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+75000\, c \operatorname{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-56250\, c^2 \operatorname{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+28125\, c^3 \operatorname{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$150000\left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+225000\, c\left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-168750\, c^2\left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$225000\left(\frac{c}{2}+\frac{d x}{2}\right)^2 \operatorname{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+337500\, c\left(\frac{c}{2}+\frac{d x}{2}\right)^2 \operatorname{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-225000\left(\frac{c}{2}+\frac{d x}{2}\right)^3 \operatorname{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$8100000\, i \operatorname{Cosh}\left[4\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+4050000\, i\, c \operatorname{Cosh}\left[4\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-1012500\, i\, c^2 \operatorname{Cosh}\left[4\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+168750\, i\, c^3 \operatorname{Cosh}\left[4\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$8100000\, i\left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[4\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+4050000\, i\, c\left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[4\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-1012500\, i\, c^2\left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[4\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$4050000\, i\left(\frac{c}{2}+\frac{d x}{2}\right)^2 \operatorname{Cosh}\left[4\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+2025000\, i\, c\left(\frac{c}{2}+\frac{d x}{2}\right)^2 \operatorname{Cosh}\left[4\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-1350000\, i\left(\frac{c}{2}+\frac{d x}{2}\right)^3 \operatorname{Cosh}\left[4\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$8100000 \operatorname{Cosh}\left[6\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+4050000\, c \operatorname{Cosh}\left[6\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+1012500\, c^2 \operatorname{Cosh}\left[6\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+168750\, c^3 \operatorname{Cosh}\left[6\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$8\,100\,000 \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Cosh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 4\,050\,000\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Cosh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 1\,012\,500\, c^2 \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Cosh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] +$$

$$4\,050\,000 \left(\frac{c}{2}+\frac{d\,x}{2}\right)^2 \mathrm{Cosh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 2\,025\,000\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right)^2 \mathrm{Cosh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 1\,350\,000 \left(\frac{c}{2}+\frac{d\,x}{2}\right)^3 \mathrm{Cosh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] +$$

$$50\,000\, i\, \mathrm{Cosh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 75\,000\, i\, c\, \mathrm{Cosh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 56\,250\, i\, c^2\, \mathrm{Cosh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 28\,125\, i\, c^3\, \mathrm{Cosh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] -$$

$$150\,000\, i \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Cosh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 225\,000\, i\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Cosh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 168\,750\, i\, c^2 \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Cosh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] +$$

$$225\,000\, i \left(\frac{c}{2}+\frac{d\,x}{2}\right)^2 \mathrm{Cosh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 337\,500\, i\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right)^2 \mathrm{Cosh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 225\,000\, i \left(\frac{c}{2}+\frac{d\,x}{2}\right)^3 \mathrm{Cosh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] -$$

$$1296\, \mathrm{Cosh}\left[10 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 3240\, c\, \mathrm{Cosh}\left[10 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 4050\, c^2\, \mathrm{Cosh}\left[10 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 3375\, c^3\, \mathrm{Cosh}\left[10 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] +$$

$$6480 \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Cosh}\left[10 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 16\,200\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Cosh}\left[10 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 20\,250\, c^2 \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Cosh}\left[10 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] -$$

$$16\,200 \left(\frac{c}{2}+\frac{d\,x}{2}\right)^2 \mathrm{Cosh}\left[10 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 40\,500\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right)^2 \mathrm{Cosh}\left[10 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 27\,000 \left(\frac{c}{2}+\frac{d\,x}{2}\right)^3 \mathrm{Cosh}\left[10 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] -$$

$$50\,000\, \mathrm{Sinh}\left[2 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 75\,000\, c\, \mathrm{Sinh}\left[2 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 56\,250\, c^2\, \mathrm{Sinh}\left[2 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 28\,125\, c^3\, \mathrm{Sinh}\left[2 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] -$$

$$150\,000 \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Sinh}\left[2 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 225\,000\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Sinh}\left[2 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 168\,750\, c^2 \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Sinh}\left[2 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] -$$

$$225\,000 \left(\frac{c}{2}+\frac{d\,x}{2}\right)^2 \mathrm{Sinh}\left[2 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 337\,500\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right)^2 \mathrm{Sinh}\left[2 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 225\,000 \left(\frac{c}{2}+\frac{d\,x}{2}\right)^3 \mathrm{Sinh}\left[2 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] -$$

$$8\,100\,000\, i\, \mathrm{Sinh}\left[4 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 4\,050\,000\, i\, c\, \mathrm{Sinh}\left[4 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 1\,012\,500\, i\, c^2\, \mathrm{Sinh}\left[4 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 168\,750\, i\, c^3\, \mathrm{Sinh}\left[4 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] -$$

$$8\,100\,000\, i \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Sinh}\left[4 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 4\,050\,000\, i\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Sinh}\left[4 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 1\,012\,500\, i\, c^2 \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Sinh}\left[4 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] -$$

$$4\,050\,000\, i \left(\frac{c}{2}+\frac{d\,x}{2}\right)^2 \mathrm{Sinh}\left[4 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 2\,025\,000\, i\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right)^2 \mathrm{Sinh}\left[4 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 1\,350\,000\, i \left(\frac{c}{2}+\frac{d\,x}{2}\right)^3 \mathrm{Sinh}\left[4 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] +$$

$$8\,100\,000\, \mathrm{Sinh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 4\,050\,000\, c\, \mathrm{Sinh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 1\,012\,500\, c^2\, \mathrm{Sinh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 168\,750\, c^3\, \mathrm{Sinh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] -$$

$$8\,100\,000 \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Sinh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 4\,050\,000\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Sinh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 1\,012\,500\, c^2 \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Sinh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] +$$

$$4\,050\,000 \left(\frac{c}{2}+\frac{d\,x}{2}\right)^2 \mathrm{Sinh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 2\,025\,000\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right)^2 \mathrm{Sinh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 1\,350\,000 \left(\frac{c}{2}+\frac{d\,x}{2}\right)^3 \mathrm{Sinh}\left[6 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] +$$

$$50\,000\, i\, \mathrm{Sinh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 75\,000\, i\, c\, \mathrm{Sinh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 56\,250\, i\, c^2\, \mathrm{Sinh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] + 28\,125\, i\, c^3\, \mathrm{Sinh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] -$$

$$150\,000\, i \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Sinh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 225\,000\, i\, c \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Sinh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] - 168\,750\, i\, c^2 \left(\frac{c}{2}+\frac{d\,x}{2}\right) \mathrm{Sinh}\left[8 \left(\frac{c}{2}+\frac{d\,x}{2}\right)\right] +$$

$$225000\, i \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{Sinh}\left[8\left(\frac{c}{2}+\frac{d x}{2}\right)\right] + 337500\, i\, c \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{Sinh}\left[8\left(\frac{c}{2}+\frac{d x}{2}\right)\right] - 225000\, i \left(\frac{c}{2}+\frac{d x}{2}\right)^3 \text{Sinh}\left[8\left(\frac{c}{2}+\frac{d x}{2}\right)\right] -$$
$$1296\, \text{Sinh}\left[10\left(\frac{c}{2}+\frac{d x}{2}\right)\right] - 3240\, c\, \text{Sinh}\left[10\left(\frac{c}{2}+\frac{d x}{2}\right)\right] - 4050\, c^2\, \text{Sinh}\left[10\left(\frac{c}{2}+\frac{d x}{2}\right)\right] - 3375\, c^3\, \text{Sinh}\left[10\left(\frac{c}{2}+\frac{d x}{2}\right)\right] +$$
$$6480 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{Sinh}\left[10\left(\frac{c}{2}+\frac{d x}{2}\right)\right] + 16200\, c \left(\frac{c}{2}+\frac{d x}{2}\right) \text{Sinh}\left[10\left(\frac{c}{2}+\frac{d x}{2}\right)\right] + 20250\, c^2 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{Sinh}\left[10\left(\frac{c}{2}+\frac{d x}{2}\right)\right] -$$
$$16200 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{Sinh}\left[10\left(\frac{c}{2}+\frac{d x}{2}\right)\right] - 40500\, c \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{Sinh}\left[10\left(\frac{c}{2}+\frac{d x}{2}\right)\right] + 27000 \left(\frac{c}{2}+\frac{d x}{2}\right)^3 \text{Sinh}\left[10\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\Bigg) \left(a+i\, a\, \text{Sinh}[c+d x]\right)^{5/2}$$

Problem 135: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 536 leaves, 21 steps):

$$-\frac{2 a^2 \text{Cosh}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right]^4 \sqrt{a+i\, a\, \text{Sinh}[c+d x]}}{x^2} - \frac{25}{32} i\, a^2 d^2\, \text{CoshIntegral}\left[\frac{5 d x}{2}\right] \text{Sech}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right] \text{Sinh}\left[\frac{5 c}{2}-\frac{i \pi}{4}\right] \sqrt{a+i\, a\, \text{Sinh}[c+d x]} +$$
$$\frac{5}{16} i\, a^2 d^2\, \text{CoshIntegral}\left[\frac{d x}{2}\right] \text{Sech}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right] \text{Sinh}\left[\frac{1}{4}\left(2 c-i \pi\right)\right] \sqrt{a+i\, a\, \text{Sinh}[c+d x]} +$$
$$\frac{45}{32} i\, a^2 d^2\, \text{CoshIntegral}\left[\frac{3 d x}{2}\right] \text{Sech}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right] \text{Sinh}\left[\frac{1}{4}\left(6 c+i \pi\right)\right] \sqrt{a+i\, a\, \text{Sinh}[c+d x]} -$$
$$\frac{5 a^2 d\, \text{Cosh}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right]^3 \text{Sinh}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right] \sqrt{a+i\, a\, \text{Sinh}[c+d x]}}{x} +$$
$$\frac{5}{16} i\, a^2 d^2\, \text{Cosh}\left[\frac{1}{4}\left(2 c-i \pi\right)\right] \text{Sech}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right] \sqrt{a+i\, a\, \text{Sinh}[c+d x]}\, \text{SinhIntegral}\left[\frac{d x}{2}\right] +$$
$$\frac{45}{32} i\, a^2 d^2\, \text{Cosh}\left[\frac{1}{4}\left(6 c+i \pi\right)\right] \text{Sech}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right] \sqrt{a+i\, a\, \text{Sinh}[c+d x]}\, \text{SinhIntegral}\left[\frac{3 d x}{2}\right] -$$
$$\frac{25}{32} i\, a^2 d^2\, \text{Cosh}\left[\frac{5 c}{2}-\frac{i \pi}{4}\right] \text{Sech}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right] \sqrt{a+i\, a\, \text{Sinh}[c+d x]}\, \text{SinhIntegral}\left[\frac{5 d x}{2}\right]$$

Result (type 4, 4751 leaves):

$$\frac{1}{d\left(-c+2\left(\frac{c}{2}+\frac{d x}{2}\right)\right)^2 \left(\text{Cosh}\left[\frac{c}{2}+\frac{d x}{2}\right]+i\, \text{Sinh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^5}$$
$$2\left(\left(\frac{1}{128}+\frac{i}{128}\right) \text{Cosh}\left[5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] - \left(\frac{1}{128}+\frac{i}{128}\right) \text{Sinh}\left[5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\right) \left(a+i\, a\, \text{Sinh}[c+d x]\right)^{5/2}$$
$$\Bigg(-4\, i\, d^3 - 10\, i\, c\, d^3 + 20\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) + 20\, d^3\, \text{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right] + 30\, c\, d^3\, \text{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right] - 60\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{Cosh}\left[2\left(\frac{c}{2}+\frac{d x}{2}\right)\right] +$$

$$40\, i\, d^3 \operatorname{Cosh}\left[4 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+20\, i\, c\, d^3 \operatorname{Cosh}\left[4 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-40\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[4 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-40\, d^3 \operatorname{Cosh}\left[6 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$20\, c\, d^3 \operatorname{Cosh}\left[6 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-40\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[6 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-20\, i\, d^3 \operatorname{Cosh}\left[8 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+30\, i\, c\, d^3 \operatorname{Cosh}\left[8 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$60\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[8 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+4\, d^3 \operatorname{Cosh}\left[10 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-10\, c\, d^3 \operatorname{Cosh}\left[10 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+20\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[10 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$10\, i\, c^2 d^3 \operatorname{Cosh}\left[\frac{c}{2}-5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[\frac{d x}{2}\right]+40\, i\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[\frac{c}{2}-5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[\frac{d x}{2}\right]-$$

$$40\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \operatorname{Cosh}\left[\frac{c}{2}-5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[\frac{d x}{2}\right]+10\, c^2 d^3 \operatorname{Cosh}\left[\frac{c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[\frac{d x}{2}\right]-$$

$$40\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[\frac{c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[\frac{d x}{2}\right]+40\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \operatorname{Cosh}\left[\frac{c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[\frac{d x}{2}\right]-$$

$$45\, c^2 d^3 \operatorname{Cosh}\left[\frac{3 c}{2}-5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[-\frac{3 c}{2}+3 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+180\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[\frac{3 c}{2}-5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]$$

$$\operatorname{CoshIntegral}\left[-\frac{3 c}{2}+3 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-180\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \operatorname{Cosh}\left[\frac{3 c}{2}-5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[-\frac{3 c}{2}+3 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$45\, i\, c^2 d^3 \operatorname{Cosh}\left[\frac{3 c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[-\frac{3 c}{2}+3 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-180\, i\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[\frac{3 c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]$$

$$\operatorname{CoshIntegral}\left[-\frac{3 c}{2}+3 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+180\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \operatorname{Cosh}\left[\frac{3 c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[-\frac{3 c}{2}+3 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$25\, i\, c^2 d^3 \operatorname{Cosh}\left[\frac{5 c}{2}-5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[-\frac{5 c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-100\, i\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[\frac{5 c}{2}-5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]$$

$$\operatorname{CoshIntegral}\left[-\frac{5 c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+100\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \operatorname{Cosh}\left[\frac{5 c}{2}-5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[-\frac{5 c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$25\, c^2 d^3 \operatorname{Cosh}\left[\frac{5 c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[-\frac{5 c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+100\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Cosh}\left[\frac{5 c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]$$

$$\operatorname{CoshIntegral}\left[-\frac{5 c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-100\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \operatorname{Cosh}\left[\frac{5 c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right] \operatorname{CoshIntegral}\left[-\frac{5 c}{2}+5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$20\, d^3 \operatorname{Sinh}\left[2 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+30\, c\, d^3 \operatorname{Sinh}\left[2 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-60\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Sinh}\left[2 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+40\, i\, d^3 \operatorname{Sinh}\left[4 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$20\, i\, c\, d^3 \operatorname{Sinh}\left[4 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-40\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Sinh}\left[4 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-40\, d^3 \operatorname{Sinh}\left[6 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$20\, c\, d^3 \operatorname{Sinh}\left[6 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-40\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Sinh}\left[6 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-20\, i\, d^3 \operatorname{Sinh}\left[8 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+30\, i\, c\, d^3 \operatorname{Sinh}\left[8 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$60\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Sinh}\left[8 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+4\, d^3 \operatorname{Sinh}\left[10 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-10\, c\, d^3 \operatorname{Sinh}\left[10 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+20\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{Sinh}\left[10 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$10\, i\, c^2 d^3 \operatorname{CoshIntegral}\left[\frac{d x}{2}\right] \operatorname{Sinh}\left[\frac{c}{2}-5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]-40\, i\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \operatorname{CoshIntegral}\left[\frac{d x}{2}\right] \operatorname{Sinh}\left[\frac{c}{2}-5 \left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$40\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{CoshIntegral}\left[\frac{d x}{2}\right] \text{Sinh}\left[\frac{c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+45\, c^2 d^3\, \text{CoshIntegral}\left[-\frac{3 c}{2}+3\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{Sinh}\left[\frac{3 c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$180\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{CoshIntegral}\left[-\frac{3 c}{2}+3\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{Sinh}\left[\frac{3 c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$180\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{CoshIntegral}\left[-\frac{3 c}{2}+3\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{Sinh}\left[\frac{3 c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$25\, i\, c^2 d^3\, \text{CoshIntegral}\left[-\frac{5 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{Sinh}\left[\frac{5 c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+100\, i\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{CoshIntegral}\left[-\frac{5 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]$$

$$\text{Sinh}\left[\frac{5 c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-100\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{CoshIntegral}\left[-\frac{5 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{Sinh}\left[\frac{5 c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$10\, c^2 d^3\, \text{CoshIntegral}\left[\frac{d x}{2}\right] \text{Sinh}\left[\frac{c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-40\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{CoshIntegral}\left[\frac{d x}{2}\right] \text{Sinh}\left[\frac{c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$40\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{CoshIntegral}\left[\frac{d x}{2}\right] \text{Sinh}\left[\frac{c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+45\, i\, c^2 d^3\, \text{CoshIntegral}\left[-\frac{3 c}{2}+3\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{Sinh}\left[\frac{3 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$180\, i\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{CoshIntegral}\left[-\frac{3 c}{2}+3\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{Sinh}\left[\frac{3 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$180\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{CoshIntegral}\left[-\frac{3 c}{2}+3\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{Sinh}\left[\frac{3 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-25\, c^2 d^3\, \text{CoshIntegral}\left[-\frac{5 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]$$

$$\text{Sinh}\left[\frac{5 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+100\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{CoshIntegral}\left[-\frac{5 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{Sinh}\left[\frac{5 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$100\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{CoshIntegral}\left[-\frac{5 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{Sinh}\left[\frac{5 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+10\, i\, c^2 d^3\, \text{Cosh}\left[\frac{c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{d x}{2}\right]-$$

$$40\, i\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{Cosh}\left[\frac{c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{d x}{2}\right]+40\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{Cosh}\left[\frac{c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{d x}{2}\right]+$$

$$10\, c^2 d^3\, \text{Cosh}\left[\frac{c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{d x}{2}\right]-40\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{Cosh}\left[\frac{c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{d x}{2}\right]+$$

$$40\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{Cosh}\left[\frac{c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{d x}{2}\right]-10\, i\, c^2 d^3\, \text{Sinh}\left[\frac{c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{d x}{2}\right]+$$

$$40\, i\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{Sinh}\left[\frac{c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{d x}{2}\right]-40\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{Sinh}\left[\frac{c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{d x}{2}\right]+$$

$$10\, c^2 d^3\, \text{Sinh}\left[\frac{c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{d x}{2}\right]-40\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{Sinh}\left[\frac{c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{d x}{2}\right]+$$

$$40\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{Sinh}\left[\frac{c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{d x}{2}\right]+25\, i\, c^2 d^3\, \text{Cosh}\left[\frac{5 c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{5 c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$100\, i\, c\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right) \text{Cosh}\left[\frac{5 c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{5 c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$100\, i\, d^3 \left(\frac{c}{2}+\frac{d x}{2}\right)^2 \text{Cosh}\left[\frac{5 c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right] \text{SinhIntegral}\left[\frac{5 c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+25\, c^2 d^3\, \text{Cosh}\left[\frac{5 c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]$$

$$\text{SinhIntegral}\left[\frac{5c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-100\,c\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)\text{Cosh}\left[\frac{5c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{5c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$100\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)^2\text{Cosh}\left[\frac{5c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{5c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-25\,i\,c^2 d^3\,\text{Sinh}\left[\frac{5c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]$$

$$\text{SinhIntegral}\left[\frac{5c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+100\,i\,c\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)\text{Sinh}\left[\frac{5c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{5c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$100\,i\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)^2\text{Sinh}\left[\frac{5c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{5c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+25\,c^2 d^3\,\text{Sinh}\left[\frac{5c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]$$

$$\text{SinhIntegral}\left[\frac{5c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-100\,c\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)\text{Sinh}\left[\frac{5c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{5c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$100\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)^2\text{Sinh}\left[\frac{5c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{5c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-45\,c^2 d^3\,\text{Cosh}\left[\frac{3c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{3c}{2}-3\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$180\,c\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)\text{Cosh}\left[\frac{3c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{3c}{2}-3\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$180\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)^2\text{Cosh}\left[\frac{3c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{3c}{2}-3\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$45\,i\,c^2 d^3\,\text{Cosh}\left[\frac{3c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{3c}{2}-3\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+180\,i\,c\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)\text{Cosh}\left[\frac{3c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]$$

$$\text{SinhIntegral}\left[\frac{3c}{2}-3\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-180\,i\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)^2\text{Cosh}\left[\frac{3c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{3c}{2}-3\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+$$

$$45\,c^2 d^3\,\text{Sinh}\left[\frac{3c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{3c}{2}-3\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-180\,c\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)\text{Sinh}\left[\frac{3c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]$$

$$\text{SinhIntegral}\left[\frac{3c}{2}-3\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+180\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)^2\text{Sinh}\left[\frac{3c}{2}-5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{3c}{2}-3\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-$$

$$45\,i\,c^2 d^3\,\text{Sinh}\left[\frac{3c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{3c}{2}-3\left(\frac{c}{2}+\frac{d x}{2}\right)\right]+180\,i\,c\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)\text{Sinh}\left[\frac{3c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]$$

$$\left.\left.\text{SinhIntegral}\left[\frac{3c}{2}-3\left(\frac{c}{2}+\frac{d x}{2}\right)\right]-180\,i\,d^3\left(\frac{c}{2}+\frac{d x}{2}\right)^2\text{Sinh}\left[\frac{3c}{2}+5\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\text{SinhIntegral}\left[\frac{3c}{2}-3\left(\frac{c}{2}+\frac{d x}{2}\right)\right]\right]\right)$$

Problem 169: Result more than twice size of optimal antiderivative.

$$\int\frac{(c+d x)^3}{a+b\,\text{Sinh}[e+f x]}\,dx$$

Optimal (type 4, 404 leaves, 12 steps) :

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

$$\frac{6 d^2 (c+d x) \operatorname{PolyLog}\left[3,-\frac{b e^{e+f x}}{a-\sqrt{a^2+b^2}}\right]}{\sqrt{a^2+b^2}\, f^3}+\frac{6 d^2 (c+d x) \operatorname{PolyLog}\left[3,-\frac{b e^{e+f x}}{a+\sqrt{a^2+b^2}}\right]}{\sqrt{a^2+b^2}\, f^3}+\frac{6 d^3 \operatorname{PolyLog}\left[4,-\frac{b e^{e+f x}}{a-\sqrt{a^2+b^2}}\right]}{\sqrt{a^2+b^2}\, f^4}-\frac{6 d^3 \operatorname{PolyLog}\left[4,-\frac{b e^{e+f x}}{a+\sqrt{a^2+b^2}}\right]}{\sqrt{a^2+b^2}\, f^4}$$

Result (type 4, 1031 leaves):

$$\frac{1}{\sqrt{-a^2-b^2}\,\sqrt{(a^2+b^2)\, e^{2e}}\, f^4}$$

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

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

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

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

$$6 \sqrt{-a^2-b^2}\, c\, d^2 e^e f \operatorname{PolyLog}\left[3,-\frac{b e^{2e+f x}}{a e^e-\sqrt{(a^2+b^2)\, e^{2e}}}\right]-6 \sqrt{-a^2-b^2}\, d^3 e^e f x \operatorname{PolyLog}\left[3,-\frac{b e^{2e+f x}}{a e^e-\sqrt{(a^2+b^2)\, e^{2e}}}\right]+$$

$$6 \sqrt{-a^2-b^2}\, c\, d^2 e^e f \operatorname{PolyLog}\left[3,-\frac{b e^{2e+f x}}{a e^e+\sqrt{(a^2+b^2)\, e^{2e}}}\right]+6 \sqrt{-a^2-b^2}\, d^3 e^e f x \operatorname{PolyLog}\left[3,-\frac{b e^{2e+f x}}{a e^e+\sqrt{(a^2+b^2)\, e^{2e}}}\right]+$$

$$6 \sqrt{-a^2-b^2}\, d^3 e^e \operatorname{PolyLog}\left[4,-\frac{b e^{2e+f x}}{a e^e-\sqrt{(a^2+b^2)\, e^{2e}}}\right]-6 \sqrt{-a^2-b^2}\, d^3 e^e \operatorname{PolyLog}\left[4,-\frac{b e^{2e+f x}}{a e^e+\sqrt{(a^2+b^2)\, e^{2e}}}\right]\Bigg)$$

Problem 170: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 296 leaves, 10 steps):

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

Result (type 4, 601 leaves):

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

Problem 174: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 549 leaves, 18 steps):

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

Result (type 4, 5743 leaves):

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

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

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

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

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

$$2 a d^2\left(-\left(\left(\left(-a e^{-e}+e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}\right)\left(\frac{x^2}{2\left(a e^e-\sqrt{(a^2+b^2) e^{2e}}\right)}-\frac{x \text{Log}\left[1+\frac{b e^{2e+f x}}{a e^e-\sqrt{(a^2+b^2) e^{2e}}}\right]}{\left(a e^e-\sqrt{(a^2+b^2) e^{2e}}\right) f}-\frac{\text{PolyLog}\left[2,-\frac{b e^{2e+f x}}{a e^e-\sqrt{(a^2+b^2) e^{2e}}}\right]}{\left(a e^e-\sqrt{(a^2+b^2) e^{2e}}\right) f^2}\right)\right)\right/\right.$$

$$\left.\left.\left(b\left(\frac{-a e^{-e}-e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}}{b}-\frac{-a e^{-e}+e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}}{b}\right)\right)\right)\right)+$$

$$\Bigg(\Big(-a\,e^{-e}-e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}\Big)\Bigg(\frac{x^2}{2\left(a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)}-\frac{x\,\mathrm{Log}\left[1+\frac{b\,e^{2e+f\,x}}{a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}}\right]}{\left(a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)f}-\frac{\mathrm{PolyLog}\left[2,-\frac{b\,e^{2e+f\,x}}{a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}}\right]}{\left(a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)f^2}\Bigg)\Bigg)\Big/$$

$$\left(b\left(\frac{-a\,e^{-e}-e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}}{b}-\frac{-a\,e^{-e}+e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}}{b}\right)\right)\Bigg)-$$

$$2\,a\,c\,d\,f\,\Bigg(-\Bigg(\Bigg(\Big(-a\,e^{-e}+e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}\Big)\Bigg(\frac{x^2}{2\left(a\,e^{e}-\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)}-\frac{x\,\mathrm{Log}\left[1+\frac{b\,e^{2e+f\,x}}{a\,e^{e}-\sqrt{\left(a^2+b^2\right)\,e^{2e}}}\right]}{\left(a\,e^{e}-\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)f}-\frac{\mathrm{PolyLog}\left[2,-\frac{b\,e^{2e+f\,x}}{a\,e^{e}-\sqrt{\left(a^2+b^2\right)\,e^{2e}}}\right]}{\left(a\,e^{e}-\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)f^2}\Bigg)\Bigg)\Big/$$

$$\left(b\left(\frac{-a\,e^{-e}-e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}}{b}-\frac{-a\,e^{-e}+e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}}{b}\right)\right)\Bigg)+$$

$$\Bigg(\Big(-a\,e^{-e}-e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}\Big)\Bigg(\frac{x^2}{2\left(a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)}-\frac{x\,\mathrm{Log}\left[1+\frac{b\,e^{2e+f\,x}}{a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}}\right]}{\left(a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)f}-\frac{\mathrm{PolyLog}\left[2,-\frac{b\,e^{2e+f\,x}}{a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}}\right]}{\left(a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)f^2}\Bigg)\Bigg)\Big/$$

$$\left(b\left(\frac{-a\,e^{-e}-e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}}{b}-\frac{-a\,e^{-e}+e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}}{b}\right)\right)\Bigg)-$$

$$2\,a\,d^2\,\Bigg(-\Bigg(\Bigg(e^{2e}\Big(-a\,e^{-e}+e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}\Big)\Bigg(\frac{x^2}{2\left(a\,e^{e}-\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)}-\frac{x\,\mathrm{Log}\left[1+\frac{b\,e^{2e+f\,x}}{a\,e^{e}-\sqrt{\left(a^2+b^2\right)\,e^{2e}}}\right]}{\left(a\,e^{e}-\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)f}-\frac{\mathrm{PolyLog}\left[2,-\frac{b\,e^{2e+f\,x}}{a\,e^{e}-\sqrt{\left(a^2+b^2\right)\,e^{2e}}}\right]}{\left(a\,e^{e}-\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)f^2}\Bigg)\Bigg)\Big/$$

$$\left(b\left(\frac{-a\,e^{-e}-e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}}{b}-\frac{-a\,e^{-e}+e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}}{b}\right)\right)\Bigg)+$$

$$\Bigg(e^{2e}\Big(-a\,e^{-e}-e^{-2e}\sqrt{a^2\,e^{2e}+b^2\,e^{2e}}\Big)\Bigg(\frac{x^2}{2\left(a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)}-\frac{x\,\mathrm{Log}\left[1+\frac{b\,e^{2e+f\,x}}{a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}}\right]}{\left(a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)f}-\frac{\mathrm{PolyLog}\left[2,-\frac{b\,e^{2e+f\,x}}{a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}}\right]}{\left(a\,e^{e}+\sqrt{\left(a^2+b^2\right)\,e^{2e}}\right)f^2}\Bigg)\Bigg)\Big/$$

$$\left(b\left(\frac{-a\,e^{-e}-e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}}{b}-\frac{-a\,e^{-e}+e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}}{b}\right)\right)\Bigg) +$$

$$2\,a\,c\,d\,f\,\Bigg(-\Bigg(\Bigg(\Bigg(e^{2e}\left(-a\,e^{-e}+e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}\right)\left(\frac{x^2}{2\left(a\,e^{e}-\sqrt{(a^2+b^2)\,e^{2e}}\right)}-\frac{x\,\mathrm{Log}\left[1+\frac{b\,e^{2e+fx}}{a\,e^{e}-\sqrt{(a^2+b^2)\,e^{2e}}}\right]}{\left(a\,e^{e}-\sqrt{(a^2+b^2)\,e^{2e}}\right)f}-\frac{\mathrm{PolyLog}\left[2,-\frac{b\,e^{2e+fx}}{a\,e^{e}-\sqrt{(a^2+b^2)\,e^{2e}}}\right]}{\left(a\,e^{e}-\sqrt{(a^2+b^2)\,e^{2e}}\right)f^2}\right)\Bigg)\Bigg)\Bigg/$$

$$\left(b\left(\frac{-a\,e^{-e}-e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}}{b}-\frac{-a\,e^{-e}+e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}}{b}\right)\right)\Bigg) +$$

$$\Bigg(e^{2e}\left(-a\,e^{-e}-e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}\right)\left(\frac{x^2}{2\left(a\,e^{e}+\sqrt{(a^2+b^2)\,e^{2e}}\right)}-\frac{x\,\mathrm{Log}\left[1+\frac{b\,e^{2e+fx}}{a\,e^{e}+\sqrt{(a^2+b^2)\,e^{2e}}}\right]}{\left(a\,e^{e}+\sqrt{(a^2+b^2)\,e^{2e}}\right)f}-\frac{\mathrm{PolyLog}\left[2,-\frac{b\,e^{2e+fx}}{a\,e^{e}+\sqrt{(a^2+b^2)\,e^{2e}}}\right]}{\left(a\,e^{e}+\sqrt{(a^2+b^2)\,e^{2e}}\right)f^2}\right)\Bigg)\Bigg/$$

$$\left(b\left(\frac{-a\,e^{-e}-e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}}{b}-\frac{-a\,e^{-e}+e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}}{b}\right)\right)\Bigg) -$$

$$a\,d^2\,f\,\Bigg(-\Bigg(\Bigg(\left(-a\,e^{-e}+e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}\right)\left(\frac{x^3}{3\left(a\,e^{e}-\sqrt{(a^2+b^2)\,e^{2e}}\right)}-\frac{x^2\,\mathrm{Log}\left[1+\frac{b\,e^{2e+fx}}{a\,e^{e}-\sqrt{(a^2+b^2)\,e^{2e}}}\right]}{\left(a\,e^{e}-\sqrt{(a^2+b^2)\,e^{2e}}\right)f}-\frac{2\,x\,\mathrm{PolyLog}\left[2,-\frac{b\,e^{2e+fx}}{a\,e^{e}-\sqrt{(a^2+b^2)\,e^{2e}}}\right]}{\left(a\,e^{e}-\sqrt{(a^2+b^2)\,e^{2e}}\right)f^2}+\right.$$

$$\left.\frac{2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2e+fx}}{a\,e^{e}-\sqrt{(a^2+b^2)\,e^{2e}}}\right]}{\left(a\,e^{e}-\sqrt{(a^2+b^2)\,e^{2e}}\right)f^3}\right)\Bigg)\Bigg/\left(b\left(\frac{-a\,e^{-e}-e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}}{b}-\frac{-a\,e^{-e}+e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}}{b}\right)\right)\Bigg) +$$

$$\Bigg(\left(-a\,e^{-e}-e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}\right)\left(\frac{x^3}{3\left(a\,e^{e}+\sqrt{(a^2+b^2)\,e^{2e}}\right)}-\frac{x^2\,\mathrm{Log}\left[1+\frac{b\,e^{2e+fx}}{a\,e^{e}+\sqrt{(a^2+b^2)\,e^{2e}}}\right]}{\left(a\,e^{e}+\sqrt{(a^2+b^2)\,e^{2e}}\right)f}-\frac{2\,x\,\mathrm{PolyLog}\left[2,-\frac{b\,e^{2e+fx}}{a\,e^{e}+\sqrt{(a^2+b^2)\,e^{2e}}}\right]}{\left(a\,e^{e}+\sqrt{(a^2+b^2)\,e^{2e}}\right)f^2}+\right.$$

$$\left.\frac{2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2e+fx}}{a\,e^{e}+\sqrt{(a^2+b^2)\,e^{2e}}}\right]}{\left(a\,e^{e}+\sqrt{(a^2+b^2)\,e^{2e}}\right)f^3}\right)\Bigg)\Bigg/\left(b\left(\frac{-a\,e^{-e}-e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}}{b}-\frac{-a\,e^{-e}+e^{-2e}\sqrt{a^2 e^{2e}+b^2 e^{2e}}}{b}\right)\right)\Bigg) +$$

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

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

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

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

$$\left(\text{Csch}\left[\frac{e}{2}\right]\,\text{Sech}\left[\frac{e}{2}\right]\,\left(a\,c^2\,\text{Cosh}[e]+2\,a\,c\,d\,x\,\text{Cosh}[e]+a\,d^2\,x^2\,\text{Cosh}[e]+b\,c^2\,\text{Sinh}[f\,x]+2\,b\,c\,d\,x\,\text{Sinh}[f\,x]+b\,d^2\,x^2\,\text{Sinh}[f\,x]\right)\right)\Big/\left(2\,\left(a^2+b^2\right)\,f\,\left(a+b\,\text{Sinh}[e+f\,x]\right)\right)$$

Problem 179: Attempted integration timed out after 120 seconds.

$$\int\frac{1}{(e+f\,x)\,\left(a+b\,\text{Sinh}[c+d\,x]\right)^3}\,dx$$

Optimal (type 9, 22 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{1}{(e+f\,x)\,\left(a+b\,\text{Sinh}[c+d\,x]\right)^3},x\right]$$

Result (type 1, 1 leaves):

???

Problem 180: Attempted integration timed out after 120 seconds.

$$\int \frac{1}{(e+f x)^2 (a+b \operatorname{Sinh}[c+d x])^3} \, dx$$

Optimal (type 9, 22 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{1}{(e+f x)^2 (a+b \operatorname{Sinh}[c+d x])^3}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 183: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^m (a+b \operatorname{Sinh}[e+f x])^2 \, dx$$

Optimal (type 4, 281 leaves, 10 steps):

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

Result (type 4, 652 leaves):

$$\frac{1}{d f (1+m)} 2^{-3-m} (c+d x)^m \left(-\frac{f^2 (c+d x)^2}{d^2}\right)^{-m}$$
$$\left(2^{3+m} a^2 c f \left(-\frac{f^2 (c+d x)^2}{d^2}\right)^m - 2^{2+m} b^2 c f \left(-\frac{f^2 (c+d x)^2}{d^2}\right)^m + 2^{3+m} a^2 d f x \left(-\frac{f^2 (c+d x)^2}{d^2}\right)^m - 2^{2+m} b^2 d f x \left(-\frac{f^2 (c+d x)^2}{d^2}\right)^m + \right.$$
$$2^{3+m} a b d \left(-\frac{f (c+d x)}{d}\right)^m \text{Cosh}\left[e-\frac{c f}{d}\right] \text{Gamma}\left[1+m, \frac{f (c+d x)}{d}\right] + 2^{3+m} a b d m \left(-\frac{f (c+d x)}{d}\right)^m \text{Cosh}\left[e-\frac{c f}{d}\right] \text{Gamma}\left[1+m, \frac{f (c+d x)}{d}\right] -$$
$$b^2 d \left(-\frac{f (c+d x)}{d}\right)^m \text{Cosh}\left[2 e-\frac{2 c f}{d}\right] \text{Gamma}\left[1+m, \frac{2 f (c+d x)}{d}\right] - b^2 d m \left(-\frac{f (c+d x)}{d}\right)^m \text{Cosh}\left[2 e-\frac{2 c f}{d}\right] \text{Gamma}\left[1+m, \frac{2 f (c+d x)}{d}\right] +$$
$$b^2 d \left(-\frac{f (c+d x)}{d}\right)^m \text{Gamma}\left[1+m, \frac{2 f (c+d x)}{d}\right] \text{Sinh}\left[2 e-\frac{2 c f}{d}\right] + b^2 d m \left(-\frac{f (c+d x)}{d}\right)^m \text{Gamma}\left[1+m, \frac{2 f (c+d x)}{d}\right] \text{Sinh}\left[2 e-\frac{2 c f}{d}\right] +$$
$$b^2 d (1+m) \left(f \left(\frac{c}{d}+x\right)\right)^m \text{Gamma}\left[1+m, -\frac{2 f (c+d x)}{d}\right] \left(\text{Cosh}\left[2 e-\frac{2 c f}{d}\right] + \text{Sinh}\left[2 e-\frac{2 c f}{d}\right]\right) -$$
$$2^{3+m} a b d \left(-\frac{f (c+d x)}{d}\right)^m \text{Gamma}\left[1+m, \frac{f (c+d x)}{d}\right] \text{Sinh}\left[e-\frac{c f}{d}\right] - 2^{3+m} a b d m \left(-\frac{f (c+d x)}{d}\right)^m \text{Gamma}\left[1+m, \frac{f (c+d x)}{d}\right] \text{Sinh}\left[e-\frac{c f}{d}\right] +$$
$$\left. 2^{3+m} a b d (1+m) \left(f \left(\frac{c}{d}+x\right)\right)^m \text{Gamma}\left[1+m, -\frac{f (c+d x)}{d}\right] \left(\text{Cosh}\left[e-\frac{c f}{d}\right] + \text{Sinh}\left[e-\frac{c f}{d}\right]\right)\right)$$

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

$$\int \frac{(e+f x) \text{Sinh}[c+d x]}{a+i a \text{Sinh}[c+d x]} \, dx$$

Optimal (type 3, 90 leaves, 5 steps):

$$-\frac{i e x}{a} - \frac{i f x^2}{2 a} - \frac{2 i f \text{Log}\left[\text{Cosh}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right]\right]}{a d^2} + \frac{i (e+f x) \text{Tanh}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right]}{a d}$$

Result (type 3, 239 leaves):

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

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

$$\int \frac{\text{Sinh}[c+d x]}{a+i a \text{Sinh}[c+d x]} \, dx$$

Optimal (type 3, 35 leaves, 2 steps):

$$-\frac{i x}{a}-\frac{\text{Cosh}[c+d x]}{d (a+i a \text{Sinh}[c+d x])}$$

Result (type 3, 84 leaves):

$$-\frac{1}{a d (-i+\text{Sinh}[c+d x])}\left(\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right) \left((c+d x) \text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i (2 i+c+d x) \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right)$$

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

$$\int \frac{(e+f x)^3 \text{Sinh}[c+d x]^2}{a+i a \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 241 leaves, 14 steps):

$$-\frac{(e+f x)^3}{a d}+\frac{(e+f x)^4}{4 a f}-\frac{6 i f^2 (e+f x) \text{Cosh}[c+d x]}{a d^3}-\frac{i (e+f x)^3 \text{Cosh}[c+d x]}{a d}+\frac{6 f (e+f x)^2 \text{Log}\left[1+i e^{c+d x}\right]}{a d^2}+\frac{12 f^2 (e+f x) \text{PolyLog}\left[2,-i e^{c+d x}\right]}{a d^3}-\frac{12 f^3 \text{PolyLog}\left[3,-i e^{c+d x}\right]}{a d^4}+\frac{6 i f^3 \text{Sinh}[c+d x]}{a d^4}+\frac{3 i f (e+f x)^2 \text{Sinh}[c+d x]}{a d^2}-\frac{(e+f x)^3 \text{Tanh}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right]}{a d}$$

Result (type 4, 2976 leaves):

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

$$\frac{1}{\left(\text{Cosh}\left[\frac{c}{2}\right]+i \text{Sinh}\left[\frac{c}{2}\right]\right) \left(\text{Cosh}\left[\frac{c}{2}+\frac{d x}{2}\right]+i \text{Sinh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)}\left(\frac{\text{Cosh}[c+d x]}{8 a d^4}-\frac{\text{Sinh}[c+d x]}{8 a d^4}\right)$$

$$\left(-4 i d^3 e^3 \text{Cosh}\left[\frac{d x}{2}\right]-12 i d^2 e^2 f \text{Cosh}\left[\frac{d x}{2}\right]-24 i d e f^2 \text{Cosh}\left[\frac{d x}{2}\right]-24 i f^3 \text{Cosh}\left[\frac{d x}{2}\right]-4 i d^4 e^3 x \text{Cosh}\left[\frac{d x}{2}\right]-12 i d^3 e^2 f x \text{Cosh}\left[\frac{d x}{2}\right]-\right.$$

$$24 i d^2 e f^2 x \text{Cosh}\left[\frac{d x}{2}\right]-24 i d f^3 x \text{Cosh}\left[\frac{d x}{2}\right]-6 i d^4 e^2 f x^2 \text{Cosh}\left[\frac{d x}{2}\right]-12 i d^3 e f^2 x^2 \text{Cosh}\left[\frac{d x}{2}\right]-12 i d^2 f^3 x^2 \text{Cosh}\left[\frac{d x}{2}\right]-$$

$$4\,\mathrm{i}\,d^4 e f^2 x^3 \cosh\left[\frac{d x}{2}\right]-4\,\mathrm{i}\,d^3 f^3 x^3 \cosh\left[\frac{d x}{2}\right]-\mathrm{i}\,d^4 f^3 x^4 \cosh\left[\frac{d x}{2}\right]+8 d^3 e^3 \cosh\left[c+\frac{d x}{2}\right]+4 d^4 e^3 x \cosh\left[c+\frac{d x}{2}\right]+$$

$$24 d^3 e^2 f x \cosh\left[c+\frac{d x}{2}\right]+6 d^4 e^2 f x^2 \cosh\left[c+\frac{d x}{2}\right]+24 d^3 e f^2 x^2 \cosh\left[c+\frac{d x}{2}\right]+4 d^4 e f^2 x^3 \cosh\left[c+\frac{d x}{2}\right]+8 d^3 f^3 x^3 \cosh\left[c+\frac{d x}{2}\right]+$$

$$d^4 f^3 x^4 \cosh\left[c+\frac{d x}{2}\right]-10 d^3 e^3 \cosh\left[c+\frac{3 d x}{2}\right]+6 d^2 e^2 f \cosh\left[c+\frac{3 d x}{2}\right]-12 d e f^2 \cosh\left[c+\frac{3 d x}{2}\right]+12 f^3 \cosh\left[c+\frac{3 d x}{2}\right]+$$

$$4 d^4 e^3 x \cosh\left[c+\frac{3 d x}{2}\right]-30 d^3 e^2 f x \cosh\left[c+\frac{3 d x}{2}\right]+12 d^2 e f^2 x \cosh\left[c+\frac{3 d x}{2}\right]-12 d f^3 x \cosh\left[c+\frac{3 d x}{2}\right]+6 d^4 e^2 f x^2 \cosh\left[c+\frac{3 d x}{2}\right]-$$

$$30 d^3 e f^2 x^2 \cosh\left[c+\frac{3 d x}{2}\right]+6 d^2 f^3 x^2 \cosh\left[c+\frac{3 d x}{2}\right]+4 d^4 e f^2 x^3 \cosh\left[c+\frac{3 d x}{2}\right]-10 d^3 f^3 x^3 \cosh\left[c+\frac{3 d x}{2}\right]+d^4 f^3 x^4 \cosh\left[c+\frac{3 d x}{2}\right]-$$

$$2\,\mathrm{i}\,d^3 e^3 \cosh\left[2 c+\frac{3 d x}{2}\right]+6\,\mathrm{i}\,d^2 e^2 f \cosh\left[2 c+\frac{3 d x}{2}\right]-12\,\mathrm{i}\,d e f^2 \cosh\left[2 c+\frac{3 d x}{2}\right]+12\,\mathrm{i}\,f^3 \cosh\left[2 c+\frac{3 d x}{2}\right]+4\,\mathrm{i}\,d^4 e^3 x \cosh\left[2 c+\frac{3 d x}{2}\right]-$$

$$6\,\mathrm{i}\,d^3 e^2 f x \cosh\left[2 c+\frac{3 d x}{2}\right]+12\,\mathrm{i}\,d^2 e f^2 x \cosh\left[2 c+\frac{3 d x}{2}\right]-12\,\mathrm{i}\,d f^3 x \cosh\left[2 c+\frac{3 d x}{2}\right]+6\,\mathrm{i}\,d^4 e^2 f x^2 \cosh\left[2 c+\frac{3 d x}{2}\right]-$$

$$6\,\mathrm{i}\,d^3 e f^2 x^2 \cosh\left[2 c+\frac{3 d x}{2}\right]+6\,\mathrm{i}\,d^2 f^3 x^2 \cosh\left[2 c+\frac{3 d x}{2}\right]+4\,\mathrm{i}\,d^4 e f^2 x^3 \cosh\left[2 c+\frac{3 d x}{2}\right]-2\,\mathrm{i}\,d^3 f^3 x^3 \cosh\left[2 c+\frac{3 d x}{2}\right]+$$

$$\mathrm{i}\,d^4 f^3 x^4 \cosh\left[2 c+\frac{3 d x}{2}\right]-2\,\mathrm{i}\,d^3 e^3 \cosh\left[2 c+\frac{5 d x}{2}\right]+6\,\mathrm{i}\,d^2 e^2 f \cosh\left[2 c+\frac{5 d x}{2}\right]-12\,\mathrm{i}\,d e f^2 \cosh\left[2 c+\frac{5 d x}{2}\right]+$$

$$12\,\mathrm{i}\,f^3 \cosh\left[2 c+\frac{5 d x}{2}\right]-6\,\mathrm{i}\,d^3 e^2 f x \cosh\left[2 c+\frac{5 d x}{2}\right]+12\,\mathrm{i}\,d^2 e f^2 x \cosh\left[2 c+\frac{5 d x}{2}\right]-12\,\mathrm{i}\,d f^3 x \cosh\left[2 c+\frac{5 d x}{2}\right]-$$

$$6\,\mathrm{i}\,d^3 e f^2 x^2 \cosh\left[2 c+\frac{5 d x}{2}\right]+6\,\mathrm{i}\,d^2 f^3 x^2 \cosh\left[2 c+\frac{5 d x}{2}\right]-2\,\mathrm{i}\,d^3 f^3 x^3 \cosh\left[2 c+\frac{5 d x}{2}\right]+2 d^3 e^3 \cosh\left[3 c+\frac{5 d x}{2}\right]-$$

$$6 d^2 e^2 f \cosh\left[3 c+\frac{5 d x}{2}\right]+12 d e f^2 \cosh\left[3 c+\frac{5 d x}{2}\right]-12 f^3 \cosh\left[3 c+\frac{5 d x}{2}\right]+6 d^3 e^2 f x \cosh\left[3 c+\frac{5 d x}{2}\right]-12 d^2 e f^2 x \cosh\left[3 c+\frac{5 d x}{2}\right]+$$

$$12 d f^3 x \cosh\left[3 c+\frac{5 d x}{2}\right]+6 d^3 e f^2 x^2 \cosh\left[3 c+\frac{5 d x}{2}\right]-6 d^2 f^3 x^2 \cosh\left[3 c+\frac{5 d x}{2}\right]+2 d^3 f^3 x^3 \cosh\left[3 c+\frac{5 d x}{2}\right]-4\,\mathrm{i}\,d^4 e^3 x \sinh\left[\frac{d x}{2}\right]-$$

$$6\,\mathrm{i}\,d^4 e^2 f x^2 \sinh\left[\frac{d x}{2}\right]-4\,\mathrm{i}\,d^4 e f^2 x^3 \sinh\left[\frac{d x}{2}\right]-\mathrm{i}\,d^4 f^3 x^4 \sinh\left[\frac{d x}{2}\right]+12 d^3 e^3 \sinh\left[c+\frac{d x}{2}\right]+12 d^2 e^2 f \sinh\left[c+\frac{d x}{2}\right]+$$

$$24 d e f^2 \sinh\left[c+\frac{d x}{2}\right]+24 f^3 \sinh\left[c+\frac{d x}{2}\right]+4 d^4 e^3 x \sinh\left[c+\frac{d x}{2}\right]+36 d^3 e^2 f x \sinh\left[c+\frac{d x}{2}\right]+24 d^2 e f^2 x \sinh\left[c+\frac{d x}{2}\right]+$$

$$24 d f^3 x \sinh\left[c+\frac{d x}{2}\right]+6 d^4 e^2 f x^2 \sinh\left[c+\frac{d x}{2}\right]+36 d^3 e f^2 x^2 \sinh\left[c+\frac{d x}{2}\right]+12 d^2 f^3 x^2 \sinh\left[c+\frac{d x}{2}\right]+4 d^4 e f^2 x^3 \sinh\left[c+\frac{d x}{2}\right]+$$

$$12 d^3 f^3 x^3 \sinh\left[c+\frac{d x}{2}\right]+d^4 f^3 x^4 \sinh\left[c+\frac{d x}{2}\right]-10 d^3 e^3 \sinh\left[c+\frac{3 d x}{2}\right]+6 d^2 e^2 f \sinh\left[c+\frac{3 d x}{2}\right]-12 d e f^2 \sinh\left[c+\frac{3 d x}{2}\right]+$$

$$12 f^3 \sinh\left[c+\frac{3 d x}{2}\right]+4 d^4 e^3 x \sinh\left[c+\frac{3 d x}{2}\right]-30 d^3 e^2 f x \sinh\left[c+\frac{3 d x}{2}\right]+12 d^2 e f^2 x \sinh\left[c+\frac{3 d x}{2}\right]-12 d f^3 x \sinh\left[c+\frac{3 d x}{2}\right]+$$

$$6 d^4 e^2 f x^2 \sinh\left[c+\frac{3 d x}{2}\right]-30 d^3 e f^2 x^2 \sinh\left[c+\frac{3 d x}{2}\right]+6 d^2 f^3 x^2 \sinh\left[c+\frac{3 d x}{2}\right]+4 d^4 e f^2 x^3 \sinh\left[c+\frac{3 d x}{2}\right]-10 d^3 f^3 x^3 \sinh\left[c+\frac{3 d x}{2}\right]+$$

$$d^4 f^3 x^4 \sinh\left[c+\frac{3 d x}{2}\right]-2\,\mathrm{i}\,d^3 e^3 \sinh\left[2 c+\frac{3 d x}{2}\right]+6\,\mathrm{i}\,d^2 e^2 f \sinh\left[2 c+\frac{3 d x}{2}\right]-12\,\mathrm{i}\,d e f^2 \sinh\left[2 c+\frac{3 d x}{2}\right]+12\,\mathrm{i}\,f^3 \sinh\left[2 c+\frac{3 d x}{2}\right]+$$

$4\,i\,d^4 e^3 x\,\text{Sinh}\left[2c+\frac{3dx}{2}\right]-6\,i\,d^3 e^2 f x\,\text{Sinh}\left[2c+\frac{3dx}{2}\right]+12\,i\,d^2 e f^2 x\,\text{Sinh}\left[2c+\frac{3dx}{2}\right]-12\,i\,d f^3 x\,\text{Sinh}\left[2c+\frac{3dx}{2}\right]+$
$6\,i\,d^4 e^2 f x^2\,\text{Sinh}\left[2c+\frac{3dx}{2}\right]-6\,i\,d^3 e f^2 x^2\,\text{Sinh}\left[2c+\frac{3dx}{2}\right]+6\,i\,d^2 f^3 x^2\,\text{Sinh}\left[2c+\frac{3dx}{2}\right]+4\,i\,d^4 e f^2 x^3\,\text{Sinh}\left[2c+\frac{3dx}{2}\right]-$
$2\,i\,d^3 f^3 x^3\,\text{Sinh}\left[2c+\frac{3dx}{2}\right]+i\,d^4 f^3 x^4\,\text{Sinh}\left[2c+\frac{3dx}{2}\right]-2\,i\,d^3 e^3\,\text{Sinh}\left[2c+\frac{5dx}{2}\right]+6\,i\,d^2 e^2 f\,\text{Sinh}\left[2c+\frac{5dx}{2}\right]-$
$12\,i\,d e f^2\,\text{Sinh}\left[2c+\frac{5dx}{2}\right]+12\,i\,f^3\,\text{Sinh}\left[2c+\frac{5dx}{2}\right]-6\,i\,d^3 e^2 f x\,\text{Sinh}\left[2c+\frac{5dx}{2}\right]+12\,i\,d^2 e f^2 x\,\text{Sinh}\left[2c+\frac{5dx}{2}\right]-$
$12\,i\,d f^3 x\,\text{Sinh}\left[2c+\frac{5dx}{2}\right]-6\,i\,d^3 e f^2 x^2\,\text{Sinh}\left[2c+\frac{5dx}{2}\right]+6\,i\,d^2 f^3 x^2\,\text{Sinh}\left[2c+\frac{5dx}{2}\right]-2\,i\,d^3 f^3 x^3\,\text{Sinh}\left[2c+\frac{5dx}{2}\right]+$
$2 d^3 e^3\,\text{Sinh}\left[3c+\frac{5dx}{2}\right]-6 d^2 e^2 f\,\text{Sinh}\left[3c+\frac{5dx}{2}\right]+12 d e f^2\,\text{Sinh}\left[3c+\frac{5dx}{2}\right]-12 f^3\,\text{Sinh}\left[3c+\frac{5dx}{2}\right]+6 d^3 e^2 f x\,\text{Sinh}\left[3c+\frac{5dx}{2}\right]-$
$12 d^2 e f^2 x\,\text{Sinh}\left[3c+\frac{5dx}{2}\right]+12 d f^3 x\,\text{Sinh}\left[3c+\frac{5dx}{2}\right]+6 d^3 e f^2 x^2\,\text{Sinh}\left[3c+\frac{5dx}{2}\right]-6 d^2 f^3 x^2\,\text{Sinh}\left[3c+\frac{5dx}{2}\right]+2 d^3 f^3 x^3\,\text{Sinh}\left[3c+\frac{5dx}{2}\right]\Big]\Big)$

Problem 197: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sinh}[c+d x]^2}{(e+f x)\,(a+i\,a\,\text{Sinh}[c+d x])}\,dx$$

Optimal (type 9, 33 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sinh}[c+d x]^2}{(e+f x)\,(a+i\,a\,\text{Sinh}[c+d x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 198: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sinh}[c+d x]^2}{(e+f x)^2\,(a+i\,a\,\text{Sinh}[c+d x])}\,dx$$

Optimal (type 9, 33 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sinh}[c+d x]^2}{(e+f x)^2\,(a+i\,a\,\text{Sinh}[c+d x])},\,x\right]$$

Result (type 1, 1 leaves):

???

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

$$\int \frac{(e+f x)^3 \text{Sinh}[c+d x]^3}{a+i a \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 393 leaves, 19 steps):

$$\frac{3 i e f^2 x}{4 a d^2}+\frac{3 i f^3 x^2}{8 a d^2}-\frac{i (e+f x)^3}{a d}+\frac{3 i (e+f x)^4}{8 a f}+\frac{6 f^2 (e+f x) \text{Cosh}[c+d x]}{a d^3}+\frac{(e+f x)^3 \text{Cosh}[c+d x]}{a d}+$$
$$\frac{6 i f (e+f x)^2 \text{Log}\left[1+i e^{c+d x}\right]}{a d^2}+\frac{12 i f^2 (e+f x) \text{PolyLog}\left[2,-i e^{c+d x}\right]}{a d^3}-\frac{12 i f^3 \text{PolyLog}\left[3,-i e^{c+d x}\right]}{a d^4}-$$
$$\frac{6 f^3 \text{Sinh}[c+d x]}{a d^4}-\frac{3 f (e+f x)^2 \text{Sinh}[c+d x]}{a d^2}-\frac{3 i f^2 (e+f x) \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 a d^3}-$$
$$\frac{i (e+f x)^3 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{2 a d}+\frac{3 i f^3 \text{Sinh}[c+d x]^2}{8 a d^4}+\frac{3 i f (e+f x)^2 \text{Sinh}[c+d x]^2}{4 a d^2}-\frac{i (e+f x)^3 \text{Tanh}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right]}{a d}$$

Result (type 4, 1210 leaves):

$$\frac{3 i e^3 x}{2 a}+\frac{9 i e^2 f x^2}{4 a}+\frac{3 i e f^2 x^3}{2 a}+\frac{3 i f^3 x^4}{8 a}+\frac{1}{a d^4 \left(-i+e^c\right)}$$

$$2 f \left(d^2 \left(-i d e^c x \left(3 e^2+3 e f x+f^2 x^2\right)+3 \left(1+i e^c\right) (e+f x)^2 \mathrm{Log}\left[1+i e^{c+d x}\right]\right)+6 d \left(1+i e^c\right) f (e+f x) \mathrm{PolyLog}\left[2,-i e^{c+d x}\right]-\right.$$

$$\left.6 i \left(-i+e^c\right) f^2 \mathrm{PolyLog}\left[3,-i e^{c+d x}\right]\right)+\left(\frac{f^3 x^3 \mathrm{Cosh}[c]}{2 a d}-\frac{f^3 x^3 \mathrm{Sinh}[c]}{2 a d}+\left(d^3 e^3+3 d^2 e^2 f+6 d e f^2+6 f^3\right) \left(\frac{\mathrm{Cosh}[c]}{2 a d^4}-\frac{\mathrm{Sinh}[c]}{2 a d^4}\right)+\right.$$

$$\left.\left(d^2 e^2 f+2 d e f^2+2 f^3\right) \left(\frac{3 x \mathrm{Cosh}[c]}{2 a d^3}-\frac{3 x \mathrm{Sinh}[c]}{2 a d^3}\right)+\left(d e f^2+f^3\right) \left(\frac{3 x^2 \mathrm{Cosh}[c]}{2 a d^2}-\frac{3 x^2 \mathrm{Sinh}[c]}{2 a d^2}\right)\right) (\mathrm{Cosh}[d x]-\mathrm{Sinh}[d x])+$$

$$\left(\frac{f^3 x^3 \mathrm{Cosh}[c]}{2 a d}+\frac{f^3 x^3 \mathrm{Sinh}[c]}{2 a d}+\left(d^3 e^3-3 d^2 e^2 f+6 d e f^2-6 f^3\right) \left(\frac{\mathrm{Cosh}[c]}{2 a d^4}+\frac{\mathrm{Sinh}[c]}{2 a d^4}\right)+\right.$$

$$\frac{3 x^2 \left(d e f^2 \mathrm{Cosh}[c]-f^3 \mathrm{Cosh}[c]+d e f^2 \mathrm{Sinh}[c]-f^3 \mathrm{Sinh}[c]\right)}{2 a d^2}+\frac{1}{2 a d^3}$$

$$\left.3 x \left(d^2 e^2 f \mathrm{Cosh}[c]-2 d e f^2 \mathrm{Cosh}[c]+2 f^3 \mathrm{Cosh}[c]+d^2 e^2 f \mathrm{Sinh}[c]-2 d e f^2 \mathrm{Sinh}[c]+2 f^3 \mathrm{Sinh}[c]\right)\right) (\mathrm{Cosh}[d x]+\mathrm{Sinh}[d x])+$$

$$\left(\frac{i f^3 x^3 \mathrm{Cosh}[2 c]}{8 a d}-\frac{i f^3 x^3 \mathrm{Sinh}[2 c]}{8 a d}+\left(4 d^3 e^3+6 d^2 e^2 f+6 d e f^2+3 f^3\right) \left(\frac{i \mathrm{Cosh}[2 c]}{32 a d^4}-\frac{i \mathrm{Sinh}[2 c]}{32 a d^4}\right)+\right.$$

$$\left.\left(2 d^2 e^2 f+2 d e f^2+f^3\right) \left(\frac{3 i x \mathrm{Cosh}[2 c]}{16 a d^3}-\frac{3 i x \mathrm{Sinh}[2 c]}{16 a d^3}\right)+\left(2 d e f^2+f^3\right) \left(\frac{3 i x^2 \mathrm{Cosh}[2 c]}{16 a d^2}-\frac{3 i x^2 \mathrm{Sinh}[2 c]}{16 a d^2}\right)\right) (\mathrm{Cosh}[2 d x]-\mathrm{Sinh}[2 d x])+$$

$$\left(-\frac{i f^3 x^3 \mathrm{Cosh}[2 c]}{8 a d}-\frac{i f^3 x^3 \mathrm{Sinh}[2 c]}{8 a d}+\left(4 d^3 e^3-6 d^2 e^2 f+6 d e f^2-3 f^3\right) \left(-\frac{i \mathrm{Cosh}[2 c]}{32 a d^4}-\frac{i \mathrm{Sinh}[2 c]}{32 a d^4}\right)-\right.$$

$$\frac{3 i x^2 \left(2 d e f^2 \mathrm{Cosh}[2 c]-f^3 \mathrm{Cosh}[2 c]+2 d e f^2 \mathrm{Sinh}[2 c]-f^3 \mathrm{Sinh}[2 c]\right)}{16 a d^2}-\frac{1}{16 a d^3}$$

$$\left.3 i x \left(2 d^2 e^2 f \mathrm{Cosh}[2 c]-2 d e f^2 \mathrm{Cosh}[2 c]+f^3 \mathrm{Cosh}[2 c]+2 d^2 e^2 f \mathrm{Sinh}[2 c]-2 d e f^2 \mathrm{Sinh}[2 c]+f^3 \mathrm{Sinh}[2 c]\right)\right)$$

$$(\mathrm{Cosh}[2 d x]+\mathrm{Sinh}[2 d x])-\frac{2 i \left(e^3 \mathrm{Sinh}\left[\frac{d x}{2}\right]+3 e^2 f x \mathrm{Sinh}\left[\frac{d x}{2}\right]+3 e f^2 x^2 \mathrm{Sinh}\left[\frac{d x}{2}\right]+f^3 x^3 \mathrm{Sinh}\left[\frac{d x}{2}\right]\right)}{a d \left(\mathrm{Cosh}\left[\frac{c}{2}\right]+i \mathrm{Sinh}\left[\frac{c}{2}\right]\right) \left(\mathrm{Cosh}\left[\frac{c}{2}+\frac{d x}{2}\right]+i \mathrm{Sinh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)}$$

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

$$\int \frac{(e+f x)^2 \mathrm{Sinh}[c+d x]^3}{a+i a \mathrm{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 287 leaves, 17 steps):

$$\frac{i f^2 x}{4 a d^2} - \frac{i (e+f x)^2}{a d} + \frac{i (e+f x)^3}{2 a f} + \frac{2 f^2 \text{Cosh}[c+d x]}{a d^3} + \frac{(e+f x)^2 \text{Cosh}[c+d x]}{a d} + \frac{4 i f (e+f x) \text{Log}\left[1+i e^{c+d x}\right]}{a d^2} + \frac{4 i f^2 \text{PolyLog}\left[2,-i e^{c+d x}\right]}{a d^3} - \frac{2 f (e+f x) \text{Sinh}[c+d x]}{a d^2} - \frac{i f^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 a d^3} - \frac{i (e+f x)^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{2 a d} + \frac{i f (e+f x) \text{Sinh}[c+d x]^2}{2 a d^2} - \frac{i (e+f x)^2 \text{Tanh}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right]}{a d}$$

Result (type 4, 2925 leaves) :

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

$$\frac{1}{\left(\text{Cosh}\left[\frac{c}{2}\right]+i \text{Sinh}\left[\frac{c}{2}\right]\right) \left(\text{Cosh}\left[\frac{c}{2}+\frac{d x}{2}\right]+i \text{Sinh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)}$$

$$\left(\frac{\text{Cosh}[2 c+2 d x]}{32 a d^3}-\frac{\text{Sinh}[2 c+2 d x]}{32 a d^3}\right) \left(-4 i d^2 e^2 \text{Cosh}\left[\frac{d x}{2}\right]-12 i d e f \text{Cosh}\left[\frac{d x}{2}\right]-14 i f^2 \text{Cosh}\left[\frac{d x}{2}\right]-8 i d^2 e f x \text{Cosh}\left[\frac{d x}{2}\right]-\right.$$

$$12 i d f^2 x \text{Cosh}\left[\frac{d x}{2}\right]-4 i d^2 f^2 x^2 \text{Cosh}\left[\frac{d x}{2}\right]+8 d^2 e^2 \text{Cosh}\left[c+\frac{d x}{2}\right]+16 d e f \text{Cosh}\left[c+\frac{d x}{2}\right]+16 f^2 \text{Cosh}\left[c+\frac{d x}{2}\right]+16 d^2 e f x \text{Cosh}\left[c+\frac{d x}{2}\right]+$$

$$16 d f^2 x \text{Cosh}\left[c+\frac{d x}{2}\right]+8 d^2 f^2 x^2 \text{Cosh}\left[c+\frac{d x}{2}\right]+8 d^2 e^2 \text{Cosh}\left[c+\frac{3 d x}{2}\right]+16 d e f \text{Cosh}\left[c+\frac{3 d x}{2}\right]+16 f^2 \text{Cosh}\left[c+\frac{3 d x}{2}\right]+$$

$$24 d^3 e^2 x \text{Cosh}\left[c+\frac{3 d x}{2}\right]+16 d^2 e f x \text{Cosh}\left[c+\frac{3 d x}{2}\right]+16 d f^2 x \text{Cosh}\left[c+\frac{3 d x}{2}\right]+24 d^3 e f x^2 \text{Cosh}\left[c+\frac{3 d x}{2}\right]+8 d^2 f^2 x^2 \text{Cosh}\left[c+\frac{3 d x}{2}\right]+$$

$$8 d^3 f^2 x^3 \text{Cosh}\left[c+\frac{3 d x}{2}\right]+40 i d^2 e^2 \text{Cosh}\left[2 c+\frac{3 d x}{2}\right]+16 i d e f \text{Cosh}\left[2 c+\frac{3 d x}{2}\right]+16 i f^2 \text{Cosh}\left[2 c+\frac{3 d x}{2}\right]+24 i d^3 e^2 x \text{Cosh}\left[2 c+\frac{3 d x}{2}\right]+$$

$$80 i d^2 e f x \text{Cosh}\left[2 c+\frac{3 d x}{2}\right]+16 i d f^2 x \text{Cosh}\left[2 c+\frac{3 d x}{2}\right]+24 i d^3 e f x^2 \text{Cosh}\left[2 c+\frac{3 d x}{2}\right]+40 i d^2 f^2 x^2 \text{Cosh}\left[2 c+\frac{3 d x}{2}\right]+$$

$$8 i d^3 f^2 x^3 \text{Cosh}\left[2 c+\frac{3 d x}{2}\right]-40 i d^2 e^2 \text{Cosh}\left[2 c+\frac{5 d x}{2}\right]+16 i d e f \text{Cosh}\left[2 c+\frac{5 d x}{2}\right]-16 i f^2 \text{Cosh}\left[2 c+\frac{5 d x}{2}\right]+24 i d^3 e^2 x \text{Cosh}\left[2 c+\frac{5 d x}{2}\right]-$$

$$80 i d^2 e f x \text{Cosh}\left[2 c+\frac{5 d x}{2}\right]+16 i d f^2 x \text{Cosh}\left[2 c+\frac{5 d x}{2}\right]+24 i d^3 e f x^2 \text{Cosh}\left[2 c+\frac{5 d x}{2}\right]-40 i d^2 f^2 x^2 \text{Cosh}\left[2 c+\frac{5 d x}{2}\right]+$$

$$8 i d^3 f^2 x^3 \text{Cosh}\left[2 c+\frac{5 d x}{2}\right]+8 d^2 e^2 \text{Cosh}\left[3 c+\frac{5 d x}{2}\right]-16 d e f \text{Cosh}\left[3 c+\frac{5 d x}{2}\right]+16 f^2 \text{Cosh}\left[3 c+\frac{5 d x}{2}\right]-24 d^3 e^2 x \text{Cosh}\left[3 c+\frac{5 d x}{2}\right]+$$

$$16 d^2 e f x \text{Cosh}\left[3 c+\frac{5 d x}{2}\right]-16 d f^2 x \text{Cosh}\left[3 c+\frac{5 d x}{2}\right]-24 d^3 e f x^2 \text{Cosh}\left[3 c+\frac{5 d x}{2}\right]+8 d^2 f^2 x^2 \text{Cosh}\left[3 c+\frac{5 d x}{2}\right]-8 d^3 f^2 x^3 \text{Cosh}\left[3 c+\frac{5 d x}{2}\right]+$$

$$6 d^2 e^2 \text{Cosh}\left[3 c+\frac{7 d x}{2}\right]-14 d e f \text{Cosh}\left[3 c+\frac{7 d x}{2}\right]+15 f^2 \text{Cosh}\left[3 c+\frac{7 d x}{2}\right]+12 d^2 e f x \text{Cosh}\left[3 c+\frac{7 d x}{2}\right]-14 d f^2 x \text{Cosh}\left[3 c+\frac{7 d x}{2}\right]+$$

$$6 d^2 f^2 x^2 \text{Cosh}\left[3 c+\frac{7 d x}{2}\right]+6 i d^2 e^2 \text{Cosh}\left[4 c+\frac{7 d x}{2}\right]-14 i d e f \text{Cosh}\left[4 c+\frac{7 d x}{2}\right]+15 i f^2 \text{Cosh}\left[4 c+\frac{7 d x}{2}\right]+12 i d^2 e f x \text{Cosh}\left[4 c+\frac{7 d x}{2}\right]-$$

$$14 i d f^2 x \text{Cosh}\left[4 c+\frac{7 d x}{2}\right]+6 i d^2 f^2 x^2 \text{Cosh}\left[4 c+\frac{7 d x}{2}\right]-2 i d^2 e^2 \text{Cosh}\left[4 c+\frac{9 d x}{2}\right]+2 i d e f \text{Cosh}\left[4 c+\frac{9 d x}{2}\right]-i f^2 \text{Cosh}\left[4 c+\frac{9 d x}{2}\right]-$$

$$4\,\mathrm{i}\,d^2\,e\,f\,x\,\mathrm{Cosh}\left[4\,c+\frac{9\,d\,x}{2}\right]+2\,\mathrm{i}\,d\,f^2\,x\,\mathrm{Cosh}\left[4\,c+\frac{9\,d\,x}{2}\right]-2\,\mathrm{i}\,d^2\,f^2\,x^2\,\mathrm{Cosh}\left[4\,c+\frac{9\,d\,x}{2}\right]+2\,d^2\,e^2\,\mathrm{Cosh}\left[5\,c+\frac{9\,d\,x}{2}\right]-2\,d\,e\,f\,\mathrm{Cosh}\left[5\,c+\frac{9\,d\,x}{2}\right]+$$

$$f^2\,\mathrm{Cosh}\left[5\,c+\frac{9\,d\,x}{2}\right]+4\,d^2\,e\,f\,x\,\mathrm{Cosh}\left[5\,c+\frac{9\,d\,x}{2}\right]-2\,d\,f^2\,x\,\mathrm{Cosh}\left[5\,c+\frac{9\,d\,x}{2}\right]+2\,d^2\,f^2\,x^2\,\mathrm{Cosh}\left[5\,c+\frac{9\,d\,x}{2}\right]-8\,\mathrm{i}\,d^2\,e^2\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]-$$

$$16\,\mathrm{i}\,d\,e\,f\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]-16\,\mathrm{i}\,f^2\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]-16\,\mathrm{i}\,d^2\,e\,f\,x\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]-16\,\mathrm{i}\,d\,f^2\,x\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]-8\,\mathrm{i}\,d^2\,f^2\,x^2\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]+4\,d^2\,e^2\,\mathrm{Sinh}\left[c+\frac{d\,x}{2}\right]+$$

$$12\,d\,e\,f\,\mathrm{Sinh}\left[c+\frac{d\,x}{2}\right]+14\,f^2\,\mathrm{Sinh}\left[c+\frac{d\,x}{2}\right]+8\,d^2\,e\,f\,x\,\mathrm{Sinh}\left[c+\frac{d\,x}{2}\right]+12\,d\,f^2\,x\,\mathrm{Sinh}\left[c+\frac{d\,x}{2}\right]+4\,d^2\,f^2\,x^2\,\mathrm{Sinh}\left[c+\frac{d\,x}{2}\right]+$$

$$8\,d^2\,e^2\,\mathrm{Sinh}\left[c+\frac{3\,d\,x}{2}\right]+16\,d\,e\,f\,\mathrm{Sinh}\left[c+\frac{3\,d\,x}{2}\right]+16\,f^2\,\mathrm{Sinh}\left[c+\frac{3\,d\,x}{2}\right]+24\,d^3\,e^2\,x\,\mathrm{Sinh}\left[c+\frac{3\,d\,x}{2}\right]+16\,d^2\,e\,f\,x\,\mathrm{Sinh}\left[c+\frac{3\,d\,x}{2}\right]+$$

$$16\,d\,f^2\,x\,\mathrm{Sinh}\left[c+\frac{3\,d\,x}{2}\right]+24\,d^3\,e\,f\,x^2\,\mathrm{Sinh}\left[c+\frac{3\,d\,x}{2}\right]+8\,d^2\,f^2\,x^2\,\mathrm{Sinh}\left[c+\frac{3\,d\,x}{2}\right]+8\,d^3\,f^2\,x^3\,\mathrm{Sinh}\left[c+\frac{3\,d\,x}{2}\right]+40\,\mathrm{i}\,d^2\,e^2\,\mathrm{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]+$$

$$16\,\mathrm{i}\,d\,e\,f\,\mathrm{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]+16\,\mathrm{i}\,f^2\,\mathrm{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]+24\,\mathrm{i}\,d^3\,e^2\,x\,\mathrm{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]+80\,\mathrm{i}\,d^2\,e\,f\,x\,\mathrm{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]+$$

$$16\,\mathrm{i}\,d\,f^2\,x\,\mathrm{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]+24\,\mathrm{i}\,d^3\,e\,f\,x^2\,\mathrm{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]+40\,\mathrm{i}\,d^2\,f^2\,x^2\,\mathrm{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]+8\,\mathrm{i}\,d^3\,f^2\,x^3\,\mathrm{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]-$$

$$40\,\mathrm{i}\,d^2\,e^2\,\mathrm{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]+16\,\mathrm{i}\,d\,e\,f\,\mathrm{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]-16\,\mathrm{i}\,f^2\,\mathrm{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]+24\,\mathrm{i}\,d^3\,e^2\,x\,\mathrm{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]-$$

$$80\,\mathrm{i}\,d^2\,e\,f\,x\,\mathrm{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]+16\,\mathrm{i}\,d\,f^2\,x\,\mathrm{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]+24\,\mathrm{i}\,d^3\,e\,f\,x^2\,\mathrm{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]-40\,\mathrm{i}\,d^2\,f^2\,x^2\,\mathrm{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]+$$

$$8\,\mathrm{i}\,d^3\,f^2\,x^3\,\mathrm{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]+8\,d^2\,e^2\,\mathrm{Sinh}\left[3\,c+\frac{5\,d\,x}{2}\right]-16\,d\,e\,f\,\mathrm{Sinh}\left[3\,c+\frac{5\,d\,x}{2}\right]+16\,f^2\,\mathrm{Sinh}\left[3\,c+\frac{5\,d\,x}{2}\right]-24\,d^3\,e^2\,x\,\mathrm{Sinh}\left[3\,c+\frac{5\,d\,x}{2}\right]+$$

$$16\,d^2\,e\,f\,x\,\mathrm{Sinh}\left[3\,c+\frac{5\,d\,x}{2}\right]-16\,d\,f^2\,x\,\mathrm{Sinh}\left[3\,c+\frac{5\,d\,x}{2}\right]-24\,d^3\,e\,f\,x^2\,\mathrm{Sinh}\left[3\,c+\frac{5\,d\,x}{2}\right]+8\,d^2\,f^2\,x^2\,\mathrm{Sinh}\left[3\,c+\frac{5\,d\,x}{2}\right]-8\,d^3\,f^2\,x^3\,\mathrm{Sinh}\left[3\,c+\frac{5\,d\,x}{2}\right]+$$

$$6\,d^2\,e^2\,\mathrm{Sinh}\left[3\,c+\frac{7\,d\,x}{2}\right]-14\,d\,e\,f\,\mathrm{Sinh}\left[3\,c+\frac{7\,d\,x}{2}\right]+15\,f^2\,\mathrm{Sinh}\left[3\,c+\frac{7\,d\,x}{2}\right]+12\,d^2\,e\,f\,x\,\mathrm{Sinh}\left[3\,c+\frac{7\,d\,x}{2}\right]-14\,d\,f^2\,x\,\mathrm{Sinh}\left[3\,c+\frac{7\,d\,x}{2}\right]+$$

$$6\,d^2\,f^2\,x^2\,\mathrm{Sinh}\left[3\,c+\frac{7\,d\,x}{2}\right]+6\,\mathrm{i}\,d^2\,e^2\,\mathrm{Sinh}\left[4\,c+\frac{7\,d\,x}{2}\right]-14\,\mathrm{i}\,d\,e\,f\,\mathrm{Sinh}\left[4\,c+\frac{7\,d\,x}{2}\right]+15\,\mathrm{i}\,f^2\,\mathrm{Sinh}\left[4\,c+\frac{7\,d\,x}{2}\right]+12\,\mathrm{i}\,d^2\,e\,f\,x\,\mathrm{Sinh}\left[4\,c+\frac{7\,d\,x}{2}\right]-$$

$$14\,\mathrm{i}\,d\,f^2\,x\,\mathrm{Sinh}\left[4\,c+\frac{7\,d\,x}{2}\right]+6\,\mathrm{i}\,d^2\,f^2\,x^2\,\mathrm{Sinh}\left[4\,c+\frac{7\,d\,x}{2}\right]-2\,\mathrm{i}\,d^2\,e^2\,\mathrm{Sinh}\left[4\,c+\frac{9\,d\,x}{2}\right]+2\,\mathrm{i}\,d\,e\,f\,\mathrm{Sinh}\left[4\,c+\frac{9\,d\,x}{2}\right]-$$

$$\mathrm{i}\,f^2\,\mathrm{Sinh}\left[4\,c+\frac{9\,d\,x}{2}\right]-4\,\mathrm{i}\,d^2\,e\,f\,x\,\mathrm{Sinh}\left[4\,c+\frac{9\,d\,x}{2}\right]+2\,\mathrm{i}\,d\,f^2\,x\,\mathrm{Sinh}\left[4\,c+\frac{9\,d\,x}{2}\right]-2\,\mathrm{i}\,d^2\,f^2\,x^2\,\mathrm{Sinh}\left[4\,c+\frac{9\,d\,x}{2}\right]+2\,d^2\,e^2\,\mathrm{Sinh}\left[5\,c+\frac{9\,d\,x}{2}\right]-$$

$$2\,d\,e\,f\,\mathrm{Sinh}\left[5\,c+\frac{9\,d\,x}{2}\right]+f^2\,\mathrm{Sinh}\left[5\,c+\frac{9\,d\,x}{2}\right]+4\,d^2\,e\,f\,x\,\mathrm{Sinh}\left[5\,c+\frac{9\,d\,x}{2}\right]-2\,d\,f^2\,x\,\mathrm{Sinh}\left[5\,c+\frac{9\,d\,x}{2}\right]+2\,d^2\,f^2\,x^2\,\mathrm{Sinh}\left[5\,c+\frac{9\,d\,x}{2}\right]\Bigg]\Bigg)$$

Problem 203: Attempted integration timed out after 120 seconds.

$$\int\frac{\mathrm{Sinh}[c+d\,x]^3}{(e+f\,x)\,\left(a+\mathrm{i}\,a\,\mathrm{Sinh}[c+d\,x]\right)}\,dx$$

Optimal (type 9, 33 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sinh}[c+d\,x]^3}{(e+f\,x)\,(a+i\,a\,\text{Sinh}[c+d\,x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 204: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sinh}[c+d\,x]^3}{(e+f\,x)^2\,(a+i\,a\,\text{Sinh}[c+d\,x])}\,dx$$

Optimal (type 9, 33 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sinh}[c+d\,x]^3}{(e+f\,x)^2\,(a+i\,a\,\text{Sinh}[c+d\,x])},\,x\right]$$

Result (type 1, 1 leaves):

???

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

$$\int \frac{(e+f\,x)\,\text{Csch}[c+d\,x]}{a+i\,a\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 126 leaves, 9 steps):

$$-\frac{2\,(e+f\,x)\,\text{ArcTanh}\left[e^{c+d\,x}\right]}{a\,d}+\frac{2\,i\,f\,\text{Log}\left[\text{Cosh}\left[\frac{c}{2}+\frac{i\,\pi}{4}+\frac{d\,x}{2}\right]\right]}{a\,d^2}-\frac{f\,\text{PolyLog}\left[2,\,-e^{c+d\,x}\right]}{a\,d^2}+\frac{f\,\text{PolyLog}\left[2,\,e^{c+d\,x}\right]}{a\,d^2}-\frac{i\,(e+f\,x)\,\text{Tanh}\left[\frac{c}{2}+\frac{i\,\pi}{4}+\frac{d\,x}{2}\right]}{a\,d}$$

Result (type 4, 345 leaves):

$$\frac{1}{d^2\,(a+i\,a\,\text{Sinh}[c+d\,x])}\left(\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+i\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)$$
$$\left(f\,(c+d\,x)\left(\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+i\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)-2\,f\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+i\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)+\right.$$
$$i\,f\,\text{Log}[\text{Cosh}[c+d\,x]]\left(\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+i\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)+d\,e\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+i\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)-$$
$$c\,f\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+i\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)+$$
$$f\left((c+d\,x)\left(\text{Log}\left[1-e^{-c-d\,x}\right]-\text{Log}\left[1+e^{-c-d\,x}\right]\right)+\text{PolyLog}\left[2,-e^{-c-d\,x}\right]-\text{PolyLog}\left[2,e^{-c-d\,x}\right]\right)\left(\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+i\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)-$$
$$\left.2\,i\,d\,(e+f\,x)\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

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

$$\int\frac{\text{Csch}[c+d\,x]}{a+i\,a\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 3, 41 leaves, 3 steps):

$$-\frac{\text{ArcTanh}[\text{Cosh}[c+d\,x]]}{a\,d}+\frac{\text{Cosh}[c+d\,x]}{d\,(a+i\,a\,\text{Sinh}[c+d\,x])}$$

Result (type 3, 121 leaves):

$$\frac{1}{a\,d\,(-i+\text{Sinh}[c+d\,x])}\left(\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+i\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(i\,\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\left(\text{Log}\left[\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\right]-\text{Log}\left[\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)+\right.$$
$$\left.\left(-2-\text{Log}\left[\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\right]+\text{Log}\left[\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

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

$$\int\frac{(e+f\,x)^3\,\text{Csch}[c+d\,x]^2}{a+i\,a\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 419 leaves, 24 steps):

$$-\frac{2\,(e+f\,x)^3}{a\,d}+\frac{2\,i\,(e+f\,x)^3\,\text{ArcTanh}\left[e^{c+d\,x}\right]}{a\,d}-\frac{(e+f\,x)^3\,\text{Coth}[c+d\,x]}{a\,d}+\frac{6\,f\,(e+f\,x)^2\,\text{Log}\left[1+i\,e^{c+d\,x}\right]}{a\,d^2}+\frac{3\,f\,(e+f\,x)^2\,\text{Log}\left[1-e^{2\,(c+d\,x)}\right]}{a\,d^2}+\frac{3\,i\,f\,(e+f\,x)^2\,\text{PolyLog}\left[2,-e^{c+d\,x}\right]}{a\,d^2}+\frac{12\,f^2\,(e+f\,x)\,\text{PolyLog}\left[2,-i\,e^{c+d\,x}\right]}{a\,d^3}-\frac{3\,i\,f\,(e+f\,x)^2\,\text{PolyLog}\left[2,e^{c+d\,x}\right]}{a\,d^2}+\frac{3\,f^2\,(e+f\,x)\,\text{PolyLog}\left[2,e^{2\,(c+d\,x)}\right]}{a\,d^3}-\frac{6\,i\,f^2\,(e+f\,x)\,\text{PolyLog}\left[3,-e^{c+d\,x}\right]}{a\,d^3}-\frac{12\,f^3\,\text{PolyLog}\left[3,-i\,e^{c+d\,x}\right]}{a\,d^4}+\frac{6\,i\,f^2\,(e+f\,x)\,\text{PolyLog}\left[3,e^{c+d\,x}\right]}{a\,d^3}-\frac{3\,f^3\,\text{PolyLog}\left[3,e^{2\,(c+d\,x)}\right]}{2\,a\,d^4}+\frac{6\,i\,f^3\,\text{PolyLog}\left[4,-e^{c+d\,x}\right]}{a\,d^4}-\frac{6\,i\,f^3\,\text{PolyLog}\left[4,e^{c+d\,x}\right]}{a\,d^4}-\frac{(e+f\,x)^3\,\text{Tanh}\left[\frac{c}{2}+\frac{i\,\pi}{4}+\frac{d\,x}{2}\right]}{a\,d}$$

Result (type 4, 1005 leaves) :

$$-\frac{1}{a\,d^4\,(-i+e^c)}2\,i\,f\,\Big(d^2\,\Big(-i\,d\,e^c\,x\,(3\,e^2+3\,e\,f\,x+f^2\,x^2)+3\,(1+i\,e^c)\,(e+f\,x)^2\,\text{Log}\left[1+i\,e^{c+d\,x}\right]\Big)+6\,d\,(1+i\,e^c)\,f\,(e+f\,x)\,\text{PolyLog}\left[2,-i\,e^{c+d\,x}\right]-6\,i\,(-i+e^c)\,f^2\,\text{PolyLog}\left[3,-i\,e^{c+d\,x}\right]\Big)-$$
$$\frac{1}{2\,a\,d^4\,(-1+e^{2\,c})}\Big(12\,d^3\,e^2\,e^{2\,c}\,f\,x-12\,d^3\,e^2\,(-1+e^{2\,c})\,f\,x+12\,d^3\,e\,f^2\,x^2+4\,d^3\,f^3\,x^3-4\,i\,d^3\,e^3\,(-1+e^{2\,c})\,\text{ArcTanh}\left[e^{c+d\,x}\right]+6\,d^2\,e^2\,(-1+e^{2\,c})\,f\,\Big(2\,d\,x-\text{Log}\left[1-e^{2\,(c+d\,x)}\right]\Big)+6\,i\,d^2\,e^2\,(-1+e^{2\,c})\,f\,\Big(d\,x\,\Big(\text{Log}\left[1-e^{c+d\,x}\right]-\text{Log}\left[1+e^{c+d\,x}\right]\Big)-\text{PolyLog}\left[2,-e^{c+d\,x}\right]+\text{PolyLog}\left[2,e^{c+d\,x}\right]\Big)+6\,d\,e\,(-1+e^{2\,c})\,f^2\,\Big(2\,d\,x\,\Big(d\,x-\text{Log}\left[1-e^{2\,(c+d\,x)}\right]\Big)-\text{PolyLog}\left[2,e^{2\,(c+d\,x)}\right]\Big)+6\,i\,d\,e\,(-1+e^{2\,c})\,f^2\,\Big(d^2\,x^2\,\text{Log}\left[1-e^{c+d\,x}\right]-d^2\,x^2\,\text{Log}\left[1+e^{c+d\,x}\right]-2\,d\,x\,\text{PolyLog}\left[2,-e^{c+d\,x}\right]+2\,d\,x\,\text{PolyLog}\left[2,e^{c+d\,x}\right]+2\,\text{PolyLog}\left[3,-e^{c+d\,x}\right]-2\,\text{PolyLog}\left[3,e^{c+d\,x}\right]\Big)+(-1+e^{2\,c})\,f^3\,\Big(2\,d^2\,x^2\,\Big(2\,d\,x-3\,\text{Log}\left[1-e^{2\,(c+d\,x)}\right]\Big)-6\,d\,x\,\text{PolyLog}\left[2,e^{2\,(c+d\,x)}\right]+3\,\text{PolyLog}\left[3,e^{2\,(c+d\,x)}\right]\Big)+2\,i\,(-1+e^{2\,c})\,f^3\,\Big(d^3\,x^3\,\text{Log}\left[1-e^{c+d\,x}\right]-d^3\,x^3\,\text{Log}\left[1+e^{c+d\,x}\right]-3\,d^2\,x^2\,\text{PolyLog}\left[2,-e^{c+d\,x}\right]+3\,d^2\,x^2\,\text{PolyLog}\left[2,e^{c+d\,x}\right]+6\,d\,x\,\text{PolyLog}\left[3,-e^{c+d\,x}\right]-6\,d\,x\,\text{PolyLog}\left[3,e^{c+d\,x}\right]-6\,\text{PolyLog}\left[4,-e^{c+d\,x}\right]+6\,\text{PolyLog}\left[4,e^{c+d\,x}\right]\Big)\Big)+$$
$$\frac{\text{Sech}\left[\frac{c}{2}\right]\,\text{Sech}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\,\Big(-e^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]-3\,e^2\,f\,x\,\text{Sinh}\left[\frac{d\,x}{2}\right]-3\,e\,f^2\,x^2\,\text{Sinh}\left[\frac{d\,x}{2}\right]-f^3\,x^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]\Big)}{2\,a\,d}+$$
$$\frac{\text{Csch}\left[\frac{c}{2}\right]\,\text{Csch}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\,\Big(e^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]+3\,e^2\,f\,x\,\text{Sinh}\left[\frac{d\,x}{2}\right]+3\,e\,f^2\,x^2\,\text{Sinh}\left[\frac{d\,x}{2}\right]+f^3\,x^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]\Big)}{2\,a\,d}-$$
$$\frac{2\,\Big(e^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]+3\,e^2\,f\,x\,\text{Sinh}\left[\frac{d\,x}{2}\right]+3\,e\,f^2\,x^2\,\text{Sinh}\left[\frac{d\,x}{2}\right]+f^3\,x^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]\Big)}{a\,d\,\Big(\text{Cosh}\left[\frac{c}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}\right]\Big)\,\Big(\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\Big)}$$

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

$$\int \frac{(e+f\,x)^2\,\text{Csch}[c+d\,x]^2}{a+i\,a\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 296 leaves, 20 steps) :

$$-\frac{2(e+fx)^2}{ad}+\frac{2i(e+fx)^2\text{ArcTanh}\left[e^{c+dx}\right]}{ad}-\frac{(e+fx)^2\text{Coth}[c+dx]}{ad}+\frac{4f(e+fx)\text{Log}\left[1+ie^{c+dx}\right]}{ad^2}+$$
$$\frac{2f(e+fx)\text{Log}\left[1-e^{2(c+dx)}\right]}{ad^2}+\frac{2if(e+fx)\text{PolyLog}\left[2,-e^{c+dx}\right]}{ad^2}+\frac{4f^2\text{PolyLog}\left[2,-ie^{c+dx}\right]}{ad^3}-\frac{2if(e+fx)\text{PolyLog}\left[2,e^{c+dx}\right]}{ad^2}+$$
$$\frac{f^2\text{PolyLog}\left[2,e^{2(c+dx)}\right]}{ad^3}-\frac{2if^2\text{PolyLog}\left[3,-e^{c+dx}\right]}{ad^3}+\frac{2if^2\text{PolyLog}\left[3,e^{c+dx}\right]}{ad^3}-\frac{(e+fx)^2\text{Tanh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{dx}{2}\right]}{ad}$$

Result (type 4, 659 leaves) :

$$\frac{2f\left(d\left(-\frac{de^c x(2e+fx)}{-i+e^c}+2(e+fx)\text{Log}\left[1+ie^{c+dx}\right]\right)+2f\,\text{PolyLog}\left[2,-ie^{c+dx}\right]\right)}{ad^3}+\frac{1}{ad\left(-1+e^{2c}\right)}$$
$$\left(-4e\,e^{2c}fx+4e\left(-1+e^{2c}\right)fx-2e^{2c}f^2x^2+2\left(-1+e^{2c}\right)f^2x^2+2ie^2\left(-1+e^{2c}\right)\text{ArcTanh}\left[e^{c+dx}\right]-\frac{2e\left(-1+e^{2c}\right)f\left(2dx-\text{Log}\left[1-e^{2(c+dx)}\right]\right)}{d}+\right.$$
$$\frac{2ie\left(-1+e^{2c}\right)f\left(dx\left(-\text{Log}\left[1-e^{c+dx}\right]+\text{Log}\left[1+e^{c+dx}\right]\right)+\text{PolyLog}\left[2,-e^{c+dx}\right]-\text{PolyLog}\left[2,e^{c+dx}\right]\right)}{d}-$$
$$\frac{\left(-1+e^{2c}\right)f^2\left(2dx\left(dx-\text{Log}\left[1-e^{2(c+dx)}\right]\right)-\text{PolyLog}\left[2,e^{2(c+dx)}\right]\right)}{d^2}+\frac{1}{d^2}i\left(-1+e^{2c}\right)f^2\left(-d^2x^2\text{Log}\left[1-e^{c+dx}\right]+\right.$$
$$\left.\left.d^2x^2\text{Log}\left[1+e^{c+dx}\right]+2dx\,\text{PolyLog}\left[2,-e^{c+dx}\right]-2dx\,\text{PolyLog}\left[2,e^{c+dx}\right]-2\,\text{PolyLog}\left[3,-e^{c+dx}\right]+2\,\text{PolyLog}\left[3,e^{c+dx}\right]\right)\right)+$$
$$\frac{\text{Sech}\left[\frac{c}{2}\right]\text{Sech}\left[\frac{c}{2}+\frac{dx}{2}\right]\left(-e^2\text{Sinh}\left[\frac{dx}{2}\right]-2efx\,\text{Sinh}\left[\frac{dx}{2}\right]-f^2x^2\text{Sinh}\left[\frac{dx}{2}\right]\right)}{2ad}+$$
$$\frac{\text{Csch}\left[\frac{c}{2}\right]\text{Csch}\left[\frac{c}{2}+\frac{dx}{2}\right]\left(e^2\text{Sinh}\left[\frac{dx}{2}\right]+2efx\,\text{Sinh}\left[\frac{dx}{2}\right]+f^2x^2\text{Sinh}\left[\frac{dx}{2}\right]\right)}{2ad}-$$
$$\frac{2\left(e^2\text{Sinh}\left[\frac{dx}{2}\right]+2efx\,\text{Sinh}\left[\frac{dx}{2}\right]+f^2x^2\text{Sinh}\left[\frac{dx}{2}\right]\right)}{ad\left(\text{Cosh}\left[\frac{c}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\left(\text{Cosh}\left[\frac{c}{2}+\frac{dx}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{dx}{2}\right]\right)}$$

Problem 213: Result more than twice size of optimal antiderivative.

$$\int\frac{(e+fx)\,\text{Csch}[c+dx]^2}{a+i\,a\,\text{Sinh}[c+dx]}\,dx$$

Optimal (type 4, 163 leaves, 12 steps) :

$$\frac{2 i (e+f x) \text{ArcTanh}[e^{c+d x}]}{a d}-\frac{(e+f x) \text{Coth}[c+d x]}{a d}+\frac{2 f \text{Log}\left[\text{Cosh}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right]\right]}{a d^2}+\frac{f \text{Log}[\text{Sinh}[c+d x]]}{a d^2}+\frac{i f \text{PolyLog}[2,-e^{c+d x}]}{a d^2}-\frac{i f \text{PolyLog}[2,e^{c+d x}]}{a d^2}-\frac{(e+f x) \text{Tanh}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right]}{a d}$$

Result (type 4, 770 leaves):

$$-\frac{i f (c+d x) \left(\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right)^2}{d^2 (a+i a \text{Sinh}[c+d x])}+\frac{2 i f \text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right)^2}{d^2 (a+i a \text{Sinh}[c+d x])}+$$
$$\left(\left(-d e \text{Cosh}\left[\frac{1}{2} (c+d x)\right]+c f \text{Cosh}\left[\frac{1}{2} (c+d x)\right]-f (c+d x) \text{Cosh}\left[\frac{1}{2} (c+d x)\right]\right) \text{Csch}\left[\frac{1}{2} (c+d x)\right] \left(\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right)^2\right)\Big/$$
$$\left(2 d^2 (a+i a \text{Sinh}[c+d x])\right)+\frac{f \text{Log}[\text{Cosh}[c+d x]] \left(\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right)^2}{d^2 (a+i a \text{Sinh}[c+d x])}+$$
$$\frac{f \text{Log}[\text{Sinh}[c+d x]] \left(\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right)^2}{d^2 (a+i a \text{Sinh}[c+d x])}-\frac{i e \text{Log}\left[\text{Tanh}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right)^2}{d (a+i a \text{Sinh}[c+d x])}+$$
$$\frac{i c f \text{Log}\left[\text{Tanh}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right)^2}{d^2 (a+i a \text{Sinh}[c+d x])}-\frac{1}{d^2 (a+i a \text{Sinh}[c+d x])}$$
$$f \left(i (c+d x) \left(\text{Log}[1-e^{-c-d x}]-\text{Log}[1+e^{-c-d x}]\right)+i \left(\text{PolyLog}[2,-e^{-c-d x}]-\text{PolyLog}[2,e^{-c-d x}]\right)\right) \left(\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right)^2+$$
$$\left(\text{Sech}\left[\frac{1}{2} (c+d x)\right] \left(\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right)^2 \left(-d e \text{Sinh}\left[\frac{1}{2} (c+d x)\right]+c f \text{Sinh}\left[\frac{1}{2} (c+d x)\right]-f (c+d x) \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right)\right)\Big/$$
$$\left(2 d^2 (a+i a \text{Sinh}[c+d x])\right)-\frac{1}{d^2 (a+i a \text{Sinh}[c+d x])}$$
$$2 \left(\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right) \left(d e \text{Sinh}\left[\frac{1}{2} (c+d x)\right]-c f \text{Sinh}\left[\frac{1}{2} (c+d x)\right]+f (c+d x) \text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right)$$

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

$$\int \frac{\text{Csch}[c+d x]^2}{a+i a \text{Sinh}[c+d x]} \, dx$$

Optimal (type 3, 57 leaves, 5 steps):

$$\frac{i \text{ArcTanh}[\text{Cosh}[c+d x]]}{a d}-\frac{2 \text{Coth}[c+d x]}{a d}+\frac{\text{Coth}[c+d x]}{d (a+i a \text{Sinh}[c+d x])}$$

Result (type 3, 176 leaves):

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

Problem 215: Attempted integration timed out after 120 seconds.

$$\int \frac{\mathrm{Csch}[c+d\,x]^2}{(e+f\,x)\,(a+i\,a\,\mathrm{Sinh}[c+d\,x])}\,dx$$

Optimal (type 9, 33 leaves, 0 steps):

$$\mathrm{Unintegrable}\left[\frac{\mathrm{Csch}[c+d\,x]^2}{(e+f\,x)\,(a+i\,a\,\mathrm{Sinh}[c+d\,x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 216: Attempted integration timed out after 120 seconds.

$$\int \frac{\mathrm{Csch}[c+d\,x]^2}{(e+f\,x)^2\,(a+i\,a\,\mathrm{Sinh}[c+d\,x])}\,dx$$

Optimal (type 9, 33 leaves, 0 steps):

$$\mathrm{Unintegrable}\left[\frac{\mathrm{Csch}[c+d\,x]^2}{(e+f\,x)^2\,(a+i\,a\,\mathrm{Sinh}[c+d\,x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 217: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f\,x)^3\,\mathrm{Csch}[c+d\,x]^3}{a+i\,a\,\mathrm{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 546 leaves, 40 steps):

$$\frac{2\,i\,(e+f x)^3}{a\,d}-\frac{6\,f^2\,(e+f x)\,\text{ArcTanh}\left[e^{c+d x}\right]}{a\,d^3}+\frac{3\,(e+f x)^3\,\text{ArcTanh}\left[e^{c+d x}\right]}{a\,d}+\frac{i\,(e+f x)^3\,\text{Coth}[c+d x]}{a\,d}-\frac{3\,f\,(e+f x)^2\,\text{Csch}[c+d x]}{2\,a\,d^2}-\frac{(e+f x)^3\,\text{Coth}[c+d x]\,\text{Csch}[c+d x]}{2\,a\,d}-\frac{6\,i\,f\,(e+f x)^2\,\text{Log}\left[1+i\,e^{c+d x}\right]}{a\,d^2}-\frac{3\,i\,f\,(e+f x)^2\,\text{Log}\left[1-e^{2\,(c+d x)}\right]}{a\,d^2}-\frac{3\,f^3\,\text{PolyLog}\left[2,-e^{c+d x}\right]}{a\,d^4}+\frac{9\,f\,(e+f x)^2\,\text{PolyLog}\left[2,-e^{c+d x}\right]}{2\,a\,d^2}-\frac{12\,i\,f^2\,(e+f x)\,\text{PolyLog}\left[2,-i\,e^{c+d x}\right]}{a\,d^3}+\frac{3\,f^3\,\text{PolyLog}\left[2,e^{c+d x}\right]}{a\,d^4}-\frac{9\,f\,(e+f x)^2\,\text{PolyLog}\left[2,e^{c+d x}\right]}{2\,a\,d^2}-\frac{3\,i\,f^2\,(e+f x)\,\text{PolyLog}\left[2,e^{2\,(c+d x)}\right]}{a\,d^3}-\frac{9\,f^2\,(e+f x)\,\text{PolyLog}\left[3,-e^{c+d x}\right]}{a\,d^3}+\frac{12\,i\,f^3\,\text{PolyLog}\left[3,-i\,e^{c+d x}\right]}{a\,d^4}+\frac{9\,f^2\,(e+f x)\,\text{PolyLog}\left[3,e^{c+d x}\right]}{a\,d^3}+\frac{3\,i\,f^3\,\text{PolyLog}\left[3,e^{2\,(c+d x)}\right]}{2\,a\,d^4}+\frac{9\,f^3\,\text{PolyLog}\left[4,-e^{c+d x}\right]}{a\,d^4}-\frac{9\,f^3\,\text{PolyLog}\left[4,e^{c+d x}\right]}{a\,d^4}+\frac{i\,(e+f x)^3\,\text{Tanh}\left[\frac{c}{2}+\frac{i\pi}{4}+\frac{d x}{2}\right]}{a\,d}$$

Result (type 4, 2395 leaves) :

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

$$9\,e^2\,f\left(-c\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}\,(c+d x)\right]\right]-i\left((i\,c+i\,d x)\left(\text{Log}\left[1-e^{i\,(i\,c+i\,d x)}\right]-\text{Log}\left[1+e^{i\,(i\,c+i\,d x)}\right]\right)+i\left(\text{PolyLog}\left[2,-e^{i\,(i\,c+i\,d x)}\right]-\text{PolyLog}\left[2,e^{i\,(i\,c+i\,d x)}\right]\right)\right)\right)+\frac{1}{a\,d^4}3\,f^3\left(-c\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}\,(c+d x)\right]\right]-i\left((i\,c+i\,d x)\left(\text{Log}\left[1-e^{i\,(i\,c+i\,d x)}\right]-\text{Log}\left[1+e^{i\,(i\,c+i\,d x)}\right]\right)+i\left(\text{PolyLog}\left[2,-e^{i\,(i\,c+i\,d x)}\right]-\text{PolyLog}\left[2,e^{i\,(i\,c+i\,d x)}\right]\right)\right)\right)-$$

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

$$i\,e^{-c}\,f^3\,\text{Csch}[c]\left(2\,d^2\,x^2\left(2\,d\,e^{2\,c}\,x-3\,(-1+e^{2\,c})\,\text{Log}\left[1-e^{2\,(c+d x)}\right]\right)-6\,d\,(-1+e^{2\,c})\,x\,\text{PolyLog}\left[2,e^{2\,(c+d x)}\right]+3\,(-1+e^{2\,c})\,\text{PolyLog}\left[3,e^{2\,(c+d x)}\right]\right)+$$

$$\frac{1}{a\,d^3}9\,e\,f^2\left(d^2\,x^2\,\text{ArcTanh}[\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]+d\,x\,\text{PolyLog}[2,-\text{Cosh}[c+d x]-\text{Sinh}[c+d x]]-d\,x\,\text{PolyLog}[2,\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]-\text{PolyLog}[3,-\text{Cosh}[c+d x]-\text{Sinh}[c+d x]]+\text{PolyLog}[3,\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]\right)-$$

$$\frac{1}{2\,a\,d^4}3\,f^3\left(d^3\,x^3\,\text{Log}\left[1-e^{c+d x}\right]-d^3\,x^3\,\text{Log}\left[1+e^{c+d x}\right]-3\,d^2\,x^2\,\text{PolyLog}\left[2,-e^{c+d x}\right]+3\,d^2\,x^2\,\text{PolyLog}\left[2,e^{c+d x}\right]+6\,d\,x\,\text{PolyLog}\left[3,-e^{c+d x}\right]-6\,d\,x\,\text{PolyLog}\left[3,e^{c+d x}\right]-6\,\text{PolyLog}\left[4,-e^{c+d x}\right]+6\,\text{PolyLog}\left[4,e^{c+d x}\right]\right)+$$

$$\frac{3\,i\,e^2\,f\,\text{Csch}[c]\,(-d\,x\,\text{Cosh}[c]+\text{Log}[\text{Cosh}[d\,x]\,\text{Sinh}[c]+\text{Cosh}[c]\,\text{Sinh}[d\,x]]\,\text{Sinh}[c])}{a\,d^2\,(-\text{Cosh}[c]^2+\text{Sinh}[c]^2)}+$$

$$\frac{1}{8\,a\,d^2\left(\text{Cosh}\left[\frac{c}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\left(\text{Cosh}\left[\frac{c}{2}+\frac{d x}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)}\text{Csch}[c]\,\text{Csch}[c+d x]^2$$

$$\left(3\,e^2\,f\,\text{Cosh}\left[\frac{d x}{2}\right]+6\,e\,f^2\,x\,\text{Cosh}\left[\frac{d x}{2}\right]+3\,f^3\,x^2\,\text{Cosh}\left[\frac{d x}{2}\right]+3\,e^2\,f\,\text{Cosh}\left[\frac{3\,d x}{2}\right]+6\,e\,f^2\,x\,\text{Cosh}\left[\frac{3\,d x}{2}\right]+3\,f^3\,x^2\,\text{Cosh}\left[\frac{3\,d x}{2}\right]+5\,i\,d\,e^3\,\text{Cosh}\left[c-\frac{d x}{2}\right]+\right.$$

$$15\, i\, d\, e^2 f\, x\, \text{Cosh}\left[c-\frac{d\,x}{2}\right]+15\, i\, d\, e\, f^2 x^2 \text{Cosh}\left[c-\frac{d\,x}{2}\right]+5\, i\, d\, f^3 x^3 \text{Cosh}\left[c-\frac{d\,x}{2}\right]-i\, d\, e^3 \text{Cosh}\left[c+\frac{d\,x}{2}\right]-3\, i\, d\, e^2 f\, x\, \text{Cosh}\left[c+\frac{d\,x}{2}\right]-$$

$$3\, i\, d\, e\, f^2 x^2 \text{Cosh}\left[c+\frac{d\,x}{2}\right]-i\, d\, f^3 x^3 \text{Cosh}\left[c+\frac{d\,x}{2}\right]-3\, e^2 f\, \text{Cosh}\left[2\,c+\frac{d\,x}{2}\right]-6\, e\, f^2 x\, \text{Cosh}\left[2\,c+\frac{d\,x}{2}\right]-3\, f^3 x^2 \text{Cosh}\left[2\,c+\frac{d\,x}{2}\right]+$$

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

$$6\, e\, f^2 x\, \text{Cosh}\left[2\,c+\frac{3\,d\,x}{2}\right]-3\, f^3 x^2 \text{Cosh}\left[2\,c+\frac{3\,d\,x}{2}\right]-3\, i\, d\, e^3 \text{Cosh}\left[3\,c+\frac{3\,d\,x}{2}\right]-9\, i\, d\, e^2 f\, x\, \text{Cosh}\left[3\,c+\frac{3\,d\,x}{2}\right]-9\, i\, d\, e\, f^2 x^2 \text{Cosh}\left[3\,c+\frac{3\,d\,x}{2}\right]-$$

$$3\, i\, d\, f^3 x^3 \text{Cosh}\left[3\,c+\frac{3\,d\,x}{2}\right]-4\, i\, d\, e^3 \text{Cosh}\left[c+\frac{5\,d\,x}{2}\right]-12\, i\, d\, e^2 f\, x\, \text{Cosh}\left[c+\frac{5\,d\,x}{2}\right]-12\, i\, d\, e\, f^2 x^2 \text{Cosh}\left[c+\frac{5\,d\,x}{2}\right]-4\, i\, d\, f^3 x^3 \text{Cosh}\left[c+\frac{5\,d\,x}{2}\right]+$$

$$2\, i\, d\, e^3 \text{Cosh}\left[3\,c+\frac{5\,d\,x}{2}\right]+6\, i\, d\, e^2 f\, x\, \text{Cosh}\left[3\,c+\frac{5\,d\,x}{2}\right]+6\, i\, d\, e\, f^2 x^2 \text{Cosh}\left[3\,c+\frac{5\,d\,x}{2}\right]+2\, i\, d\, f^3 x^3 \text{Cosh}\left[3\,c+\frac{5\,d\,x}{2}\right]-d\, e^3 \text{Sinh}\left[\frac{d\,x}{2}\right]-$$

$$3\, d\, e^2 f\, x\, \text{Sinh}\left[\frac{d\,x}{2}\right]-3\, d\, e\, f^2 x^2 \text{Sinh}\left[\frac{d\,x}{2}\right]-d\, f^3 x^3 \text{Sinh}\left[\frac{d\,x}{2}\right]-d\, e^3 \text{Sinh}\left[\frac{3\,d\,x}{2}\right]-3\, d\, e^2 f\, x\, \text{Sinh}\left[\frac{3\,d\,x}{2}\right]-3\, d\, e\, f^2 x^2 \text{Sinh}\left[\frac{3\,d\,x}{2}\right]-$$

$$d\, f^3 x^3 \text{Sinh}\left[\frac{3\,d\,x}{2}\right]+3\, i\, e^2 f\, \text{Sinh}\left[c-\frac{d\,x}{2}\right]+6\, i\, e\, f^2 x\, \text{Sinh}\left[c-\frac{d\,x}{2}\right]+3\, i\, f^3 x^2 \text{Sinh}\left[c-\frac{d\,x}{2}\right]+3\, i\, e^2 f\, \text{Sinh}\left[c+\frac{d\,x}{2}\right]+$$

$$6\, i\, e\, f^2 x\, \text{Sinh}\left[c+\frac{d\,x}{2}\right]+3\, i\, f^3 x^2 \text{Sinh}\left[c+\frac{d\,x}{2}\right]-3\, d\, e^3 \text{Sinh}\left[2\,c+\frac{d\,x}{2}\right]-9\, d\, e^2 f\, x\, \text{Sinh}\left[2\,c+\frac{d\,x}{2}\right]-9\, d\, e\, f^2 x^2 \text{Sinh}\left[2\,c+\frac{d\,x}{2}\right]-$$

$$3\, d\, f^3 x^3 \text{Sinh}\left[2\,c+\frac{d\,x}{2}\right]+3\, i\, e^2 f\, \text{Sinh}\left[c+\frac{3\,d\,x}{2}\right]+6\, i\, e\, f^2 x\, \text{Sinh}\left[c+\frac{3\,d\,x}{2}\right]+3\, i\, f^3 x^2 \text{Sinh}\left[c+\frac{3\,d\,x}{2}\right]-d\, e^3 \text{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]-$$

$$3\, d\, e^2 f\, x\, \text{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]-3\, d\, e\, f^2 x^2 \text{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]-d\, f^3 x^3 \text{Sinh}\left[2\,c+\frac{3\,d\,x}{2}\right]-3\, i\, e^2 f\, \text{Sinh}\left[3\,c+\frac{3\,d\,x}{2}\right]-6\, i\, e\, f^2 x\, \text{Sinh}\left[3\,c+\frac{3\,d\,x}{2}\right]-$$

$$3\, i\, f^3 x^2 \text{Sinh}\left[3\,c+\frac{3\,d\,x}{2}\right]+2\, d\, e^3 \text{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]+6\, d\, e^2 f\, x\, \text{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]+6\, d\, e\, f^2 x^2 \text{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]+2\, d\, f^3 x^3 \text{Sinh}\left[2\,c+\frac{5\,d\,x}{2}\right]\Bigg)\Bigg)-$$

$$\Bigg(3\, i\, e\, f^2 \text{Csch}[c]\, \text{Sech}[c] \Bigg(-d^2 e^{-\text{ArcTanh}[\text{Tanh}[c]]} x^2+\frac{1}{\sqrt{1-\text{Tanh}[c]^2}} i \Big(-d\, x \left(-\pi+2\, i\, \text{ArcTanh}[\text{Tanh}[c]]\right)-\pi \,\text{Log}\left[1+e^{2\,d\,x}\right]-$$

$$2\left(i\, d\, x+i\, \text{ArcTanh}[\text{Tanh}[c]]\right) \text{Log}\left[1-e^{2\, i\, (i\, d\, x+i\, \text{ArcTanh}[\text{Tanh}[c]])}\right]+\pi\, \text{Log}[\text{Cosh}[d\, x]]+2\, i\, \text{ArcTanh}[\text{Tanh}[c]]$$

$$\text{Log}[i\, \text{Sinh}[d\, x+\text{ArcTanh}[\text{Tanh}[c]]]]+i\, \text{PolyLog}\left[2,\, e^{2\, i\, (i\, d\, x+i\, \text{ArcTanh}[\text{Tanh}[c]])}\right]\Big)\, \text{Tanh}[c]\Bigg)\Bigg)\Bigg/\left(a\, d^3 \sqrt{\text{Sech}[c]^2 \left(\text{Cosh}[c]^2-\text{Sinh}[c]^2\right)}\right)$$

Problem 218: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f\,x)^2\, \text{Csch}[c+d\,x]^3}{a+i\, a\, \text{Sinh}[c+d\,x]}\, dx$$

Optimal (type 4, 368 leaves, 30 steps):

$$\frac{2\,\mathrm{i}\,(e+f x)^2}{a d}+\frac{3\,(e+f x)^2\,\mathrm{ArcTanh}\left[e^{c+d x}\right]}{a d}-\frac{f^2\,\mathrm{ArcTanh}[\mathrm{Cosh}[c+d x]]}{a d^3}+\frac{\mathrm{i}\,(e+f x)^2\,\mathrm{Coth}[c+d x]}{a d}-\frac{f\,(e+f x)\,\mathrm{Csch}[c+d x]}{a d^2}-\frac{(e+f x)^2\,\mathrm{Coth}[c+d x]\,\mathrm{Csch}[c+d x]}{2 a d}-\frac{4\,\mathrm{i}\,f\,(e+f x)\,\mathrm{Log}\left[1+\mathrm{i}\,e^{c+d x}\right]}{a d^2}-\frac{2\,\mathrm{i}\,f\,(e+f x)\,\mathrm{Log}\left[1-e^{2\,(c+d x)}\right]}{a d^2}+\frac{3\,f\,(e+f x)\,\mathrm{PolyLog}\left[2,-e^{c+d x}\right]}{a d^2}-\frac{4\,\mathrm{i}\,f^2\,\mathrm{PolyLog}\left[2,-\mathrm{i}\,e^{c+d x}\right]}{a d^3}-\frac{3\,f\,(e+f x)\,\mathrm{PolyLog}\left[2,e^{c+d x}\right]}{a d^2}-\frac{\mathrm{i}\,f^2\,\mathrm{PolyLog}\left[2,e^{2\,(c+d x)}\right]}{a d^3}-\frac{3\,f^2\,\mathrm{PolyLog}\left[3,-e^{c+d x}\right]}{a d^3}+\frac{3\,f^2\,\mathrm{PolyLog}\left[3,e^{c+d x}\right]}{a d^3}+\frac{\mathrm{i}\,(e+f x)^2\,\mathrm{Tanh}\left[\frac{c}{2}+\frac{\mathrm{i}\,\pi}{4}+\frac{d x}{2}\right]}{a d}$$

Result (type 4, 1528 leaves) :

$$-\frac{3 e^2 \text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{2 a d}+\frac{f^2 \text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{a d^3}-\frac{1}{a d^2}3 e f\left(-c \text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]-\right.$$

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

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

$$3 f^2\left(d^2 x^2 \text{ArcTanh}[\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]+d x \text{PolyLog}[2,-\text{Cosh}[c+d x]-\text{Sinh}[c+d x]]-\right.$$

$$\left.d x \text{PolyLog}[2,\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]-\text{PolyLog}[3,-\text{Cosh}[c+d x]-\text{Sinh}[c+d x]]+\text{PolyLog}[3,\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]\right)+$$

$$\frac{2 i e f \text{Csch}[c](-d x \text{Cosh}[c]+\text{Log}[\text{Cosh}[d x] \text{Sinh}[c]+\text{Cosh}[c] \text{Sinh}[d x]] \text{Sinh}[c])}{a d^2\left(-\text{Cosh}[c]^2+\text{Sinh}[c]^2\right)}+$$

$$\frac{1}{8 a d^2\left(\text{Cosh}\left[\frac{c}{2}\right]+i \text{Sinh}\left[\frac{c}{2}\right]\right)\left(\text{Cosh}\left[\frac{c}{2}+\frac{d x}{2}\right]+i \text{Sinh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)} \text{Csch}[c] \text{Csch}[c+d x]^2$$

$$\left(2 e f \text{Cosh}\left[\frac{d x}{2}\right]+2 f^2 x \text{Cosh}\left[\frac{d x}{2}\right]+2 e f \text{Cosh}\left[\frac{3 d x}{2}\right]+2 f^2 x \text{Cosh}\left[\frac{3 d x}{2}\right]+5 i d e^2 \text{Cosh}\left[c-\frac{d x}{2}\right]+10 i d e f x \text{Cosh}\left[c-\frac{d x}{2}\right]+\right.$$

$$5 i d f^2 x^2 \text{Cosh}\left[c-\frac{d x}{2}\right]-i d e^2 \text{Cosh}\left[c+\frac{d x}{2}\right]-2 i d e f x \text{Cosh}\left[c+\frac{d x}{2}\right]-i d f^2 x^2 \text{Cosh}\left[c+\frac{d x}{2}\right]-2 e f \text{Cosh}\left[2 c+\frac{d x}{2}\right]-2 f^2 x \text{Cosh}\left[2 c+\frac{d x}{2}\right]+$$

$$i d e^2 \text{Cosh}\left[c+\frac{3 d x}{2}\right]+2 i d e f x \text{Cosh}\left[c+\frac{3 d x}{2}\right]+i d f^2 x^2 \text{Cosh}\left[c+\frac{3 d x}{2}\right]-2 e f \text{Cosh}\left[2 c+\frac{3 d x}{2}\right]-2 f^2 x \text{Cosh}\left[2 c+\frac{3 d x}{2}\right]-$$

$$3 i d e^2 \text{Cosh}\left[3 c+\frac{3 d x}{2}\right]-6 i d e f x \text{Cosh}\left[3 c+\frac{3 d x}{2}\right]-3 i d f^2 x^2 \text{Cosh}\left[3 c+\frac{3 d x}{2}\right]-4 i d e^2 \text{Cosh}\left[c+\frac{5 d x}{2}\right]-8 i d e f x \text{Cosh}\left[c+\frac{5 d x}{2}\right]-$$

$$4 i d f^2 x^2 \text{Cosh}\left[c+\frac{5 d x}{2}\right]+2 i d e^2 \text{Cosh}\left[3 c+\frac{5 d x}{2}\right]+4 i d e f x \text{Cosh}\left[3 c+\frac{5 d x}{2}\right]+2 i d f^2 x^2 \text{Cosh}\left[3 c+\frac{5 d x}{2}\right]-d e^2 \text{Sinh}\left[\frac{d x}{2}\right]-$$

$$2 d e f x \text{Sinh}\left[\frac{d x}{2}\right]-d f^2 x^2 \text{Sinh}\left[\frac{d x}{2}\right]-d e^2 \text{Sinh}\left[\frac{3 d x}{2}\right]-2 d e f x \text{Sinh}\left[\frac{3 d x}{2}\right]-d f^2 x^2 \text{Sinh}\left[\frac{3 d x}{2}\right]+2 i e f \text{Sinh}\left[c-\frac{d x}{2}\right]+$$

$$2 i f^2 x \text{Sinh}\left[c-\frac{d x}{2}\right]+2 i e f \text{Sinh}\left[c+\frac{d x}{2}\right]+2 i f^2 x \text{Sinh}\left[c+\frac{d x}{2}\right]-3 d e^2 \text{Sinh}\left[2 c+\frac{d x}{2}\right]-6 d e f x \text{Sinh}\left[2 c+\frac{d x}{2}\right]-3 d f^2 x^2 \text{Sinh}\left[2 c+\frac{d x}{2}\right]+$$

$$2 i e f \text{Sinh}\left[c+\frac{3 d x}{2}\right]+2 i f^2 x \text{Sinh}\left[c+\frac{3 d x}{2}\right]-d e^2 \text{Sinh}\left[2 c+\frac{3 d x}{2}\right]-2 d e f x \text{Sinh}\left[2 c+\frac{3 d x}{2}\right]-d f^2 x^2 \text{Sinh}\left[2 c+\frac{3 d x}{2}\right]-$$

$$\left.2 i e f \text{Sinh}\left[3 c+\frac{3 d x}{2}\right]-2 i f^2 x \text{Sinh}\left[3 c+\frac{3 d x}{2}\right]+2 d e^2 \text{Sinh}\left[2 c+\frac{5 d x}{2}\right]+4 d e f x \text{Sinh}\left[2 c+\frac{5 d x}{2}\right]+2 d f^2 x^2 \text{Sinh}\left[2 c+\frac{5 d x}{2}\right]\right)-$$

$$\left(i f^2 \text{Csch}[c] \text{Sech}[c]\left(-d^2 e^{-\text{ArcTanh}[\text{Tanh}[c]]} x^2+\frac{1}{\sqrt{1-\text{Tanh}[c]^2}} i\left(-d x(-\pi+2 i \text{ArcTanh}[\text{Tanh}[c]])-\pi \text{Log}\left[1+e^{2 d x}\right]-\right.\right.\right.$$

$$2(i d x+i \text{ArcTanh}[\text{Tanh}[c]]) \text{Log}\left[1-e^{2 i(i d x+i \text{ArcTanh}[\text{Tanh}[c]])}\right]+\pi \text{Log}[\text{Cosh}[d x]]+2 i \text{ArcTanh}[\text{Tanh}[c]]$$

$$\left.\left.\left.\text{Log}[i \text{Sinh}[d x+\text{ArcTanh}[\text{Tanh}[c]]]]+i \text{PolyLog}\left[2,e^{2 i(i d x+i \text{ArcTanh}[\text{Tanh}[c]])}\right]\right) \text{Tanh}[c]\right)\right)\Big/\left(a d^3 \sqrt{\text{Sech}[c]^2\left(\text{Cosh}[c]^2-\text{Sinh}[c]^2\right)}\right)$$

Problem 219: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)\, \text{Csch}[c+d x]^3}{a+i a \,\text{Sinh}[c+d x]}\, dx$$

Optimal (type 4, 214 leaves, 19 steps):

$$\frac{3 (e+f x) \,\text{ArcTanh}\left[e^{c+d x}\right]}{a d}+\frac{i (e+f x) \,\text{Coth}[c+d x]}{a d}-\frac{f \,\text{Csch}[c+d x]}{2 a d^2}-\frac{(e+f x) \,\text{Coth}[c+d x] \,\text{Csch}[c+d x]}{2 a d}-\frac{2 i f \,\text{Log}\left[\text{Cosh}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right]\right]}{a d^2}-\frac{i f \,\text{Log}[\text{Sinh}[c+d x]]}{a d^2}+\frac{3 f \,\text{PolyLog}\left[2,-e^{c+d x}\right]}{2 a d^2}-\frac{3 f \,\text{PolyLog}\left[2,e^{c+d x}\right]}{2 a d^2}+\frac{i (e+f x) \,\text{Tanh}\left[\frac{c}{2}+\frac{i \pi}{4}+\frac{d x}{2}\right]}{a d}$$

Result (type 4, 541 leaves):

$$\frac{1}{8 d^2 (a+i a \,\text{Sinh}[c+d x])}\left(\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)$$
$$\left(2 i (i f+2 d (e+f x)) \,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]\left(i+\text{Coth}\left[\frac{1}{2}(c+d x)\right]\right)-d (e+f x)\left(i+\text{Coth}\left[\frac{1}{2}(c+d x)\right]\right) \text{Csch}\left[\frac{1}{2}(c+d x)\right]-\right.$$
$$8 f (c+d x)\left(\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)+16 f \,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)-12 d e$$
$$\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)+12 c f \,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)-$$
$$12 f\left((c+d x)\left(\text{Log}\left[1-e^{-c-d x}\right]-\text{Log}\left[1+e^{-c-d x}\right]\right)+\text{PolyLog}\left[2,-e^{-c-d x}\right]-\text{PolyLog}\left[2,e^{-c-d x}\right]\right)\left(\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)+$$
$$16 i d (e+f x) \,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]+8 f \,\text{Log}[\text{Cosh}[c+d x]]\left(-i \,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)+$$
$$8 f \,\text{Log}[\text{Sinh}[c+d x]]\left(-i \,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)+$$
$$\left.2 (f+2 i d (e+f x))\left(\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right) \text{Tanh}\left[\frac{1}{2}(c+d x)\right]-i d (e+f x) \,\text{Sech}\left[\frac{1}{2}(c+d x)\right]\left(-i+\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right)\right)$$

Problem 220: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csch}[c+d x]^3}{a+i a \,\text{Sinh}[c+d x]}\, dx$$

Optimal (type 3, 87 leaves, 6 steps):

$$\frac{3 \,\text{ArcTanh}[\text{Cosh}[c+d x]]}{2 a d}+\frac{2 i \,\text{Coth}[c+d x]}{a d}-\frac{3 \,\text{Coth}[c+d x] \,\text{Csch}[c+d x]}{2 a d}+\frac{\text{Coth}[c+d x] \,\text{Csch}[c+d x]}{d (a+i a \,\text{Sinh}[c+d x])}$$

Result (type 3, 422 leaves):

$$\frac{i \operatorname{Coth}\left[\frac{1}{2}(c+d x)\right]\left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2}{2 d(a+i a \operatorname{Sinh}[c+d x])}-$$

$$\frac{\operatorname{Csch}\left[\frac{1}{2}(c+d x)\right]^2\left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2}{8 d(a+i a \operatorname{Sinh}[c+d x])}+\frac{3 \operatorname{Log}\left[\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]\right]\left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2}{2 d(a+i a \operatorname{Sinh}[c+d x])}-$$

$$\frac{3 \operatorname{Log}\left[\operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right]\left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2}{2 d(a+i a \operatorname{Sinh}[c+d x])}-\frac{\operatorname{Sech}\left[\frac{1}{2}(c+d x)\right]^2\left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2}{8 d(a+i a \operatorname{Sinh}[c+d x])}+$$

$$\frac{2 i\left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right) \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]}{d(a+i a \operatorname{Sinh}[c+d x])}+\frac{i\left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2 \operatorname{Tanh}\left[\frac{1}{2}(c+d x)\right]}{2 d(a+i a \operatorname{Sinh}[c+d x])}$$

Problem 221: Attempted integration timed out after 120 seconds.

$$\int \frac{\operatorname{Csch}[c+d x]^3}{(e+f x)(a+i a \operatorname{Sinh}[c+d x])} \, dx$$

Optimal (type 9, 33 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\operatorname{Csch}[c+d x]^3}{(e+f x)(a+i a \operatorname{Sinh}[c+d x])}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 222: Attempted integration timed out after 120 seconds.

$$\int \frac{\operatorname{Csch}[c+d x]^3}{(e+f x)^2(a+i a \operatorname{Sinh}[c+d x])} \, dx$$

Optimal (type 9, 33 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\operatorname{Csch}[c+d x]^3}{(e+f x)^2(a+i a \operatorname{Sinh}[c+d x])}, x\right]$$

Result (type 1, 1 leaves):

???

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

$$\int \frac{(e+f x)^3 \operatorname{Sinh}[c+d x]}{a+b \operatorname{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 453 leaves, 14 steps):

$$\frac{(e+f x)^4}{4 b f}-\frac{a (e+f x)^3 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b \sqrt{a^2+b^2}\, d}+\frac{a (e+f x)^3 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b \sqrt{a^2+b^2}\, d}-$$
$$\frac{3 a f (e+f x)^2 \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b \sqrt{a^2+b^2}\, d^2}+\frac{3 a f (e+f x)^2 \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b \sqrt{a^2+b^2}\, d^2}+\frac{6 a f^2 (e+f x) \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b \sqrt{a^2+b^2}\, d^3}-$$
$$\frac{6 a f^2 (e+f x) \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b \sqrt{a^2+b^2}\, d^3}-\frac{6 a f^3 \operatorname{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b \sqrt{a^2+b^2}\, d^4}+\frac{6 a f^3 \operatorname{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b \sqrt{a^2+b^2}\, d^4}$$

Result (type 4, 1074 leaves):

$$\frac{x\left(4 e^3+6 e^2 f x+4 e f^2 x^2+f^3 x^3\right)}{4 b}-$$

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

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

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

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

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

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

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

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

Problem 228: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 551 leaves, 19 steps):

$$-\frac{a\,(e+f\,x)^4}{4\,b^2\,f}+\frac{6\,f^2\,(e+f\,x)\,\text{Cosh}[c+d\,x]}{b\,d^3}+\frac{(e+f\,x)^3\,\text{Cosh}[c+d\,x]}{b\,d}+$$
$$\frac{a^2\,(e+f\,x)^3\,\text{Log}\left[1+\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{b^2\,\sqrt{a^2+b^2}\,d}-\frac{a^2\,(e+f\,x)^3\,\text{Log}\left[1+\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{b^2\,\sqrt{a^2+b^2}\,d}+\frac{3\,a^2\,f\,(e+f\,x)^2\,\text{PolyLog}\left[2,-\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{b^2\,\sqrt{a^2+b^2}\,d^2}-$$
$$\frac{3\,a^2\,f\,(e+f\,x)^2\,\text{PolyLog}\left[2,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{b^2\,\sqrt{a^2+b^2}\,d^2}-\frac{6\,a^2\,f^2\,(e+f\,x)\,\text{PolyLog}\left[3,-\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{b^2\,\sqrt{a^2+b^2}\,d^3}+\frac{6\,a^2\,f^2\,(e+f\,x)\,\text{PolyLog}\left[3,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{b^2\,\sqrt{a^2+b^2}\,d^3}+$$
$$\frac{6\,a^2\,f^3\,\text{PolyLog}\left[4,-\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{b^2\,\sqrt{a^2+b^2}\,d^4}-\frac{6\,a^2\,f^3\,\text{PolyLog}\left[4,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{b^2\,\sqrt{a^2+b^2}\,d^4}-\frac{6\,f^3\,\text{Sinh}[c+d\,x]}{b\,d^4}-\frac{3\,f\,(e+f\,x)^2\,\text{Sinh}[c+d\,x]}{b\,d^2}$$

Result (type 4, 1697 leaves) :

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

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

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

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

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

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

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

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

$$\left(\frac{\text{Cosh}[c+d x]}{4 b^2 d^4} - \frac{\text{Sinh}[c+d x]}{4 b^2 d^4}\right) \left(2 b d^3 e^3 + 6 b d^2 e^2 f + 12 b d e f^2 + 12 b f^3 + 6 b d^3 e^2 f x + 12 b d^2 e f^2 x + 12 b d f^3 x + 6 b d^3 e f^2 x^2 + \right.$$

$$6 b d^2 f^3 x^2 + 2 b d^3 f^3 x^3 - 4 a d^4 e^3 x \text{Cosh}[c+d x] - 6 a d^4 e^2 f x^2 \text{Cosh}[c+d x] - 4 a d^4 e f^2 x^3 \text{Cosh}[c+d x] - a d^4 f^3 x^4 \text{Cosh}[c+d x] +$$

$$2 b d^3 e^3 \text{Cosh}[2c+2d x] - 6 b d^2 e^2 f \text{Cosh}[2c+2d x] + 12 b d e f^2 \text{Cosh}[2c+2d x] - 12 b f^3 \text{Cosh}[2c+2d x] +$$

$$6 b d^3 e^2 f x \text{Cosh}[2c+2d x] - 12 b d^2 e f^2 x \text{Cosh}[2c+2d x] + 12 b d f^3 x \text{Cosh}[2c+2d x] + 6 b d^3 e f^2 x^2 \text{Cosh}[2c+2d x] -$$

$$6 b d^2 f^3 x^2 \text{Cosh}[2c+2d x] + 2 b d^3 f^3 x^3 \text{Cosh}[2c+2d x] - 4 a d^4 e^3 x \text{Sinh}[c+d x] - 6 a d^4 e^2 f x^2 \text{Sinh}[c+d x] -$$

$$4 a d^4 e f^2 x^3 \text{Sinh}[c+d x] - a d^4 f^3 x^4 \text{Sinh}[c+d x] + 2 b d^3 e^3 \text{Sinh}[2c+2d x] - 6 b d^2 e^2 f \text{Sinh}[2c+2d x] +$$

$$12 b d e f^2 \text{Sinh}[2c+2d x] - 12 b f^3 \text{Sinh}[2c+2d x] + 6 b d^3 e^2 f x \text{Sinh}[2c+2d x] - 12 b d^2 e f^2 x \text{Sinh}[2c+2d x] +$$

$$\left.12 b d f^3 x \text{Sinh}[2c+2d x] + 6 b d^3 e f^2 x^2 \text{Sinh}[2c+2d x] - 6 b d^2 f^3 x^2 \text{Sinh}[2c+2d x] + 2 b d^3 f^3 x^3 \text{Sinh}[2c+2d x]\right)$$

Problem 232: Attempted integration timed out after 120 seconds.

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

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

$$\text{Unintegrable}\left[\frac{\text{Sinh}[c+d x]^2}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 233: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3\,\text{Sinh}[c+d x]^3}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 712 leaves, 24 steps):

$$-\frac{3 e f^2 x}{4 b d^2}-\frac{3 f^3 x^2}{8 b d^2}+\frac{a^2 (e+f x)^4}{4 b^3 f}-\frac{(e+f x)^4}{8 b f}-\frac{6 a f^2 (e+f x)\,\text{Cosh}[c+d x]}{b^2 d^3}-\frac{a (e+f x)^3\,\text{Cosh}[c+d x]}{b^2 d}-$$
$$\frac{a^3 (e+f x)^3\,\text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3\sqrt{a^2+b^2}\,d}+\frac{a^3 (e+f x)^3\,\text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3\sqrt{a^2+b^2}\,d}-\frac{3 a^3 f (e+f x)^2\,\text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3\sqrt{a^2+b^2}\,d^2}+$$
$$\frac{3 a^3 f (e+f x)^2\,\text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3\sqrt{a^2+b^2}\,d^2}+\frac{6 a^3 f^2 (e+f x)\,\text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3\sqrt{a^2+b^2}\,d^3}-\frac{6 a^3 f^2 (e+f x)\,\text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3\sqrt{a^2+b^2}\,d^3}-$$
$$\frac{6 a^3 f^3\,\text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3\sqrt{a^2+b^2}\,d^4}+\frac{6 a^3 f^3\,\text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3\sqrt{a^2+b^2}\,d^4}+\frac{6 a f^3\,\text{Sinh}[c+d x]}{b^2 d^4}+\frac{3 a f (e+f x)^2\,\text{Sinh}[c+d x]}{b^2 d^2}+$$
$$\frac{3 f^2 (e+f x)\,\text{Cosh}[c+d x]\,\text{Sinh}[c+d x]}{4 b d^3}+\frac{(e+f x)^3\,\text{Cosh}[c+d x]\,\text{Sinh}[c+d x]}{2 b d}-\frac{3 f^3\,\text{Sinh}[c+d x]^2}{8 b d^4}-\frac{3 f (e+f x)^2\,\text{Sinh}[c+d x]^2}{4 b d^2}$$

Result (type 4, 2013 leaves):

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

$$3\sqrt{-a^2-b^2}\; d^3\, e\, e^c\, f^2\, x^2\, \text{Log}\Big[1+\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\Big]-\sqrt{-a^2-b^2}\; d^3\, e^c\, f^3\, x^3\, \text{Log}\Big[1+\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\Big]+$$

$$3\sqrt{-a^2-b^2}\; d^2\, e^c\, f\,(e+f x)^2\, \text{PolyLog}\Big[2,-\frac{b\, e^{2c+dx}}{a\, e^c-\sqrt{(a^2+b^2)\, e^{2c}}}\Big]-3\sqrt{-a^2-b^2}\; d^2\, e^c\, f\,(e+f x)^2\, \text{PolyLog}\Big[2,-\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\Big]-$$

$$6\sqrt{-a^2-b^2}\; d\, e\, e^c\, f^2\, \text{PolyLog}\Big[3,-\frac{b\, e^{2c+dx}}{a\, e^c-\sqrt{(a^2+b^2)\, e^{2c}}}\Big]-6\sqrt{-a^2-b^2}\; d\, e^c\, f^3\, x\, \text{PolyLog}\Big[3,-\frac{b\, e^{2c+dx}}{a\, e^c-\sqrt{(a^2+b^2)\, e^{2c}}}\Big]+$$

$$6\sqrt{-a^2-b^2}\; d\, e\, e^c\, f^2\, \text{PolyLog}\Big[3,-\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\Big]+6\sqrt{-a^2-b^2}\; d\, e^c\, f^3\, x\, \text{PolyLog}\Big[3,-\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\Big]+$$

$$6\sqrt{-a^2-b^2}\; e^c\, f^3\, \text{PolyLog}\Big[4,-\frac{b\, e^{2c+dx}}{a\, e^c-\sqrt{(a^2+b^2)\, e^{2c}}}\Big]-6\sqrt{-a^2-b^2}\; e^c\, f^3\, \text{PolyLog}\Big[4,-\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\Big]\Bigg)+$$

$$\Bigg(-\frac{a f^3 x^3 \text{Cosh}[c]}{2 b^2 d}+\frac{a f^3 x^3 \text{Sinh}[c]}{2 b^2 d}+(d^3 e^3+3 d^2 e^2 f+6 d e f^2+6 f^3)\left(-\frac{a \text{Cosh}[c]}{2 b^2 d^4}+\frac{a \text{Sinh}[c]}{2 b^2 d^4}\right)+$$

$$(a d^2 e^2 f+2 a d e f^2+2 a f^3)\left(-\frac{3 x \text{Cosh}[c]}{2 b^2 d^3}+\frac{3 x \text{Sinh}[c]}{2 b^2 d^3}\right)+(a d e f^2+a f^3)\left(-\frac{3 x^2 \text{Cosh}[c]}{2 b^2 d^2}+\frac{3 x^2 \text{Sinh}[c]}{2 b^2 d^2}\right)\Bigg)(\text{Cosh}[d x]-\text{Sinh}[d x])+$$

$$\Bigg(-\frac{a f^3 x^3 \text{Cosh}[c]}{2 b^2 d}-\frac{a f^3 x^3 \text{Sinh}[c]}{2 b^2 d}+(d^3 e^3-3 d^2 e^2 f+6 d e f^2-6 f^3)\left(-\frac{a \text{Cosh}[c]}{2 b^2 d^4}-\frac{a \text{Sinh}[c]}{2 b^2 d^4}\right)-$$

$$\frac{3 x^2 (a d e f^2 \text{Cosh}[c]-a f^3 \text{Cosh}[c]+a d e f^2 \text{Sinh}[c]-a f^3 \text{Sinh}[c])}{2 b^2 d^2}-\frac{1}{2 b^2 d^3}$$

$$3 x\,(a d^2 e^2 f \text{Cosh}[c]-2 a d e f^2 \text{Cosh}[c]+2 a f^3 \text{Cosh}[c]+a d^2 e^2 f \text{Sinh}[c]-2 a d e f^2 \text{Sinh}[c]+2 a f^3 \text{Sinh}[c])\Bigg)(\text{Cosh}[d x]+\text{Sinh}[d x])+$$

$$\Bigg(-\frac{f^3 x^3 \text{Cosh}[2 c]}{8 b d}+\frac{f^3 x^3 \text{Sinh}[2 c]}{8 b d}+(4 d^3 e^3+6 d^2 e^2 f+6 d e f^2+3 f^3)\left(-\frac{\text{Cosh}[2 c]}{32 b d^4}+\frac{\text{Sinh}[2 c]}{32 b d^4}\right)+$$

$$(2 d^2 e^2 f+2 d e f^2+f^3)\left(-\frac{3 x \text{Cosh}[2 c]}{16 b d^3}+\frac{3 x \text{Sinh}[2 c]}{16 b d^3}\right)+(2 d e f^2+f^3)\left(-\frac{3 x^2 \text{Cosh}[2 c]}{16 b d^2}+\frac{3 x^2 \text{Sinh}[2 c]}{16 b d^2}\right)\Bigg)(\text{Cosh}[2 d x]-\text{Sinh}[2 d x])+$$

$$\Bigg(\frac{f^3 x^3 \text{Cosh}[2 c]}{8 b d}+\frac{f^3 x^3 \text{Sinh}[2 c]}{8 b d}+(4 d^3 e^3-6 d^2 e^2 f+6 d e f^2-3 f^3)\left(\frac{\text{Cosh}[2 c]}{32 b d^4}+\frac{\text{Sinh}[2 c]}{32 b d^4}\right)+$$

$$\frac{3 x^2 (2 d e f^2 \text{Cosh}[2 c]-f^3 \text{Cosh}[2 c]+2 d e f^2 \text{Sinh}[2 c]-f^3 \text{Sinh}[2 c])}{16 b d^2}+\frac{1}{16 b d^3}$$

$$3 x\,(2 d^2 e^2 f \text{Cosh}[2 c]-2 d e f^2 \text{Cosh}[2 c]+f^3 \text{Cosh}[2 c]+2 d^2 e^2 f \text{Sinh}[2 c]-2 d e f^2 \text{Sinh}[2 c]+f^3 \text{Sinh}[2 c])\Bigg)(\text{Cosh}[2 d x]+\text{Sinh}[2 d x])$$

Problem 234: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 522 leaves, 21 steps):

$$-\frac{f^2 x}{4 b d^2}+\frac{a^2 (e+f x)^3}{3 b^3 f}-\frac{(e+f x)^3}{6 b f}-\frac{2 a f^2 \operatorname{Cosh}[c+d x]}{b^2 d^3}-\frac{a (e+f x)^2 \operatorname{Cosh}[c+d x]}{b^2 d}-\frac{a^3 (e+f x)^2 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 \sqrt{a^2+b^2}\, d}+\frac{a^3 (e+f x)^2 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 \sqrt{a^2+b^2}\, d}-\frac{2 a^3 f (e+f x) \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 \sqrt{a^2+b^2}\, d^2}+\frac{2 a^3 f (e+f x) \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 \sqrt{a^2+b^2}\, d^2}+\frac{2 a^3 f^2 \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 \sqrt{a^2+b^2}\, d^3}-\frac{2 a^3 f^2 \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 \sqrt{a^2+b^2}\, d^3}+\frac{2 a f (e+f x) \operatorname{Sinh}[c+d x]}{b^2 d^2}+\frac{f^2 \operatorname{Cosh}[c+d x] \operatorname{Sinh}[c+d x]}{4 b d^3}+\frac{(e+f x)^2 \operatorname{Cosh}[c+d x] \operatorname{Sinh}[c+d x]}{2 b d}-\frac{f (e+f x) \operatorname{Sinh}[c+d x]^2}{2 b d^2}$$

Result (type 4, 1612 leaves):

$$-\frac{1}{b^3 d^3}$$

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

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

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

$$\left(\frac{\text{Cosh}[2 c+2 d x]}{48 b^3 d^3} - \frac{\text{Sinh}[2 c+2 d x]}{48 b^3 d^3}\right) \left(-6 b^2 d^2 e^2 - 6 b^2 d e f - 3 b^2 f^2 - 12 b^2 d^2 e f x - 6 b^2 d f^2 x - 6 b^2 d^2 f^2 x^2 - 24 a b d^2 e^2 \text{Cosh}[c+d x] - \right.$$
$$48 a b d e f \text{Cosh}[c+d x] - 48 a b f^2 \text{Cosh}[c+d x] - 48 a b d^2 e f x \text{Cosh}[c+d x] - 48 a b d f^2 x \text{Cosh}[c+d x] - 24 a b d^2 f^2 x^2 \text{Cosh}[c+d x] +$$
$$48 a^2 d^3 e^2 x \text{Cosh}[2 c+2 d x] - 24 b^2 d^3 e^2 x \text{Cosh}[2 c+2 d x] + 48 a^2 d^3 e f x^2 \text{Cosh}[2 c+2 d x] - 24 b^2 d^3 e f x^2 \text{Cosh}[2 c+2 d x] +$$
$$16 a^2 d^3 f^2 x^3 \text{Cosh}[2 c+2 d x] - 8 b^2 d^3 f^2 x^3 \text{Cosh}[2 c+2 d x] - 24 a b d^2 e^2 \text{Cosh}[3 c+3 d x] + 48 a b d e f \text{Cosh}[3 c+3 d x] -$$
$$48 a b f^2 \text{Cosh}[3 c+3 d x] - 48 a b d^2 e f x \text{Cosh}[3 c+3 d x] + 48 a b d f^2 x \text{Cosh}[3 c+3 d x] - 24 a b d^2 f^2 x^2 \text{Cosh}[3 c+3 d x] +$$
$$6 b^2 d^2 e^2 \text{Cosh}[4 c+4 d x] - 6 b^2 d e f \text{Cosh}[4 c+4 d x] + 3 b^2 f^2 \text{Cosh}[4 c+4 d x] + 12 b^2 d^2 e f x \text{Cosh}[4 c+4 d x] - 6 b^2 d f^2 x \text{Cosh}[4 c+4 d x] +$$
$$6 b^2 d^2 f^2 x^2 \text{Cosh}[4 c+4 d x] - 24 a b d^2 e^2 \text{Sinh}[c+d x] - 48 a b d e f \text{Sinh}[c+d x] - 48 a b f^2 \text{Sinh}[c+d x] - 48 a b d^2 e f x \text{Sinh}[c+d x] -$$
$$48 a b d f^2 x \text{Sinh}[c+d x] - 24 a b d^2 f^2 x^2 \text{Sinh}[c+d x] + 48 a^2 d^3 e^2 x \text{Sinh}[2 c+2 d x] - 24 b^2 d^3 e^2 x \text{Sinh}[2 c+2 d x] +$$
$$48 a^2 d^3 e f x^2 \text{Sinh}[2 c+2 d x] - 24 b^2 d^3 e f x^2 \text{Sinh}[2 c+2 d x] + 16 a^2 d^3 f^2 x^3 \text{Sinh}[2 c+2 d x] - 8 b^2 d^3 f^2 x^3 \text{Sinh}[2 c+2 d x] -$$
$$24 a b d^2 e^2 \text{Sinh}[3 c+3 d x] + 48 a b d e f \text{Sinh}[3 c+3 d x] - 48 a b f^2 \text{Sinh}[3 c+3 d x] - 48 a b d^2 e f x \text{Sinh}[3 c+3 d x] +$$
$$48 a b d f^2 x \text{Sinh}[3 c+3 d x] - 24 a b d^2 f^2 x^2 \text{Sinh}[3 c+3 d x] + 6 b^2 d^2 e^2 \text{Sinh}[4 c+4 d x] - 6 b^2 d e f \text{Sinh}[4 c+4 d x] +$$
$$\left. 3 b^2 f^2 \text{Sinh}[4 c+4 d x] + 12 b^2 d^2 e f x \text{Sinh}[4 c+4 d x] - 6 b^2 d f^2 x \text{Sinh}[4 c+4 d x] + 6 b^2 d^2 f^2 x^2 \text{Sinh}[4 c+4 d x]\right)$$

Problem 237: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sinh}[c+d x]^3}{(e+f x)\,(a+b \text{Sinh}[c+d x])}\, dx$$

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

$$\text{Unintegrable}\left[\frac{\text{Sinh}[c+d x]^3}{(e+f x)\,(a+b \text{Sinh}[c+d x])}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 238: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3 \operatorname{Csch}[c+d x]}{a+b \operatorname{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 605 leaves, 22 steps):

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

Result (type 4, 1336 leaves):

$$\frac{1}{a\,d^4}\Big(-2 d^3 e^3 \text{ArcTanh}\left[e^{c+d x}\right]+3 d^3 e^2 f x \text{Log}\left[1-e^{c+d x}\right]+3 d^3 e f^2 x^2 \text{Log}\left[1-e^{c+d x}\right]+d^3 f^3 x^3 \text{Log}\left[1-e^{c+d x}\right]-$$
$$3 d^3 e^2 f x \text{Log}\left[1+e^{c+d x}\right]-3 d^3 e f^2 x^2 \text{Log}\left[1+e^{c+d x}\right]-d^3 f^3 x^3 \text{Log}\left[1+e^{c+d x}\right]-3 d^2 f (e+f x)^2 \text{PolyLog}\left[2,-e^{c+d x}\right]+$$
$$3 d^2 f (e+f x)^2 \text{PolyLog}\left[2,e^{c+d x}\right]+6 d e f^2 \text{PolyLog}\left[3,-e^{c+d x}\right]+6 d f^3 x \text{PolyLog}\left[3,-e^{c+d x}\right]-$$
$$6 d e f^2 \text{PolyLog}\left[3,e^{c+d x}\right]-6 d f^3 x \text{PolyLog}\left[3,e^{c+d x}\right]-6 f^3 \text{PolyLog}\left[4,-e^{c+d x}\right]+6 f^3 \text{PolyLog}\left[4,e^{c+d x}\right]\Big)-$$

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

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

$$\int \frac{(e+f x)^3 \text{Csch}[c+d x]^2}{a+b \text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 745 leaves, 29 steps):

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

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

$$\frac{3\,b^2\,f\,(e+fx)^2\,\text{PolyLog}\left[2,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{a^2\,\sqrt{a^2+b^2}\,d^2}+\frac{3\,f^2\,(e+fx)\,\text{PolyLog}\left[2,e^{2\,(c+d\,x)}\right]}{a\,d^3}-\frac{6\,b\,f^2\,(e+fx)\,\text{PolyLog}\left[3,-e^{c+d\,x}\right]}{a^2\,d^3}+$$

$$\frac{6\,b\,f^2\,(e+fx)\,\text{PolyLog}\left[3,e^{c+d\,x}\right]}{a^2\,d^3}-\frac{6\,b^2\,f^2\,(e+fx)\,\text{PolyLog}\left[3,-\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{a^2\,\sqrt{a^2+b^2}\,d^3}+\frac{6\,b^2\,f^2\,(e+fx)\,\text{PolyLog}\left[3,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{a^2\,\sqrt{a^2+b^2}\,d^3}-$$

$$\frac{3\,f^3\,\text{PolyLog}\left[3,e^{2\,(c+d\,x)}\right]}{2\,a\,d^4}+\frac{6\,b\,f^3\,\text{PolyLog}\left[4,-e^{c+d\,x}\right]}{a^2\,d^4}-\frac{6\,b\,f^3\,\text{PolyLog}\left[4,e^{c+d\,x}\right]}{a^2\,d^4}+\frac{6\,b^2\,f^3\,\text{PolyLog}\left[4,-\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{a^2\,\sqrt{a^2+b^2}\,d^4}-\frac{6\,b^2\,f^3\,\text{PolyLog}\left[4,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{a^2\,\sqrt{a^2+b^2}\,d^4}$$

Result (type 4, 2216 leaves) :

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

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

$$3\sqrt{-a^2-b^2}\, d^3 e^2 e^c f x \operatorname{Log}\left[1+\frac{b\, e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\right]-3\sqrt{-a^2-b^2}\, d^3 e\, e^c f^2 x^2 \operatorname{Log}\left[1+\frac{b\, e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\right]-$$

$$\sqrt{-a^2-b^2}\, d^3 e^c f^3 x^3 \operatorname{Log}\left[1+\frac{b\, e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\right]+3\sqrt{-a^2-b^2}\, d^2 e^c f\,(e+f x)^2 \operatorname{PolyLog}\left[2,-\frac{b\, e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2)\, e^{2c}}}\right]-$$

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

$$6\sqrt{-a^2-b^2}\, d\, e\, e^c f^2 \operatorname{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2)\, e^{2c}}}\right]-6\sqrt{-a^2-b^2}\, d\, e^c f^3 x \operatorname{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2)\, e^{2c}}}\right]+$$

$$6\sqrt{-a^2-b^2}\, d\, e\, e^c f^2 \operatorname{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\right]+6\sqrt{-a^2-b^2}\, d\, e^c f^3 x \operatorname{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\right]+$$

$$\left.6\sqrt{-a^2-b^2}\, e^c f^3 \operatorname{PolyLog}\left[4,-\frac{b\, e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2)\, e^{2c}}}\right]-6\sqrt{-a^2-b^2}\, e^c f^3 \operatorname{PolyLog}\left[4,-\frac{b\, e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\right]\right)+$$

$$\frac{\operatorname{Sech}\left[\frac{c}{2}\right]\operatorname{Sech}\left[\frac{c}{2}+\frac{dx}{2}\right]\left(-e^3\operatorname{Sinh}\left[\frac{dx}{2}\right]-3e^2 f x\operatorname{Sinh}\left[\frac{dx}{2}\right]-3 e f^2 x^2\operatorname{Sinh}\left[\frac{dx}{2}\right]-f^3x^3\operatorname{Sinh}\left[\frac{dx}{2}\right]\right)}{2ad}+$$

$$\frac{\operatorname{Csch}\left[\frac{c}{2}\right]\operatorname{Csch}\left[\frac{c}{2}+\frac{dx}{2}\right]\left(e^3\operatorname{Sinh}\left[\frac{dx}{2}\right]+3e^2 f x\operatorname{Sinh}\left[\frac{dx}{2}\right]+3 e f^2 x^2\operatorname{Sinh}\left[\frac{dx}{2}\right]+f^3x^3\operatorname{Sinh}\left[\frac{dx}{2}\right]\right)}{2ad}$$

Problem 245: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)\operatorname{Csch}[c+d x]^2}{a+b\operatorname{Sinh}[c+d x]}\, dx$$

Optimal (type 4, 306 leaves, 17 steps):

$$\frac{2b(e+fx)\operatorname{ArcTanh}\left[e^{c+dx}\right]}{a^2 d}-\frac{(e+fx)\operatorname{Coth}[c+dx]}{a d}+\frac{b^2(e+fx)\operatorname{Log}\left[1+\frac{b e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{a^2\sqrt{a^2+b^2}\, d}-\frac{b^2(e+fx)\operatorname{Log}\left[1+\frac{b e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{a^2\sqrt{a^2+b^2}\, d}+$$

$$\frac{f\operatorname{Log}[\operatorname{Sinh}[c+dx]]}{a d^2}+\frac{b f\operatorname{PolyLog}\left[2,-e^{c+dx}\right]}{a^2 d^2}-\frac{b f\operatorname{PolyLog}\left[2,e^{c+dx}\right]}{a^2 d^2}+\frac{b^2 f\operatorname{PolyLog}\left[2,-\frac{b e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{a^2\sqrt{a^2+b^2}\, d^2}-\frac{b^2 f\operatorname{PolyLog}\left[2,-\frac{b e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{a^2\sqrt{a^2+b^2}\, d^2}$$

Result (type 4, 617 leaves):

$$\frac{\left(-d\,e\,\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+c\,f\,\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-f\,(c+d\,x)\,\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\right)\text{Csch}\left[\frac{1}{2}(c+d\,x)\right]}{2\,a\,d^2}+$$
$$\frac{f\,\text{Log}[\text{Sinh}[c+d\,x]]}{a\,d^2}-\frac{b\,e\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]\right]}{a^2\,d}+\frac{b\,c\,f\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]\right]}{a^2\,d^2}+$$
$$\frac{i\,b\,f\left(i\,(c+d\,x)\left(\text{Log}\left[1-e^{-c-d\,x}\right]-\text{Log}\left[1+e^{-c-d\,x}\right]\right)+i\left(\text{PolyLog}\left[2,-e^{-c-d\,x}\right]-\text{PolyLog}\left[2,e^{-c-d\,x}\right]\right)\right)}{a^2\,d^2}+$$
$$\frac{1}{a^2\sqrt{-\left(a^2+b^2\right)^2}\,d^2}\,b^2\left(2\sqrt{a^2+b^2}\,d\,e\,\text{ArcTan}\left[\frac{a+b\,\text{Cosh}[c+d\,x]+b\,\text{Sinh}[c+d\,x]}{\sqrt{-a^2-b^2}}\right]-2\sqrt{a^2+b^2}\,c\,f\,\text{ArcTan}\left[\frac{a+b\,\text{Cosh}[c+d\,x]+b\,\text{Sinh}[c+d\,x]}{\sqrt{-a^2-b^2}}\right]+\right.$$
$$\sqrt{-a^2-b^2}\,f\,(c+d\,x)\,\text{Log}\left[1+\frac{b\,(\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x])}{a-\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\,f\,(c+d\,x)\,\text{Log}\left[1+\frac{b\,(\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x])}{a+\sqrt{a^2+b^2}}\right]+$$
$$\left.\sqrt{-a^2-b^2}\,f\,\text{PolyLog}\left[2,\frac{b\,(\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x])}{-a+\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\,f\,\text{PolyLog}\left[2,-\frac{b\,(\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x])}{a+\sqrt{a^2+b^2}}\right]\right)+$$
$$\frac{\text{Sech}\left[\frac{1}{2}(c+d\,x)\right]\left(-d\,e\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]+c\,f\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]-f\,(c+d\,x)\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\,a\,d^2}$$

Problem 247: Attempted integration timed out after 120 seconds.

$$\int\frac{\text{Csch}[c+d\,x]^2}{(e+f\,x)\,(a+b\,\text{Sinh}[c+d\,x])}\,dx$$

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

$$\text{Unintegrable}\left[\frac{\text{Csch}[c+d\,x]^2}{(e+f\,x)\,(a+b\,\text{Sinh}[c+d\,x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 248: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(e+f\,x)^3\,\text{Csch}[c+d\,x]^3}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 1053 leaves, 45 steps):

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

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

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

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

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

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

$$\frac{6 b^3 f^2 (e+f x)\,\text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 \sqrt{a^2+b^2}\, d^3}-\frac{6 b^3 f^2 (e+f x)\,\text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 \sqrt{a^2+b^2}\, d^3}+\frac{3 b f^3\,\text{PolyLog}\left[3,e^{2 (c+d x)}\right]}{2 a^2 d^4}+\frac{3 f^3\,\text{PolyLog}\left[4,-e^{c+d x}\right]}{a d^4}-$$

$$\frac{6 b^2 f^3\,\text{PolyLog}\left[4,-e^{c+d x}\right]}{a^3 d^4}-\frac{3 f^3\,\text{PolyLog}\left[4,e^{c+d x}\right]}{a d^4}+\frac{6 b^2 f^3\,\text{PolyLog}\left[4,e^{c+d x}\right]}{a^3 d^4}-\frac{6 b^3 f^3\,\text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 \sqrt{a^2+b^2}\, d^4}+\frac{6 b^3 f^3\,\text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 \sqrt{a^2+b^2}\, d^4}$$

Result (type 4, 2727 leaves):

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

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

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

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

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

$$b\, e^{-c} f^3\,\text{Csch}[c]\left(2 d^2 x^2\left(2 d e^{2 c} x-3\left(-1+e^{2 c}\right)\text{Log}\left[1-e^{2 (c+d x)}\right]\right)-6 d\left(-1+e^{2 c}\right) x\,\text{PolyLog}\left[2,e^{2 (c+d x)}\right]+3\left(-1+e^{2 c}\right)\text{PolyLog}\left[3,e^{2 (c+d x)}\right]\right)+$$

$$\frac{1}{a d^3} 3 e f^2 \left(d^2 x^2\,\text{ArcTanh}[\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]+d x\,\text{PolyLog}[2,-\text{Cosh}[c+d x]-\text{Sinh}[c+d x]]-\right.$$

$$\left. d x\,\text{PolyLog}[2,\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]-\text{PolyLog}[3,-\text{Cosh}[c+d x]-\text{Sinh}[c+d x]]+\text{PolyLog}[3,\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]\right)-$$

$$\frac{1}{a^3 d^3} 6 b^2 e f^2 \left(d^2 x^2 \text{ArcTanh}[\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]+d x \text{PolyLog}[2,-\text{Cosh}[c+d x]-\text{Sinh}[c+d x]]-\right.$$
$$\left.d x \text{PolyLog}[2,\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]-\text{PolyLog}[3,-\text{Cosh}[c+d x]-\text{Sinh}[c+d x]]+\text{PolyLog}[3,\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]\right)-$$

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

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

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

$$\frac{3 b e^2 f \text{Csch}[c] (-d x \text{Cosh}[c]+\text{Log}[\text{Cosh}[d x] \text{Sinh}[c]+\text{Cosh}[c] \text{Sinh}[d x]] \text{Sinh}[c])}{a^2 d^2 \left(-\text{Cosh}[c]^2+\text{Sinh}[c]^2\right)}+$$

$$\frac{1}{4 a^2 d^2} \text{Csch}[c] \text{Csch}[c+d x]^2$$
$$\left(2 b d e^3 \text{Cosh}[c]+6 b d e^2 f x \text{Cosh}[c]+6 b d e f^2 x^2 \text{Cosh}[c]+2 b d f^3 x^3 \text{Cosh}[c]+3 a e^2 f \text{Cosh}[d x]+6 a e f^2 x \text{Cosh}[d x]+3 a f^3 x^2 \text{Cosh}[d x]-\right.$$
$$3 a e^2 f \text{Cosh}[2 c+d x]-6 a e f^2 x \text{Cosh}[2 c+d x]-3 a f^3 x^2 \text{Cosh}[2 c+d x]-2 b d e^3 \text{Cosh}[c+2 d x]-6 b d e^2 f x \text{Cosh}[c+2 d x]-$$
$$6 b d e f^2 x^2 \text{Cosh}[c+2 d x]-2 b d f^3 x^3 \text{Cosh}[c+2 d x]+a d e^3 \text{Sinh}[d x]+3 a d e^2 f x \text{Sinh}[d x]+3 a d e f^2 x^2 \text{Sinh}[d x]+$$
$$\left.a d f^3 x^3 \text{Sinh}[d x]-a d e^3 \text{Sinh}[2 c+d x]-3 a d e^2 f x \text{Sinh}[2 c+d x]-3 a d e f^2 x^2 \text{Sinh}[2 c+d x]-a d f^3 x^3 \text{Sinh}[2 c+d x]\right)-$$

$$\left(3\,b\,e\,f^2\,\text{Csch}[c]\,\text{Sech}[c]\left(-d^2\,e^{-\text{ArcTanh}[\text{Tanh}[c]]}\,x^2+\frac{1}{\sqrt{1-\text{Tanh}[c]^2}}\,i\,\left(-d\,x\,\left(-\pi+2\,i\,\text{ArcTanh}[\text{Tanh}[c]]\right)-\pi\,\text{Log}\left[1+e^{2\,d\,x}\right]-2\,\left(i\,d\,x+i\,\text{ArcTanh}[\text{Tanh}[c]]\right)\,\text{Log}\left[1-e^{2\,i\,(i\,d\,x+i\,\text{ArcTanh}[\text{Tanh}[c]])}\right]+\pi\,\text{Log}[\text{Cosh}[d\,x]]+2\,i\,\text{ArcTanh}[\text{Tanh}[c]]\,\text{Log}[i\,\text{Sinh}[d\,x+\text{ArcTanh}[\text{Tanh}[c]]]]+i\,\text{PolyLog}\left[2,\,e^{2\,i\,(i\,d\,x+i\,\text{ArcTanh}[\text{Tanh}[c]])}\right]\right)\,\text{Tanh}[c]\right)\right)\Big/\left(a^2\,d^3\,\sqrt{\text{Sech}[c]^2\,\left(\text{Cosh}[c]^2-\text{Sinh}[c]^2\right)}\right)$$

Problem 249: Result more than twice size of optimal antiderivative.

$$\int\frac{(e+f\,x)^2\,\text{Csch}[c+d\,x]^3}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 725 leaves, 34 steps):

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

Result (type 4, 1798 leaves):

$$\frac{1}{2 a^3 d^3 \left(-1+e^{2 c}\right)} \Big(8 a b d^2 e\, e^{2 c} f x+4 a b d^2 e^{2 c} f^2 x^2-2 a^2 d^2 e^2 \text{ArcTanh}\left[e^{c+d x}\right]+4 b^2 d^2 e^2 \text{ArcTanh}\left[e^{c+d x}\right]+2 a^2 d^2 e^2 e^{2 c} \text{ArcTanh}\left[e^{c+d x}\right]-$$
$$4 b^2 d^2 e^2 e^{2 c} \text{ArcTanh}\left[e^{c+d x}\right]+4 a^2 f^2 \text{ArcTanh}\left[e^{c+d x}\right]-4 a^2 e^{2 c} f^2 \text{ArcTanh}\left[e^{c+d x}\right]+2 a^2 d^2 e f x \text{Log}\left[1-e^{c+d x}\right]-4 b^2 d^2 e f x \text{Log}\left[1-e^{c+d x}\right]-$$
$$2 a^2 d^2 e\, e^{2 c} f x \text{Log}\left[1-e^{c+d x}\right]+4 b^2 d^2 e\, e^{2 c} f x \text{Log}\left[1-e^{c+d x}\right]+a^2 d^2 f^2 x^2 \text{Log}\left[1-e^{c+d x}\right]-2 b^2 d^2 f^2 x^2 \text{Log}\left[1-e^{c+d x}\right]-$$
$$a^2 d^2 e^{2 c} f^2 x^2 \text{Log}\left[1-e^{c+d x}\right]+2 b^2 d^2 e^{2 c} f^2 x^2 \text{Log}\left[1-e^{c+d x}\right]-2 a^2 d^2 e f x \text{Log}\left[1+e^{c+d x}\right]+4 b^2 d^2 e f x \text{Log}\left[1+e^{c+d x}\right]+$$
$$2 a^2 d^2 e\, e^{2 c} f x \text{Log}\left[1+e^{c+d x}\right]-4 b^2 d^2 e\, e^{2 c} f x \text{Log}\left[1+e^{c+d x}\right]-a^2 d^2 f^2 x^2 \text{Log}\left[1+e^{c+d x}\right]+2 b^2 d^2 f^2 x^2 \text{Log}\left[1+e^{c+d x}\right]+$$
$$a^2 d^2 e^{2 c} f^2 x^2 \text{Log}\left[1+e^{c+d x}\right]-2 b^2 d^2 e^{2 c} f^2 x^2 \text{Log}\left[1+e^{c+d x}\right]+4 a b d e f \text{Log}\left[1-e^{2 (c+d x)}\right]-4 a b d e\, e^{2 c} f \text{Log}\left[1-e^{2 (c+d x)}\right]+$$
$$4 a b d f^2 x \text{Log}\left[1-e^{2 (c+d x)}\right]-4 a b d e^{2 c} f^2 x \text{Log}\left[1-e^{2 (c+d x)}\right]+2 \left(a^2-2 b^2\right) d \left(-1+e^{2 c}\right) f (e+f x) \text{PolyLog}\left[2,-e^{c+d x}\right]-$$
$$2 \left(a^2-2 b^2\right) d \left(-1+e^{2 c}\right) f (e+f x) \text{PolyLog}\left[2,e^{c+d x}\right]+2 a b f^2 \text{PolyLog}\left[2,e^{2 (c+d x)}\right]-2 a b e^{2 c} f^2 \text{PolyLog}\left[2,e^{2 (c+d x)}\right]+$$
$$2 a^2 f^2 \text{PolyLog}\left[3,-e^{c+d x}\right]-4 b^2 f^2 \text{PolyLog}\left[3,-e^{c+d x}\right]-2 a^2 e^{2 c} f^2 \text{PolyLog}\left[3,-e^{c+d x}\right]+4 b^2 e^{2 c} f^2 \text{PolyLog}\left[3,-e^{c+d x}\right]-$$
$$2 a^2 f^2 \text{PolyLog}\left[3,e^{c+d x}\right]+4 b^2 f^2 \text{PolyLog}\left[3,e^{c+d x}\right]+2 a^2 e^{2 c} f^2 \text{PolyLog}\left[3,e^{c+d x}\right]-4 b^2 e^{2 c} f^2 \text{PolyLog}\left[3,e^{c+d x}\right]\Big)-$$

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

$$\frac{1}{4 a^2 d^2} \text{Csch}[c] \text{Csch}[c+d x]^2 \Big(2 b d e^2 \text{Cosh}[c]+4 b d e f x \text{Cosh}[c]+2 b d f^2 x^2 \text{Cosh}[c]+2 a e f \text{Cosh}[d x]+2 a f^2 x \text{Cosh}[d x]-$$
$$2 a e f \text{Cosh}[2 c+d x]-2 a f^2 x \text{Cosh}[2 c+d x]-2 b d e^2 \text{Cosh}[c+2 d x]-4 b d e f x \text{Cosh}[c+2 d x]-2 b d f^2 x^2 \text{Cosh}[c+2 d x]+$$
$$a d e^2 \text{Sinh}[d x]+2 a d e f x \text{Sinh}[d x]+a d f^2 x^2 \text{Sinh}[d x]-a d e^2 \text{Sinh}[2 c+d x]-2 a d e f x \text{Sinh}[2 c+d x]-a d f^2 x^2 \text{Sinh}[2 c+d x]\Big)$$

Problem 250: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x) \text{Csch}[c+d x]^3}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 420 leaves, 24 steps):

$$\frac{(e+fx)\,\text{ArcTanh}[e^{c+dx}]}{a\,d}-\frac{2\,b^2\,(e+fx)\,\text{ArcTanh}[e^{c+dx}]}{a^3\,d}+\frac{b\,(e+fx)\,\text{Coth}[c+dx]}{a^2\,d}-\frac{f\,\text{Csch}[c+dx]}{2\,a\,d^2}-\frac{(e+fx)\,\text{Coth}[c+dx]\,\text{Csch}[c+dx]}{2\,a\,d}-$$
$$\frac{b^3\,(e+fx)\,\text{Log}\left[1+\frac{b\,e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{a^3\,\sqrt{a^2+b^2}\,d}+\frac{b^3\,(e+fx)\,\text{Log}\left[1+\frac{b\,e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{a^3\,\sqrt{a^2+b^2}\,d}-\frac{b\,f\,\text{Log}[\text{Sinh}[c+dx]]}{a^2\,d^2}+\frac{f\,\text{PolyLog}[2,-e^{c+dx}]}{2\,a\,d^2}-$$
$$\frac{b^2\,f\,\text{PolyLog}[2,-e^{c+dx}]}{a^3\,d^2}-\frac{f\,\text{PolyLog}[2,e^{c+dx}]}{2\,a\,d^2}+\frac{b^2\,f\,\text{PolyLog}[2,e^{c+dx}]}{a^3\,d^2}-\frac{b^3\,f\,\text{PolyLog}\left[2,-\frac{b\,e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{a^3\,\sqrt{a^2+b^2}\,d^2}+\frac{b^3\,f\,\text{PolyLog}\left[2,-\frac{b\,e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{a^3\,\sqrt{a^2+b^2}\,d^2}$$

Result (type 4, 869 leaves):

$$\frac{1}{4\,a^2\,d^2}\left(2\,b\,d\,e\,\text{Cosh}\left[\frac{1}{2}\,(c+dx)\right]-a\,f\,\text{Cosh}\left[\frac{1}{2}\,(c+dx)\right]-2\,b\,c\,f\,\text{Cosh}\left[\frac{1}{2}\,(c+dx)\right]+2\,b\,f\,(c+dx)\,\text{Cosh}\left[\frac{1}{2}\,(c+dx)\right]\right)\text{Csch}\left[\frac{1}{2}\,(c+dx)\right]+$$
$$\frac{(-d\,e+c\,f-f\,(c+dx))\,\text{Csch}\left[\frac{1}{2}\,(c+dx)\right]^2}{8\,a\,d^2}-\frac{b\,f\,\text{Log}[\text{Sinh}[c+dx]]}{a^2\,d^2}-\frac{e\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}\,(c+dx)\right]\right]}{2\,a\,d}+$$
$$\frac{b^2\,e\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}\,(c+dx)\right]\right]}{a^3\,d}+\frac{c\,f\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}\,(c+dx)\right]\right]}{2\,a\,d^2}-\frac{b^2\,c\,f\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}\,(c+dx)\right]\right]}{a^3\,d^2}+$$
$$\frac{i\,f\,\left(i\,(c+dx)\,\left(\text{Log}[1-e^{-c-dx}]-\text{Log}[1+e^{-c-dx}]\right)+i\,\left(\text{PolyLog}[2,-e^{-c-dx}]-\text{PolyLog}[2,e^{-c-dx}]\right)\right)}{2\,a\,d^2}-$$
$$\frac{i\,b^2\,f\,\left(i\,(c+dx)\,\left(\text{Log}[1-e^{-c-dx}]-\text{Log}[1+e^{-c-dx}]\right)+i\,\left(\text{PolyLog}[2,-e^{-c-dx}]-\text{PolyLog}[2,e^{-c-dx}]\right)\right)}{a^3\,d^2}-$$
$$\frac{1}{a^3\,\sqrt{-(a^2+b^2)^2}\,d^2}\,b^3\left(2\,\sqrt{a^2+b^2}\,d\,e\,\text{ArcTan}\left[\frac{a+b\,\text{Cosh}[c+dx]+b\,\text{Sinh}[c+dx]}{\sqrt{-a^2-b^2}}\right]-2\,\sqrt{a^2+b^2}\,c\,f\,\text{ArcTan}\left[\frac{a+b\,\text{Cosh}[c+dx]+b\,\text{Sinh}[c+dx]}{\sqrt{-a^2-b^2}}\right]+\right.$$
$$\sqrt{-a^2-b^2}\,f\,(c+dx)\,\text{Log}\left[1+\frac{b\,(\text{Cosh}[c+dx]+\text{Sinh}[c+dx])}{a-\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\,f\,(c+dx)\,\text{Log}\left[1+\frac{b\,(\text{Cosh}[c+dx]+\text{Sinh}[c+dx])}{a+\sqrt{a^2+b^2}}\right]+$$
$$\left.\sqrt{-a^2-b^2}\,f\,\text{PolyLog}\left[2,\frac{b\,(\text{Cosh}[c+dx]+\text{Sinh}[c+dx])}{-a+\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\,f\,\text{PolyLog}\left[2,-\frac{b\,(\text{Cosh}[c+dx]+\text{Sinh}[c+dx])}{a+\sqrt{a^2+b^2}}\right]\right)+$$
$$\frac{(-d\,e+c\,f-f\,(c+dx))\,\text{Sech}\left[\frac{1}{2}\,(c+dx)\right]^2}{8\,a\,d^2}+\frac{1}{4\,a^2\,d^2}\text{Sech}\left[\frac{1}{2}\,(c+dx)\right]$$
$$\left(2\,b\,d\,e\,\text{Sinh}\left[\frac{1}{2}\,(c+dx)\right]+a\,f\,\text{Sinh}\left[\frac{1}{2}\,(c+dx)\right]-2\,b\,c\,f\,\text{Sinh}\left[\frac{1}{2}\,(c+dx)\right]+2\,b\,f\,(c+dx)\,\text{Sinh}\left[\frac{1}{2}\,(c+dx)\right]\right)$$

Problem 252: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Csch}[c+d x]^3}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])}\,dx$$

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

$$\text{Unintegrable}\left[\frac{\text{Csch}[c+d x]^3}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 255: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)\,\text{Cosh}[c+d x]}{a+i\,a\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 73 leaves, 4 steps):

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

Result (type 4, 252 leaves):

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

Problem 271: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3\,\text{Sech}[c+d x]}{a+i\,a\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 463 leaves, 22 steps):

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

Result (type 4, 1022 leaves):

$$-\frac{1}{8 a d^4 \left(-i+e^c\right)}\Big(-4 i d^4 e^3 e^c x+48 i d^2 e e^c f^2 x-6 i d^4 e^2 e^c f x^2+24 i d^2 e^c f^3 x^2-4 i d^4 e e^c f^2 x^3-i d^4 e^c f^3 x^4+4 i d^3 e^3 \text{ArcTan}\left[e^{c+d x}\right]-$$
$$4 d^3 e^3 e^c \text{ArcTan}\left[e^{c+d x}\right]-48 i d e f^2 \text{ArcTan}\left[e^{c+d x}\right]+48 d e e^c f^2 \text{ArcTan}\left[e^{c+d x}\right]+12 d^3 e^2 f x \text{Log}\left[1+i e^{c+d x}\right]+12 i d^3 e^2 e^c f x \text{Log}\left[1+i e^{c+d x}\right]-$$
$$48 d f^3 x \text{Log}\left[1+i e^{c+d x}\right]-48 i d e^c f^3 x \text{Log}\left[1+i e^{c+d x}\right]+12 d^3 e f^2 x^2 \text{Log}\left[1+i e^{c+d x}\right]+12 i d^3 e e^c f^2 x^2 \text{Log}\left[1+i e^{c+d x}\right]+$$
$$4 d^3 f^3 x^3 \text{Log}\left[1+i e^{c+d x}\right]+4 i d^3 e^c f^3 x^3 \text{Log}\left[1+i e^{c+d x}\right]+2 d^3 e^3 \text{Log}\left[1+e^{2 (c+d x)}\right]+2 i d^3 e^3 e^c \text{Log}\left[1+e^{2 (c+d x)}\right]-$$
$$24 d e f^2 \text{Log}\left[1+e^{2 (c+d x)}\right]-24 i d e e^c f^2 \text{Log}\left[1+e^{2 (c+d x)}\right]+12 \left(1+i e^c\right) f \left(-4 f^2+d^2 (e+f x)^2\right) \text{PolyLog}\left[2,-i e^{c+d x}\right]-$$
$$24 i d \left(-i+e^c\right) f^2 (e+f x) \text{PolyLog}\left[3,-i e^{c+d x}\right]+24 f^3 \text{PolyLog}\left[4,-i e^{c+d x}\right]+24 i e^c f^3 \text{PolyLog}\left[4,-i e^{c+d x}\right]\Big)+\frac{1}{8 a d^4 \left(i+e^c\right)}$$
$$\Big(-i d^3 \left(d e^c x \left(4 e^3+6 e^2 f x+4 e f^2 x^2+f^3 x^3\right)-4 \left(i+e^c\right) (e+f x)^3 \text{Log}\left[1-i e^{c+d x}\right]\right)+12 i d^2 \left(i+e^c\right) f (e+f x)^2 \text{PolyLog}\left[2,i e^{c+d x}\right]+$$
$$24 d \left(1-i e^c\right) f^2 (e+f x) \text{PolyLog}\left[3,i e^{c+d x}\right]+24 i \left(i+e^c\right) f^3 \text{PolyLog}\left[4,i e^{c+d x}\right]\Big)+$$
$$\frac{x \left(4 e^3+6 e^2 f x+4 e f^2 x^2+f^3 x^3\right)}{8 a \left(\text{Cosh}\left[\frac{c}{2}\right]-i \text{Sinh}\left[\frac{c}{2}\right]\right) \left(\text{Cosh}\left[\frac{c}{2}\right]+i \text{Sinh}\left[\frac{c}{2}\right]\right)}+$$
$$\frac{i (e+f x)^3}{2 a d \left(\text{Cosh}\left[\frac{c}{2}+\frac{d x}{2}\right]+i \text{Sinh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^2}-$$
$$\frac{3 i \left(e^2 f \text{Sinh}\left[\frac{d x}{2}\right]+2 e f^2 x \text{Sinh}\left[\frac{d x}{2}\right]+f^3 x^2 \text{Sinh}\left[\frac{d x}{2}\right]\right)}{a d^2 \left(\text{Cosh}\left[\frac{c}{2}\right]+i \text{Sinh}\left[\frac{c}{2}\right]\right) \left(\text{Cosh}\left[\frac{c}{2}+\frac{d x}{2}\right]+i \text{Sinh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)}$$

Problem 272: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2 \text{Sech}[c+d x]}{a+i a \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 268 leaves, 13 steps):

$$\frac{(e+fx)^2 \operatorname{ArcTan}[e^{c+dx}]}{a d}-\frac{f^2 \operatorname{ArcTan}[\operatorname{Sinh}[c+dx]]}{a d^3}+\frac{i f^2 \operatorname{Log}[\operatorname{Cosh}[c+dx]]}{a d^3}-\frac{i f (e+fx) \operatorname{PolyLog}[2,-i e^{c+dx}]}{a d^2}+\frac{i f (e+fx) \operatorname{PolyLog}[2,i e^{c+dx}]}{a d^2}+\frac{i f^2 \operatorname{PolyLog}[3,-i e^{c+dx}]}{a d^3}-\frac{i f^2 \operatorname{PolyLog}[3,i e^{c+dx}]}{a d^3}+\frac{f (e+fx) \operatorname{Sech}[c+dx]}{a d^2}+\frac{i (e+fx)^2 \operatorname{Sech}[c+dx]^2}{2 a d}-\frac{i f (e+fx) \operatorname{Tanh}[c+dx]}{a d^2}+\frac{(e+fx)^2 \operatorname{Sech}[c+dx] \operatorname{Tanh}[c+dx]}{2 a d}$$

Result (type 4, 623 leaves):

$$-\frac{1}{12 a}\left(\frac{6 e^2 e^c x}{1+i e^c}+\frac{24 i e^c f^2 x}{d^2(-i+e^c)}-6 i e f x^2+\frac{6 e f x^2}{-i+e^c}-2 i f^2 x^3+\frac{2 f^2 x^3}{-i+e^c}-\frac{6 e^2 \operatorname{ArcTan}[e^{c+dx}]}{d}+\frac{24 f^2 \operatorname{ArcTan}[e^{c+dx}]}{d^3}+\frac{12 i e f x \operatorname{Log}[1+i e^{c+dx}]}{d}+\frac{6 i f^2 x^2 \operatorname{Log}[1+i e^{c+dx}]}{d}+\frac{3 i e^2 \operatorname{Log}[1+e^{2(c+dx)}]}{d}-\frac{12 i f^2 \operatorname{Log}[1+e^{2(c+dx)}]}{d^3}+\frac{12 i f (e+fx) \operatorname{PolyLog}[2,-i e^{c+dx}]}{d^2}-\frac{12 i f^2 \operatorname{PolyLog}[3,-i e^{c+dx}]}{d^3}\right)-\frac{1}{6 a d^3 (i+e^c)}\left(d^2\left(i d e^c x(3e^2+3efx+f^2x^2)+3(1-i e^c)(e+fx)^2 \operatorname{Log}[1-i e^{c+dx}]\right)+6 d (1-i e^c) f (e+fx) \operatorname{PolyLog}[2,i e^{c+dx}]+6 i (i+e^c) f^2 \operatorname{PolyLog}[3,i e^{c+dx}]\right)+\frac{x(3e^2+3efx+f^2x^2)}{6 a \left(\operatorname{Cosh}[\frac{c}{2}]-i \operatorname{Sinh}[\frac{c}{2}]\right)\left(\operatorname{Cosh}[\frac{c}{2}]+i \operatorname{Sinh}[\frac{c}{2}]\right)}+\frac{i (e+fx)^2}{2 a d \left(\operatorname{Cosh}[\frac{c}{2}+\frac{dx}{2}]+i \operatorname{Sinh}[\frac{c}{2}+\frac{dx}{2}]\right)^2}-\frac{2 i \left(e f \operatorname{Sinh}[\frac{dx}{2}]+f^2 x \operatorname{Sinh}[\frac{dx}{2}]\right)}{a d^2 \left(\operatorname{Cosh}[\frac{c}{2}]+i \operatorname{Sinh}[\frac{c}{2}]\right)\left(\operatorname{Cosh}[\frac{c}{2}+\frac{dx}{2}]+i \operatorname{Sinh}[\frac{c}{2}+\frac{dx}{2}]\right)}$$

Problem 273: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+fx) \operatorname{Sech}[c+dx]}{a+i a \operatorname{Sinh}[c+dx]} \, dx$$

Optimal (type 4, 161 leaves, 10 steps):

$$\frac{(e+fx) \operatorname{ArcTan}[e^{c+dx}]}{a d}-\frac{i f \operatorname{PolyLog}[2,-i e^{c+dx}]}{2 a d^2}+\frac{i f \operatorname{PolyLog}[2,i e^{c+dx}]}{2 a d^2}+\frac{f \operatorname{Sech}[c+dx]}{2 a d^2}+\frac{i (e+fx) \operatorname{Sech}[c+dx]^2}{2 a d}-\frac{i f \operatorname{Tanh}[c+dx]}{2 a d^2}+\frac{(e+fx) \operatorname{Sech}[c+dx] \operatorname{Tanh}[c+dx]}{2 a d}$$

Result (type 4, 731 leaves):

$$\frac{1}{16\,d^2\,(a+i\,a\,\mathrm{Sinh}[c+d\,x])}\Bigg(8\,i\,d\,(e+f\,x)-4\,(c+d\,x)\,(c\,f-d\,(2\,e+f\,x))\,\left(\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-$$
$$4\,d\,e\left(c+d\,x-2\,i\,\mathrm{Log}\left[\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-i\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\left(\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+$$
$$4\,c\,f\left(c+d\,x-2\,i\,\mathrm{Log}\left[\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-i\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\left(\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-$$
$$4\,d\,e\left(c+d\,x+2\,i\,\mathrm{Log}\left[\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\left(\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+$$
$$4\,c\,f\left(c+d\,x+2\,i\,\mathrm{Log}\left[\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\left(\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-$$
$$(1-i)\,f\Big(2\,c^2+(3+3\,i)\,c\,\pi+4\,c\,d\,x+(3+3\,i)\,d\,\pi\,x+2\,d^2\,x^2+(2+2\,i)\,(-2\,i\,c+\pi-2\,i\,d\,x)\,\mathrm{Log}\left[1+i\,e^{-c-d\,x}\right]-(4+4\,i)\,\pi\,\mathrm{Log}\left[1+e^{c+d\,x}\right]+$$
$$4\,(-1)^{1/4}\,\sqrt{2}\,\pi\,\mathrm{Log}\left[\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-2\,(-1)^{1/4}\,\sqrt{2}\,\pi\,\mathrm{Log}\left[-\mathrm{Sin}\left[\frac{1}{4}\,(\pi-2\,i\,(c+d\,x))\right]\right]-(4-4\,i)\,\mathrm{PolyLog}\left[2,\,-i\,e^{-c-d\,x}\right]\Big)$$
$$\left(\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+\sqrt{2}\,f\Big(-2\,(-1)^{1/4}\,(c+d\,x)^2+\sqrt{2}\,\Big(-2\,(2\,i\,c+\pi+2\,i\,d\,x)\,\mathrm{Log}\left[1-i\,e^{-c-d\,x}\right]+$$
$$\pi\left(c+d\,x-4\,\mathrm{Log}\left[1+e^{c+d\,x}\right]+4\,\mathrm{Log}\left[\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+2\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{4}\,(\pi+2\,i\,(c+d\,x))\right]\right]\right)+4\,i\,\mathrm{PolyLog}\left[2,\,i\,e^{-c-d\,x}\right]\Big)\Big)$$
$$\left(\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+16\,f\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\left(-i\,\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Bigg)$$

Problem 276: Attempted integration timed out after 120 seconds.

$$\int\frac{\mathrm{Sech}[c+d\,x]}{(e+f\,x)^2\,(a+i\,a\,\mathrm{Sinh}[c+d\,x])}\,dx$$

Optimal (type 9, 31 leaves, 0 steps):

$$\mathrm{Unintegrable}\left[\frac{\mathrm{Sech}[c+d\,x]}{(e+f\,x)^2\,(a+i\,a\,\mathrm{Sinh}[c+d\,x])},\,x\right]$$

Result (type 1, 1 leaves):

???

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

$$\int\frac{(e+f\,x)^3\,\mathrm{Sech}[c+d\,x]^2}{a+i\,a\,\mathrm{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 450 leaves, 20 steps):

$$\frac{2(e+fx)^3}{3ad}-\frac{i f (e+fx)^2 \text{ArcTan}[e^{c+dx}]}{ad^2}+\frac{i f^3 \text{ArcTan}[\text{Sinh}[c+dx]]}{ad^4}-\frac{2f(e+fx)^2 \text{Log}[1+e^{2(c+dx)}]}{ad^2}+\frac{f^3 \text{Log}[\text{Cosh}[c+dx]]}{ad^4}-$$
$$\frac{f^2(e+fx)\text{PolyLog}[2,-i e^{c+dx}]}{ad^3}+\frac{f^2(e+fx)\text{PolyLog}[2,i e^{c+dx}]}{ad^3}-\frac{2f^2(e+fx)\text{PolyLog}[2,-e^{2(c+dx)}]}{ad^3}+\frac{f^3\text{PolyLog}[3,-i e^{c+dx}]}{ad^4}-$$
$$\frac{f^3\text{PolyLog}[3,i e^{c+dx}]}{ad^4}+\frac{f^3\text{PolyLog}[3,-e^{2(c+dx)}]}{ad^4}-\frac{i f^2(e+fx)\text{Sech}[c+dx]}{ad^3}+\frac{f(e+fx)^2\text{Sech}[c+dx]^2}{2ad^2}+\frac{i(e+fx)^3\text{Sech}[c+dx]^3}{3ad}-$$
$$\frac{f^2(e+fx)\text{Tanh}[c+dx]}{ad^3}+\frac{2(e+fx)^3\text{Tanh}[c+dx]}{3ad}-\frac{i f(e+fx)^2\text{Sech}[c+dx]\text{Tanh}[c+dx]}{2ad^2}+\frac{(e+fx)^3\text{Sech}[c+dx]^2\text{Tanh}[c+dx]}{3ad}$$

Result (type 4, 1162 leaves) :

$$\frac{1}{2\,a\,d^3\,(-i+e^c)}\,i\,e^c\,f\,\Bigg(-i\,(5\,d^2\,e^2-4\,f^2)\,x+e^{-c}\,(1+i\,e^c)\,(5\,d^2\,e^2-4\,f^2)\,x+5\,d^2\,e\,e^{-c}\,f\,x^2+\frac{5}{3}\,d^2\,e^{-c}\,f^2\,x^3-$$
$$\frac{5}{2}\,i\,d\,e^2\,e^{-c}\,(-i+e^c)\,\left(2\,d\,x-2\,i\,\text{ArcTan}\left[e^{c+d\,x}\right]-\text{Log}\left[1+e^{2\,(c+d\,x)}\right]\right)+\frac{2\,e^{-c}\,(-i+e^c)\,f^2\,\left(2\,i\,d\,x+2\,\text{ArcTan}\left[e^{c+d\,x}\right]-i\,\text{Log}\left[1+e^{2\,(c+d\,x)}\right]\right)}{d}-$$
$$5\,i\,e\,e^{-c}\,(-i+e^c)\,f\,\left(d\,x\,\left(d\,x-2\,\text{Log}\left[1+i\,e^{c+d\,x}\right]\right)-2\,\text{PolyLog}\left[2,-i\,e^{c+d\,x}\right]\right)-\frac{1}{3\,d}$$
$$5\,i\,e^{-c}\,(-i+e^c)\,f^2\,\left(d^2\,x^2\,\left(d\,x-3\,\text{Log}\left[1+i\,e^{c+d\,x}\right]\right)-6\,d\,x\,\text{PolyLog}\left[2,-i\,e^{c+d\,x}\right]+6\,\text{PolyLog}\left[3,-i\,e^{c+d\,x}\right]\right)\Bigg)-$$
$$\frac{1}{2\,a\,d^4\,(i+e^c)}\,i\,f\,\Big(d^2\,\left(i\,d\,e^c\,x\,(3\,e^2+3\,e\,f\,x+f^2\,x^2)+3\,(1-i\,e^c)\,(e+f\,x)^2\,\text{Log}\left[1-i\,e^{c+d\,x}\right]\right)+$$
$$6\,d\,(1-i\,e^c)\,f\,(e+f\,x)\,\text{PolyLog}\left[2,i\,e^{c+d\,x}\right]+6\,i\,(i+e^c)\,f^2\,\text{PolyLog}\left[3,i\,e^{c+d\,x}\right]\Big)+$$
$$\frac{e^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]+3\,e^2\,f\,x\,\text{Sinh}\left[\frac{d\,x}{2}\right]+3\,e\,f^2\,x^2\,\text{Sinh}\left[\frac{d\,x}{2}\right]+f^3\,x^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]}{2\,a\,d\,\left(\text{Cosh}\left[\frac{c}{2}\right]-i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\,\left(\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-i\,\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$
$$\frac{e^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]+3\,e^2\,f\,x\,\text{Sinh}\left[\frac{d\,x}{2}\right]+3\,e\,f^2\,x^2\,\text{Sinh}\left[\frac{d\,x}{2}\right]+f^3\,x^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]}{3\,a\,d\,\left(\text{Cosh}\left[\frac{c}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\,\left(\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^3}+$$
$$\Big(i\,d\,e^3\,\text{Cosh}\left[\frac{c}{2}\right]+3\,e^2\,f\,\text{Cosh}\left[\frac{c}{2}\right]+3\,i\,d\,e^2\,f\,x\,\text{Cosh}\left[\frac{c}{2}\right]+6\,e\,f^2\,x\,\text{Cosh}\left[\frac{c}{2}\right]+3\,i\,d\,e\,f^2\,x^2\,\text{Cosh}\left[\frac{c}{2}\right]+3\,f^3\,x^2\,\text{Cosh}\left[\frac{c}{2}\right]+i\,d\,f^3\,x^3\,\text{Cosh}\left[\frac{c}{2}\right]+$$
$$d\,e^3\,\text{Sinh}\left[\frac{c}{2}\right]+3\,i\,e^2\,f\,\text{Sinh}\left[\frac{c}{2}\right]+3\,d\,e^2\,f\,x\,\text{Sinh}\left[\frac{c}{2}\right]+6\,i\,e\,f^2\,x\,\text{Sinh}\left[\frac{c}{2}\right]+3\,d\,e\,f^2\,x^2\,\text{Sinh}\left[\frac{c}{2}\right]+3\,i\,f^3\,x^2\,\text{Sinh}\left[\frac{c}{2}\right]+d\,f^3\,x^3\,\text{Sinh}\left[\frac{c}{2}\right]\Big)\Big/$$
$$\left(6\,a\,d^2\,\left(\text{Cosh}\left[\frac{c}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\,\left(\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\right)+$$
$$\left(5\,d^2\,e^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]-12\,e\,f^2\,\text{Sinh}\left[\frac{d\,x}{2}\right]+15\,d^2\,e^2\,f\,x\,\text{Sinh}\left[\frac{d\,x}{2}\right]-12\,f^3\,x\,\text{Sinh}\left[\frac{d\,x}{2}\right]+15\,d^2\,e\,f^2\,x^2\,\text{Sinh}\left[\frac{d\,x}{2}\right]+5\,d^2\,f^3\,x^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]\right)\Big/$$
$$\left(6\,a\,d^3\,\left(\text{Cosh}\left[\frac{c}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\,\left(\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)\right)$$

Problem 280: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sech}[c+d\,x]^2}{a+i\,a\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 3, 47 leaves, 3 steps):

$$\frac{i\,\text{Sech}[c+d\,x]}{3\,d\,(a+i\,a\,\text{Sinh}[c+d\,x])}+\frac{2\,\text{Tanh}[c+d\,x]}{3\,a\,d}$$

Result (type 3, 103 leaves):

$$\frac{-2\,i\,\text{Cosh}[c+d\,x]+4\,i\,\text{Cosh}[2\,(c+d\,x)]+8\,\text{Sinh}[c+d\,x]+\text{Sinh}[2\,(c+d\,x)]}{12\,a\,d\,\left(\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-i\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}$$

Problem 281: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sech}[c+d\,x]^2}{(e+f\,x)\,(a+i\,a\,\text{Sinh}[c+d\,x])}\,dx$$

Optimal (type 9, 33 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sech}[c+d\,x]^2}{(e+f\,x)\,(a+i\,a\,\text{Sinh}[c+d\,x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 282: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sech}[c+d\,x]^2}{(e+f\,x)^2\,(a+i\,a\,\text{Sinh}[c+d\,x])}\,dx$$

Optimal (type 9, 33 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sech}[c+d\,x]^2}{(e+f\,x)^2\,(a+i\,a\,\text{Sinh}[c+d\,x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 283: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f\,x)^3\,\text{Sech}[c+d\,x]^3}{a+i\,a\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 667 leaves, 32 steps):

$$-\frac{i f (e+f x)^2}{2 a d^2}-\frac{5 f^2 (e+f x) \text{ArcTan}\left[e^{c+d x}\right]}{a d^3}+\frac{3 (e+f x)^3 \text{ArcTan}\left[e^{c+d x}\right]}{4 a d}+\frac{i f^2 (e+f x) \text{Log}\left[1+e^{2 (c+d x)}\right]}{a d^3}+$$
$$\frac{5 i f^3 \text{PolyLog}\left[2,-i e^{c+d x}\right]}{2 a d^4}-\frac{9 i f (e+f x)^2 \text{PolyLog}\left[2,-i e^{c+d x}\right]}{8 a d^2}-\frac{5 i f^3 \text{PolyLog}\left[2,i e^{c+d x}\right]}{2 a d^4}+\frac{9 i f (e+f x)^2 \text{PolyLog}\left[2,i e^{c+d x}\right]}{8 a d^2}+$$
$$\frac{i f^3 \text{PolyLog}\left[2,-e^{2 (c+d x)}\right]}{2 a d^4}+\frac{9 i f^2 (e+f x) \text{PolyLog}\left[3,-i e^{c+d x}\right]}{4 a d^3}-\frac{9 i f^2 (e+f x) \text{PolyLog}\left[3,i e^{c+d x}\right]}{4 a d^3}-\frac{9 i f^3 \text{PolyLog}\left[4,-i e^{c+d x}\right]}{4 a d^4}+$$
$$\frac{9 i f^3 \text{PolyLog}\left[4,i e^{c+d x}\right]}{4 a d^4}-\frac{f^3 \text{Sech}[c+d x]}{4 a d^4}+\frac{9 f (e+f x)^2 \text{Sech}[c+d x]}{8 a d^2}-\frac{i f^2 (e+f x) \text{Sech}[c+d x]^2}{4 a d^3}+\frac{f (e+f x)^2 \text{Sech}[c+d x]^3}{4 a d^2}+$$
$$\frac{i (e+f x)^3 \text{Sech}[c+d x]^4}{4 a d}+\frac{i f^3 \text{Tanh}[c+d x]}{4 a d^4}-\frac{i f (e+f x)^2 \text{Tanh}[c+d x]}{2 a d^2}-\frac{f^2 (e+f x) \text{Sech}[c+d x] \text{Tanh}[c+d x]}{4 a d^3}+$$
$$\frac{3 (e+f x)^3 \text{Sech}[c+d x] \text{Tanh}[c+d x]}{8 a d}-\frac{i f (e+f x)^2 \text{Sech}[c+d x]^2 \text{Tanh}[c+d x]}{4 a d^2}+\frac{(e+f x)^3 \text{Sech}[c+d x]^3 \text{Tanh}[c+d x]}{4 a d}$$

Result (type 4, 2208 leaves) :

$$-\frac{1}{32 a d^4 \left(-i+e^c\right)}\Big(-12 i d^4 e^3 e^c x+112 i d^2 e e^c f^2 x-18 i d^4 e^2 e^c f x^2+56 i d^2 e^c f^3 x^2-12 i d^4 e e^c f^2 x^3-3 i d^4 e^c f^3 x^4+12 i d^3 e^3 \text{ArcTan}\left[e^{c+d x}\right]-12 d^3 e^3 e^c$$
$$\text{ArcTan}\left[e^{c+d x}\right]-112 i d e f^2 \text{ArcTan}\left[e^{c+d x}\right]+112 d e e^c f^2 \text{ArcTan}\left[e^{c+d x}\right]+36 d^3 e^2 f x \text{Log}\left[1+i e^{c+d x}\right]+36 i d^3 e^2 e^c f x \text{Log}\left[1+i e^{c+d x}\right]-$$
$$112 d f^3 x \text{Log}\left[1+i e^{c+d x}\right]-112 i d e^c f^3 x \text{Log}\left[1+i e^{c+d x}\right]+36 d^3 e f^2 x^2 \text{Log}\left[1+i e^{c+d x}\right]+36 i d^3 e e^c f^2 x^2 \text{Log}\left[1+i e^{c+d x}\right]+$$
$$12 d^3 f^3 x^3 \text{Log}\left[1+i e^{c+d x}\right]+12 i d^3 e^c f^3 x^3 \text{Log}\left[1+i e^{c+d x}\right]+6 d^3 e^3 \text{Log}\left[1+e^{2 (c+d x)}\right]+6 i d^3 e^3 e^c \text{Log}\left[1+e^{2 (c+d x)}\right]-$$
$$56 d e f^2 \text{Log}\left[1+e^{2 (c+d x)}\right]-56 i d e e^c f^2 \text{Log}\left[1+e^{2 (c+d x)}\right]+4 \left(1+i e^c\right) f \left(-28 f^2+9 d^2 (e+f x)^2\right) \text{PolyLog}\left[2,-i e^{c+d x}\right]-$$
$$72 i d \left(-i+e^c\right) f^2 (e+f x) \text{PolyLog}\left[3,-i e^{c+d x}\right]+72 f^3 \text{PolyLog}\left[4,-i e^{c+d x}\right]+72 i e^c f^3 \text{PolyLog}\left[4,-i e^{c+d x}\right]\Big)-$$
$$\frac{1}{32 a d^4 \left(i+e^c\right)} 3 \Big(4 i d^4 e^3 e^c x-16 i d^2 e e^c f^2 x+6 i d^4 e^2 e^c f x^2-8 i d^2 e^c f^3 x^2+4 i d^4 e e^c f^2 x^3+i d^4 e^c f^3 x^4-4 i d^3 e^3 \text{ArcTan}\left[e^{c+d x}\right]-$$
$$4 d^3 e^3 e^c \text{ArcTan}\left[e^{c+d x}\right]+16 i d e f^2 \text{ArcTan}\left[e^{c+d x}\right]+16 d e e^c f^2 \text{ArcTan}\left[e^{c+d x}\right]+12 d^3 e^2 f x \text{Log}\left[1-i e^{c+d x}\right]-12 i d^3 e^2 e^c f x \text{Log}\left[1-i e^{c+d x}\right]-$$
$$16 d f^3 x \text{Log}\left[1-i e^{c+d x}\right]+16 i d e^c f^3 x \text{Log}\left[1-i e^{c+d x}\right]+12 d^3 e f^2 x^2 \text{Log}\left[1-i e^{c+d x}\right]-12 i d^3 e e^c f^2 x^2 \text{Log}\left[1-i e^{c+d x}\right]+$$
$$4 d^3 f^3 x^3 \text{Log}\left[1-i e^{c+d x}\right]-4 i d^3 e^c f^3 x^3 \text{Log}\left[1-i e^{c+d x}\right]+2 d^3 e^3 \text{Log}\left[1+e^{2 (c+d x)}\right]-2 i d^3 e^3 e^c \text{Log}\left[1+e^{2 (c+d x)}\right]-$$
$$8 d e f^2 \text{Log}\left[1+e^{2 (c+d x)}\right]+8 i d e e^c f^2 \text{Log}\left[1+e^{2 (c+d x)}\right]+4 \left(1-i e^c\right) f \left(-4 f^2+3 d^2 (e+f x)^2\right) \text{PolyLog}\left[2,i e^{c+d x}\right]+$$
$$24 i d \left(i+e^c\right) f^2 (e+f x) \text{PolyLog}\left[3,i e^{c+d x}\right]+24 f^3 \text{PolyLog}\left[4,i e^{c+d x}\right]-24 i e^c f^3 \text{PolyLog}\left[4,i e^{c+d x}\right]\Big)+$$
$$\frac{\frac{3 e^3 x \text{Cosh}[c]}{4 a}+\frac{3 e^3 x \text{Sinh}[c]}{4 a}}{1+\text{Cosh}[2 c]+\text{Sinh}[2 c]}+\frac{\frac{9 e^2 f x^2 \text{Cosh}[c]}{8 a}+\frac{9 e^2 f x^2 \text{Sinh}[c]}{8 a}}{1+\text{Cosh}[2 c]+\text{Sinh}[2 c]}+\frac{\frac{3 e f^2 x^3 \text{Cosh}[c]}{4 a}+\frac{3 e f^2 x^3 \text{Sinh}[c]}{4 a}}{1+\text{Cosh}[2 c]+\text{Sinh}[2 c]}+$$
$$\frac{\frac{3 f^3 x^4 \text{Cosh}[c]}{16 a}+\frac{3 f^3 x^4 \text{Sinh}[c]}{16 a}}{1+\text{Cosh}[2 c]+\text{Sinh}[2 c]}-$$

$$\frac{i\left(e^3+3e^2fx+3ef^2x^2+f^3x^3\right)}{8ad\left(\text{Cosh}\left[\frac{c}{2}+\frac{dx}{2}\right]-i\,\text{Sinh}\left[\frac{c}{2}+\frac{dx}{2}\right]\right)^2}+\frac{3i\left(e^2f\,\text{Sinh}\left[\frac{dx}{2}\right]+2ef^2x\,\text{Sinh}\left[\frac{dx}{2}\right]+f^3x^2\,\text{Sinh}\left[\frac{dx}{2}\right]\right)}{4ad^2\left(\text{Cosh}\left[\frac{c}{2}\right]-i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\left(\text{Cosh}\left[\frac{c}{2}+\frac{dx}{2}\right]-i\,\text{Sinh}\left[\frac{c}{2}+\frac{dx}{2}\right]\right)}+$$

$$\frac{i\left(e^3+3e^2fx+3ef^2x^2+f^3x^3\right)}{8ad\left(\text{Cosh}\left[\frac{c}{2}+\frac{dx}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{dx}{2}\right]\right)^4}-\frac{i\left(e^2f\,\text{Sinh}\left[\frac{dx}{2}\right]+2ef^2x\,\text{Sinh}\left[\frac{dx}{2}\right]+f^3x^2\,\text{Sinh}\left[\frac{dx}{2}\right]\right)}{4ad^2\left(\text{Cosh}\left[\frac{c}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\left(\text{Cosh}\left[\frac{c}{2}+\frac{dx}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{dx}{2}\right]\right)^3}+$$

$$\frac{1}{8ad^3\left(\text{Cosh}\left[\frac{c}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\left(\text{Cosh}\left[\frac{c}{2}+\frac{dx}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{dx}{2}\right]\right)^2}$$

$$\left(2id^2e^3\,\text{Cosh}\left[\frac{c}{2}\right]+de^2f\,\text{Cosh}\left[\frac{c}{2}\right]-2ief^2\,\text{Cosh}\left[\frac{c}{2}\right]+6id^2e^2fx\,\text{Cosh}\left[\frac{c}{2}\right]+2def^2x\,\text{Cosh}\left[\frac{c}{2}\right]-2if^3x\,\text{Cosh}\left[\frac{c}{2}\right]+\right.$$

$$6id^2ef^2x^2\,\text{Cosh}\left[\frac{c}{2}\right]+df^3x^2\,\text{Cosh}\left[\frac{c}{2}\right]+2id^2f^3x^3\,\text{Cosh}\left[\frac{c}{2}\right]-2d^2e^3\,\text{Sinh}\left[\frac{c}{2}\right]-ide^2f\,\text{Sinh}\left[\frac{c}{2}\right]+2ef^2\,\text{Sinh}\left[\frac{c}{2}\right]-$$

$$\left.6d^2e^2fx\,\text{Sinh}\left[\frac{c}{2}\right]-2idef^2x\,\text{Sinh}\left[\frac{c}{2}\right]+2f^3x\,\text{Sinh}\left[\frac{c}{2}\right]-6d^2ef^2x^2\,\text{Sinh}\left[\frac{c}{2}\right]-idf^3x^2\,\text{Sinh}\left[\frac{c}{2}\right]-2d^2f^3x^3\,\text{Sinh}\left[\frac{c}{2}\right]\right)-$$

$$\frac{i\left(7d^2e^2f\,\text{Sinh}\left[\frac{dx}{2}\right]-2f^3\,\text{Sinh}\left[\frac{dx}{2}\right]+14d^2ef^2x\,\text{Sinh}\left[\frac{dx}{2}\right]+7d^2f^3x^2\,\text{Sinh}\left[\frac{dx}{2}\right]\right)}{4ad^4\left(\text{Cosh}\left[\frac{c}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\left(\text{Cosh}\left[\frac{c}{2}+\frac{dx}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{dx}{2}\right]\right)}$$

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

$$\int\frac{(e+fx)^2\,\text{Sech}[c+dx]^3}{a+i\,a\,\text{Sinh}[c+dx]}\,dx$$

Optimal (type 4, 423 leaves, 17 steps):

$$\frac{3\,(e+f x)^2 \text{ArcTan}\left[e^{c+d x}\right]}{4 a d}-\frac{5 f^2 \text{ArcTan}[\text{Sinh}[c+d x]]}{6 a d^3}+\frac{i f^2 \text{Log}[\text{Cosh}[c+d x]]}{3 a d^3}-\frac{3 i f\,(e+f x)\,\text{PolyLog}\left[2,-i e^{c+d x}\right]}{4 a d^2}+\frac{3 i f\,(e+f x)\,\text{PolyLog}\left[2,i e^{c+d x}\right]}{4 a d^2}+\frac{3 i f^2 \text{PolyLog}\left[3,-i e^{c+d x}\right]}{4 a d^3}-\frac{3 i f^2 \text{PolyLog}\left[3,i e^{c+d x}\right]}{4 a d^3}+\frac{3 f\,(e+f x)\,\text{Sech}[c+d x]}{4 a d^2}-\frac{i f^2 \text{Sech}[c+d x]^2}{12 a d^3}+\frac{f\,(e+f x)\,\text{Sech}[c+d x]^3}{6 a d^2}+\frac{i\,(e+f x)^2 \text{Sech}[c+d x]^4}{4 a d}-\frac{i f\,(e+f x)\,\text{Tanh}[c+d x]}{3 a d^2}-\frac{f^2 \text{Sech}[c+d x]\,\text{Tanh}[c+d x]}{12 a d^3}+\frac{3\,(e+f x)^2 \text{Sech}[c+d x]\,\text{Tanh}[c+d x]}{8 a d}-\frac{i f\,(e+f x)\,\text{Sech}[c+d x]^2 \text{Tanh}[c+d x]}{6 a d^2}+\frac{(e+f x)^2 \text{Sech}[c+d x]^3 \text{Tanh}[c+d x]}{4 a d}$$

Result (type 4, 1437 leaves):

$$-\frac{1}{24 a d^2 \left(-i+e^c\right)} e^c \Bigg(-i\left(9 d^2 e^2-28 f^2\right) x+e^{-c}\left(1+i e^c\right)\left(9 d^2 e^2-28 f^2\right) x+9 d^2 e\, e^{-c} f x^2+3 d^2 e^{-c} f^2 x^3-\frac{9}{2} i d e^2 e^{-c}\left(-i+e^c\right)\left(2 d x-2 i \text{ArcTan}\left[e^{c+d x}\right]-\text{Log}\left[1+e^{2(c+d x)}\right]\right)+\frac{14 e^{-c}\left(-i+e^c\right) f^2\left(2 i d x+2 \text{ArcTan}\left[e^{c+d x}\right]-i \text{Log}\left[1+e^{2(c+d x)}\right]\right)}{d}-9 i e\, e^{-c}\left(-i+e^c\right) f\left(d x\left(d x-2 \text{Log}\left[1+i e^{c+d x}\right]\right)-2 \text{PolyLog}\left[2,-i e^{c+d x}\right]\right)-\frac{1}{d} 3 i e^{-c}\left(-i+e^c\right) f^2\left(d^2 x^2\left(d x-3 \text{Log}\left[1+i e^{c+d x}\right]\right)-6 d x \text{PolyLog}\left[2,-i e^{c+d x}\right]+6 \text{PolyLog}\left[3,-i e^{c+d x}\right]\right)\Bigg)-$$

$$\frac{1}{8 a d^2\left(i+e^c\right)} e^c\Bigg(i\left(3 d^2 e^2-4 f^2\right) x+e^{-c}\left(1-i e^c\right)\left(3 d^2 e^2-4 f^2\right) x+3 d^2 e\, e^{-c} f x^2+d^2 e^{-c} f^2 x^3+\frac{3}{2} i d e^2 e^{-c}\left(i+e^c\right)\left(2 d x+2 i \text{ArcTan}\left[e^{c+d x}\right]-\text{Log}\left[1+e^{2(c+d x)}\right]\right)+\frac{2 e^{-c}\left(i+e^c\right) f^2\left(-2 i d x+2 \text{ArcTan}\left[e^{c+d x}\right]+i \text{Log}\left[1+e^{2(c+d x)}\right]\right)}{d}+3 i e\, e^{-c}\left(i+e^c\right) f\left(d x\left(d x-2 \text{Log}\left[1-i e^{c+d x}\right]\right)-2 \text{PolyLog}\left[2,i e^{c+d x}\right]\right)+\frac{1}{d} i e^{-c}\left(i+e^c\right) f^2\left(d^2 x^2\left(d x-3 \text{Log}\left[1-i e^{c+d x}\right]\right)-6 d x \text{PolyLog}\left[2,i e^{c+d x}\right]+6 \text{PolyLog}\left[3,i e^{c+d x}\right]\right)\Bigg)+$$

$$\frac{\frac{3 e^2 x \text{Cosh}[c]}{4 a}+\frac{3 e^2 x \text{Sinh}[c]}{4 a}}{1+\text{Cosh}[2 c]+\text{Sinh}[2 c]}+\frac{\frac{3 e f x^2 \text{Cosh}[c]}{4 a}+\frac{3 e f x^2 \text{Sinh}[c]}{4 a}}{1+\text{Cosh}[2 c]+\text{Sinh}[2 c]}+\frac{\frac{f^2 x^3 \text{Cosh}[c]}{4 a}+\frac{f^2 x^3 \text{Sinh}[c]}{4 a}}{1+\text{Cosh}[2 c]+\text{Sinh}[2 c]}-\frac{i\left(e^2+2 e f x+f^2 x^2\right)}{8 a d\left(\text{Cosh}\left[\frac{c}{2}+\frac{d x}{2}\right]-i \text{Sinh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^2}+\frac{i\left(e f \text{Sinh}\left[\frac{d x}{2}\right]+f^2 x \text{Sinh}\left[\frac{d x}{2}\right]\right)}{2 a d^2\left(\text{Cosh}\left[\frac{c}{2}\right]-i \text{Sinh}\left[\frac{c}{2}\right]\right)\left(\text{Cosh}\left[\frac{c}{2}+\frac{d x}{2}\right]-i \text{Sinh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)}+$$

$$\frac{i\left(e^2+2\,e\,f\,x+f^2\,x^2\right)}{8\,a\,d\left(\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^4}-\frac{i\left(e\,f\,\text{Sinh}\left[\frac{d\,x}{2}\right]+f^2\,x\,\text{Sinh}\left[\frac{d\,x}{2}\right]\right)}{6\,a\,d^2\left(\text{Cosh}\left[\frac{c}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\left(\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^3}+$$

$$\left(3\,i\,d^2\,e^2\,\text{Cosh}\left[\frac{c}{2}\right]+d\,e\,f\,\text{Cosh}\left[\frac{c}{2}\right]-i\,f^2\,\text{Cosh}\left[\frac{c}{2}\right]+6\,i\,d^2\,e\,f\,x\,\text{Cosh}\left[\frac{c}{2}\right]+d\,f^2\,x\,\text{Cosh}\left[\frac{c}{2}\right]+3\,i\,d^2\,f^2\,x^2\,\text{Cosh}\left[\frac{c}{2}\right]-3\,d^2\,e^2\,\text{Sinh}\left[\frac{c}{2}\right]-i\,d\,e\,f\,\text{Sinh}\left[\frac{c}{2}\right]+f^2\,\text{Sinh}\left[\frac{c}{2}\right]-6\,d^2\,e\,f\,x\,\text{Sinh}\left[\frac{c}{2}\right]-i\,d\,f^2\,x\,\text{Sinh}\left[\frac{c}{2}\right]-3\,d^2\,f^2\,x^2\,\text{Sinh}\left[\frac{c}{2}\right]\right)\Big/$$

$$\left(12\,a\,d^3\left(\text{Cosh}\left[\frac{c}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\left(\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\right)-\frac{7\,i\left(e\,f\,\text{Sinh}\left[\frac{d\,x}{2}\right]+f^2\,x\,\text{Sinh}\left[\frac{d\,x}{2}\right]\right)}{6\,a\,d^2\left(\text{Cosh}\left[\frac{c}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}\right]\right)\left(\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+i\,\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}$$

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

$$\int\frac{(e+f\,x)\,\text{Sech}[c+d\,x]^3}{a+i\,a\,\text{Sinh}[c+d\,x]}\,dx$$

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

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

$$\frac{i\,f\,\text{Tanh}[c+d\,x]}{4\,a\,d^2}+\frac{3\,(e+f\,x)\,\text{Sech}[c+d\,x]\,\text{Tanh}[c+d\,x]}{8\,a\,d}+\frac{(e+f\,x)\,\text{Sech}[c+d\,x]^3\,\text{Tanh}[c+d\,x]}{4\,a\,d}+\frac{i\,f\,\text{Tanh}[c+d\,x]^3}{12\,a\,d^2}$$

Result (type 4, 1290 leaves):

$$\frac{i\left(6 d e-i f-6 c f+6 f (c+d x)\right)}{24 d^2 \left(a+i a \operatorname{Sinh}[c+d x]\right)}+\frac{i\left(d e-c f+f (c+d x)\right)}{8 d^2 \left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2 \left(a+i a \operatorname{Sinh}[c+d x]\right)}+$$

$$\frac{3 (c+d x) \left(2 d e-2 c f+f (c+d x)\right) \left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2}{16 d^2 \left(a+i a \operatorname{Sinh}[c+d x]\right)}+\frac{1}{8 d \left(a+i a \operatorname{Sinh}[c+d x]\right)}$$

$$3 i e \left(\frac{1}{2} i (c+d x)+\operatorname{Log}\left[\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]-i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right]\right) \left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2-$$

$$\left(3 i c f \left(\frac{1}{2} i (c+d x)+\operatorname{Log}\left[\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]-i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right]\right) \left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2\right) \Big/ \left(8 d^2 \left(a+i a \operatorname{Sinh}[c+d x]\right)\right)-$$

$$\frac{1}{8 d \left(a+i a \operatorname{Sinh}[c+d x]\right)} 3 i e \left(-\frac{1}{2} i (c+d x)+\operatorname{Log}\left[\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right]\right) \left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2+$$

$$\left(3 i c f \left(-\frac{1}{2} i (c+d x)+\operatorname{Log}\left[\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right]\right) \left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2\right) \Big/$$

$$\left(8 d^2 \left(a+i a \operatorname{Sinh}[c+d x]\right)\right)+\left(3 f \left(-\frac{1}{4} e^{-\frac{i \pi}{4}} (c+d x)^2-\frac{1}{\sqrt{2}} \left(\frac{3}{4} \pi (c+d x)-\pi \operatorname{Log}\left[1+e^{c+d x}\right]-2 \left(-\frac{\pi}{4}+\frac{1}{2} i (c+d x)\right) \operatorname{Log}\left[1-e^{2 i \left(-\frac{\pi}{4}+\frac{1}{2} i (c+d x)\right)}\right]+\right.\right.\right.$$

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

$$\left.\left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2\right) \Big/ \left(4 \sqrt{2} d^2 \left(a+i a \operatorname{Sinh}[c+d x]\right)\right)+$$

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

$$\left.\left.\frac{1}{2} \pi \operatorname{Log}\left[\operatorname{Sin}\left[\frac{\pi}{4}+\frac{1}{2} i (c+d x)\right]\right]+i \operatorname{PolyLog}\left[2, e^{2 i \left(\frac{\pi}{4}+\frac{1}{2} i (c+d x)\right)}\right]\right)\right) \left.\left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2\right) \Big/$$

$$\left(4 \sqrt{2} d^2 \left(a+i a \operatorname{Sinh}[c+d x]\right)\right)-\frac{i \left(d e-c f+f (c+d x)\right) \left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2}{8 d^2 \left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]-i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2 \left(a+i a \operatorname{Sinh}[c+d x]\right)}-$$

$$\frac{i f \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]}{12 d^2 \left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right) \left(a+i a \operatorname{Sinh}[c+d x]\right)}-$$

$$\frac{7 i f \left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right) \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]}{12 d^2 \left(a+i a \operatorname{Sinh}[c+d x]\right)}+$$

$$\frac{i f \left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]+i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)^2 \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]}{4 d^2 \left(\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]-i \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right) \left(a+i a \operatorname{Sinh}[c+d x]\right)}$$

Problem 287: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sech}[c+d x]^3}{(e+f x)\,(a+i\, a\, \text{Sinh}[c+d x])}\, dx$$

Optimal (type 9, 33 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sech}[c+d x]^3}{(e+f x)\,(a+i\, a\, \text{Sinh}[c+d x])},\, x\right]$$

Result (type 1, 1 leaves):

???

Problem 288: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sech}[c+d x]^3}{(e+f x)^2\,(a+i\, a\, \text{Sinh}[c+d x])}\, dx$$

Optimal (type 9, 33 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sech}[c+d x]^3}{(e+f x)^2\,(a+i\, a\, \text{Sinh}[c+d x])},\, x\right]$$

Result (type 1, 1 leaves):

???

Problem 289: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3\, \text{Cosh}[c+d x]}{a+b\, \text{Sinh}[c+d x]}\, dx$$

Optimal (type 4, 356 leaves, 11 steps):

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

Result (type 4, 778 leaves):

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

Problem 291: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x) \text{Cosh}[c+d x]}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 170 leaves, 7 steps):

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

Result (type 4, 341 leaves):

$$\frac{1}{8\,b\,d^2}\left(-f\,(2\,c+i\,\pi+2\,d\,x)^2-32\,f\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+i\,b)\,\text{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{a^2+b^2}}\right]+\right.$$

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

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

$$\left.8\,d\,e\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]-8\,c\,f\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]+8\,f\left(\text{PolyLog}\left[2,\frac{\left(a-\sqrt{a^2+b^2}\right)e^{c+d\,x}}{b}\right]+\text{PolyLog}\left[2,\frac{\left(a+\sqrt{a^2+b^2}\right)e^{c+d\,x}}{b}\right]\right)\right)$$

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

$$\int\frac{(e+f\,x)^3\,\text{Cosh}[c+d\,x]^2}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 527 leaves, 18 steps) :

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

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

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

$$\frac{6\,\sqrt{a^2+b^2}\,f^3\,\text{PolyLog}\left[4,-\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{b^2\,d^4}-\frac{6\,\sqrt{a^2+b^2}\,f^3\,\text{PolyLog}\left[4,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{b^2\,d^4}-\frac{6\,f^3\,\text{Sinh}[c+d\,x]}{b\,d^4}-\frac{3\,f\,(e+f\,x)^2\,\text{Sinh}[c+d\,x]}{b\,d^2}$$

Result (type 4, 1135 leaves) :

$$\frac{1}{4 b^2 d^4}\left(-a d^4 x \left(4 e^3+6 e^2 f x+4 e f^2 x^2+f^3 x^3\right)+4 b d (e+f x) \left(6 f^2+d^2 (e+f x)^2\right) \text{Cosh}[c+d x]+\right.$$

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

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

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

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

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

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

$$6 \sqrt{-a^2-b^2} d e^c f^3 x \text{PolyLog}\left[3,-\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-6 \sqrt{-a^2-b^2} e^c f^3 \text{PolyLog}\left[4,-\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+$$

$$\left.\left.6 \sqrt{-a^2-b^2} e^c f^3 \text{PolyLog}\left[4,-\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]\right)-12 b f \left(2 f^2+d^2 (e+f x)^2\right) \text{Sinh}[c+d x]\right)$$

Problem 299: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3 \text{Cosh}[c+d x]^3}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 642 leaves, 21 steps):

$$\frac{3 f^3 x}{8 b d^3}+\frac{(e+f x)^3}{4 b d}-\frac{(a^2+b^2)(e+f x)^4}{4 b^3 f}+\frac{6 a f^3 \text{Cosh}[c+d x]}{b^2 d^4}+\frac{3 a f (e+f x)^2 \text{Cosh}[c+d x]}{b^2 d^2}+$$

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

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

$$\frac{6 (a^2+b^2) f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 d^4}+\frac{6 (a^2+b^2) f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 d^4}-\frac{6 a f^2 (e+f x) \text{Sinh}[c+d x]}{b^2 d^3}-\frac{a (e+f x)^3 \text{Sinh}[c+d x]}{b^2 d}-$$

$$\frac{3 f^3 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{8 b d^4}-\frac{3 f (e+f x)^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 b d^2}+\frac{3 f^2 (e+f x) \text{Sinh}[c+d x]^2}{4 b d^3}+\frac{(e+f x)^3 \text{Sinh}[c+d x]^2}{2 b d}$$

Result (type 4, 2558 leaves) :

$$-\frac{1}{2 b^3 d^4 (-1+e^{2 c})}(a^2+b^2)\Bigg(4 d^4 e^3 e^{2 c} x+6 d^4 e^2 e^{2 c} f x^2+4 d^4 e e^{2 c} f^2 x^3+d^4 e^{2 c} f^3 x^4+2 d^3 e^3 \text{Log}\left[2 a e^{c+d x}+b\left(-1+e^{2 (c+d x)}\right)\right]-$$

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

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

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

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

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

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

$$12 d e e^{2 c} f^2 \text{PolyLog}\left[3,-\frac{b e^{2 c+d x}}{a e^c-\sqrt{(a^2+b^2) e^{2 c}}}\right]-12 d f^3 x \text{PolyLog}\left[3,-\frac{b e^{2 c+d x}}{a e^c-\sqrt{(a^2+b^2) e^{2 c}}}\right]+$$

$$12\,d\,e^{2c} f^3 x\,\text{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2c}}}\right]-12\,d\,e\,f^2\,\text{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2c}}}\right]+$$

$$12\,d\,e\,e^{2c} f^2\,\text{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2c}}}\right]-12\,d\,f^3 x\,\text{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2c}}}\right]+$$

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

$$\left.12\,e^{2c} f^3\,\text{PolyLog}\left[4,-\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2c}}}\right]+12\,f^3\,\text{PolyLog}\left[4,-\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2c}}}\right]-12\,e^{2c} f^3\,\text{PolyLog}\left[4,-\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2c}}}\right]\right)+$$

$$\frac{(a^2+b^2)\,e^3 x\,(1+\text{Cosh}[2c]+\text{Sinh}[2c])}{b^3\,(-1+\text{Cosh}[2c]+\text{Sinh}[2c])}+\frac{3\,(a^2+b^2)\,e^2 f x^2\,(1+\text{Cosh}[2c]+\text{Sinh}[2c])}{2\,b^3\,(-1+\text{Cosh}[2c]+\text{Sinh}[2c])}+$$

$$\frac{(a^2+b^2)\,e\,f^2 x^3\,(1+\text{Cosh}[2c]+\text{Sinh}[2c])}{b^3\,(-1+\text{Cosh}[2c]+\text{Sinh}[2c])}+$$

$$\frac{(a^2+b^2)\,f^3 x^4\,(1+\text{Cosh}[2c]+\text{Sinh}[2c])}{4\,b^3\,(-1+\text{Cosh}[2c]+\text{Sinh}[2c])}+$$

$$\left(\frac{a f^3 x^3\,\text{Cosh}[c]}{2\,b^2 d}-\frac{a f^3 x^3\,\text{Sinh}[c]}{2\,b^2 d}+(d^3 e^3+3 d^2 e^2 f+6 d e f^2+6 f^3)\left(\frac{a\,\text{Cosh}[c]}{2\,b^2 d^4}-\frac{a\,\text{Sinh}[c]}{2\,b^2 d^4}\right)+\right.$$

$$\left.(a d^2 e^2 f+2 a d e f^2+2 a f^3)\left(\frac{3x\,\text{Cosh}[c]}{2\,b^2 d^3}-\frac{3x\,\text{Sinh}[c]}{2\,b^2 d^3}\right)+(a d e f^2+a f^3)\left(\frac{3x^2\,\text{Cosh}[c]}{2\,b^2 d^2}-\frac{3x^2\,\text{Sinh}[c]}{2\,b^2 d^2}\right)\right)(\text{Cosh}[dx]-\text{Sinh}[dx])+$$

$$\left(-\frac{a f^3 x^3\,\text{Cosh}[c]}{2\,b^2 d}-\frac{a f^3 x^3\,\text{Sinh}[c]}{2\,b^2 d}+(d^3 e^3-3 d^2 e^2 f+6 d e f^2-6 f^3)\left(-\frac{a\,\text{Cosh}[c]}{2\,b^2 d^4}-\frac{a\,\text{Sinh}[c]}{2\,b^2 d^4}\right)-\right.$$

$$\frac{3x^2\,(a d e f^2\,\text{Cosh}[c]-a f^3\,\text{Cosh}[c]+a d e f^2\,\text{Sinh}[c]-a f^3\,\text{Sinh}[c])}{2\,b^2 d^2}-\frac{1}{2\,b^2 d^3}$$

$$\left.3x\,(a d^2 e^2 f\,\text{Cosh}[c]-2 a d e f^2\,\text{Cosh}[c]+2 a f^3\,\text{Cosh}[c]+a d^2 e^2 f\,\text{Sinh}[c]-2 a d e f^2\,\text{Sinh}[c]+2 a f^3\,\text{Sinh}[c])\right)(\text{Cosh}[dx]+\text{Sinh}[dx])+$$

$$\left(\frac{f^3 x^3\,\text{Cosh}[2c]}{8\,b\,d}-\frac{f^3 x^3\,\text{Sinh}[2c]}{8\,b\,d}+(4 d^3 e^3+6 d^2 e^2 f+6 d e f^2+3 f^3)\left(\frac{\text{Cosh}[2c]}{32\,b\,d^4}-\frac{\text{Sinh}[2c]}{32\,b\,d^4}\right)+\right.$$

$$\left.(2 d^2 e^2 f+2 d e f^2+f^3)\left(\frac{3x\,\text{Cosh}[2c]}{16\,b\,d^3}-\frac{3x\,\text{Sinh}[2c]}{16\,b\,d^3}\right)+(2 d e f^2+f^3)\left(\frac{3x^2\,\text{Cosh}[2c]}{16\,b\,d^2}-\frac{3x^2\,\text{Sinh}[2c]}{16\,b\,d^2}\right)\right)(\text{Cosh}[2dx]-\text{Sinh}[2dx])+$$

$$\left(\frac{f^3 x^3\,\text{Cosh}[2c]}{8\,b\,d}+\frac{f^3 x^3\,\text{Sinh}[2c]}{8\,b\,d}+(4 d^3 e^3-6 d^2 e^2 f+6 d e f^2-3 f^3)\left(\frac{\text{Cosh}[2c]}{32\,b\,d^4}+\frac{\text{Sinh}[2c]}{32\,b\,d^4}\right)+\right.$$

$$\frac{3x^2\,(2 d e f^2\,\text{Cosh}[2c]-f^3\,\text{Cosh}[2c]+2 d e f^2\,\text{Sinh}[2c]-f^3\,\text{Sinh}[2c])}{16\,b\,d^2}+\frac{1}{16\,b\,d^3}$$

$$3\,x\,\left(2\,d^2\,e^2\,f\,\text{Cosh}[2\,c]-2\,d\,e\,f^2\,\text{Cosh}[2\,c]+f^3\,\text{Cosh}[2\,c]+2\,d^2\,e^2\,f\,\text{Sinh}[2\,c]-2\,d\,e\,f^2\,\text{Sinh}[2\,c]+f^3\,\text{Sinh}[2\,c]\right)\Bigg)\,\left(\text{Cosh}[2\,d\,x]+\text{Sinh}[2\,d\,x]\right)$$

Problem 300: Result more than twice size of optimal antiderivative.

$$\int\frac{(e+f\,x)^2\,\text{Cosh}[c+d\,x]^3}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 477 leaves, 16 steps):

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

Result (type 4, 1844 leaves):

$$
\begin{aligned}
&\frac{1}{48\, b^3\, d^3}\, \mathrm{e}^{-2 c} \Big(-48\, a^2\, d^3\, e^2\, \mathrm{e}^{2 c}\, x - 48\, b^2\, d^3\, e^2\, \mathrm{e}^{2 c}\, x - 48\, a^2\, d^3\, e\, \mathrm{e}^{2 c}\, f\, x^2 - 48\, b^2\, d^3\, e\, \mathrm{e}^{2 c}\, f\, x^2 - 16\, a^2\, d^3\, \mathrm{e}^{2 c}\, f^2\, x^3 - 16\, b^2\, d^3\, \mathrm{e}^{2 c}\, f^2\, x^3 + 24\, a\, b\, d^2\, e^2\, \mathrm{e}^{c}\, \text{Cosh}[d\, x] - \\
&\quad 24\, a\, b\, d^2\, e^2\, \mathrm{e}^{3 c}\, \text{Cosh}[d\, x] + 48\, a\, b\, d\, e\, \mathrm{e}^{c}\, f\, \text{Cosh}[d\, x] + 48\, a\, b\, d\, e\, \mathrm{e}^{3 c}\, f\, \text{Cosh}[d\, x] + 48\, a\, b\, \mathrm{e}^{c}\, f^2\, \text{Cosh}[d\, x] - 48\, a\, b\, \mathrm{e}^{3 c}\, f^2\, \text{Cosh}[d\, x] + \\
&\quad 48\, a\, b\, d^2\, e\, \mathrm{e}^{c}\, f\, x\, \text{Cosh}[d\, x] - 48\, a\, b\, d^2\, e\, \mathrm{e}^{3 c}\, f\, x\, \text{Cosh}[d\, x] + 48\, a\, b\, d\, \mathrm{e}^{c}\, f^2\, x\, \text{Cosh}[d\, x] + 48\, a\, b\, d\, \mathrm{e}^{3 c}\, f^2\, x\, \text{Cosh}[d\, x] + \\
&\quad 24\, a\, b\, d^2\, \mathrm{e}^{c}\, f^2\, x^2\, \text{Cosh}[d\, x] - 24\, a\, b\, d^2\, \mathrm{e}^{3 c}\, f^2\, x^2\, \text{Cosh}[d\, x] + 6\, b^2\, d^2\, e^2\, \text{Cosh}[2\, d\, x] + 6\, b^2\, d^2\, e^2\, \mathrm{e}^{4 c}\, \text{Cosh}[2\, d\, x] + \\
&\quad 6\, b^2\, d\, e\, f\, \text{Cosh}[2\, d\, x] - 6\, b^2\, d\, e\, \mathrm{e}^{4 c}\, f\, \text{Cosh}[2\, d\, x] + 3\, b^2\, f^2\, \text{Cosh}[2\, d\, x] + 3\, b^2\, \mathrm{e}^{4 c}\, f^2\, \text{Cosh}[2\, d\, x] + 12\, b^2\, d^2\, e\, f\, x\, \text{Cosh}[2\, d\, x] + \\
&\quad 12\, b^2\, d^2\, e\, \mathrm{e}^{4 c}\, f\, x\, \text{Cosh}[2\, d\, x] + 6\, b^2\, d\, f^2\, x\, \text{Cosh}[2\, d\, x] - 6\, b^2\, d\, \mathrm{e}^{4 c}\, f^2\, x\, \text{Cosh}[2\, d\, x] + 6\, b^2\, d^2\, f^2\, x^2\, \text{Cosh}[2\, d\, x] + \\
&\quad 6\, b^2\, d^2\, \mathrm{e}^{4 c}\, f^2\, x^2\, \text{Cosh}[2\, d\, x] + 48\, a^2\, d^2\, e^2\, \mathrm{e}^{2 c}\, \text{Log}\left[2\, a\, \mathrm{e}^{c+d x} + b\left(-1 + \mathrm{e}^{2 (c+d x)}\right)\right] + 48\, b^2\, d^2\, e^2\, \mathrm{e}^{2 c}\, \text{Log}\left[2\, a\, \mathrm{e}^{c+d x} + b\left(-1 + \mathrm{e}^{2 (c+d x)}\right)\right] + \\
&\quad 96\, a^2\, d^2\, e\, \mathrm{e}^{2 c}\, f\, x\, \text{Log}\left[1 + \frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} - \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] + 96\, b^2\, d^2\, e\, \mathrm{e}^{2 c}\, f\, x\, \text{Log}\left[1 + \frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} - \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] + \\
&\quad 48\, a^2\, d^2\, \mathrm{e}^{2 c}\, f^2\, x^2\, \text{Log}\left[1 + \frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} - \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] + 48\, b^2\, d^2\, \mathrm{e}^{2 c}\, f^2\, x^2\, \text{Log}\left[1 + \frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} - \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] + \\
&\quad 96\, a^2\, d^2\, e\, \mathrm{e}^{2 c}\, f\, x\, \text{Log}\left[1 + \frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} + \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] + 96\, b^2\, d^2\, e\, \mathrm{e}^{2 c}\, f\, x\, \text{Log}\left[1 + \frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} + \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] + \\
&\quad 48\, a^2\, d^2\, \mathrm{e}^{2 c}\, f^2\, x^2\, \text{Log}\left[1 + \frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} + \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] + 48\, b^2\, d^2\, \mathrm{e}^{2 c}\, f^2\, x^2\, \text{Log}\left[1 + \frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} + \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] + \\
&\quad 96\left(a^2+b^2\right) d\, \mathrm{e}^{2 c}\, f\, (e + f\, x)\, \text{PolyLog}\left[2, -\frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} - \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] + 96\left(a^2+b^2\right) d\, \mathrm{e}^{2 c}\, f\, (e + f\, x)\, \text{PolyLog}\left[2, -\frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} + \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] - \\
&\quad 96\, a^2\, \mathrm{e}^{2 c}\, f^2\, \text{PolyLog}\left[3, -\frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} - \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] - 96\, b^2\, \mathrm{e}^{2 c}\, f^2\, \text{PolyLog}\left[3, -\frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} - \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] - \\
&\quad 96\, a^2\, \mathrm{e}^{2 c}\, f^2\, \text{PolyLog}\left[3, -\frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} + \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] - 96\, b^2\, \mathrm{e}^{2 c}\, f^2\, \text{PolyLog}\left[3, -\frac{b\, \mathrm{e}^{2 c+d x}}{a\, \mathrm{e}^{c} + \sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right] - 24\, a\, b\, d^2\, e^2\, \mathrm{e}^{c}\, \text{Sinh}[d\, x] - \\
&\quad 24\, a\, b\, d^2\, e^2\, \mathrm{e}^{3 c}\, \text{Sinh}[d\, x] - 48\, a\, b\, d\, e\, \mathrm{e}^{c}\, f\, \text{Sinh}[d\, x] + 48\, a\, b\, d\, e\, \mathrm{e}^{3 c}\, f\, \text{Sinh}[d\, x] - 48\, a\, b\, \mathrm{e}^{c}\, f^2\, \text{Sinh}[d\, x] - 48\, a\, b\, \mathrm{e}^{3 c}\, f^2\, \text{Sinh}[d\, x] - \\
&\quad 48\, a\, b\, d^2\, e\, \mathrm{e}^{c}\, f\, x\, \text{Sinh}[d\, x] - 48\, a\, b\, d^2\, e\, \mathrm{e}^{3 c}\, f\, x\, \text{Sinh}[d\, x] - 48\, a\, b\, d\, \mathrm{e}^{c}\, f^2\, x\, \text{Sinh}[d\, x] + 48\, a\, b\, d\, \mathrm{e}^{3 c}\, f^2\, x\, \text{Sinh}[d\, x] - \\
&\quad 24\, a\, b\, d^2\, \mathrm{e}^{c}\, f^2\, x^2\, \text{Sinh}[d\, x] - 24\, a\, b\, d^2\, \mathrm{e}^{3 c}\, f^2\, x^2\, \text{Sinh}[d\, x] - 6\, b^2\, d^2\, e^2\, \text{Sinh}[2\, d\, x] + 6\, b^2\, d^2\, e^2\, \mathrm{e}^{4 c}\, \text{Sinh}[2\, d\, x] - 6\, b^2\, d\, e\, f\, \text{Sinh}[2\, d\, x] - \\
&\quad 6\, b^2\, d\, e\, \mathrm{e}^{4 c}\, f\, \text{Sinh}[2\, d\, x] - 3\, b^2\, f^2\, \text{Sinh}[2\, d\, x] + 3\, b^2\, \mathrm{e}^{4 c}\, f^2\, \text{Sinh}[2\, d\, x] - 12\, b^2\, d^2\, e\, f\, x\, \text{Sinh}[2\, d\, x] + 12\, b^2\, d^2\, e\, \mathrm{e}^{4 c}\, f\, x\, \text{Sinh}[2\, d\, x] - \\
&\quad 6\, b^2\, d\, f^2\, x\, \text{Sinh}[2\, d\, x] - 6\, b^2\, d\, \mathrm{e}^{4 c}\, f^2\, x\, \text{Sinh}[2\, d\, x] - 6\, b^2\, d^2\, f^2\, x^2\, \text{Sinh}[2\, d\, x] + 6\, b^2\, d^2\, \mathrm{e}^{4 c}\, f^2\, x^2\, \text{Sinh}[2\, d\, x]\Big)
\end{aligned}
$$

Problem 301: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)\,\text{Cosh}[c+d x]^3}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 298 leaves, 13 steps):

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

Result (type 4, 755 leaves):

$$\frac{1}{8 b^3 d^2}\Bigg(8 a b f \operatorname{Cosh}[c+d x]+2 b^2 d (e+f x) \operatorname{Cosh}[2 (c+d x)]+8 a^2 d e \operatorname{Log}\left[1+\frac{b \operatorname{Sinh}[c+d x]}{a}\right]+$$

$$8 b^2 d e \operatorname{Log}\left[1+\frac{b \operatorname{Sinh}[c+d x]}{a}\right]-8 a^2 c f \operatorname{Log}\left[1+\frac{b \operatorname{Sinh}[c+d x]}{a}\right]-8 b^2 c f \operatorname{Log}\left[1+\frac{b \operatorname{Sinh}[c+d x]}{a}\right]+$$

$$8 a^2 f \Bigg(-\frac{1}{8} (2 c+i \pi+2 d x)^2-4 \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \operatorname{ArcTan}\left[\frac{(a+i b) \operatorname{Cot}\left[\frac{1}{4} (2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right]+$$

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

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

$$8 b^2 f \Bigg(-\frac{1}{8} (2 c+i \pi+2 d x)^2-4 \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \operatorname{ArcTan}\left[\frac{(a+i b) \operatorname{Cot}\left[\frac{1}{4} (2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right]+\frac{1}{2}\left(2 c+i \pi+2 d x+4 i \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right]\right)$$

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

$$\operatorname{PolyLog}\left[2,\frac{\left(a-\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+\operatorname{PolyLog}\left[2,\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]\Bigg)-8 a b d (e+f x) \operatorname{Sinh}[c+d x]-b^2 f \operatorname{Sinh}[2 (c+d x)]\Bigg)$$

Problem 303: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Cosh}[c+d x]^3}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])}\,dx$$

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

$$\text{Unintegrable}\left[\frac{\text{Cosh}[c+d x]^3}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 306: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)\,\text{Sech}[c+d x]}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 334 leaves, 19 steps):

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

Result (type 4, 732 leaves):

$$\frac{1}{8\left(a^2+b^2\right)d^2}\Bigg(8 b c d e-8 b c^2 f-4 i b c f \pi+b f \pi^2+8 b d^2 e x-8 b c d f x-4 i b d f \pi x-32 b f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a+i b) \text{Cot}\left[\frac{1}{4}(2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right]+$$

$$16 a d e \text{ArcTan}[\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]+16 a d f x \text{ArcTan}[\text{Cosh}[c+d x]+\text{Sinh}[c+d x]]+8 b c f \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+$$

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

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

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

$$8 b c f \text{Log}\left[1+\frac{b \text{Sinh}[c+d x]}{a}\right]-8 b d e \text{Log}[1+\text{Cosh}[2(c+d x)]+\text{Sinh}[2(c+d x)]]-8 b d f x \text{Log}[1+\text{Cosh}[2(c+d x)]+\text{Sinh}[2(c+d x)]]+$$

$$8 b f \text{PolyLog}\left[2,\frac{\left(a-\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+8 b f \text{PolyLog}\left[2,\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-8 i a f \text{PolyLog}[2,-i(\text{Cosh}[c+d x]+\text{Sinh}[c+d x])]+$$

$$8 i a f \text{PolyLog}[2,i(\text{Cosh}[c+d x]+\text{Sinh}[c+d x])]-4 b f \text{PolyLog}[2,-\text{Cosh}[2(c+d x)]-\text{Sinh}[2(c+d x)]]\Bigg)$$

Problem 309: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3 \text{Sech}[c+d x]^2}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 780 leaves, 29 steps) :

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

$$\frac{6 i b f^2 (e+f x) \operatorname{PolyLog}\left[2,-i e^{c+d x}\right]}{\left(a^2+b^2\right) d^3}-\frac{6 i b f^2 (e+f x) \operatorname{PolyLog}\left[2, i e^{c+d x}\right]}{\left(a^2+b^2\right) d^3}+\frac{3 b^2 f (e+f x)^2 \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{\left(a^2+b^2\right)^{3/2} d^2}-$$

$$\frac{3 b^2 f (e+f x)^2 \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{\left(a^2+b^2\right)^{3/2} d^2}-\frac{3 a f^2 (e+f x) \operatorname{PolyLog}\left[2,-e^{2 (c+d x)}\right]}{\left(a^2+b^2\right) d^3}-\frac{6 i b f^3 \operatorname{PolyLog}\left[3,-i e^{c+d x}\right]}{\left(a^2+b^2\right) d^4}+\frac{6 i b f^3 \operatorname{PolyLog}\left[3, i e^{c+d x}\right]}{\left(a^2+b^2\right) d^4}-$$

$$\frac{6 b^2 f^2 (e+f x) \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{\left(a^2+b^2\right)^{3/2} d^3}+\frac{6 b^2 f^2 (e+f x) \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{\left(a^2+b^2\right)^{3/2} d^3}+\frac{3 a f^3 \operatorname{PolyLog}\left[3,-e^{2 (c+d x)}\right]}{2 \left(a^2+b^2\right) d^4}+$$

$$\frac{6 b^2 f^3 \operatorname{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{\left(a^2+b^2\right)^{3/2} d^4}-\frac{6 b^2 f^3 \operatorname{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{\left(a^2+b^2\right)^{3/2} d^4}+\frac{b (e+f x)^3 \operatorname{Sech}[c+d x]}{\left(a^2+b^2\right) d}+\frac{a (e+f x)^3 \operatorname{Tanh}[c+d x]}{\left(a^2+b^2\right) d}$$

Result (type 4, 1610 leaves) :

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

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

$$\frac{1}{\left(a^2+b^2\right) d} \text{Sech}[c] \, \text{Sech}[c+d x] \left(b e^3 \text{Cosh}[c] + 3 b e^2 f x \text{Cosh}[c] + 3 b e f^2 x^2 \text{Cosh}[c] + b f^3 x^3 \text{Cosh}[c] + a e^3 \text{Sinh}[d x] + 3 a e^2 f x \text{Sinh}[d x] + 3 a e f^2 x^2 \text{Sinh}[d x] + a f^3 x^3 \text{Sinh}[d x]\right)$$

Problem 310: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2 \text{Sech}[c+d x]^2}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 548 leaves, 24 steps):

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

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

$$\frac{a\,f^2\,\mathrm{PolyLog}\left[2,-e^{2\,(c+d\,x)}\right]}{(a^2+b^2)\,d^3}-\frac{2\,b^2\,f^2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{(a^2+b^2)^{3/2}\,d^3}+\frac{2\,b^2\,f^2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{(a^2+b^2)^{3/2}\,d^3}+\frac{b\,(e+f\,x)^2\,\mathrm{Sech}[c+d\,x]}{(a^2+b^2)\,d}+\frac{a\,(e+f\,x)^2\,\mathrm{Tanh}[c+d\,x]}{(a^2+b^2)\,d}$$

Result (type 4, 1180 leaves) :

$$\frac{1}{(a^2+b^2)\,d^3}$$

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

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

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

$$\frac{2\,a\,e\,f\,\mathrm{Sech}[c]\,\left(\mathrm{Cosh}[c]\,\mathrm{Log}[\mathrm{Cosh}[c]\,\mathrm{Cosh}[d\,x]+\mathrm{Sinh}[c]\,\mathrm{Sinh}[d\,x]]-d\,x\,\mathrm{Sinh}[c]\right)}{(a^2+b^2)\,d^2\,\left(\mathrm{Cosh}[c]^2-\mathrm{Sinh}[c]^2\right)}-$$

$$\frac{4\,b\,e\,f\,\mathrm{ArcTan}\left[\frac{\mathrm{Sinh}[c]+\mathrm{Cosh}[c]\,\mathrm{Tanh}\left[\frac{d\,x}{2}\right]}{\sqrt{\mathrm{Cosh}[c]^2-\mathrm{Sinh}[c]^2}}\right]}{(a^2+b^2)\,d^2\,\sqrt{\mathrm{Cosh}[c]^2-\mathrm{Sinh}[c]^2}}+$$

$$\left(a\,f^2\,\mathrm{Csch}[c]\,\left(-d^2\,e^{-\mathrm{ArcTanh}[\mathrm{Coth}[c]]}\,x^2+\frac{1}{\sqrt{1-\mathrm{Coth}[c]^2}}\right.\right.$$

$$i\,\mathrm{Coth}[c]\,\left(-d\,x\,\left(-\pi+2\,i\,\mathrm{ArcTanh}[\mathrm{Coth}[c]]\right)-\pi\,\mathrm{Log}\left[1+e^{2\,d\,x}\right]-2\,\left(i\,d\,x+i\,\mathrm{ArcTanh}[\mathrm{Coth}[c]]\right)\,\mathrm{Log}\left[1-e^{2\,i\,(i\,d\,x+i\,\mathrm{ArcTanh}[\mathrm{Coth}[c]])}\right]+$$

$$\pi\,\text{Log}[\text{Cosh}[d\,x]] + 2\,i\,\text{ArcTanh}[\text{Coth}[c]]\,\text{Log}[i\,\text{Sinh}[d\,x + \text{ArcTanh}[\text{Coth}[c]]]] + i\,\text{PolyLog}\left[2, e^{2\,i\,(i\,d\,x + i\,\text{ArcTanh}[\text{Coth}[c]])}\right]\Bigg)$$

$$\text{Sech}[c]\Bigg) \Big/ \left(\left(a^2+b^2\right) d^3 \sqrt{\text{Csch}[c]^2 \left(-\text{Cosh}[c]^2 + \text{Sinh}[c]^2\right)}\right) - \frac{1}{\left(a^2+b^2\right) d^3}$$

$$2\,b\,f^2 \left(-\frac{1}{\sqrt{1-\text{Coth}[c]^2}}\,i\,\text{Csch}[c]\,\left(i\,(d\,x + \text{ArcTanh}[\text{Coth}[c]])\,\left(\text{Log}\left[1 - e^{-d\,x-\text{ArcTanh}[\text{Coth}[c]]}\right] - \text{Log}\left[1 + e^{-d\,x-\text{ArcTanh}[\text{Coth}[c]]}\right]\right) + \right.\right.$$

$$\left.\left. i\,\left(\text{PolyLog}\left[2, -e^{-d\,x-\text{ArcTanh}[\text{Coth}[c]]}\right] - \text{PolyLog}\left[2, e^{-d\,x-\text{ArcTanh}[\text{Coth}[c]]}\right]\right)\right) - \frac{2\,\text{ArcTan}\left[\frac{\text{Sinh}[c]+\text{Cosh}[c]\,\text{Tanh}\left[\frac{d\,x}{2}\right]}{\sqrt{\text{Cosh}[c]^2-\text{Sinh}[c]^2}}\right]\,\text{ArcTanh}[\text{Coth}[c]]}{\sqrt{\text{Cosh}[c]^2-\text{Sinh}[c]^2}}\right) +$$

$$\frac{1}{\left(a^2+b^2\right) d}\text{Sech}[c]\,\text{Sech}[c+d\,x]\,\left(b\,e^2\,\text{Cosh}[c] + 2\,b\,e\,f\,x\,\text{Cosh}[c] + b\,f^2\,x^2\,\text{Cosh}[c] + a\,e^2\,\text{Sinh}[d\,x] + 2\,a\,e\,f\,x\,\text{Sinh}[d\,x] + a\,f^2\,x^2\,\text{Sinh}[d\,x]\right)$$

Problem 311: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{(e+f\,x)\,\text{Sech}[c+d\,x]^2}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 295 leaves, 15 steps):

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

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

Result (type 4, 485 leaves):

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

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

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

$$\frac{1}{\left(a^2+b^2\right) d^2}\text{Sech}[c+d x]\, (b\, d\, e-b\, c\, f+b\, f\, (c+d x)+a\, d\, e\, \text{Sinh}[c+d x]-a\, c\, f\, \text{Sinh}[c+d x]+a\, f\, (c+d x)\, \text{Sinh}[c+d x])$$

Problem 314: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2\, \text{Sech}[c+d x]^3}{a+b\, \text{Sinh}[c+d x]}\, dx$$

Optimal (type 4, 928 leaves, 39 steps):

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

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

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

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

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

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

$$\frac{a f (e+f x) \text{Sech}[c+d x]}{\left(a^2+b^2\right) d^2}+\frac{b (e+f x)^2 \text{Sech}[c+d x]^2}{2 \left(a^2+b^2\right) d}-\frac{b f (e+f x) \text{Tanh}[c+d x]}{\left(a^2+b^2\right) d^2}+\frac{a (e+f x)^2 \text{Sech}[c+d x] \text{Tanh}[c+d x]}{2 \left(a^2+b^2\right) d}$$

Result (type 4, 3102 leaves):

$$-\frac{1}{6\left(a^2+b^2\right)^2 d^3\left(1+\mathbb{e}^{2c}\right)}$$

$$\Big(-12 b^3 d^3 e^2 \mathbb{e}^{2c} x+12 a^2 b d \mathbb{e}^{2c} f^2 x+12 b^3 d \mathbb{e}^{2c} f^2 x-12 b^3 d^3 e \mathbb{e}^{2c} f x^2-4 b^3 d^3 \mathbb{e}^{2c} f^2 x^3-6 a^3 d^2 e^2 \text{ArcTan}[\mathbb{e}^{c+dx}]-18 a b^2 d^2 e^2 \text{ArcTan}[\mathbb{e}^{c+dx}]-$$

$$6 a^3 d^2 e^2 \mathbb{e}^{2c} \text{ArcTan}[\mathbb{e}^{c+dx}]-18 a b^2 d^2 e^2 \mathbb{e}^{2c} \text{ArcTan}[\mathbb{e}^{c+dx}]+12 a^3 f^2 \text{ArcTan}[\mathbb{e}^{c+dx}]+12 a b^2 f^2 \text{ArcTan}[\mathbb{e}^{c+dx}]+12 a^3 \mathbb{e}^{2c} f^2 \text{ArcTan}[\mathbb{e}^{c+dx}]+$$

$$12 a b^2 \mathbb{e}^{2c} f^2 \text{ArcTan}[\mathbb{e}^{c+dx}]-6\mathbb{i} a^3 d^2 e f x \text{Log}[1-\mathbb{i}\mathbb{e}^{c+dx}]-18\mathbb{i} a b^2 d^2 e f x \text{Log}[1-\mathbb{i}\mathbb{e}^{c+dx}]-6\mathbb{i} a^3 d^2 e \mathbb{e}^{2c} f x \text{Log}[1-\mathbb{i}\mathbb{e}^{c+dx}]-$$

$$18\mathbb{i} a b^2 d^2 e \mathbb{e}^{2c} f x \text{Log}[1-\mathbb{i}\mathbb{e}^{c+dx}]-3\mathbb{i} a^3 d^2 f^2 x^2 \text{Log}[1-\mathbb{i}\mathbb{e}^{c+dx}]-9\mathbb{i} a b^2 d^2 f^2 x^2 \text{Log}[1-\mathbb{i}\mathbb{e}^{c+dx}]-$$

$$3\mathbb{i} a^3 d^2 \mathbb{e}^{2c} f^2 x^2 \text{Log}[1-\mathbb{i}\mathbb{e}^{c+dx}]-9\mathbb{i} a b^2 d^2 \mathbb{e}^{2c} f^2 x^2 \text{Log}[1-\mathbb{i}\mathbb{e}^{c+dx}]+6\mathbb{i} a^3 d^2 e f x \text{Log}[1+\mathbb{i}\mathbb{e}^{c+dx}]+18\mathbb{i} a b^2 d^2 e f x \text{Log}[1+\mathbb{i}\mathbb{e}^{c+dx}]+$$

$$6\mathbb{i} a^3 d^2 e \mathbb{e}^{2c} f x \text{Log}[1+\mathbb{i}\mathbb{e}^{c+dx}]+18\mathbb{i} a b^2 d^2 e \mathbb{e}^{2c} f x \text{Log}[1+\mathbb{i}\mathbb{e}^{c+dx}]+3\mathbb{i} a^3 d^2 f^2 x^2 \text{Log}[1+\mathbb{i}\mathbb{e}^{c+dx}]+9\mathbb{i} a b^2 d^2 f^2 x^2 \text{Log}[1+\mathbb{i}\mathbb{e}^{c+dx}]+$$

$$3\mathbb{i} a^3 d^2 \mathbb{e}^{2c} f^2 x^2 \text{Log}[1+\mathbb{i}\mathbb{e}^{c+dx}]+9\mathbb{i} a b^2 d^2 \mathbb{e}^{2c} f^2 x^2 \text{Log}[1+\mathbb{i}\mathbb{e}^{c+dx}]+6 b^3 d^2 e^2 \text{Log}[1+\mathbb{e}^{2(c+dx)}]+6 b^3 d^2 e^2 \mathbb{e}^{2c} \text{Log}[1+\mathbb{e}^{2(c+dx)}]-$$

$$6 a^2 b f^2 \text{Log}[1+\mathbb{e}^{2(c+dx)}]-6 b^3 f^2 \text{Log}[1+\mathbb{e}^{2(c+dx)}]-6 a^2 b \mathbb{e}^{2c} f^2 \text{Log}[1+\mathbb{e}^{2(c+dx)}]-6 b^3 \mathbb{e}^{2c} f^2 \text{Log}[1+\mathbb{e}^{2(c+dx)}]+$$

$$12 b^3 d^2 e f x \text{Log}[1+\mathbb{e}^{2(c+dx)}]+12 b^3 d^2 e \mathbb{e}^{2c} f x \text{Log}[1+\mathbb{e}^{2(c+dx)}]+6 b^3 d^2 f^2 x^2 \text{Log}[1+\mathbb{e}^{2(c+dx)}]+6 b^3 d^2 \mathbb{e}^{2c} f^2 x^2 \text{Log}[1+\mathbb{e}^{2(c+dx)}]+$$

$$6\mathbb{i} a\left(a^2+3b^2\right) d\left(1+\mathbb{e}^{2c}\right) f(e+fx)\,\text{PolyLog}[2,-\mathbb{i}\mathbb{e}^{c+dx}]-6\mathbb{i} a\left(a^2+3b^2\right) d\left(1+\mathbb{e}^{2c}\right) f(e+fx)\,\text{PolyLog}[2,\mathbb{i}\mathbb{e}^{c+dx}]+$$

$$6 b^3 d e f\,\text{PolyLog}[2,-\mathbb{e}^{2(c+dx)}]+6 b^3 d e \mathbb{e}^{2c} f\,\text{PolyLog}[2,-\mathbb{e}^{2(c+dx)}]+6 b^3 d f^2 x\,\text{PolyLog}[2,-\mathbb{e}^{2(c+dx)}]+$$

$$6 b^3 d \mathbb{e}^{2c} f^2 x\,\text{PolyLog}[2,-\mathbb{e}^{2(c+dx)}]-6\mathbb{i} a^3 f^2\,\text{PolyLog}[3,-\mathbb{i}\mathbb{e}^{c+dx}]-18\mathbb{i} a b^2 f^2\,\text{PolyLog}[3,-\mathbb{i}\mathbb{e}^{c+dx}]-$$

$$6\mathbb{i} a^3 \mathbb{e}^{2c} f^2\,\text{PolyLog}[3,-\mathbb{i}\mathbb{e}^{c+dx}]-18\mathbb{i} a b^2 \mathbb{e}^{2c} f^2\,\text{PolyLog}[3,-\mathbb{i}\mathbb{e}^{c+dx}]+6\mathbb{i} a^3 f^2\,\text{PolyLog}[3,\mathbb{i}\mathbb{e}^{c+dx}]+18\mathbb{i} a b^2 f^2\,\text{PolyLog}[3,\mathbb{i}\mathbb{e}^{c+dx}]+$$

$$6\mathbb{i} a^3 \mathbb{e}^{2c} f^2\,\text{PolyLog}[3,\mathbb{i}\mathbb{e}^{c+dx}]+18\mathbb{i} a b^2 \mathbb{e}^{2c} f^2\,\text{PolyLog}[3,\mathbb{i}\mathbb{e}^{c+dx}]-3 b^3 f^2\,\text{PolyLog}[3,-\mathbb{e}^{2(c+dx)}]-3 b^3 \mathbb{e}^{2c} f^2\,\text{PolyLog}[3,-\mathbb{e}^{2(c+dx)}]\Big)-$$

$$\frac{1}{3\left(a^2+b^2\right)^2 d^3\left(-1+\mathbb{e}^{2c}\right)} b^3\Big(6 d^3 e^2 \mathbb{e}^{2c} x+6 d^3 e \mathbb{e}^{2c} f x^2+2 d^3 \mathbb{e}^{2c} f^2 x^3+3 d^2 e^2 \text{Log}\left[2 a \mathbb{e}^{c+dx}+b\left(-1+\mathbb{e}^{2(c+dx)}\right)\right]-$$

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

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

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

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

$$6 d\left(-1+\mathbb{e}^{2c}\right) f(e+fx)\,\text{PolyLog}\left[2,-\frac{b\,\mathbb{e}^{2c+dx}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\mathbb{e}^{2c}}}\right]-6 f^2\,\text{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{2c+dx}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\mathbb{e}^{2c}}}\right]+$$

$$6 \mathbb{e}^{2c} f^2\,\text{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{2c+dx}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\mathbb{e}^{2c}}}\right]-6 f^2\,\text{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{2c+dx}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\mathbb{e}^{2c}}}\right]+6 \mathbb{e}^{2c} f^2\,\text{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{2c+dx}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\mathbb{e}^{2c}}}\right]\Big)+$$

$$\frac{1}{24\left(a^2+b^2\right)^2 d^2}\text{Csch}[c]\,\text{Sech}[c]\,\text{Sech}[c+dx]^2\Big(-6 a^2 b e f-6 b^3 e f+12 b^3 d^2 e^2 x-6 a^2 b f^2 x-6 b^3 f^2 x+12 b^3 d^2 e f x^2+4 b^3 d^2 f^2 x^3+$$

$$6 a^2 b e f \text{Cosh}[2c]+6 b^3 e f \text{Cosh}[2c]+6 a^2 b f^2 x \text{Cosh}[2c]+6 b^3 f^2 x \text{Cosh}[2c]+6 a^2 b e f \text{Cosh}[2dx]+6 b^3 e f \text{Cosh}[2dx]+$$

$6 a^2 b f^2 x \text{Cosh}[2 d x] + 6 b^3 f^2 x \text{Cosh}[2 d x] - 3 a^3 d e^2 \text{Cosh}[c - d x] - 3 a b^2 d e^2 \text{Cosh}[c - d x] - 6 a^3 d e f x \text{Cosh}[c - d x] - 6 a b^2 d e f x \text{Cosh}[c - d x] - 3 a^3 d f^2 x^2 \text{Cosh}[c - d x] - 3 a b^2 d f^2 x^2 \text{Cosh}[c - d x] + 3 a^3 d e^2 \text{Cosh}[3 c + d x] + 3 a b^2 d e^2 \text{Cosh}[3 c + d x] + 6 a^3 d e f x \text{Cosh}[3 c + d x] + 6 a b^2 d e f x \text{Cosh}[3 c + d x] + 3 a^3 d f^2 x^2 \text{Cosh}[3 c + d x] + 3 a b^2 d f^2 x^2 \text{Cosh}[3 c + d x] - 6 a^2 b e f \text{Cosh}[2 c + 2 d x] - 6 b^3 e f \text{Cosh}[2 c + 2 d x] + 12 b^3 d^2 e^2 x \text{Cosh}[2 c + 2 d x] - 6 a^2 b f^2 x \text{Cosh}[2 c + 2 d x] - 6 b^3 f^2 x \text{Cosh}[2 c + 2 d x] + 12 b^3 d^2 e f x^2 \text{Cosh}[2 c + 2 d x] + 4 b^3 d^2 f^2 x^3 \text{Cosh}[2 c + 2 d x] + 6 a^2 b d e^2 \text{Sinh}[2 c] + 6 b^3 d e^2 \text{Sinh}[2 c] + 12 a^2 b d e f x \text{Sinh}[2 c] + 12 b^3 d e f x \text{Sinh}[2 c] + 6 a^2 b d f^2 x^2 \text{Sinh}[2 c] + 6 b^3 d f^2 x^2 \text{Sinh}[2 c] + 6 a^3 e f \text{Sinh}[c - d x] + 6 a b^2 e f \text{Sinh}[c - d x] + 6 a^3 f^2 x \text{Sinh}[c - d x] + 6 a b^2 f^2 x \text{Sinh}[c - d x] + 6 a^3 e f \text{Sinh}[3 c + d x] + 6 a b^2 e f \text{Sinh}[3 c + d x] + 6 a^3 f^2 x \text{Sinh}[3 c + d x] + 6 a b^2 f^2 x \text{Sinh}[3 c + d x]\Big)$

Problem 317: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sech}[c + d x]^3}{(e + f x)\,(a + b \text{Sinh}[c + d x])}\, dx$$

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

$$\text{Unintegrable}\Big[\frac{\text{Sech}[c + d x]^3}{(e + f x)\,(a + b \text{Sinh}[c + d x])}, x\Big]$$

Result (type 1, 1 leaves):

???

Problem 328: Result more than twice size of optimal antiderivative.

$$\int \frac{(e + f x)^2 \text{Cosh}[c + d x]}{(a + b \text{Sinh}[c + d x])^3}\, dx$$

Optimal (type 4, 306 leaves, 12 steps):

$$\frac{a f (e + f x) \text{Log}\Big[1 + \frac{b e^{c+d x}}{a - \sqrt{a^2+b^2}}\Big]}{b (a^2 + b^2)^{3/2} d^2} - \frac{a f (e + f x) \text{Log}\Big[1 + \frac{b e^{c+d x}}{a + \sqrt{a^2+b^2}}\Big]}{b (a^2 + b^2)^{3/2} d^2} + \frac{f^2 \text{Log}[a + b \text{Sinh}[c + d x]]}{b (a^2 + b^2) d^3} + \frac{a f^2 \text{PolyLog}\Big[2, -\frac{b e^{c+d x}}{a - \sqrt{a^2+b^2}}\Big]}{b (a^2 + b^2)^{3/2} d^3} - \frac{a f^2 \text{PolyLog}\Big[2, -\frac{b e^{c+d x}}{a + \sqrt{a^2+b^2}}\Big]}{b (a^2 + b^2)^{3/2} d^3} - \frac{(e + f x)^2}{2 b d (a + b \text{Sinh}[c + d x])^2} - \frac{f (e + f x) \text{Cosh}[c + d x]}{(a^2 + b^2) d^2 (a + b \text{Sinh}[c + d x])}$$

Result (type 4, 770 leaves):

$$\frac{f^2\,x\,\mathrm{Coth}[c]}{b\,(a^2+b^2)\,d^2}+$$

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

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

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

$$\frac{f^2\,x\,\mathrm{Cosh}[c]\,\mathrm{Csch}\left[\frac{c}{2}\right]\,\mathrm{Sech}\left[\frac{c}{2}\right]}{2\,b\,(a^2+b^2)\,d^2}-\frac{(e+f x)^2}{2\,b\,d\,(a+b\,\mathrm{Sinh}[c+d x])^2}+\frac{\mathrm{Csch}\left[\frac{c}{2}\right]\,\mathrm{Sech}\left[\frac{c}{2}\right]\,\left(a\,e\,f\,\mathrm{Cosh}[c]+a\,f^2\,x\,\mathrm{Cosh}[c]+b\,e\,f\,\mathrm{Sinh}[d x]+b\,f^2\,x\,\mathrm{Sinh}[d x]\right)}{2\,b\,(a^2+b^2)\,d^2\,(a+b\,\mathrm{Sinh}[c+d x])}$$

Problem 329: Result more than twice size of optimal antiderivative.

$$\int\frac{(e+f x)^3\,\mathrm{Cosh}[c+d x]}{(a+b\,\mathrm{Sinh}[c+d x])^3}\,dx$$

Optimal (type 4, 631 leaves, 19 steps):

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

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

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

$$\frac{3\,a\,f^3\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b\,(a^2+b^2)^{3/2}\,d^4}+\frac{3\,a\,f^3\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b\,(a^2+b^2)^{3/2}\,d^4}-\frac{(e+f x)^3}{2\,b\,d\,(a+b\,\mathrm{Sinh}[c+d x])^2}-\frac{3\,f\,(e+f x)^2\,\mathrm{Cosh}[c+d x]}{2\,(a^2+b^2)\,d^2\,(a+b\,\mathrm{Sinh}[c+d x])}$$

Result (type 4, 5785 leaves):

$$\frac{1}{b\left(a^2+b^2\right) d^2 \left(-1+\mathbb{e}^{2c}\right)}$$

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

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

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

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

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

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

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

$$\left(\left(-a\,e^{-c}-e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}\right)\left(\frac{x^2}{2\left(a\,e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{x\,\mathrm{Log}\left[1+\frac{b\,e^{2c+dx}}{a\,e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d\left(a\,e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{\mathrm{PolyLog}\left[2,-\frac{b\,e^{2c+dx}}{a\,e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^2\left(a\,e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}\right)\right)\Big/$$

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

$$2\,a\,f^2\left(-\left(\left(\left(-a\,e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}\right)\left(\frac{x^2}{2\left(a\,e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{x\,\mathrm{Log}\left[1+\frac{b\,e^{2c+dx}}{a\,e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d\left(a\,e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{\mathrm{PolyLog}\left[2,-\frac{b\,e^{2c+dx}}{a\,e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^2\left(a\,e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}\right)\right)\right.\right.\Big/$$

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

$$\left(\left(-a\,e^{-c}-e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}\right)\left(\frac{x^2}{2\left(a\,e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{x\,\mathrm{Log}\left[1+\frac{b\,e^{2c+dx}}{a\,e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d\left(a\,e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{\mathrm{PolyLog}\left[2,-\frac{b\,e^{2c+dx}}{a\,e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^2\left(a\,e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}\right)\right)\Big/$$

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

$$2\,a\,d\,e\,f\left(-\left(\left(e^{2c}\left(-a\,e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}\right)\left(\frac{x^2}{2\left(a\,e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{x\,\mathrm{Log}\left[1+\frac{b\,e^{2c+dx}}{a\,e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d\left(a\,e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{\mathrm{PolyLog}\left[2,-\frac{b\,e^{2c+dx}}{a\,e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^2\left(a\,e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}\right)\right)\right.\right.\Big/$$

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

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

$$\left(b\left(\frac{-a e^{-c}-e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}-\frac{-a e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}\right)\right)\Bigg)-$$

$$2 a f^2\left(-\left(\left(e^{2c}\left(-a e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}\right)\left(\frac{x^2}{2\left(a e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{x \operatorname{Log}\left[1+\frac{b e^{2c+dx}}{a e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d\left(a e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{\operatorname{PolyLog}\left[2,-\frac{b e^{2c+dx}}{a e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^2\left(a e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}\right)\right)\Big/\right.\right.$$

$$\left.\left.\left(b\left(\frac{-a e^{-c}-e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}-\frac{-a e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}\right)\right)\right)+$$

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

$$\left(b\left(\frac{-a e^{-c}-e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}-\frac{-a e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}\right)\right)\Bigg)-$$

$$a d f^2\left(-\left(\left(\left(-a e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}\right)\left(\frac{x^3}{3\left(a e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{x^2 \operatorname{Log}\left[1+\frac{b e^{2c+dx}}{a e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d\left(a e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{2 x \operatorname{PolyLog}\left[2,-\frac{b e^{2c+dx}}{a e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^2\left(a e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}+\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{2 \operatorname{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^3\left(a e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}\right)\right)\Big/\left(b\left(\frac{-a e^{-c}-e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}-\frac{-a e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}\right)\right)\right)+$$

$$\left(\left(-a e^{-c}-e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}\right)\left(\frac{x^3}{3\left(a e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{x^2 \operatorname{Log}\left[1+\frac{b e^{2c+dx}}{a e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d\left(a e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{2 x \operatorname{PolyLog}\left[2,-\frac{b e^{2c+dx}}{a e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^2\left(a e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}+\right.\right.$$

$$\frac{2\,\text{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^{c}+\sqrt{(a^2+b^2)\,e^{2c}}}\right]}{d^3\left(a\,e^{c}+\sqrt{(a^2+b^2)\,e^{2c}}\right)}\Bigg)\Bigg)\Bigg/\left(b\left(\frac{-a\,e^{-c}-e^{-2c}\sqrt{a^2\,e^{2c}+b^2\,e^{2c}}}{b}-\frac{-a\,e^{-c}+e^{-2c}\sqrt{a^2\,e^{2c}+b^2\,e^{2c}}}{b}\right)\right)\Bigg)+$$

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

$$\frac{2\,\text{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^{c}-\sqrt{(a^2+b^2)\,e^{2c}}}\right]}{d^3\left(a\,e^{c}-\sqrt{(a^2+b^2)\,e^{2c}}\right)}\Bigg)\Bigg)\Bigg/\left(b\left(\frac{-a\,e^{-c}-e^{-2c}\sqrt{a^2\,e^{2c}+b^2\,e^{2c}}}{b}-\frac{-a\,e^{-c}+e^{-2c}\sqrt{a^2\,e^{2c}+b^2\,e^{2c}}}{b}\right)\right)+$$

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

$$\frac{2\,\text{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^{c}+\sqrt{(a^2+b^2)\,e^{2c}}}\right]}{d^3\left(a\,e^{c}+\sqrt{(a^2+b^2)\,e^{2c}}\right)}\Bigg)\Bigg)\Bigg/\left(b\left(\frac{-a\,e^{-c}-e^{-2c}\sqrt{a^2\,e^{2c}+b^2\,e^{2c}}}{b}-\frac{-a\,e^{-c}+e^{-2c}\sqrt{a^2\,e^{2c}+b^2\,e^{2c}}}{b}\right)\right)\Bigg)-$$

$$\frac{(e+f\,x)^3}{2\,b\,d\,(a+b\,\text{Sinh}[c+d\,x])^2}+\left(3\,\text{Csch}\left[\frac{c}{2}\right]\,\text{Sech}\left[\frac{c}{2}\right]\,\left(a\,e^2\,f\,\text{Cosh}[c]+2\,a\,e\,f^2\,x\,\text{Cosh}[c]+a\,f^3\,x^2\,\text{Cosh}[c]+b\,e^2\,f\,\text{Sinh}[d\,x]+\right.\right.$$

$$\left.\left.2\,b\,e\,f^2\,x\,\text{Sinh}[d\,x]+b\,f^3\,x^2\,\text{Sinh}[d\,x]\right)\right)\Big/\left(4\,b\,(a^2+b^2)\,d^2\,(a+b\,\text{Sinh}[c+d\,x])\right)$$

Problem 331: Result more than twice size of optimal antiderivative.

$$\int\frac{(e+f\,x)^2\,\text{Cosh}[c+d\,x]}{(a+b\,\text{Sinh}[c+d\,x])^3}\,dx$$

Optimal (type 4, 306 leaves, 12 steps):

$$\frac{a f (e+f x) \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b \left(a^2+b^2\right)^{3/2} d^2}-\frac{a f (e+f x) \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b \left(a^2+b^2\right)^{3/2} d^2}+\frac{f^2 \operatorname{Log}[a+b \operatorname{Sinh}[c+d x]]}{b \left(a^2+b^2\right) d^3}+$$

$$\frac{a f^2 \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b \left(a^2+b^2\right)^{3/2} d^3}-\frac{a f^2 \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b \left(a^2+b^2\right)^{3/2} d^3}-\frac{(e+f x)^2}{2 b d (a+b \operatorname{Sinh}[c+d x])^2}-\frac{f (e+f x) \operatorname{Cosh}[c+d x]}{\left(a^2+b^2\right) d^2 (a+b \operatorname{Sinh}[c+d x])}$$

Result (type 4, 770 leaves) :

$$\frac{f^2 x \operatorname{Coth}[c]}{b \left(a^2+b^2\right) d^2}+$$

$$\frac{1}{b \left(a^2+b^2\right) d^2 \left(-1+e^{2 c}\right)} e^c f \left(-2 e^c f x-\frac{2 a e e^{-c} \operatorname{ArcTan}\left[\frac{a+b e^{c+d x}}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}}+\frac{2 a e e^c \operatorname{ArcTan}\left[\frac{a+b e^{c+d x}}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}}-\frac{e^{-c} f \operatorname{Log}\left[2 a e^{c+d x}+b \left(-1+e^{2 (c+d x)}\right)\right]}{d}+\right.$$

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

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

$$\frac{f^2 x \operatorname{Cosh}[c] \operatorname{Csch}\left[\frac{c}{2}\right] \operatorname{Sech}\left[\frac{c}{2}\right]}{2 b \left(a^2+b^2\right) d^2}-\frac{(e+f x)^2}{2 b d (a+b \operatorname{Sinh}[c+d x])^2}+\frac{\operatorname{Csch}\left[\frac{c}{2}\right] \operatorname{Sech}\left[\frac{c}{2}\right] \left(a e f \operatorname{Cosh}[c]+a f^2 x \operatorname{Cosh}[c]+b e f \operatorname{Sinh}[d x]+b f^2 x \operatorname{Sinh}[d x]\right)}{2 b \left(a^2+b^2\right) d^2 (a+b \operatorname{Sinh}[c+d x])}$$

Problem 332: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3 \operatorname{Cosh}[c+d x]}{(a+b \operatorname{Sinh}[c+d x])^3} \, dx$$

Optimal (type 4, 631 leaves, 19 steps) :

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

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

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

$$\frac{3 a f^3 \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b (a^2+b^2)^{3/2} d^4}+\frac{3 a f^3 \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b (a^2+b^2)^{3/2} d^4}-\frac{(e+f x)^3}{2 b d (a+b \text{Sinh}[c+d x])^2}-\frac{3 f (e+f x)^2 \text{Cosh}[c+d x]}{2 (a^2+b^2) d^2 (a+b \text{Sinh}[c+d x])}$$

Result (type 4, 5785 leaves):

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$a\,d\,f^2 \left(-\left(\left(\left(-a\,e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}\right)\left(\frac{x^3}{3\left(a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{x^2\,\mathrm{Log}\left[1+\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d\left(a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{2\,x\,\mathrm{PolyLog}\left[2,-\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^2\left(a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}+\right.\right.\right.\right.$$

$$\left.\left.\left.\frac{2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^3\left(a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}\right)\right)\Big/\left(b\left(\frac{-a\,e^{-c}-e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}-\frac{-a\,e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}\right)\right)\right)+$$

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

$$\left.\left.\left.\frac{2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^3\left(a\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}\right)\right)\Big/\left(b\left(\frac{-a\,e^{-c}-e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}-\frac{-a\,e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}\right)\right)\right)+$$

$$a\,d\,f^2 \left(-\left(\left(e^{2c}\left(-a\,e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}\right)\left(\frac{x^3}{3\left(a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{x^2\,\mathrm{Log}\left[1+\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d\left(a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}-\frac{2\,x\,\mathrm{PolyLog}\left[2,-\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^2\left(a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}+\right.\right.\right.\right.$$

$$\left.\left.\left.\frac{2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^3\left(a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}\right)\right)\Big/\left(b\left(\frac{-a\,e^{-c}-e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}-\frac{-a\,e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}\right)\right)\right)+$$

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

$$\left.\left.\left.\frac{2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]}{d^3\left(a\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}\right)}\right)\right)\Big/\left(b\left(\frac{-a\,e^{-c}-e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}-\frac{-a\,e^{-c}+e^{-2c}\sqrt{a^2 e^{2c}+b^2 e^{2c}}}{b}\right)\right)\right)-$$

$$\frac{(e+f\,x)^3}{2\,b\,d\,(a+b\,\mathrm{Sinh}[c+d\,x])^2}+\left(3\,\mathrm{Csch}\left[\frac{c}{2}\right]\,\mathrm{Sech}\left[\frac{c}{2}\right]\,\left(a\,e^2\,f\,\mathrm{Cosh}[c]+2\,a\,e\,f^2\,x\,\mathrm{Cosh}[c]+a\,f^3\,x^2\,\mathrm{Cosh}[c]+b\,e^2\,f\,\mathrm{Sinh}[d\,x]+\right.\right.$$

$$2\, b\, e\, f^2\, x\, \text{Sinh}[d\, x] + b\, f^3\, x^2\, \text{Sinh}[d\, x]\Big)\Big) \Big/ \left(4\, b\, \left(a^2+b^2\right)\, d^2\, \left(a + b\, \text{Sinh}[c+d\, x]\right)\right)$$

Problem 333: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f\, x)^3\, \text{Cosh}[c+d\, x]\, \text{Sinh}[c+d\, x]}{a+b\, \text{Sinh}[c+d\, x]}\, dx$$

Optimal (type 4, 448 leaves, 16 steps):

$$\frac{a\, (e+f\, x)^4}{4\, b^2\, f} - \frac{6\, f^3\, \text{Cosh}[c+d\, x]}{b\, d^4} - \frac{3\, f\, (e+f\, x)^2\, \text{Cosh}[c+d\, x]}{b\, d^2} - \frac{a\, (e+f\, x)^3\, \text{Log}\left[1+\frac{b\, e^{c+d\, x}}{a-\sqrt{a^2+b^2}}\right]}{b^2\, d} -$$
$$\frac{a\, (e+f\, x)^3\, \text{Log}\left[1+\frac{b\, e^{c+d\, x}}{a+\sqrt{a^2+b^2}}\right]}{b^2\, d} - \frac{3\, a\, f\, (e+f\, x)^2\, \text{PolyLog}\left[2, -\frac{b\, e^{c+d\, x}}{a-\sqrt{a^2+b^2}}\right]}{b^2\, d^2} - \frac{3\, a\, f\, (e+f\, x)^2\, \text{PolyLog}\left[2, -\frac{b\, e^{c+d\, x}}{a+\sqrt{a^2+b^2}}\right]}{b^2\, d^2} +$$
$$\frac{6\, a\, f^2\, (e+f\, x)\, \text{PolyLog}\left[3, -\frac{b\, e^{c+d\, x}}{a-\sqrt{a^2+b^2}}\right]}{b^2\, d^3} + \frac{6\, a\, f^2\, (e+f\, x)\, \text{PolyLog}\left[3, -\frac{b\, e^{c+d\, x}}{a+\sqrt{a^2+b^2}}\right]}{b^2\, d^3} - \frac{6\, a\, f^3\, \text{PolyLog}\left[4, -\frac{b\, e^{c+d\, x}}{a-\sqrt{a^2+b^2}}\right]}{b^2\, d^4} -$$
$$\frac{6\, a\, f^3\, \text{PolyLog}\left[4, -\frac{b\, e^{c+d\, x}}{a+\sqrt{a^2+b^2}}\right]}{b^2\, d^4} + \frac{6\, f^2\, (e+f\, x)\, \text{Sinh}[c+d\, x]}{b\, d^3} + \frac{(e+f\, x)^3\, \text{Sinh}[c+d\, x]}{b\, d}$$

Result (type 4, 1518 leaves):

$$\frac{1}{4 b^2 d^4} \mathrm{e}^{-c} \Big(4 a d^4 e^3 \mathrm{e}^c x + 6 a d^4 e^2 \mathrm{e}^c f x^2 + 4 a d^4 e \mathrm{e}^c f^2 x^3 + a d^4 \mathrm{e}^c f^3 x^4 - 2 b d^3 e^3 \text{Cosh}[d x] + 2 b d^3 e^3 \mathrm{e}^{2 c} \text{Cosh}[d x] -$$

$$6 b d^2 e^2 f \text{Cosh}[d x] - 6 b d^2 e^2 \mathrm{e}^{2 c} f \text{Cosh}[d x] - 12 b d e f^2 \text{Cosh}[d x] + 12 b d e \mathrm{e}^{2 c} f^2 \text{Cosh}[d x] - 12 b f^3 \text{Cosh}[d x] -$$

$$12 b \mathrm{e}^{2 c} f^3 \text{Cosh}[d x] - 6 b d^3 e^2 f x \text{Cosh}[d x] + 6 b d^3 e^2 \mathrm{e}^{2 c} f x \text{Cosh}[d x] - 12 b d^2 e f^2 x \text{Cosh}[d x] - 12 b d^2 e \mathrm{e}^{2 c} f^2 x \text{Cosh}[d x] -$$

$$12 b d f^3 x \text{Cosh}[d x] + 12 b d \mathrm{e}^{2 c} f^3 x \text{Cosh}[d x] - 6 b d^3 e f^2 x^2 \text{Cosh}[d x] + 6 b d^3 e \mathrm{e}^{2 c} f^2 x^2 \text{Cosh}[d x] - 6 b d^2 f^3 x^2 \text{Cosh}[d x] -$$

$$6 b d^2 \mathrm{e}^{2 c} f^3 x^2 \text{Cosh}[d x] - 2 b d^3 f^3 x^3 \text{Cosh}[d x] + 2 b d^3 \mathrm{e}^{2 c} f^3 x^3 \text{Cosh}[d x] - 4 a d^3 e^3 \mathrm{e}^c \text{Log}\left[2 a \mathrm{e}^{c+d x} + b \left(-1 + \mathrm{e}^{2 (c+d x)}\right)\right] -$$

$$12 a d^3 e^2 \mathrm{e}^c f x \text{Log}\left[1 + \frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c - \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] - 12 a d^3 e \mathrm{e}^c f^2 x^2 \text{Log}\left[1 + \frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c - \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] - 4 a d^3 \mathrm{e}^c f^3 x^3 \text{Log}\left[1 + \frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c - \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] -$$

$$12 a d^3 e^2 \mathrm{e}^c f x \text{Log}\left[1 + \frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c + \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] - 12 a d^3 e \mathrm{e}^c f^2 x^2 \text{Log}\left[1 + \frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c + \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] - 4 a d^3 \mathrm{e}^c f^3 x^3 \text{Log}\left[1 + \frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c + \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] -$$

$$12 a d^2 \mathrm{e}^c f (e + f x)^2 \text{PolyLog}\left[2, -\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c - \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] - 12 a d^2 \mathrm{e}^c f (e + f x)^2 \text{PolyLog}\left[2, -\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c + \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] +$$

$$24 a d e \mathrm{e}^c f^2 \text{PolyLog}\left[3, -\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c - \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] + 24 a d \mathrm{e}^c f^3 x \text{PolyLog}\left[3, -\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c - \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] +$$

$$24 a d e \mathrm{e}^c f^2 \text{PolyLog}\left[3, -\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c + \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] + 24 a d \mathrm{e}^c f^3 x \text{PolyLog}\left[3, -\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c + \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] -$$

$$24 a \mathrm{e}^c f^3 \text{PolyLog}\left[4, -\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c - \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] - 24 a \mathrm{e}^c f^3 \text{PolyLog}\left[4, -\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c + \sqrt{(a^2+b^2) \mathrm{e}^{2 c}}}\right] + 2 b d^3 e^3 \text{Sinh}[d x] +$$

$$2 b d^3 e^3 \mathrm{e}^{2 c} \text{Sinh}[d x] + 6 b d^2 e^2 f \text{Sinh}[d x] - 6 b d^2 e^2 \mathrm{e}^{2 c} f \text{Sinh}[d x] + 12 b d e f^2 \text{Sinh}[d x] + 12 b d e \mathrm{e}^{2 c} f^2 \text{Sinh}[d x] +$$

$$12 b f^3 \text{Sinh}[d x] - 12 b \mathrm{e}^{2 c} f^3 \text{Sinh}[d x] + 6 b d^3 e^2 f x \text{Sinh}[d x] + 6 b d^3 e^2 \mathrm{e}^{2 c} f x \text{Sinh}[d x] + 12 b d^2 e f^2 x \text{Sinh}[d x] -$$

$$12 b d^2 e \mathrm{e}^{2 c} f^2 x \text{Sinh}[d x] + 12 b d f^3 x \text{Sinh}[d x] + 12 b d \mathrm{e}^{2 c} f^3 x \text{Sinh}[d x] + 6 b d^3 e f^2 x^2 \text{Sinh}[d x] +$$

$$6 b d^3 e \mathrm{e}^{2 c} f^2 x^2 \text{Sinh}[d x] + 6 b d^2 f^3 x^2 \text{Sinh}[d x] - 6 b d^2 \mathrm{e}^{2 c} f^3 x^2 \text{Sinh}[d x] + 2 b d^3 f^3 x^3 \text{Sinh}[d x] + 2 b d^3 \mathrm{e}^{2 c} f^3 x^3 \text{Sinh}[d x]\Big)$$

Problem 334: Result more than twice size of optimal antiderivative.

$$\int \frac{(e + f x)^2 \text{Cosh}[c + d x] \text{Sinh}[c + d x]}{a + b \text{Sinh}[c + d x]} \, dx$$

Optimal (type 4, 330 leaves, 13 steps):

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

Result (type 4, 869 leaves) :

$$\frac{1}{6\,b^2\,d^3}\,e^{-c}\,\Big(6\,a\,d^3\,e^2\,e^c\,x+6\,a\,d^3\,e\,e^c\,f\,x^2+2\,a\,d^3\,e^c\,f^2\,x^3-3\,b\,d^2\,e^2\,\text{Cosh}[d\,x]+3\,b\,d^2\,e^2\,e^{2\,c}\,\text{Cosh}[d\,x]-6\,b\,d\,e\,f\,\text{Cosh}[d\,x]-6\,b\,d\,e\,e^{2\,c}\,f\,\text{Cosh}[d\,x]-$$
$$6\,b\,f^2\,\text{Cosh}[d\,x]+6\,b\,e^{2\,c}\,f^2\,\text{Cosh}[d\,x]-6\,b\,d^2\,e\,f\,x\,\text{Cosh}[d\,x]+6\,b\,d^2\,e\,e^{2\,c}\,f\,x\,\text{Cosh}[d\,x]-6\,b\,d\,f^2\,x\,\text{Cosh}[d\,x]-6\,b\,d\,e^{2\,c}\,f^2\,x\,\text{Cosh}[d\,x]-$$
$$3\,b\,d^2\,f^2\,x^2\,\text{Cosh}[d\,x]+3\,b\,d^2\,e^{2\,c}\,f^2\,x^2\,\text{Cosh}[d\,x]-6\,a\,d^2\,e^2\,e^c\,\text{Log}\left[2\,a\,e^{c+d\,x}+b\left(-1+e^{2\,(c+d\,x)}\right)\right]-12\,a\,d^2\,e\,e^c\,f\,x\,\text{Log}\left[1+\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]-$$
$$6\,a\,d^2\,e^c\,f^2\,x^2\,\text{Log}\left[1+\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]-12\,a\,d^2\,e\,e^c\,f\,x\,\text{Log}\left[1+\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]-6\,a\,d^2\,e^c\,f^2\,x^2\,\text{Log}\left[1+\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]-$$
$$12\,a\,d\,e^c\,f\,(e+f\,x)\,\text{PolyLog}\left[2,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]-12\,a\,d\,e^c\,f\,(e+f\,x)\,\text{PolyLog}\left[2,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+$$
$$12\,a\,e^c\,f^2\,\text{PolyLog}\left[3,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+12\,a\,e^c\,f^2\,\text{PolyLog}\left[3,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+3\,b\,d^2\,e^2\,\text{Sinh}[d\,x]+$$
$$3\,b\,d^2\,e^2\,e^{2\,c}\,\text{Sinh}[d\,x]+6\,b\,d\,e\,f\,\text{Sinh}[d\,x]-6\,b\,d\,e\,e^{2\,c}\,f\,\text{Sinh}[d\,x]+6\,b\,f^2\,\text{Sinh}[d\,x]+6\,b\,e^{2\,c}\,f^2\,\text{Sinh}[d\,x]+6\,b\,d^2\,e\,f\,x\,\text{Sinh}[d\,x]+$$
$$6\,b\,d^2\,e\,e^{2\,c}\,f\,x\,\text{Sinh}[d\,x]+6\,b\,d\,f^2\,x\,\text{Sinh}[d\,x]-6\,b\,d\,e^{2\,c}\,f^2\,x\,\text{Sinh}[d\,x]+3\,b\,d^2\,f^2\,x^2\,\text{Sinh}[d\,x]+3\,b\,d^2\,e^{2\,c}\,f^2\,x^2\,\text{Sinh}[d\,x]\Big)$$

Problem 335: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{(e+f\,x)\,\text{Cosh}[c+d\,x]\,\text{Sinh}[c+d\,x]}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 212 leaves, 10 steps) :

$$\frac{a\,(e+f\,x)^2}{2\,b^2\,f}-\frac{f\,\mathrm{Cosh}[c+d\,x]}{b\,d^2}-\frac{a\,(e+f\,x)\,\mathrm{Log}\left[1+\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{b^2\,d}-\frac{a\,(e+f\,x)\,\mathrm{Log}\left[1+\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{b^2\,d}-\frac{a\,f\,\mathrm{PolyLog}\left[2,-\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{b^2\,d^2}-\frac{a\,f\,\mathrm{PolyLog}\left[2,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{b^2\,d^2}+\frac{(e+f\,x)\,\mathrm{Sinh}[c+d\,x]}{b\,d}$$

Result (type 4, 367 leaves) :

$$\frac{1}{b^2\,d^2}\left(-b\,f\,\mathrm{Cosh}[c+d\,x]-a\,d\,e\,\mathrm{Log}\left[1+\frac{b\,\mathrm{Sinh}[c+d\,x]}{a}\right]+a\,c\,f\,\mathrm{Log}\left[1+\frac{b\,\mathrm{Sinh}[c+d\,x]}{a}\right]-\right.$$

$$a\,f\left(-\frac{1}{8}\,(2\,c+i\,\pi+2\,d\,x)^2-4\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\mathrm{ArcTan}\left[\frac{(a+i\,b)\,\mathrm{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{a^2+b^2}}\right]+\frac{1}{2}\left(2\,c+i\,\pi+2\,d\,x+4\,i\,\mathrm{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\right)\right.$$

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

$$\left.\left.\frac{1}{2}\,i\,\pi\,\mathrm{Log}[a+b\,\mathrm{Sinh}[c+d\,x]]+\mathrm{PolyLog}\left[2,\frac{\left(a-\sqrt{a^2+b^2}\right)e^{c+d\,x}}{b}\right]+\mathrm{PolyLog}\left[2,\frac{\left(a+\sqrt{a^2+b^2}\right)e^{c+d\,x}}{b}\right]\right)+b\,d\,(e+f\,x)\,\mathrm{Sinh}[c+d\,x]\right)$$

Problem 337: Attempted integration timed out after 120 seconds.

$$\int\frac{\mathrm{Cosh}[c+d\,x]\,\mathrm{Sinh}[c+d\,x]}{(e+f\,x)\,(a+b\,\mathrm{Sinh}[c+d\,x])}\,dx$$

Optimal (type 9, 34 leaves, 0 steps) :

$$\mathrm{Unintegrable}\left[\frac{\mathrm{Cosh}[c+d\,x]\,\mathrm{Sinh}[c+d\,x]}{(e+f\,x)\,(a+b\,\mathrm{Sinh}[c+d\,x])},x\right]$$

Result (type 1, 1 leaves) :

???

Problem 338: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3 \operatorname{Cosh}[c+d x]^2 \operatorname{Sinh}[c+d x]}{a+b \operatorname{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 696 leaves, 23 steps):

$$\frac{3 e f^2 x}{4 b d^2}+\frac{3 f^3 x^2}{8 b d^2}+\frac{a^2 (e+f x)^4}{4 b^3 f}+\frac{(e+f x)^4}{8 b f}-\frac{6 a f^2 (e+f x) \operatorname{Cosh}[c+d x]}{b^2 d^3}-\frac{a (e+f x)^3 \operatorname{Cosh}[c+d x]}{b^2 d}-\frac{3 f^3 \operatorname{Cosh}[c+d x]^2}{8 b d^4}-\frac{3 f (e+f x)^2 \operatorname{Cosh}[c+d x]^2}{4 b d^2}-\frac{a \sqrt{a^2+b^2} (e+f x)^3 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 d}+\frac{a \sqrt{a^2+b^2} (e+f x)^3 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 d}-\frac{3 a \sqrt{a^2+b^2} f (e+f x)^2 \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 d^2}+\frac{3 a \sqrt{a^2+b^2} f (e+f x)^2 \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 d^2}+\frac{6 a \sqrt{a^2+b^2} f^2 (e+f x) \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 d^3}-\frac{6 a \sqrt{a^2+b^2} f^2 (e+f x) \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 d^3}-\frac{6 a \sqrt{a^2+b^2} f^3 \operatorname{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 d^4}+\frac{6 a \sqrt{a^2+b^2} f^3 \operatorname{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 d^4}+\frac{6 a f^3 \operatorname{Sinh}[c+d x]}{b^2 d^4}+\frac{3 a f (e+f x)^2 \operatorname{Sinh}[c+d x]}{b^2 d^2}+\frac{3 f^2 (e+f x) \operatorname{Cosh}[c+d x] \operatorname{Sinh}[c+d x]}{4 b d^3}+\frac{(e+f x)^3 \operatorname{Cosh}[c+d x] \operatorname{Sinh}[c+d x]}{2 b d}$$

Result (type 4, 3458 leaves):

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

$$\frac{3}{4} e^2 f \left(\frac{x^2}{2 b}+\frac{1}{b d^2} a \left(\frac{i \pi \operatorname{ArcTanh}\left[\frac{-b+a \operatorname{Tanh}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}\right]}{\sqrt{a^2+b^2}}+\frac{1}{\sqrt{-a^2-b^2}} \left(2 \left(-i c+\frac{\pi}{2}-i d x\right) \operatorname{ArcTanh}\left[\frac{(a-i b) \operatorname{Cot}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\right.\right.\right.$$

$$2 \left(-i c+\operatorname{ArcCos}\left[-\frac{i a}{b}\right]\right) \operatorname{ArcTanh}\left[\frac{(-a-i b) \operatorname{Tan}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{i a}{b}\right]-2 i \left(\text{ArcTanh}\left[\frac{(a-i b) \text{Cot}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\text{ArcTanh}\left[\frac{(-a-i b) \text{Tan}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\right)$$

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

$$\left(\text{ArcCos}\left[-\frac{i a}{b}\right]+2 i \left(\text{ArcTanh}\left[\frac{(a-i b) \text{Cot}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\text{ArcTanh}\left[\frac{(-a-i b) \text{Tan}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\right)$$

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

$$\text{Log}\left[1-\frac{i \left(a-i \sqrt{-a^2-b^2}\right) \left(a-i b-\sqrt{-a^2-b^2}\, \text{Tan}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]\right)}{b \left(a-i b+\sqrt{-a^2-b^2}\, \text{Tan}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]\right)}\right]+\left(-\text{ArcCos}\left[-\frac{i a}{b}\right]+\right.$$

$$\left.2 i\, \text{ArcTanh}\left[\frac{(-a-i b) \text{Tan}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right) \text{Log}\left[1-\frac{i \left(a+i \sqrt{-a^2-b^2}\right) \left(a-i b-\sqrt{-a^2-b^2}\, \text{Tan}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]\right)}{b \left(a-i b+\sqrt{-a^2-b^2}\, \text{Tan}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]\right)}\right]+$$

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

$$\left.\text{PolyLog}\left[2, \frac{i \left(a+i \sqrt{-a^2-b^2}\right) \left(a-i b-\sqrt{-a^2-b^2}\, \text{Tan}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]\right)}{b \left(a-i b+\sqrt{-a^2-b^2}\, \text{Tan}\left[\frac{1}{2}\left(-i c+\frac{\pi}{2}-i d x\right)\right]\right)}\right]\right)\Bigg)\Bigg)\Bigg)+$$

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

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

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

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

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

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

$$6 \text{PolyLog}\left[4, -\frac{b e^{2c+dx}}{a e^c - \sqrt{(a^2+b^2) e^{2c}}}\right] - 6 \text{PolyLog}\left[4, -\frac{b e^{2c+dx}}{a e^c + \sqrt{(a^2+b^2) e^{2c}}}\right]\Bigg)\Bigg) +$$

$$\frac{1}{8 b^3} e f^2 \Bigg(2 (4 a^2 + b^2) x^3 - \frac{1}{d^3 \sqrt{(a^2+b^2) e^{2c}}} 6 a (4 a^2 + 3 b^2) e^c \Bigg(d^2 x^2 \text{Log}\left[1 + \frac{b e^{2c+dx}}{a e^c - \sqrt{(a^2+b^2) e^{2c}}}\right] - d^2 x^2 \text{Log}\left[1 + \frac{b e^{2c+dx}}{a e^c + \sqrt{(a^2+b^2) e^{2c}}}\right] +$$

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

$$2 \text{PolyLog}\left[3, -\frac{b e^{2c+dx}}{a e^c - \sqrt{(a^2+b^2) e^{2c}}}\right] + 2 \text{PolyLog}\left[3, -\frac{b e^{2c+dx}}{a e^c + \sqrt{(a^2+b^2) e^{2c}}}\right]\Bigg) -$$

$$\frac{24 a b \text{Cosh}[d x] \left((2 + d^2 x^2) \text{Cosh}[c] - 2 d x \text{Sinh}[c]\right)}{d^3} + \frac{3 b^2 \text{Cosh}[2 d x] \left(-2 d x \text{Cosh}[2 c] + (1 + 2 d^2 x^2) \text{Sinh}[2 c]\right)}{d^3} -$$

$$\frac{24 a b \left(-2 d x \text{Cosh}[c] + (2 + d^2 x^2) \text{Sinh}[c]\right) \text{Sinh}[d x]}{d^3} +$$

$$\frac{3 b^2 \left((1 + 2 d^2 x^2) \text{Cosh}[2 c] - 2 d x \text{Sinh}[2 c]\right) \text{Sinh}[2 d x]}{d^3}\Bigg) +$$

$$\frac{1}{16 b^3} f^3 \Bigg((4 a^2 + b^2) x^4 - \frac{1}{d^4 \sqrt{(a^2+b^2) e^{2c}}} 4 a (4 a^2 + 3 b^2) e^c \Bigg(d^3 x^3 \text{Log}\left[1 + \frac{b e^{2c+dx}}{a e^c - \sqrt{(a^2+b^2) e^{2c}}}\right] - d^3 x^3 \text{Log}\left[1 + \frac{b e^{2c+dx}}{a e^c + \sqrt{(a^2+b^2) e^{2c}}}\right] +$$

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

$$6 d x \text{PolyLog}\left[3, -\frac{b e^{2c+dx}}{a e^c + \sqrt{(a^2+b^2) e^{2c}}}\right] + 6 \text{PolyLog}\left[4, -\frac{b e^{2c+dx}}{a e^c - \sqrt{(a^2+b^2) e^{2c}}}\right] - 6 \text{PolyLog}\left[4, -\frac{b e^{2c+dx}}{a e^c + \sqrt{(a^2+b^2) e^{2c}}}\right]\Bigg) -$$

$$\frac{16 a b \text{Cosh}[d x] \left(d x (6 + d^2 x^2) \text{Cosh}[c] - 3 (2 + d^2 x^2) \text{Sinh}[c]\right)}{d^4} + \frac{b^2 \text{Cosh}[2 d x] \left(-3 (1 + 2 d^2 x^2) \text{Cosh}[2 c] + 2 d x (3 + 2 d^2 x^2) \text{Sinh}[2 c]\right)}{d^4} -$$

$$\frac{16 a b \left(-3 (2 + d^2 x^2) \text{Cosh}[c] + d x (6 + d^2 x^2) \text{Sinh}[c]\right) \text{Sinh}[d x]}{d^4} +$$

$$\left.\frac{b^2\left(2 d x\left(3+2 d^2 x^2\right) \text{Cosh}[2 c]-3\left(1+2 d^2 x^2\right) \text{Sinh}[2 c]\right) \text{Sinh}[2 d x]}{d^4}\right)+$$

$$\frac{e^3\left((4 a^2+b^2)(c+d x)-\frac{2 a (4 a^2+3 b^2) \text{ArcTan}\left[\frac{b-a \text{Tanh}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}}-4 a b \text{Cosh}[c+d x]+b^2 \text{Sinh}[2(c+d x)]\right)}{4 b^3 d}+$$

$$\frac{1}{8 b^3 d^2}$$

3

e^2

f

$$\Bigg((4 a^2+b^2)(-c+d x)(c+d x)-$$

$$8 a b d x \text{Cosh}[c+d x]-b^2 \text{Cosh}[2(c+d x)]-$$

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

$$\left.\left.\text{PolyLog}\left[2,\frac{b e^{c+d x}}{-a+\sqrt{a^2+b^2}}\right]-\text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]\right)\right)+8 a b \text{Sinh}[c+d x]+2 b^2 d x \text{Sinh}[2(c+d x)]\Bigg)$$

Problem 339: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2 \text{Cosh}[c+d x]^2 \text{Sinh}[c+d x]}{a+b \text{Sinh}[c+d x]}\, dx$$

Optimal (type 4, 510 leaves, 20 steps):

$$\frac{f^2 x}{4 b d^2}+\frac{a^2 (e+f x)^3}{3 b^3 f}+\frac{(e+f x)^3}{6 b f}-\frac{2 a f^2 \text{Cosh}[c+d x]}{b^2 d^3}-\frac{a (e+f x)^2 \text{Cosh}[c+d x]}{b^2 d}-\frac{f (e+f x) \text{Cosh}[c+d x]^2}{2 b d^2}-$$
$$\frac{a \sqrt{a^2+b^2} (e+f x)^2 \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 d}+\frac{a \sqrt{a^2+b^2} (e+f x)^2 \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 d}-\frac{2 a \sqrt{a^2+b^2} f (e+f x) \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 d^2}+$$
$$\frac{2 a \sqrt{a^2+b^2} f (e+f x) \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 d^2}+\frac{2 a \sqrt{a^2+b^2} f^2 \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 d^3}-\frac{2 a \sqrt{a^2+b^2} f^2 \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 d^3}+$$
$$\frac{2 a f (e+f x) \text{Sinh}[c+d x]}{b^2 d^2}+\frac{f^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 b d^3}+\frac{(e+f x)^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{2 b d}$$

Result (type 4, 2451 leaves):

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

$$\frac{1}{2} e f \left(\frac{x^2}{2 b}+\frac{1}{b d^2} a \left(\frac{i \pi \text{ArcTanh}\left[\frac{-b+a \text{Tanh}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}\right]}{\sqrt{a^2+b^2}}+\frac{1}{\sqrt{-a^2-b^2}} \left(2 \left(-i c+\frac{\pi}{2}-i d x\right) \text{ArcTanh}\left[\frac{(a-i b) \text{Cot}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\right.\right.\right.$$
$$2 \left(-i c+\text{ArcCos}\left[-\frac{i a}{b}\right]\right) \text{ArcTanh}\left[\frac{(-a-i b) \text{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]+$$
$$\left(\text{ArcCos}\left[-\frac{i a}{b}\right]-2 i \left(\text{ArcTanh}\left[\frac{(a-i b) \text{Cot}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\text{ArcTanh}\left[\frac{(-a-i b) \text{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\right)$$
$$\text{Log}\left[\frac{\sqrt{-a^2-b^2}\, e^{-\frac{1}{2} i \left(-i c+\frac{\pi}{2}-i d x\right)}}{\sqrt{2} \sqrt{-i b} \sqrt{a+b \text{Sinh}[c+d x]}}\right]+$$
$$\left(\text{ArcCos}\left[-\frac{i a}{b}\right]+2 i \left(\text{ArcTanh}\left[\frac{(a-i b) \text{Cot}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\text{ArcTanh}\left[\frac{(-a-i b) \text{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\right)$$
$$\text{Log}\left[\frac{\sqrt{-a^2-b^2}\, e^{\frac{1}{2} i \left(-i c+\frac{\pi}{2}-i d x\right)}}{\sqrt{2} \sqrt{-i b} \sqrt{a+b \text{Sinh}[c+d x]}}\right]-\left(\text{ArcCos}\left[-\frac{i a}{b}\right]+2 i \text{ArcTanh}\left[\frac{(-a-i b) \text{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)$$

$$\text{Log}\left[1-\frac{\mathrm{i}\left(a-\mathrm{i}\sqrt{-a^2-b^2}\right)\left(a-\mathrm{i}\,b-\sqrt{-a^2-b^2}\,\text{Tan}\left[\frac{1}{2}\left(-\mathrm{i}\,c+\frac{\pi}{2}-\mathrm{i}\,d\,x\right)\right]\right)}{b\left(a-\mathrm{i}\,b+\sqrt{-a^2-b^2}\,\text{Tan}\left[\frac{1}{2}\left(-\mathrm{i}\,c+\frac{\pi}{2}-\mathrm{i}\,d\,x\right)\right]\right)}\right]+\left(-\text{ArcCos}\left[-\frac{\mathrm{i}\,a}{b}\right]+\right.$$

$$\left.2\,\mathrm{i}\,\text{ArcTanh}\left[\frac{(-a-\mathrm{i}\,b)\,\text{Tan}\left[\frac{1}{2}\left(-\mathrm{i}\,c+\frac{\pi}{2}-\mathrm{i}\,d\,x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\text{Log}\left[1-\frac{\mathrm{i}\left(a+\mathrm{i}\sqrt{-a^2-b^2}\right)\left(a-\mathrm{i}\,b-\sqrt{-a^2-b^2}\,\text{Tan}\left[\frac{1}{2}\left(-\mathrm{i}\,c+\frac{\pi}{2}-\mathrm{i}\,d\,x\right)\right]\right)}{b\left(a-\mathrm{i}\,b+\sqrt{-a^2-b^2}\,\text{Tan}\left[\frac{1}{2}\left(-\mathrm{i}\,c+\frac{\pi}{2}-\mathrm{i}\,d\,x\right)\right]\right)}\right]+$$

$$\mathrm{i}\left(\text{PolyLog}\left[2,\frac{\mathrm{i}\left(a-\mathrm{i}\sqrt{-a^2-b^2}\right)\left(a-\mathrm{i}\,b-\sqrt{-a^2-b^2}\,\text{Tan}\left[\frac{1}{2}\left(-\mathrm{i}\,c+\frac{\pi}{2}-\mathrm{i}\,d\,x\right)\right]\right)}{b\left(a-\mathrm{i}\,b+\sqrt{-a^2-b^2}\,\text{Tan}\left[\frac{1}{2}\left(-\mathrm{i}\,c+\frac{\pi}{2}-\mathrm{i}\,d\,x\right)\right]\right)}\right]-\right.$$

$$\left.\left.\left.\left.\text{PolyLog}\left[2,\frac{\mathrm{i}\left(a+\mathrm{i}\sqrt{-a^2-b^2}\right)\left(a-\mathrm{i}\,b-\sqrt{-a^2-b^2}\,\text{Tan}\left[\frac{1}{2}\left(-\mathrm{i}\,c+\frac{\pi}{2}-\mathrm{i}\,d\,x\right)\right]\right)}{b\left(a-\mathrm{i}\,b+\sqrt{-a^2-b^2}\,\text{Tan}\left[\frac{1}{2}\left(-\mathrm{i}\,c+\frac{\pi}{2}-\mathrm{i}\,d\,x\right)\right]\right)}\right]\right)\right)\right)\right)+$$

$$\frac{1}{12\,b}f^2\left(x^3-\frac{1}{d^3\sqrt{(a^2+b^2)\,e^{2c}}}3\,a\,e^c\left(d^2x^2\,\text{Log}\left[1+\frac{b\,e^{2c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2c}}}\right]-d^2x^2\,\text{Log}\left[1+\frac{b\,e^{2c+d\,x}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2c}}}\right]+\right.\right.$$

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

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

$$\frac{1}{24\,b^3}f^2\left(2\left(4\,a^2+b^2\right)x^3-\frac{1}{d^3\sqrt{(a^2+b^2)\,e^{2c}}}6\,a\left(4\,a^2+3\,b^2\right)e^c\left(d^2x^2\,\text{Log}\left[1+\frac{b\,e^{2c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2c}}}\right]-d^2x^2\,\text{Log}\left[1+\frac{b\,e^{2c+d\,x}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2c}}}\right]+\right.\right.$$

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

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

$$\frac{24\,a\,b\,\text{Cosh}[d\,x]\left(\left(2+d^2x^2\right)\text{Cosh}[c]-2\,d\,x\,\text{Sinh}[c]\right)}{d^3}+\frac{3\,b^2\,\text{Cosh}[2\,d\,x]\left(-2\,d\,x\,\text{Cosh}[2\,c]+\left(1+2\,d^2x^2\right)\text{Sinh}[2\,c]\right)}{d^3}-$$

$$\frac{24\,a\,b\left(-2\,d\,x\,\text{Cosh}[c]+\left(2+d^2x^2\right)\text{Sinh}[c]\right)\text{Sinh}[d\,x]}{d^3}+$$

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

$$\frac{e^2 \left(\left(4 a^2+b^2\right) (c+d x)-\frac{2 a \left(4 a^2+3 b^2\right) \text{ArcTan}\left[\frac{b-a \,\text{Tanh}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}}-4 a b \,\text{Cosh}[c+d x]+b^2 \,\text{Sinh}[2 (c+d x)]\right)}{4 b^3 d}+$$

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

$$8 a b d x \,\text{Cosh}[c+d x]-$$

$$b^2 \,\text{Cosh}[2 (c+d x)]-$$

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

$$\left.\left.\text{PolyLog}\left[2,\frac{b e^{c+d x}}{-a+\sqrt{a^2+b^2}}\right]-\text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]\right)\right)+8 a b \,\text{Sinh}[c+d x]+2 b^2 d x \,\text{Sinh}[2 (c+d x)]\Bigg)$$

Problem 340: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x) \,\text{Cosh}[c+d x]^2 \,\text{Sinh}[c+d x]}{a+b \,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 327 leaves, 15 steps):

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

Result (type 4, 1673 leaves) :

$$\frac{e \left(\frac{c}{d}+x-\frac{2 a \text{ArcTan}\left[\frac{b-a \text{Tanh}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2} d}\right)}{4 b}+$$
$$\frac{1}{4} f \left(\frac{x^2}{2 b}+\frac{1}{b d^2} a \left(\frac{i \pi \text{ArcTanh}\left[\frac{-b+a \text{Tanh}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}\right]}{\sqrt{a^2+b^2}}+\frac{1}{\sqrt{-a^2-b^2}} \left(2 \left(-i c+\frac{\pi}{2}-i d x\right) \text{ArcTanh}\left[\frac{(a-i b) \text{Cot}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\right.\right.\right.$$
$$2 \left(-i c+\text{ArcCos}\left[-\frac{i a}{b}\right]\right) \text{ArcTanh}\left[\frac{(-a-i b) \text{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]+$$
$$\left(\text{ArcCos}\left[-\frac{i a}{b}\right]-2 i \left(\text{ArcTanh}\left[\frac{(a-i b) \text{Cot}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\text{ArcTanh}\left[\frac{(-a-i b) \text{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\right)$$
$$\text{Log}\left[\frac{\sqrt{-a^2-b^2} e^{-\frac{1}{2} i \left(-i c+\frac{\pi}{2}-i d x\right)}}{\sqrt{2} \sqrt{-i b} \sqrt{a+b \text{Sinh}[c+d x]}}\right]+$$
$$\left(\text{ArcCos}\left[-\frac{i a}{b}\right]+2 i \left(\text{ArcTanh}\left[\frac{(a-i b) \text{Cot}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\text{ArcTanh}\left[\frac{(-a-i b) \text{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\right)$$
$$\text{Log}\left[\frac{\sqrt{-a^2-b^2} e^{\frac{1}{2} i \left(-i c+\frac{\pi}{2}-i d x\right)}}{\sqrt{2} \sqrt{-i b} \sqrt{a+b \text{Sinh}[c+d x]}}\right]-\left(\text{ArcCos}\left[-\frac{i a}{b}\right]+2 i \text{ArcTanh}\left[\frac{(-a-i b) \text{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)$$
$$\text{Log}\left[1-\frac{i \left(a-i \sqrt{-a^2-b^2}\right) \left(a-i b-\sqrt{-a^2-b^2} \text{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]\right)}{b \left(a-i b+\sqrt{-a^2-b^2} \text{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]\right)}\right]+\left(-\text{ArcCos}\left[-\frac{i a}{b}\right]+\right.$$

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

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

$$\left.\text{PolyLog}\left[2,\frac{i\left(a+i\sqrt{-a^2-b^2}\right)\left(a-i\,b-\sqrt{-a^2-b^2}\,\text{Tan}\left[\frac{1}{2}\left(-i\,c+\frac{\pi}{2}-i\,d\,x\right)\right]\right)}{b\left(a-i\,b+\sqrt{-a^2-b^2}\,\text{Tan}\left[\frac{1}{2}\left(-i\,c+\frac{\pi}{2}-i\,d\,x\right)\right]\right)}\right]\right)\Bigg)\Bigg)\Bigg)+$$

$$\frac{e\left((4a^2+b^2)(c+d\,x)-\frac{2\,a\,(4a^2+3b^2)\,\text{ArcTan}\left[\frac{b-a\,\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}}-4\,a\,b\,\text{Cosh}[c+d\,x]+b^2\,\text{Sinh}[2\,(c+d\,x)]\right)}{4\,b^3\,d}+$$

$$\frac{1}{8\,b^3\,d^2}\,f\left((4a^2+b^2)\,(-c+d\,x)\,(c+d\,x)-8\,a\,b\,d\,x\,\text{Cosh}[c+d\,x]-b^2\,\text{Cosh}[2\,(c+d\,x)]-\right.$$

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

$$\left.\left.\left.\text{PolyLog}\left[2,\frac{b\,e^{c+d\,x}}{-a+\sqrt{a^2+b^2}}\right]-\text{PolyLog}\left[2,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]\right)\right)+8\,a\,b\,\text{Sinh}[c+d\,x]+2\,b^2\,d\,x\,\text{Sinh}[2\,(c+d\,x)]\right)$$

Problem 342: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Cosh}[c+d x]^2\,\text{Sinh}[c+d x]}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])}\,dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Cosh}[c+d x]^2\,\text{Sinh}[c+d x]}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 343: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3\,\text{Cosh}[c+d x]^3\,\text{Sinh}[c+d x]}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 864 leaves, 30 steps):

$$-\frac{3 a f^3 x}{8 b^2 d^3}-\frac{a (e+f x)^3}{4 b^2 d}+\frac{a (a^2+b^2) (e+f x)^4}{4 b^4 f}-\frac{6 a^2 f^3 \text{Cosh}[c+d x]}{b^3 d^4}-\frac{40 f^3 \text{Cosh}[c+d x]}{9 b d^4}-\frac{3 a^2 f (e+f x)^2 \text{Cosh}[c+d x]}{b^3 d^2}-\frac{2 f (e+f x)^2 \text{Cosh}[c+d x]}{b d^2}-\frac{2 f^3 \text{Cosh}[c+d x]^3}{27 b d^4}-\frac{f (e+f x)^2 \text{Cosh}[c+d x]^3}{3 b d^2}-\frac{a (a^2+b^2) (e+f x)^3 \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d}-\frac{a (a^2+b^2) (e+f x)^3 \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d}-\frac{3 a (a^2+b^2) f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d^2}-\frac{3 a (a^2+b^2) f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d^2}+\frac{6 a (a^2+b^2) f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d^3}+\frac{6 a (a^2+b^2) f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d^3}-\frac{6 a (a^2+b^2) f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d^4}-\frac{6 a (a^2+b^2) f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d^4}+\frac{6 a^2 f^2 (e+f x) \text{Sinh}[c+d x]}{b^3 d^3}+\frac{40 f^2 (e+f x) \text{Sinh}[c+d x]}{9 b d^3}+\frac{a^2 (e+f x)^3 \text{Sinh}[c+d x]}{b^3 d}+\frac{2 (e+f x)^3 \text{Sinh}[c+d x]}{3 b d}+\frac{3 a f^3 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{8 b^2 d^4}+\frac{3 a f (e+f x)^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 b^2 d^2}+\frac{2 f^2 (e+f x) \text{Cosh}[c+d x]^2 \text{Sinh}[c+d x]}{9 b d^3}+\frac{(e+f x)^3 \text{Cosh}[c+d x]^2 \text{Sinh}[c+d x]}{3 b d}-\frac{3 a f^2 (e+f x) \text{Sinh}[c+d x]^2}{4 b^2 d^3}-\frac{a (e+f x)^3 \text{Sinh}[c+d x]^2}{2 b^2 d}$$

Result (type 4, 5721 leaves):

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

$$e^{-c} \left(2 a d^3 e^c x^3 - 6 b \text{Cosh}[d x] + 6 b e^{2 c} \text{Cosh}[d x] - 6 b d x \text{Cosh}[d x] - 6 b d e^{2 c} x \text{Cosh}[d x] - 3 b d^2 x^2 \text{Cosh}[d x] + \right.$$

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

$$12 a e^c \text{PolyLog}\left[3, -\frac{b e^{2 c+d x}}{a e^c - \sqrt{\left(a^2+b^2\right) e^{2 c}}}\right] + 12 a e^c \text{PolyLog}\left[3, -\frac{b e^{2 c+d x}}{a e^c + \sqrt{\left(a^2+b^2\right) e^{2 c}}}\right] + 6 b \text{Sinh}[d x] +$$

$$\left.\left. 6 b e^{2 c} \text{Sinh}[d x] + 6 b d x \text{Sinh}[d x] - 6 b d e^{2 c} x \text{Sinh}[d x] + 3 b d^2 x^2 \text{Sinh}[d x] + 3 b d^2 e^{2 c} x^2 \text{Sinh}[d x]\right)\right) +$$

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

$$12 b d e^{2 c} x \text{Cosh}[d x] - 6 b d^2 x^2 \text{Cosh}[d x] - 6 b d^2 e^{2 c} x^2 \text{Cosh}[d x] - 2 b d^3 x^3 \text{Cosh}[d x] + 2 b d^3 e^{2 c} x^3 \text{Cosh}[d x] -$$

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

$$24 a d e^c x \text{PolyLog}\left[3, -\frac{b e^{2 c+d x}}{a e^c - \sqrt{\left(a^2+b^2\right) e^{2 c}}}\right] + 24 a d e^c x \text{PolyLog}\left[3, -\frac{b e^{2 c+d x}}{a e^c + \sqrt{\left(a^2+b^2\right) e^{2 c}}}\right] -$$

$$24 a e^c \text{PolyLog}\left[4, -\frac{b e^{2 c+d x}}{a e^c - \sqrt{\left(a^2+b^2\right) e^{2 c}}}\right] - 24 a e^c \text{PolyLog}\left[4, -\frac{b e^{2 c+d x}}{a e^c + \sqrt{\left(a^2+b^2\right) e^{2 c}}}\right] + 12 b \text{Sinh}[d x] - 12 b e^{2 c} \text{Sinh}[d x] +$$

$$\left.\left. 12 b d x \text{Sinh}[d x] + 12 b d e^{2 c} x \text{Sinh}[d x] + 6 b d^2 x^2 \text{Sinh}[d x] - 6 b d^2 e^{2 c} x^2 \text{Sinh}[d x] + 2 b d^3 x^3 \text{Sinh}[d x] + 2 b d^3 e^{2 c} x^3 \text{Sinh}[d x]\right)\right) +$$

$$\frac{1}{144 b^4 d^3} e e^{-3 c} f^2 \left(144 a^3 d^3 e^{3 c} x^3 + 72 a b^2 d^3 e^{3 c} x^3 - 432 a^2 b e^{2 c} \text{Cosh}[d x] - 108 b^3 e^{2 c} \text{Cosh}[d x] + 432 a^2 b e^{4 c} \text{Cosh}[d x] + \right.$$

$$108 b^3 e^{4 c} \text{Cosh}[d x] - 432 a^2 b d e^{2 c} x \text{Cosh}[d x] - 108 b^3 d e^{2 c} x \text{Cosh}[d x] - 432 a^2 b d e^{4 c} x \text{Cosh}[d x] - 108 b^3 d e^{4 c} x \text{Cosh}[d x] -$$

$$216 a^2 b d^2 e^{2 c} x^2 \text{Cosh}[d x] - 54 b^3 d^2 e^{2 c} x^2 \text{Cosh}[d x] + 216 a^2 b d^2 e^{4 c} x^2 \text{Cosh}[d x] + 54 b^3 d^2 e^{4 c} x^2 \text{Cosh}[d x] -$$

$$27 a b^2 e^c \text{Cosh}[2 d x] - 27 a b^2 e^{5 c} \text{Cosh}[2 d x] - 54 a b^2 d e^c x \text{Cosh}[2 d x] + 54 a b^2 d e^{5 c} x \text{Cosh}[2 d x] -$$

$$54 a b^2 d^2 e^c x^2 \text{Cosh}[2 d x] - 54 a b^2 d^2 e^{5 c} x^2 \text{Cosh}[2 d x] - 4 b^3 \text{Cosh}[3 d x] + 4 b^3 e^{6 c} \text{Cosh}[3 d x] - 12 b^3 d x \text{Cosh}[3 d x] -$$

$$12 b^3 d e^{6 c} x \text{Cosh}[3 d x] - 18 b^3 d^2 x^2 \text{Cosh}[3 d x] + 18 b^3 d^2 e^{6 c} x^2 \text{Cosh}[3 d x] - 432 a^3 d^2 e^{3 c} x^2 \text{Log}\left[1 + \frac{b e^{2 c+d x}}{a e^c - \sqrt{(a^2 + b^2) e^{2 c}}}\right] -$$

$$216 a b^2 d^2 e^{3 c} x^2 \text{Log}\left[1 + \frac{b e^{2 c+d x}}{a e^c - \sqrt{(a^2 + b^2) e^{2 c}}}\right] - 432 a^3 d^2 e^{3 c} x^2 \text{Log}\left[1 + \frac{b e^{2 c+d x}}{a e^c + \sqrt{(a^2 + b^2) e^{2 c}}}\right] -$$

$$216 a b^2 d^2 e^{3 c} x^2 \text{Log}\left[1 + \frac{b e^{2 c+d x}}{a e^c + \sqrt{(a^2 + b^2) e^{2 c}}}\right] - 432 a (2 a^2 + b^2) d e^{3 c} x \text{PolyLog}\left[2, -\frac{b e^{2 c+d x}}{a e^c - \sqrt{(a^2 + b^2) e^{2 c}}}\right] -$$

$$432 a (2 a^2 + b^2) d e^{3 c} x \text{PolyLog}\left[2, -\frac{b e^{2 c+d x}}{a e^c + \sqrt{(a^2 + b^2) e^{2 c}}}\right] + 864 a^3 e^{3 c} \text{PolyLog}\left[3, -\frac{b e^{2 c+d x}}{a e^c - \sqrt{(a^2 + b^2) e^{2 c}}}\right] +$$

$$432 a b^2 e^{3 c} \text{PolyLog}\left[3, -\frac{b e^{2 c+d x}}{a e^c - \sqrt{(a^2 + b^2) e^{2 c}}}\right] + 864 a^3 e^{3 c} \text{PolyLog}\left[3, -\frac{b e^{2 c+d x}}{a e^c + \sqrt{(a^2 + b^2) e^{2 c}}}\right] +$$

$$432 a b^2 e^{3 c} \text{PolyLog}\left[3, -\frac{b e^{2 c+d x}}{a e^c + \sqrt{(a^2 + b^2) e^{2 c}}}\right] + 432 a^2 b e^{2 c} \text{Sinh}[d x] + 108 b^3 e^{2 c} \text{Sinh}[d x] + 432 a^2 b e^{4 c} \text{Sinh}[d x] +$$

$$108 b^3 e^{4 c} \text{Sinh}[d x] + 432 a^2 b d e^{2 c} x \text{Sinh}[d x] + 108 b^3 d e^{2 c} x \text{Sinh}[d x] - 432 a^2 b d e^{4 c} x \text{Sinh}[d x] -$$

$$108 b^3 d e^{4 c} x \text{Sinh}[d x] + 216 a^2 b d^2 e^{2 c} x^2 \text{Sinh}[d x] + 54 b^3 d^2 e^{2 c} x^2 \text{Sinh}[d x] + 216 a^2 b d^2 e^{4 c} x^2 \text{Sinh}[d x] +$$

$$54 b^3 d^2 e^{4 c} x^2 \text{Sinh}[d x] + 27 a b^2 e^c \text{Sinh}[2 d x] - 27 a b^2 e^{5 c} \text{Sinh}[2 d x] + 54 a b^2 d e^c x \text{Sinh}[2 d x] +$$

$$54 a b^2 d e^{5 c} x \text{Sinh}[2 d x] + 54 a b^2 d^2 e^c x^2 \text{Sinh}[2 d x] - 54 a b^2 d^2 e^{5 c} x^2 \text{Sinh}[2 d x] + 4 b^3 \text{Sinh}[3 d x] +$$

$$\left. 4 b^3 e^{6 c} \text{Sinh}[3 d x] + 12 b^3 d x \text{Sinh}[3 d x] - 12 b^3 d e^{6 c} x \text{Sinh}[3 d x] + 18 b^3 d^2 x^2 \text{Sinh}[3 d x] + 18 b^3 d^2 e^{6 c} x^2 \text{Sinh}[3 d x] \right) +$$

$$\frac{1}{864 b^4 d^4} e^{-3 c} f^3 \left(216 a^3 d^4 e^{3 c} x^4 + 108 a b^2 d^4 e^{3 c} x^4 - 2592 a^2 b e^{2 c} \text{Cosh}[d x] - 648 b^3 e^{2 c} \text{Cosh}[d x] - 2592 a^2 b e^{4 c} \text{Cosh}[d x] - \right.$$

$$648 b^3 e^{4 c} \text{Cosh}[d x] - 2592 a^2 b d e^{2 c} x \text{Cosh}[d x] - 648 b^3 d e^{2 c} x \text{Cosh}[d x] + 2592 a^2 b d e^{4 c} x \text{Cosh}[d x] + 648 b^3 d e^{4 c} x \text{Cosh}[d x] -$$

$$1296 a^2 b d^2 e^{2 c} x^2 \text{Cosh}[d x] - 324 b^3 d^2 e^{2 c} x^2 \text{Cosh}[d x] - 1296 a^2 b d^2 e^{4 c} x^2 \text{Cosh}[d x] - 324 b^3 d^2 e^{4 c} x^2 \text{Cosh}[d x] -$$

$$432 a^2 b d^3 e^{2 c} x^3 \text{Cosh}[d x] - 108 b^3 d^3 e^{2 c} x^3 \text{Cosh}[d x] + 432 a^2 b d^3 e^{4 c} x^3 \text{Cosh}[d x] + 108 b^3 d^3 e^{4 c} x^3 \text{Cosh}[d x] -$$

$$81 a b^2 e^c \text{Cosh}[2 d x] + 81 a b^2 e^{5 c} \text{Cosh}[2 d x] - 162 a b^2 d e^c x \text{Cosh}[2 d x] - 162 a b^2 d e^{5 c} x \text{Cosh}[2 d x] - 162 a b^2 d^2 e^c x^2 \text{Cosh}[2 d x] +$$

$$162 a b^2 d^2 e^{5 c} x^2 \text{Cosh}[2 d x] - 108 a b^2 d^3 e^c x^3 \text{Cosh}[2 d x] - 108 a b^2 d^3 e^{5 c} x^3 \text{Cosh}[2 d x] - 8 b^3 \text{Cosh}[3 d x] - 8 b^3 e^{6 c} \text{Cosh}[3 d x] -$$

$$24 b^3 d x \text{Cosh}[3 d x] + 24 b^3 d e^{6 c} x \text{Cosh}[3 d x] - 36 b^3 d^2 x^2 \text{Cosh}[3 d x] - 36 b^3 d^2 e^{6 c} x^2 \text{Cosh}[3 d x] - 36 b^3 d^3 x^3 \text{Cosh}[3 d x] +$$

$$36 b^3 d^3 e^{6 c} x^3 \text{Cosh}[3 d x] - 864 a^3 d^3 e^{3 c} x^3 \text{Log}\left[1 + \frac{b e^{2 c+d x}}{a e^c - \sqrt{(a^2 + b^2) e^{2 c}}}\right] - 432 a b^2 d^3 e^{3 c} x^3 \text{Log}\left[1 + \frac{b e^{2 c+d x}}{a e^c - \sqrt{(a^2 + b^2) e^{2 c}}}\right] -$$

$$864 a^3 d^3 e^{3 c} x^3 \text{Log}\left[1 + \frac{b e^{2 c+d x}}{a e^c + \sqrt{(a^2 + b^2) e^{2 c}}}\right] - 432 a b^2 d^3 e^{3 c} x^3 \text{Log}\left[1 + \frac{b e^{2 c+d x}}{a e^c + \sqrt{(a^2 + b^2) e^{2 c}}}\right] -$$

$$1296\, a \left(2 a^2+b^2\right) d^2 e^{3 c} x^2\, \text{PolyLog}\left[2,-\frac{b\, e^{2 c+d x}}{a\, e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-1296\, a \left(2 a^2+b^2\right) d^2 e^{3 c} x^2\, \text{PolyLog}\left[2,-\frac{b\, e^{2 c+d x}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+$$

$$5184\, a^3 d\, e^{3 c} x\, \text{PolyLog}\left[3,-\frac{b\, e^{2 c+d x}}{a\, e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+2592\, a\, b^2 d\, e^{3 c} x\, \text{PolyLog}\left[3,-\frac{b\, e^{2 c+d x}}{a\, e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+$$

$$5184\, a^3 d\, e^{3 c} x\, \text{PolyLog}\left[3,-\frac{b\, e^{2 c+d x}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+2592\, a\, b^2 d\, e^{3 c} x\, \text{PolyLog}\left[3,-\frac{b\, e^{2 c+d x}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-$$

$$5184\, a^3 e^{3 c}\, \text{PolyLog}\left[4,-\frac{b\, e^{2 c+d x}}{a\, e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-2592\, a\, b^2 e^{3 c}\, \text{PolyLog}\left[4,-\frac{b\, e^{2 c+d x}}{a\, e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-$$

$$5184\, a^3 e^{3 c}\, \text{PolyLog}\left[4,-\frac{b\, e^{2 c+d x}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-2592\, a\, b^2 e^{3 c}\, \text{PolyLog}\left[4,-\frac{b\, e^{2 c+d x}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+2592\, a^2 b\, e^{2 c}\, \text{Sinh}[d x]+$$

$$648\, b^3 e^{2 c}\, \text{Sinh}[d x]-2592\, a^2 b\, e^{4 c}\, \text{Sinh}[d x]-648\, b^3 e^{4 c}\, \text{Sinh}[d x]+2592\, a^2 b\, d\, e^{2 c} x\, \text{Sinh}[d x]+648\, b^3 d\, e^{2 c} x\, \text{Sinh}[d x]+$$
$$2592\, a^2 b\, d\, e^{4 c} x\, \text{Sinh}[d x]+648\, b^3 d\, e^{4 c} x\, \text{Sinh}[d x]+1296\, a^2 b\, d^2 e^{2 c} x^2\, \text{Sinh}[d x]+324\, b^3 d^2 e^{2 c} x^2\, \text{Sinh}[d x]-$$
$$1296\, a^2 b\, d^2 e^{4 c} x^2\, \text{Sinh}[d x]-324\, b^3 d^2 e^{4 c} x^2\, \text{Sinh}[d x]+432\, a^2 b\, d^3 e^{2 c} x^3\, \text{Sinh}[d x]+108\, b^3 d^3 e^{2 c} x^3\, \text{Sinh}[d x]+$$
$$432\, a^2 b\, d^3 e^{4 c} x^3\, \text{Sinh}[d x]+108\, b^3 d^3 e^{4 c} x^3\, \text{Sinh}[d x]+81\, a\, b^2 e^c\, \text{Sinh}[2 d x]+81\, a\, b^2 e^{5 c}\, \text{Sinh}[2 d x]+162\, a\, b^2 d\, e^c x\, \text{Sinh}[2 d x]-$$
$$162\, a\, b^2 d\, e^{5 c} x\, \text{Sinh}[2 d x]+162\, a\, b^2 d^2 e^c x^2\, \text{Sinh}[2 d x]+162\, a\, b^2 d^2 e^{5 c} x^2\, \text{Sinh}[2 d x]+108\, a\, b^2 d^3 e^c x^3\, \text{Sinh}[2 d x]-$$
$$108\, a\, b^2 d^3 e^{5 c} x^3\, \text{Sinh}[2 d x]+8\, b^3\, \text{Sinh}[3 d x]-8\, b^3 e^{6 c}\, \text{Sinh}[3 d x]+24\, b^3 d\, x\, \text{Sinh}[3 d x]+24\, b^3 d\, e^{6 c} x\, \text{Sinh}[3 d x]+$$

$$\left.36\, b^3 d^2 x^2\, \text{Sinh}[3 d x]-36\, b^3 d^2 e^{6 c} x^2\, \text{Sinh}[3 d x]+36\, b^3 d^3 x^3\, \text{Sinh}[3 d x]+36\, b^3 d^3 e^{6 c} x^3\, \text{Sinh}[3 d x]\right)+$$

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

$$\frac{1}{2\, b^2 d^2}$$

$$3\, e^2 f \left(-b\, \text{Cosh}[c+d x]-a\, (c+d x)\, \text{Log}[a+b\, \text{Sinh}[c+d x]]+a\, c\, \text{Log}\left[1+\frac{b\, \text{Sinh}[c+d x]}{a}\right]+\right.$$

$$i\, a \left(-\frac{1}{8}\, i\, (2 c+i \pi+2 d x)^2-4\, i\, \text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a+i b)\, \text{Cot}\left[\frac{1}{4} (2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right]-\right.$$

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

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

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

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

$$\frac{1}{24\,b^4\,d^2}$$

$$e^2 f\left(-18\,b\,(4\,a^2+b^2)\,\text{Cosh}[c+d\,x]-18\,a\,b^2\,d\,x\,\text{Cosh}[2\,(c+d\,x)]-2\,b^3\,\text{Cosh}[3\,(c+d\,x)]+72\,a^3\,c\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]+\right.$$

$$36\,a\,b^2\,c\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]-72\,a^3\left(-\frac{1}{8}\,(2\,c+i\,\pi+2\,d\,x)^2-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+i\,b)\,\text{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{a^2+b^2}}\right]+\right.$$

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

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

$$36\,a\,b^2\left(-\frac{1}{8}\,(2\,c+i\,\pi+2\,d\,x)^2-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+i\,b)\,\text{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{a^2+b^2}}\right]+\right.$$

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

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

$$\left.18\,b\,(4\,a^2+b^2)\,d\,x\,\text{Sinh}[c+d\,x]+9\,a\,b^2\,\text{Sinh}[2\,(c+d\,x)]+6\,b^3\,d\,x\,\text{Sinh}[3\,(c+d\,x)]\right)$$

Problem 344: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(e+f\,x)^2\,\text{Cosh}[c+d\,x]^3\,\text{Sinh}[c+d\,x]}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 636 leaves, 23 steps):

$$-\frac{a\,e\,f\,x}{2\,b^2\,d}-\frac{a\,f^2\,x^2}{4\,b^2\,d}+\frac{a\,\left(a^2+b^2\right)\,\left(e+f\,x\right)^3}{3\,b^4\,f}-\frac{2\,a^2\,f\,\left(e+f\,x\right)\,\text{Cosh}[c+d\,x]}{b^3\,d^2}-\frac{4\,f\,\left(e+f\,x\right)\,\text{Cosh}[c+d\,x]}{3\,b\,d^2}-\frac{2\,f\,\left(e+f\,x\right)\,\text{Cosh}[c+d\,x]^3}{9\,b\,d^2}-$$

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

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

$$\frac{2\,a^2\,f^2\,\text{Sinh}[c+d\,x]}{b^3\,d^3}+\frac{14\,f^2\,\text{Sinh}[c+d\,x]}{9\,b\,d^3}+\frac{a^2\,\left(e+f\,x\right)^2\,\text{Sinh}[c+d\,x]}{b^3\,d}+\frac{2\,\left(e+f\,x\right)^2\,\text{Sinh}[c+d\,x]}{3\,b\,d}+\frac{a\,f\,\left(e+f\,x\right)\,\text{Cosh}[c+d\,x]\,\text{Sinh}[c+d\,x]}{2\,b^2\,d^2}+$$

$$\frac{\left(e+f\,x\right)^2\,\text{Cosh}[c+d\,x]^2\,\text{Sinh}[c+d\,x]}{3\,b\,d}-\frac{a\,f^2\,\text{Sinh}[c+d\,x]^2}{4\,b^2\,d^3}-\frac{a\,\left(e+f\,x\right)^2\,\text{Sinh}[c+d\,x]^2}{2\,b^2\,d}+\frac{2\,f^2\,\text{Sinh}[c+d\,x]^3}{27\,b\,d^3}$$

Result (type 4, 3135 leaves):

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

$$e^{-c}\left(2\,a\,d^3\,e^c\,x^3-6\,b\,\text{Cosh}[d\,x]+6\,b\,e^{2\,c}\,\text{Cosh}[d\,x]-6\,b\,d\,x\,\text{Cosh}[d\,x]-6\,b\,d\,e^{2\,c}\,x\,\text{Cosh}[d\,x]-3\,b\,d^2\,x^2\,\text{Cosh}[d\,x]+\right.$$

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

$$12\,a\,e^c\,\text{PolyLog}\left[3,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\right]+12\,a\,e^c\,\text{PolyLog}\left[3,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\right]+6\,b\,\text{Sinh}[d\,x]+$$

$$\left.\left.6\,b\,e^{2\,c}\,\text{Sinh}[d\,x]+6\,b\,d\,x\,\text{Sinh}[d\,x]-6\,b\,d\,e^{2\,c}\,x\,\text{Sinh}[d\,x]+3\,b\,d^2\,x^2\,\text{Sinh}[d\,x]+3\,b\,d^2\,e^{2\,c}\,x^2\,\text{Sinh}[d\,x]\right)\right)+$$

$$\frac{1}{432\,b^4\,d^3}e^{-3\,c}\,f^2\left(144\,a^3\,d^3\,e^{3\,c}\,x^3+72\,a\,b^2\,d^3\,e^{3\,c}\,x^3-432\,a^2\,b\,e^{2\,c}\,\text{Cosh}[d\,x]-108\,b^3\,e^{2\,c}\,\text{Cosh}[d\,x]+432\,a^2\,b\,e^{4\,c}\,\text{Cosh}[d\,x]+\right.$$

$$108\,b^3\,e^{4\,c}\,\text{Cosh}[d\,x]-432\,a^2\,b\,d\,e^{2\,c}\,x\,\text{Cosh}[d\,x]-108\,b^3\,d\,e^{2\,c}\,x\,\text{Cosh}[d\,x]-432\,a^2\,b\,d\,e^{4\,c}\,x\,\text{Cosh}[d\,x]-108\,b^3\,d\,e^{4\,c}\,x\,\text{Cosh}[d\,x]-$$

$$216\,a^2\,b\,d^2\,e^{2\,c}\,x^2\,\text{Cosh}[d\,x]-54\,b^3\,d^2\,e^{2\,c}\,x^2\,\text{Cosh}[d\,x]+216\,a^2\,b\,d^2\,e^{4\,c}\,x^2\,\text{Cosh}[d\,x]+54\,b^3\,d^2\,e^{4\,c}\,x^2\,\text{Cosh}[d\,x]-27\,a\,b^2\,e^c\,\text{Cosh}[2\,d\,x]-$$

$$27\,a\,b^2\,e^{5\,c}\,\text{Cosh}[2\,d\,x]-54\,a\,b^2\,d\,e^c\,x\,\text{Cosh}[2\,d\,x]+54\,a\,b^2\,d\,e^{5\,c}\,x\,\text{Cosh}[2\,d\,x]-54\,a\,b^2\,d^2\,e^c\,x^2\,\text{Cosh}[2\,d\,x]-54\,a\,b^2\,d^2\,e^{5\,c}\,x^2\,\text{Cosh}[2\,d\,x]-$$

$$4\,b^3\,\text{Cosh}[3\,d\,x]+4\,b^3\,e^{6\,c}\,\text{Cosh}[3\,d\,x]-12\,b^3\,d\,x\,\text{Cosh}[3\,d\,x]-12\,b^3\,d\,e^{6\,c}\,x\,\text{Cosh}[3\,d\,x]-18\,b^3\,d^2\,x^2\,\text{Cosh}[3\,d\,x]+$$

$$18\,b^3\,d^2\,e^{6\,c}\,x^2\,\text{Cosh}[3\,d\,x]-432\,a^3\,d^2\,e^{3\,c}\,x^2\,\text{Log}\left[1+\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\right]-216\,a\,b^2\,d^2\,e^{3\,c}\,x^2\,\text{Log}\left[1+\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\right]-$$

$$432\, a^3\, d^2\, e^{3c}\, x^2\, \text{Log}\left[1+\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]-216\, a\, b^2\, d^2\, e^{3c}\, x^2\, \text{Log}\left[1+\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]-$$

$$432\, a\left(2a^2+b^2\right) d\, e^{3c}\, x\, \text{PolyLog}\left[2,-\frac{b\, e^{2c+dx}}{a\, e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]-432\, a\left(2a^2+b^2\right) d\, e^{3c}\, x\, \text{PolyLog}\left[2,-\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+$$

$$864\, a^3\, e^{3c}\, \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a\, e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+432\, a\, b^2\, e^{3c}\, \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a\, e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+$$

$$864\, a^3\, e^{3c}\, \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+432\, a\, b^2\, e^{3c}\, \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+432\, a^2\, b\, e^{2c}\, \text{Sinh}[d\, x]+$$

$$108\, b^3\, e^{2c}\, \text{Sinh}[d\, x]+432\, a^2\, b\, e^{4c}\, \text{Sinh}[d\, x]+108\, b^3\, e^{4c}\, \text{Sinh}[d\, x]+432\, a^2\, b\, d\, e^{2c}\, x\, \text{Sinh}[d\, x]+108\, b^3\, d\, e^{2c}\, x\, \text{Sinh}[d\, x]-$$
$$432\, a^2\, b\, d\, e^{4c}\, x\, \text{Sinh}[d\, x]-108\, b^3\, d\, e^{4c}\, x\, \text{Sinh}[d\, x]+216\, a^2\, b\, d^2\, e^{2c}\, x^2\, \text{Sinh}[d\, x]+54\, b^3\, d^2\, e^{2c}\, x^2\, \text{Sinh}[d\, x]+$$
$$216\, a^2\, b\, d^2\, e^{4c}\, x^2\, \text{Sinh}[d\, x]+54\, b^3\, d^2\, e^{4c}\, x^2\, \text{Sinh}[d\, x]+27\, a\, b^2\, e^c\, \text{Sinh}[2\, d\, x]-27\, a\, b^2\, e^{5c}\, \text{Sinh}[2\, d\, x]+54\, a\, b^2\, d\, e^c\, x\, \text{Sinh}[2\, d\, x]+$$
$$54\, a\, b^2\, d\, e^{5c}\, x\, \text{Sinh}[2\, d\, x]+54\, a\, b^2\, d^2\, e^c\, x^2\, \text{Sinh}[2\, d\, x]-54\, a\, b^2\, d^2\, e^{5c}\, x^2\, \text{Sinh}[2\, d\, x]+4\, b^3\, \text{Sinh}[3\, d\, x]+$$

$$\left.4\, b^3\, e^{6c}\, \text{Sinh}[3\, d\, x]+12\, b^3\, d\, x\, \text{Sinh}[3\, d\, x]-12\, b^3\, d\, e^{6c}\, x\, \text{Sinh}[3\, d\, x]+18\, b^3\, d^2\, x^2\, \text{Sinh}[3\, d\, x]+18\, b^3\, d^2\, e^{6c}\, x^2\, \text{Sinh}[3\, d\, x]\right)+$$

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

$$\frac{1}{b^2\, d^2}$$

$$e\, f\left(-b\, \text{Cosh}[c+d\, x]-a\,(c+d\, x)\, \text{Log}[a+b\, \text{Sinh}[c+d\, x]]+a\, c\, \text{Log}\left[1+\frac{b\, \text{Sinh}[c+d\, x]}{a}\right]+\right.$$

$$i\, a\left(-\frac{1}{8}\, i\,(2\, c+i\,\pi+2\, d\, x)^2-4\, i\, \text{ArcSin}\left[\frac{\sqrt{1+\frac{i\, a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a+i\, b)\, \text{Cot}\left[\frac{1}{4}\,(2\, i\, c+\pi+2\, i\, d\, x)\right]}{\sqrt{a^2+b^2}}\right]-\right.$$

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

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

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

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

$$\frac{1}{36\,b^4\,d^2}$$

$$e\,f\left(-18\,b\,\left(4\,a^2+b^2\right)\,\text{Cosh}[c+d\,x]-18\,a\,b^2\,d\,x\,\text{Cosh}\left[2\,\left(c+d\,x\right)\right]-2\,b^3\,\text{Cosh}\left[3\,\left(c+d\,x\right)\right]+72\,a^3\,c\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]+\right.$$

$$36\,a\,b^2\,c\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]-72\,a^3\left(-\frac{1}{8}\,\left(2\,c+i\,\pi+2\,d\,x\right)^2-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{\left(a+i\,b\right)\,\text{Cot}\left[\frac{1}{4}\,\left(2\,i\,c+\pi+2\,i\,d\,x\right)\right]}{\sqrt{a^2+b^2}}\right]+\right.$$

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

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

$$36\,a\,b^2\left(-\frac{1}{8}\left(2\,c+i\,\pi+2\,d\,x\right)^2-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\,\text{ArcTan}\left[\frac{\left(a+i\,b\right)\,\text{Cot}\left[\frac{1}{4}\,\left(2\,i\,c+\pi+2\,i\,d\,x\right)\right]}{\sqrt{a^2+b^2}}\right]+\right.$$

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

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

$$\left.18\,b\,\left(4\,a^2+b^2\right)\,d\,x\,\text{Sinh}\left[c+d\,x\right]+9\,a\,b^2\,\text{Sinh}\left[2\,\left(c+d\,x\right)\right]+6\,b^3\,d\,x\,\text{Sinh}\left[3\,\left(c+d\,x\right)\right]\right)$$

Problem 345: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\left(e+f\,x\right)\,\text{Cosh}\left[c+d\,x\right]^3\,\text{Sinh}\left[c+d\,x\right]}{a+b\,\text{Sinh}\left[c+d\,x\right]}\,dx$$

Optimal (type 4, 400 leaves, 17 steps):

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

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

$$\frac{2\,\left(e+f\,x\right)\,\text{Sinh}\left[c+d\,x\right]}{3\,b\,d}+\frac{a\,f\,\text{Cosh}\left[c+d\,x\right]\,\text{Sinh}\left[c+d\,x\right]}{4\,b^2\,d^2}+\frac{\left(e+f\,x\right)\,\text{Cosh}\left[c+d\,x\right]^2\,\text{Sinh}\left[c+d\,x\right]}{3\,b\,d}-\frac{a\,\left(e+f\,x\right)\,\text{Sinh}\left[c+d\,x\right]^2}{2\,b^2\,d}$$

Result (type 4, 1263 leaves):

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

$$\frac{1}{2 b^2 d^2} f \left(-b \text{Cosh}[c + d x] - a (c + d x) \text{Log}[a + b \text{Sinh}[c + d x]] + a c \text{Log}\left[1 + \frac{b \text{Sinh}[c + d x]}{a}\right] + i a \left(-\frac{1}{8} i (2 c + i \pi + 2 d x)^2 - 4 i \text{ArcSin}\left[\frac{\sqrt{1 + \frac{i a}{b}}}{\sqrt{2}}\right]\right.\right.$$

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

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

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

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

$$\frac{1}{72 b^4 d^2}$$

$$f \left(-18 b (4 a^2 + b^2) \text{Cosh}[c + d x] - 18 a b^2 d x \text{Cosh}[2 (c + d x)] - 2 b^3 \text{Cosh}[3 (c + d x)] + 72 a^3 c \text{Log}\left[1 + \frac{b \text{Sinh}[c + d x]}{a}\right] +\right.$$

$$36 a b^2 c \text{Log}\left[1 + \frac{b \text{Sinh}[c + d x]}{a}\right] - 72 a^3 \left(-\frac{1}{8} (2 c + i \pi + 2 d x)^2 - 4 \text{ArcSin}\left[\frac{\sqrt{1 + \frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a + i b) \text{Cot}\left[\frac{1}{4} (2 i c + \pi + 2 i d x)\right]}{\sqrt{a^2 + b^2}}\right] +\right.$$

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

$$\text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]-\frac{1}{2}i\pi\,\text{Log}[a+b\,\text{Sinh}[c+dx]]+\text{PolyLog}\left[2,\frac{\left(a-\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]+\text{PolyLog}\left[2,\frac{\left(a+\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]\Bigg)-$$

$$36ab^2\left(-\frac{1}{8}\left(2c+i\pi+2dx\right)^2-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{ia}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+ib)\,\text{Cot}\left[\frac{1}{4}\left(2ic+\pi+2idx\right)\right]}{\sqrt{a^2+b^2}}\right]+\right.$$

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

$$\text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]-\frac{1}{2}i\pi\,\text{Log}[a+b\,\text{Sinh}[c+dx]]+\text{PolyLog}\left[2,\frac{\left(a-\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]+\text{PolyLog}\left[2,\frac{\left(a+\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]\Bigg)+$$

$$\left.18b\left(4a^2+b^2\right)dx\,\text{Sinh}[c+dx]+9ab^2\,\text{Sinh}\left[2\left(c+dx\right)\right]+6b^3dx\,\text{Sinh}\left[3\left(c+dx\right)\right]\right)$$

Problem 347: Attempted integration timed out after 120 seconds.

$$\int\frac{\text{Cosh}[c+dx]^3\,\text{Sinh}[c+dx]}{\left(e+fx\right)\left(a+b\,\text{Sinh}[c+dx]\right)}\,dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Cosh}[c+d x]^3\,\text{Sinh}[c+d x]}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 355: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{(e+f x)\,\text{Sech}[c+d x]\,\text{Tanh}[c+d x]}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 335 leaves, 18 steps):

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

Result (type 4, 432 leaves):

$$\frac{1}{2 d^2}\left(\frac{2 f\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{a-\mathrm{i}\,b}+\frac{2 f\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{a+\mathrm{i}\,b}+\right.$$
$$\frac{f\,\text{Log}[\text{Cosh}[c+d x]]}{\mathrm{i}\,a-b}-\frac{f\,\text{Log}[\text{Cosh}[c+d x]]}{\mathrm{i}\,a+b}+\frac{1}{\left(-(a^2+b^2)^2\right)^{3/2}}2 a b\,(a^2+b^2)\left(2\sqrt{a^2+b^2}\;d e\,\text{ArcTan}\left[\frac{a+b\,e^{c+d x}}{\sqrt{-a^2-b^2}}\right]-\right.$$
$$2\sqrt{a^2+b^2}\;c f\,\text{ArcTan}\left[\frac{a+b\,e^{c+d x}}{\sqrt{-a^2-b^2}}\right]+\sqrt{-a^2-b^2}\;f\,(c+d x)\,\text{Log}\left[1+\frac{b\,e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\;f\,(c+d x)\,\text{Log}\left[1+\frac{b\,e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]+$$
$$\left.\left.\sqrt{-a^2-b^2}\;f\,\text{PolyLog}\left[2,\frac{b\,e^{c+d x}}{-a+\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\;f\,\text{PolyLog}\left[2,-\frac{b\,e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]\right)+\frac{2 d\,(e+f x)\,\text{Sech}[c+d x]\,(-a+b\,\text{Sinh}[c+d x])}{a^2+b^2}\right)$$

Problem 358: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2\,\text{Sech}[c+d x]^2\,\text{Tanh}[c+d x]}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 1176 leaves, 49 steps):

$$\frac{(e+fx)^2 \text{ArcTan}[e^{c+dx}]}{b\,d} - \frac{2a^2 b (e+fx)^2 \text{ArcTan}[e^{c+dx}]}{(a^2+b^2)^2 d} - \frac{a^2 (e+fx)^2 \text{ArcTan}[e^{c+dx}]}{b (a^2+b^2) d} - \frac{f^2 \text{ArcTan}[\text{Sinh}[c+dx]]}{b\,d^3} +$$

$$\frac{a^2 f^2 \text{ArcTan}[\text{Sinh}[c+dx]]}{b (a^2+b^2) d^3} - \frac{a b^2 (e+fx)^2 \text{Log}\left[1+\frac{b e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{(a^2+b^2)^2 d} - \frac{a b^2 (e+fx)^2 \text{Log}\left[1+\frac{b e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{(a^2+b^2)^2 d} + \frac{a b^2 (e+fx)^2 \text{Log}[1+e^{2(c+dx)}]}{(a^2+b^2)^2 d} -$$

$$\frac{a f^2 \text{Log}[\text{Cosh}[c+dx]]}{(a^2+b^2) d^3} - \frac{i f (e+fx) \text{PolyLog}[2,-i e^{c+dx}]}{b\,d^2} + \frac{2 i a^2 b f (e+fx) \text{PolyLog}[2,-i e^{c+dx}]}{(a^2+b^2)^2 d^2} +$$

$$\frac{i a^2 f (e+fx) \text{PolyLog}[2,-i e^{c+dx}]}{b (a^2+b^2) d^2} + \frac{i f (e+fx) \text{PolyLog}[2, i e^{c+dx}]}{b\,d^2} - \frac{2 i a^2 b f (e+fx) \text{PolyLog}[2, i e^{c+dx}]}{(a^2+b^2)^2 d^2} -$$

$$\frac{i a^2 f (e+fx) \text{PolyLog}[2, i e^{c+dx}]}{b (a^2+b^2) d^2} - \frac{2 a b^2 f (e+fx) \text{PolyLog}\left[2,-\frac{b e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{(a^2+b^2)^2 d^2} - \frac{2 a b^2 f (e+fx) \text{PolyLog}\left[2,-\frac{b e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{(a^2+b^2)^2 d^2} +$$

$$\frac{a b^2 f (e+fx) \text{PolyLog}[2,-e^{2(c+dx)}]}{(a^2+b^2)^2 d^2} + \frac{i f^2 \text{PolyLog}[3,-i e^{c+dx}]}{b\,d^3} - \frac{2 i a^2 b f^2 \text{PolyLog}[3,-i e^{c+dx}]}{(a^2+b^2)^2 d^3} - \frac{i a^2 f^2 \text{PolyLog}[3,-i e^{c+dx}]}{b (a^2+b^2) d^3} -$$

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

$$\frac{2 a b^2 f^2 \text{PolyLog}\left[3,-\frac{b e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{(a^2+b^2)^2 d^3} - \frac{a b^2 f^2 \text{PolyLog}[3,-e^{2(c+dx)}]}{2 (a^2+b^2)^2 d^3} + \frac{f (e+fx) \text{Sech}[c+dx]}{b\,d^2} - \frac{a^2 f (e+fx) \text{Sech}[c+dx]}{b (a^2+b^2) d^2} -$$

$$\frac{a (e+fx)^2 \text{Sech}[c+dx]^2}{2 (a^2+b^2) d} + \frac{a f (e+fx) \text{Tanh}[c+dx]}{(a^2+b^2) d^2} + \frac{(e+fx)^2 \text{Sech}[c+dx] \text{Tanh}[c+dx]}{2 b d} - \frac{a^2 (e+fx)^2 \text{Sech}[c+dx] \text{Tanh}[c+dx]}{2 b (a^2+b^2) d}$$

Result (type 4, 3124 leaves):

$$\frac{1}{6 (a^2+b^2)^2 d^3 (1+e^{2c})} \Big(-12 a b^2 d^3 e^2 e^{2c} x + 12 a^3 d e^{2c} f^2 x + 12 a b^2 d e^{2c} f^2 x - 12 a b^2 d^3 e e^{2c} f x^2 - 4 a b^2 d^3 e^{2c} f^2 x^3 -$$

$$6 a^2 b d^2 e^2 \text{ArcTan}[e^{c+dx}] + 6 b^3 d^2 e^2 \text{ArcTan}[e^{c+dx}] - 6 a^2 b d^2 e^2 e^{2c} \text{ArcTan}[e^{c+dx}] + 6 b^3 d^2 e^2 e^{2c} \text{ArcTan}[e^{c+dx}] -$$

$$12 a^2 b f^2 \text{ArcTan}[e^{c+dx}] - 12 b^3 f^2 \text{ArcTan}[e^{c+dx}] - 12 a^2 b e^{2c} f^2 \text{ArcTan}[e^{c+dx}] - 12 b^3 e^{2c} f^2 \text{ArcTan}[e^{c+dx}] -$$

$$6 i a^2 b d^2 e f x \text{Log}[1 - i e^{c+dx}] + 6 i b^3 d^2 e f x \text{Log}[1 - i e^{c+dx}] - 6 i a^2 b d^2 e e^{2c} f x \text{Log}[1 - i e^{c+dx}] + 6 i b^3 d^2 e e^{2c} f x \text{Log}[1 - i e^{c+dx}] -$$

$$3 i a^2 b d^2 f^2 x^2 \text{Log}[1 - i e^{c+dx}] + 3 i b^3 d^2 f^2 x^2 \text{Log}[1 - i e^{c+dx}] - 3 i a^2 b d^2 e^{2c} f^2 x^2 \text{Log}[1 - i e^{c+dx}] + 3 i b^3 d^2 e^{2c} f^2 x^2 \text{Log}[1 - i e^{c+dx}] +$$

$$6 i a^2 b d^2 e f x \text{Log}[1 + i e^{c+dx}] - 6 i b^3 d^2 e f x \text{Log}[1 + i e^{c+dx}] + 6 i a^2 b d^2 e e^{2c} f x \text{Log}[1 + i e^{c+dx}] - 6 i b^3 d^2 e e^{2c} f x \text{Log}[1 + i e^{c+dx}] +$$

$$3 i a^2 b d^2 f^2 x^2 \text{Log}[1 + i e^{c+dx}] - 3 i b^3 d^2 f^2 x^2 \text{Log}[1 + i e^{c+dx}] + 3 i a^2 b d^2 e^{2c} f^2 x^2 \text{Log}[1 + i e^{c+dx}] - 3 i b^3 d^2 e^{2c} f^2 x^2 \text{Log}[1 + i e^{c+dx}] +$$

$$6 a b^2 d^2 e^2 \text{Log}[1 + e^{2(c+dx)}] + 6 a b^2 d^2 e^2 e^{2c} \text{Log}[1 + e^{2(c+dx)}] - 6 a^3 f^2 \text{Log}[1 + e^{2(c+dx)}] - 6 a b^2 f^2 \text{Log}[1 + e^{2(c+dx)}] -$$

$$6 a^3 e^{2c} f^2 \text{Log}[1 + e^{2(c+dx)}] - 6 a b^2 e^{2c} f^2 \text{Log}[1 + e^{2(c+dx)}] + 12 a b^2 d^2 e f x \text{Log}[1 + e^{2(c+dx)}] + 12 a b^2 d^2 e e^{2c} f x \text{Log}[1 + e^{2(c+dx)}] +$$

$$6\,a\,b^2\,d^2\,f^2\,x^2\,\text{Log}\left[1+\mathrm{e}^{2\,(c+d\,x)}\right]+6\,a\,b^2\,d^2\,\mathrm{e}^{2\,c}\,f^2\,x^2\,\text{Log}\left[1+\mathrm{e}^{2\,(c+d\,x)}\right]+6\,\mathrm{i}\,b\,\left(a^2-b^2\right)\,d\,\left(1+\mathrm{e}^{2\,c}\right)\,f\,(e+f\,x)\,\text{PolyLog}\left[2,-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+$$
$$6\,\mathrm{i}\,b\,\left(-a^2+b^2\right)\,d\,\left(1+\mathrm{e}^{2\,c}\right)\,f\,(e+f\,x)\,\text{PolyLog}\left[2,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+6\,a\,b^2\,d\,e\,f\,\text{PolyLog}\left[2,-\mathrm{e}^{2\,(c+d\,x)}\right]+6\,a\,b^2\,d\,e\,\mathrm{e}^{2\,c}\,f\,\text{PolyLog}\left[2,-\mathrm{e}^{2\,(c+d\,x)}\right]+$$
$$6\,a\,b^2\,d\,f^2\,x\,\text{PolyLog}\left[2,-\mathrm{e}^{2\,(c+d\,x)}\right]+6\,a\,b^2\,d\,\mathrm{e}^{2\,c}\,f^2\,x\,\text{PolyLog}\left[2,-\mathrm{e}^{2\,(c+d\,x)}\right]-6\,\mathrm{i}\,a^2\,b\,f^2\,\text{PolyLog}\left[3,-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+6\,\mathrm{i}\,b^3\,f^2\,\text{PolyLog}\left[3,-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-$$
$$6\,\mathrm{i}\,a^2\,b\,\mathrm{e}^{2\,c}\,f^2\,\text{PolyLog}\left[3,-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+6\,\mathrm{i}\,b^3\,\mathrm{e}^{2\,c}\,f^2\,\text{PolyLog}\left[3,-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+6\,\mathrm{i}\,a^2\,b\,f^2\,\text{PolyLog}\left[3,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-6\,\mathrm{i}\,b^3\,f^2\,\text{PolyLog}\left[3,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+$$
$$6\,\mathrm{i}\,a^2\,b\,\mathrm{e}^{2\,c}\,f^2\,\text{PolyLog}\left[3,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-6\,\mathrm{i}\,b^3\,\mathrm{e}^{2\,c}\,f^2\,\text{PolyLog}\left[3,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-3\,a\,b^2\,f^2\,\text{PolyLog}\left[3,-\mathrm{e}^{2\,(c+d\,x)}\right]-3\,a\,b^2\,\mathrm{e}^{2\,c}\,f^2\,\text{PolyLog}\left[3,-\mathrm{e}^{2\,(c+d\,x)}\right]\Big)+$$

$$\frac{1}{3\,\left(a^2+b^2\right)^2\,d^3\,\left(-1+\mathrm{e}^{2\,c}\right)}\,a\,b^2\,\Bigg(6\,d^3\,e^2\,\mathrm{e}^{2\,c}\,x+6\,d^3\,e\,\mathrm{e}^{2\,c}\,f\,x^2+2\,d^3\,\mathrm{e}^{2\,c}\,f^2\,x^3+3\,d^2\,e^2\,\text{Log}\left[2\,a\,\mathrm{e}^{c+d\,x}+b\,\left(-1+\mathrm{e}^{2\,(c+d\,x)}\right)\right]-$$
$$3\,d^2\,e^2\,\mathrm{e}^{2\,c}\,\text{Log}\left[2\,a\,\mathrm{e}^{c+d\,x}+b\,\left(-1+\mathrm{e}^{2\,(c+d\,x)}\right)\right]+6\,d^2\,e\,f\,x\,\text{Log}\left[1+\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}-\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]-6\,d^2\,e\,\mathrm{e}^{2\,c}\,f\,x\,\text{Log}\left[1+\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}-\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]+$$
$$3\,d^2\,f^2\,x^2\,\text{Log}\left[1+\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}-\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]-3\,d^2\,\mathrm{e}^{2\,c}\,f^2\,x^2\,\text{Log}\left[1+\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}-\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]+6\,d^2\,e\,f\,x\,\text{Log}\left[1+\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}+\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]-$$
$$6\,d^2\,e\,\mathrm{e}^{2\,c}\,f\,x\,\text{Log}\left[1+\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}+\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]+3\,d^2\,f^2\,x^2\,\text{Log}\left[1+\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}+\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]-3\,d^2\,\mathrm{e}^{2\,c}\,f^2\,x^2\,\text{Log}\left[1+\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}+\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]-$$
$$6\,d\,\left(-1+\mathrm{e}^{2\,c}\right)\,f\,(e+f\,x)\,\text{PolyLog}\left[2,-\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}-\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]-6\,d\,\left(-1+\mathrm{e}^{2\,c}\right)\,f\,(e+f\,x)\,\text{PolyLog}\left[2,-\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}+\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]-$$
$$6\,f^2\,\text{PolyLog}\left[3,-\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}-\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]+6\,\mathrm{e}^{2\,c}\,f^2\,\text{PolyLog}\left[3,-\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}-\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]-$$
$$6\,f^2\,\text{PolyLog}\left[3,-\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}+\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]+6\,\mathrm{e}^{2\,c}\,f^2\,\text{PolyLog}\left[3,-\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}+\sqrt{\left(a^2+b^2\right)\,\mathrm{e}^{2\,c}}}\right]\Bigg)+\frac{1}{24\,\left(a^2+b^2\right)^2\,d^2}$$
$$\text{Csch}[c]\,\text{Sech}[c]\,\text{Sech}[c+d\,x]^2\,\Big(6\,a^3\,e\,f+6\,a\,b^2\,e\,f-12\,a\,b^2\,d^2\,e^2\,x+6\,a^3\,f^2\,x+6\,a\,b^2\,f^2\,x-12\,a\,b^2\,d^2\,e\,f\,x^2-4\,a\,b^2\,d^2\,f^2\,x^3-6\,a^3\,e\,f\,\text{Cosh}[2\,c]-$$
$$6\,a\,b^2\,e\,f\,\text{Cosh}[2\,c]-6\,a^3\,f^2\,x\,\text{Cosh}[2\,c]-6\,a\,b^2\,f^2\,x\,\text{Cosh}[2\,c]-6\,a^3\,e\,f\,\text{Cosh}[2\,d\,x]-6\,a\,b^2\,e\,f\,\text{Cosh}[2\,d\,x]-6\,a^3\,f^2\,x\,\text{Cosh}[2\,d\,x]-$$
$$6\,a\,b^2\,f^2\,x\,\text{Cosh}[2\,d\,x]-3\,a^2\,b\,d\,e^2\,\text{Cosh}[c-d\,x]-3\,b^3\,d\,e^2\,\text{Cosh}[c-d\,x]-6\,a^2\,b\,d\,e\,f\,x\,\text{Cosh}[c-d\,x]-6\,b^3\,d\,e\,f\,x\,\text{Cosh}[c-d\,x]-$$
$$3\,a^2\,b\,d\,f^2\,x^2\,\text{Cosh}[c-d\,x]-3\,b^3\,d\,f^2\,x^2\,\text{Cosh}[c-d\,x]+3\,a^2\,b\,d\,e^2\,\text{Cosh}[3\,c+d\,x]+3\,b^3\,d\,e^2\,\text{Cosh}[3\,c+d\,x]+6\,a^2\,b\,d\,e\,f\,x\,\text{Cosh}[3\,c+d\,x]+$$
$$6\,b^3\,d\,e\,f\,x\,\text{Cosh}[3\,c+d\,x]+3\,a^2\,b\,d\,f^2\,x^2\,\text{Cosh}[3\,c+d\,x]+3\,b^3\,d\,f^2\,x^2\,\text{Cosh}[3\,c+d\,x]+6\,a^3\,e\,f\,\text{Cosh}[2\,c+2\,d\,x]+6\,a\,b^2\,e\,f\,\text{Cosh}[2\,c+2\,d\,x]-$$
$$12\,a\,b^2\,d^2\,e^2\,x\,\text{Cosh}[2\,c+2\,d\,x]+6\,a^3\,f^2\,x\,\text{Cosh}[2\,c+2\,d\,x]+6\,a\,b^2\,f^2\,x\,\text{Cosh}[2\,c+2\,d\,x]-12\,a\,b^2\,d^2\,e\,f\,x^2\,\text{Cosh}[2\,c+2\,d\,x]-$$
$$4\,a\,b^2\,d^2\,f^2\,x^3\,\text{Cosh}[2\,c+2\,d\,x]-6\,a^3\,d\,e^2\,\text{Sinh}[2\,c]-6\,a\,b^2\,d\,e^2\,\text{Sinh}[2\,c]-12\,a^3\,d\,e\,f\,x\,\text{Sinh}[2\,c]-12\,a\,b^2\,d\,e\,f\,x\,\text{Sinh}[2\,c]-$$
$$6\,a^3\,d\,f^2\,x^2\,\text{Sinh}[2\,c]-6\,a\,b^2\,d\,f^2\,x^2\,\text{Sinh}[2\,c]+6\,a^2\,b\,e\,f\,\text{Sinh}[c-d\,x]+6\,b^3\,e\,f\,\text{Sinh}[c-d\,x]+6\,a^2\,b\,f^2\,x\,\text{Sinh}[c-d\,x]+$$
$$6\,b^3\,f^2\,x\,\text{Sinh}[c-d\,x]+6\,a^2\,b\,e\,f\,\text{Sinh}[3\,c+d\,x]+6\,b^3\,e\,f\,\text{Sinh}[3\,c+d\,x]+6\,a^2\,b\,f^2\,x\,\text{Sinh}[3\,c+d\,x]+6\,b^3\,f^2\,x\,\text{Sinh}[3\,c+d\,x]\Big)$$

Problem 361: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sech}[c+d\,x]^2\,\text{Tanh}[c+d\,x]}{(e+f\,x)\,(a+b\,\text{Sinh}[c+d\,x])}\,dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sech}[c+d x]^2\,\text{Tanh}[c+d x]}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 362: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(e+f x)^3\,\text{Cosh}[c+d x]\,\text{Sinh}[c+d x]^2}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 606 leaves, 22 steps):

$$\frac{3 f^3 x}{8 b d^3}+\frac{(e+f x)^3}{4 b d}-\frac{a^2 (e+f x)^4}{4 b^3 f}+\frac{6 a f^3 \text{Cosh}[c+d x]}{b^2 d^4}+\frac{3 a f (e+f x)^2 \text{Cosh}[c+d x]}{b^2 d^2}+\frac{a^2 (e+f x)^3 \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 d}+$$
$$\frac{a^2 (e+f x)^3 \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 d}+\frac{3 a^2 f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 d^2}+\frac{3 a^2 f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 d^2}-$$
$$\frac{6 a^2 f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 d^3}-\frac{6 a^2 f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 d^3}+\frac{6 a^2 f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^3 d^4}+$$
$$\frac{6 a^2 f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^3 d^4}-\frac{6 a f^2 (e+f x) \text{Sinh}[c+d x]}{b^2 d^3}-\frac{a (e+f x)^3 \text{Sinh}[c+d x]}{b^2 d}-\frac{3 f^3 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{8 b d^4}-$$
$$\frac{3 f (e+f x)^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 b d^2}+\frac{3 f^2 (e+f x) \text{Sinh}[c+d x]^2}{4 b d^3}+\frac{(e+f x)^3 \text{Sinh}[c+d x]^2}{2 b d}$$

Result (type 4, 3188 leaves):

$$\frac{1}{32 b^3 d^4} e^{-2 c}$$
$$\Big(-48 a^2 c^2 d^2 e^2 e^{2 c} f-48 i a^2 c d^2 e^2 e^{2 c} f \pi+12 a^2 d^2 e^2 e^{2 c} f \pi^2-96 a^2 c d^3 e^2 e^{2 c} f x-48 i a^2 d^3 e^2 e^{2 c} f \pi x-48 a^2 d^4 e^2 e^{2 c} f x^2-32 a^2 d^4 e e^{2 c} f^2 x^3-$$

$$8\,a^2\,d^4\,\mathbb{e}^{2\,c}\,f^3\,x^4-384\,a^2\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{\mathbb{i}\,a}{b}}}{\sqrt{2}}\Big]\,\text{ArcTan}\Big[\frac{(a+\mathbb{i}\,b)\,\text{Cot}\big[\frac{1}{4}\,(2\,\mathbb{i}\,c+\pi+2\,\mathbb{i}\,d\,x)\big]}{\sqrt{a^2+b^2}}\Big]+16\,a\,b\,d^3\,e^3\,\mathbb{e}^{c}\,\text{Cosh}[d\,x]-$$

$$16\,a\,b\,d^3\,e^3\,\mathbb{e}^{3\,c}\,\text{Cosh}[d\,x]+48\,a\,b\,d^2\,e^2\,\mathbb{e}^{c}\,f\,\text{Cosh}[d\,x]+48\,a\,b\,d^2\,e^2\,\mathbb{e}^{3\,c}\,f\,\text{Cosh}[d\,x]+96\,a\,b\,d\,e\,\mathbb{e}^{c}\,f^2\,\text{Cosh}[d\,x]-96\,a\,b\,d\,e\,\mathbb{e}^{3\,c}\,f^2\,\text{Cosh}[d\,x]+$$

$$96\,a\,b\,\mathbb{e}^{c}\,f^3\,\text{Cosh}[d\,x]+96\,a\,b\,\mathbb{e}^{3\,c}\,f^3\,\text{Cosh}[d\,x]+48\,a\,b\,d^3\,e^2\,\mathbb{e}^{c}\,f\,x\,\text{Cosh}[d\,x]-48\,a\,b\,d^3\,e^2\,\mathbb{e}^{3\,c}\,f\,x\,\text{Cosh}[d\,x]+96\,a\,b\,d^2\,e\,\mathbb{e}^{c}\,f^2\,x\,\text{Cosh}[d\,x]+$$

$$96\,a\,b\,d^2\,e\,\mathbb{e}^{3\,c}\,f^2\,x\,\text{Cosh}[d\,x]+96\,a\,b\,d\,\mathbb{e}^{c}\,f^3\,x\,\text{Cosh}[d\,x]-96\,a\,b\,d\,\mathbb{e}^{3\,c}\,f^3\,x\,\text{Cosh}[d\,x]+48\,a\,b\,d^3\,e\,\mathbb{e}^{c}\,f^2\,x^2\,\text{Cosh}[d\,x]-$$

$$48\,a\,b\,d^3\,e\,\mathbb{e}^{3\,c}\,f^2\,x^2\,\text{Cosh}[d\,x]+48\,a\,b\,d^2\,\mathbb{e}^{c}\,f^3\,x^2\,\text{Cosh}[d\,x]+48\,a\,b\,d^2\,\mathbb{e}^{3\,c}\,f^3\,x^2\,\text{Cosh}[d\,x]+16\,a\,b\,d^3\,\mathbb{e}^{c}\,f^3\,x^3\,\text{Cosh}[d\,x]-$$

$$16\,a\,b\,d^3\,\mathbb{e}^{3\,c}\,f^3\,x^3\,\text{Cosh}[d\,x]+4\,b^2\,d^3\,e^3\,\text{Cosh}[2\,d\,x]+4\,b^2\,d^3\,e^3\,\mathbb{e}^{4\,c}\,\text{Cosh}[2\,d\,x]+6\,b^2\,d^2\,e^2\,f\,\text{Cosh}[2\,d\,x]-6\,b^2\,d^2\,e^2\,\mathbb{e}^{4\,c}\,f\,\text{Cosh}[2\,d\,x]+$$

$$6\,b^2\,d\,e\,f^2\,\text{Cosh}[2\,d\,x]+6\,b^2\,d\,e\,\mathbb{e}^{4\,c}\,f^2\,\text{Cosh}[2\,d\,x]+3\,b^2\,f^3\,\text{Cosh}[2\,d\,x]-3\,b^2\,\mathbb{e}^{4\,c}\,f^3\,\text{Cosh}[2\,d\,x]+12\,b^2\,d^3\,e^2\,f\,x\,\text{Cosh}[2\,d\,x]+$$

$$12\,b^2\,d^3\,e^2\,\mathbb{e}^{4\,c}\,f\,x\,\text{Cosh}[2\,d\,x]+12\,b^2\,d^2\,e\,f^2\,x\,\text{Cosh}[2\,d\,x]-12\,b^2\,d^2\,e\,\mathbb{e}^{4\,c}\,f^2\,x\,\text{Cosh}[2\,d\,x]+6\,b^2\,d\,f^3\,x\,\text{Cosh}[2\,d\,x]+6\,b^2\,d\,\mathbb{e}^{4\,c}\,f^3\,x\,\text{Cosh}[2\,d\,x]+$$

$$12\,b^2\,d^3\,e\,f^2\,x^2\,\text{Cosh}[2\,d\,x]+12\,b^2\,d^3\,e\,\mathbb{e}^{4\,c}\,f^2\,x^2\,\text{Cosh}[2\,d\,x]+6\,b^2\,d^2\,f^3\,x^2\,\text{Cosh}[2\,d\,x]-6\,b^2\,d^2\,\mathbb{e}^{4\,c}\,f^3\,x^2\,\text{Cosh}[2\,d\,x]+4\,b^2\,d^3\,f^3\,x^3\,\text{Cosh}[2\,d\,x]+$$

$$4\,b^2\,d^3\,\mathbb{e}^{4\,c}\,f^3\,x^3\,\text{Cosh}[2\,d\,x]+96\,a^2\,c\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\text{Log}\Big[1+\frac{\left(-a+\sqrt{a^2+b^2}\right)\,\mathbb{e}^{c+d\,x}}{b}\Big]+48\,\mathbb{i}\,a^2\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\pi\,\text{Log}\Big[1+\frac{\left(-a+\sqrt{a^2+b^2}\right)\,\mathbb{e}^{c+d\,x}}{b}\Big]+$$

$$96\,a^2\,d^3\,e^2\,\mathbb{e}^{2\,c}\,f\,x\,\text{Log}\Big[1+\frac{\left(-a+\sqrt{a^2+b^2}\right)\,\mathbb{e}^{c+d\,x}}{b}\Big]+192\,\mathbb{i}\,a^2\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{\mathbb{i}\,a}{b}}}{\sqrt{2}}\Big]\,\text{Log}\Big[1+\frac{\left(-a+\sqrt{a^2+b^2}\right)\,\mathbb{e}^{c+d\,x}}{b}\Big]+$$

$$96\,a^2\,c\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\text{Log}\Big[1-\frac{\left(a+\sqrt{a^2+b^2}\right)\,\mathbb{e}^{c+d\,x}}{b}\Big]+48\,\mathbb{i}\,a^2\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\pi\,\text{Log}\Big[1-\frac{\left(a+\sqrt{a^2+b^2}\right)\,\mathbb{e}^{c+d\,x}}{b}\Big]+$$

$$96\,a^2\,d^3\,e^2\,\mathbb{e}^{2\,c}\,f\,x\,\text{Log}\Big[1-\frac{\left(a+\sqrt{a^2+b^2}\right)\,\mathbb{e}^{c+d\,x}}{b}\Big]-192\,\mathbb{i}\,a^2\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{\mathbb{i}\,a}{b}}}{\sqrt{2}}\Big]\,\text{Log}\Big[1-\frac{\left(a+\sqrt{a^2+b^2}\right)\,\mathbb{e}^{c+d\,x}}{b}\Big]+$$

$$96\,a^2\,d^3\,e\,\mathbb{e}^{2\,c}\,f^2\,x^2\,\text{Log}\Big[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^{c}-\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]+32\,a^2\,d^3\,\mathbb{e}^{2\,c}\,f^3\,x^3\,\text{Log}\Big[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^{c}-\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]+$$

$$96\,a^2\,d^3\,e\,\mathbb{e}^{2\,c}\,f^2\,x^2\,\text{Log}\Big[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^{c}+\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]+32\,a^2\,d^3\,\mathbb{e}^{2\,c}\,f^3\,x^3\,\text{Log}\Big[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^{c}+\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]+32\,a^2\,d^3\,e^3\,\mathbb{e}^{2\,c}\,\text{Log}[a+b\,\text{Sinh}[c+d\,x]]-$$

$$48\,\mathbb{i}\,a^2\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\pi\,\text{Log}[a+b\,\text{Sinh}[c+d\,x]]-96\,a^2\,c\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\text{Log}\Big[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\Big]+96\,a^2\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\text{PolyLog}\Big[2,\,\frac{\left(a-\sqrt{a^2+b^2}\right)\,\mathbb{e}^{c+d\,x}}{b}\Big]+$$

$$96\,a^2\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\text{PolyLog}\Big[2,\,\frac{\left(a+\sqrt{a^2+b^2}\right)\,\mathbb{e}^{c+d\,x}}{b}\Big]+192\,a^2\,d^2\,e\,\mathbb{e}^{2\,c}\,f^2\,x\,\text{PolyLog}\Big[2,\,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^{c}-\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]+$$

$$96\,a^2\,d^2\,\mathbb{e}^{2\,c}\,f^3\,x^2\,\text{PolyLog}\Big[2,\,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^{c}-\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]+192\,a^2\,d^2\,e\,\mathbb{e}^{2\,c}\,f^2\,x\,\text{PolyLog}\Big[2,\,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^{c}+\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]+$$

$$96 a^2 d^2 e^{2c} f^3 x^2 \text{PolyLog}\left[2, -\frac{b e^{2c+dx}}{a e^c + \sqrt{(a^2+b^2) e^{2c}}}\right] - 192 a^2 d e e^{2c} f^2 \text{PolyLog}\left[3, -\frac{b e^{2c+dx}}{a e^c - \sqrt{(a^2+b^2) e^{2c}}}\right] -$$
$$192 a^2 d e^{2c} f^3 x \text{PolyLog}\left[3, -\frac{b e^{2c+dx}}{a e^c - \sqrt{(a^2+b^2) e^{2c}}}\right] - 192 a^2 d e e^{2c} f^2 \text{PolyLog}\left[3, -\frac{b e^{2c+dx}}{a e^c + \sqrt{(a^2+b^2) e^{2c}}}\right] -$$
$$192 a^2 d e^{2c} f^3 x \text{PolyLog}\left[3, -\frac{b e^{2c+dx}}{a e^c + \sqrt{(a^2+b^2) e^{2c}}}\right] + 192 a^2 e^{2c} f^3 \text{PolyLog}\left[4, -\frac{b e^{2c+dx}}{a e^c - \sqrt{(a^2+b^2) e^{2c}}}\right] +$$
$$192 a^2 e^{2c} f^3 \text{PolyLog}\left[4, -\frac{b e^{2c+dx}}{a e^c + \sqrt{(a^2+b^2) e^{2c}}}\right] - 16 a b d^3 e^3 e^c \text{Sinh}[d x] - 16 a b d^3 e^3 e^{3c} \text{Sinh}[d x] - 48 a b d^2 e^2 e^c f \text{Sinh}[d x] +$$
$$48 a b d^2 e^2 e^{3c} f \text{Sinh}[d x] - 96 a b d e e^c f^2 \text{Sinh}[d x] - 96 a b d e e^{3c} f^2 \text{Sinh}[d x] - 96 a b e^c f^3 \text{Sinh}[d x] + 96 a b e^{3c} f^3 \text{Sinh}[d x] -$$
$$48 a b d^3 e^2 e^c f x \text{Sinh}[d x] - 48 a b d^3 e^2 e^{3c} f x \text{Sinh}[d x] - 96 a b d^2 e e^c f^2 x \text{Sinh}[d x] + 96 a b d^2 e e^{3c} f^2 x \text{Sinh}[d x] -$$
$$96 a b d e^c f^3 x \text{Sinh}[d x] - 96 a b d e^{3c} f^3 x \text{Sinh}[d x] - 48 a b d^3 e e^c f^2 x^2 \text{Sinh}[d x] - 48 a b d^3 e e^{3c} f^2 x^2 \text{Sinh}[d x] -$$
$$48 a b d^2 e^c f^3 x^2 \text{Sinh}[d x] + 48 a b d^2 e^{3c} f^3 x^2 \text{Sinh}[d x] - 16 a b d^3 e^c f^3 x^3 \text{Sinh}[d x] - 16 a b d^3 e^{3c} f^3 x^3 \text{Sinh}[d x] -$$
$$4 b^2 d^3 e^3 \text{Sinh}[2 d x] + 4 b^2 d^3 e^3 e^{4c} \text{Sinh}[2 d x] - 6 b^2 d^2 e^2 f \text{Sinh}[2 d x] - 6 b^2 d^2 e^2 e^{4c} f \text{Sinh}[2 d x] - 6 b^2 d e f^2 \text{Sinh}[2 d x] +$$
$$6 b^2 d e e^{4c} f^2 \text{Sinh}[2 d x] - 3 b^2 f^3 \text{Sinh}[2 d x] - 3 b^2 e^{4c} f^3 \text{Sinh}[2 d x] - 12 b^2 d^3 e^2 f x \text{Sinh}[2 d x] + 12 b^2 d^3 e^2 e^{4c} f x \text{Sinh}[2 d x] -$$
$$12 b^2 d^2 e f^2 x \text{Sinh}[2 d x] - 12 b^2 d^2 e e^{4c} f^2 x \text{Sinh}[2 d x] - 6 b^2 d f^3 x \text{Sinh}[2 d x] + 6 b^2 d e^{4c} f^3 x \text{Sinh}[2 d x] - 12 b^2 d^3 e f^2 x^2 \text{Sinh}[2 d x] +$$
$$\left. 12 b^2 d^3 e e^{4c} f^2 x^2 \text{Sinh}[2 d x] - 6 b^2 d^2 f^3 x^2 \text{Sinh}[2 d x] - 6 b^2 d^2 e^{4c} f^3 x^2 \text{Sinh}[2 d x] - 4 b^2 d^3 f^3 x^3 \text{Sinh}[2 d x] + 4 b^2 d^3 e^{4c} f^3 x^3 \text{Sinh}[2 d x] \right)$$

Problem 363: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e + f x)^2 \text{Cosh}[c + d x] \text{Sinh}[c + d x]^2}{a + b \text{Sinh}[c + d x]} \, dx$$

Optimal (type 4, 449 leaves, 17 steps):

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

Result (type 4, 1942 leaves):

$$\frac{1}{48 b^3 d^3}$$

$$e^{-2c}\Bigg(-48 a^2 c^2 d e e^{2c} f - 48 i a^2 c d e e^{2c} f \pi + 12 a^2 d e e^{2c} f \pi^2 - 96 a^2 c d^2 e e^{2c} f x - 48 i a^2 d^2 e e^{2c} f \pi x - 48 a^2 d^3 e e^{2c} f x^2 - 16 a^2 d^3 e^{2c} f^2 x^3 -$$

$$384 a^2 d e e^{2c} f \,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a+i b)\,\text{Cot}\left[\frac{1}{4}\left(2 i c+\pi+2 i d x\right)\right]}{\sqrt{a^2+b^2}}\right] + 24 a b d^2 e^2 e^c \,\text{Cosh}[d x] - 24 a b d^2 e^2 e^{3c} \,\text{Cosh}[d x] +$$

$$48 a b d e e^c f \,\text{Cosh}[d x] + 48 a b d e e^{3c} f \,\text{Cosh}[d x] + 48 a b e^c f^2 \,\text{Cosh}[d x] - 48 a b e^{3c} f^2 \,\text{Cosh}[d x] + 48 a b d^2 e e^c f x \,\text{Cosh}[d x] -$$

$$48 a b d^2 e e^{3c} f x \,\text{Cosh}[d x] + 48 a b d e^c f^2 x \,\text{Cosh}[d x] + 48 a b d e^{3c} f^2 x \,\text{Cosh}[d x] + 24 a b d^2 e^c f^2 x^2 \,\text{Cosh}[d x] -$$

$$24 a b d^2 e^{3c} f^2 x^2 \,\text{Cosh}[d x] + 6 b^2 d^2 e^2 \,\text{Cosh}[2 d x] + 6 b^2 d^2 e^2 e^{4c} \,\text{Cosh}[2 d x] + 6 b^2 d e f \,\text{Cosh}[2 d x] - 6 b^2 d e e^{4c} f \,\text{Cosh}[2 d x] +$$

$$3 b^2 f^2 \,\text{Cosh}[2 d x] + 3 b^2 e^{4c} f^2 \,\text{Cosh}[2 d x] + 12 b^2 d^2 e f x \,\text{Cosh}[2 d x] + 12 b^2 d^2 e e^{4c} f x \,\text{Cosh}[2 d x] + 6 b^2 d f^2 x \,\text{Cosh}[2 d x] -$$

$$6 b^2 d e^{4c} f^2 x \,\text{Cosh}[2 d x] + 6 b^2 d^2 f^2 x^2 \,\text{Cosh}[2 d x] + 6 b^2 d^2 e^{4c} f^2 x^2 \,\text{Cosh}[2 d x] + 96 a^2 c d e e^{2c} f \,\text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right] +$$

$$48 i a^2 d e e^{2c} f \pi \,\text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right] + 96 a^2 d^2 e e^{2c} f x \,\text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right] +$$

$$192 i a^2 d e e^{2c} f \,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right] + 96 a^2 c d e e^{2c} f \,\text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right] +$$

$$48 i a^2 d e e^{2c} f \pi \,\text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right] + 96 a^2 d^2 e e^{2c} f x \,\text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right] -$$

$$192 i a^2 d e e^{2c} f \,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right] + 48 a^2 d^2 e^{2c} f^2 x^2 \,\text{Log}\left[1+\frac{b e^{2c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right] +$$

$$48 a^2 d^2 e^{2c} f^2 x^2 \,\text{Log}\left[1+\frac{b e^{2c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right] + 48 a^2 d^2 e^2 e^{2c} \,\text{Log}[a+b \,\text{Sinh}[c+d x]] - 48 i a^2 d e e^{2c} f \pi \,\text{Log}[a+b \,\text{Sinh}[c+d x]] -$$

$$96 a^2 c d e e^{2c} f \,\text{Log}\left[1+\frac{b \,\text{Sinh}[c+d x]}{a}\right] + 96 a^2 d e e^{2c} f \,\text{PolyLog}\left[2, \frac{\left(a-\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right] + 96 a^2 d e e^{2c} f \,\text{PolyLog}\left[2, \frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right] +$$

$$96 a^2 d e^{2c} f^2 x \,\text{PolyLog}\left[2, -\frac{b e^{2c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right] + 96 a^2 d e^{2c} f^2 x \,\text{PolyLog}\left[2, -\frac{b e^{2c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right] -$$

$$96 a^2 e^{2c} f^2 \text{PolyLog}\left[3, -\frac{b e^{2c+dx}}{a e^c - \sqrt{(a^2+b^2) e^{2c}}}\right] - 96 a^2 e^{2c} f^2 \text{PolyLog}\left[3, -\frac{b e^{2c+dx}}{a e^c + \sqrt{(a^2+b^2) e^{2c}}}\right] - 24 a b d^2 e^2 e^c \text{Sinh}[d x] -$$
$$24 a b d^2 e^2 e^{3c} \text{Sinh}[d x] - 48 a b d e e^c f \text{Sinh}[d x] + 48 a b d e e^{3c} f \text{Sinh}[d x] - 48 a b e^c f^2 \text{Sinh}[d x] - 48 a b e^{3c} f^2 \text{Sinh}[d x] -$$
$$48 a b d^2 e e^c f x \text{Sinh}[d x] - 48 a b d^2 e e^{3c} f x \text{Sinh}[d x] - 48 a b d e^c f^2 x \text{Sinh}[d x] + 48 a b d e^{3c} f^2 x \text{Sinh}[d x] -$$
$$24 a b d^2 e^c f^2 x^2 \text{Sinh}[d x] - 24 a b d^2 e^{3c} f^2 x^2 \text{Sinh}[d x] - 6 b^2 d^2 e^2 \text{Sinh}[2 d x] + 6 b^2 d^2 e^2 e^{4c} \text{Sinh}[2 d x] - 6 b^2 d e f \text{Sinh}[2 d x] -$$
$$6 b^2 d e e^{4c} f \text{Sinh}[2 d x] - 3 b^2 f^2 \text{Sinh}[2 d x] + 3 b^2 e^{4c} f^2 \text{Sinh}[2 d x] - 12 b^2 d^2 e f x \text{Sinh}[2 d x] + 12 b^2 d^2 e e^{4c} f x \text{Sinh}[2 d x] -$$
$$\left. 6 b^2 d f^2 x \text{Sinh}[2 d x] - 6 b^2 d e^{4c} f^2 x \text{Sinh}[2 d x] - 6 b^2 d^2 f^2 x^2 \text{Sinh}[2 d x] + 6 b^2 d^2 e^{4c} f^2 x^2 \text{Sinh}[2 d x] \right)$$

Problem 364: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e + f x) \text{Cosh}[c + d x] \text{Sinh}[c + d x]^2}{a + b \text{Sinh}[c + d x]} \, dx$$

Optimal (type 4, 278 leaves, 14 steps):

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

Result (type 4, 675 leaves):

$$\frac{1}{8 b^3 d^2}\left(-4 a^2 c^2 f-4 i a^2 c f \pi+a^2 f \pi^2-8 a^2 c d f x-4 i a^2 d f \pi x-4 a^2 d^2 f x^2-32 a^2 f \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \operatorname{ArcTan}\left[\frac{(a+i b) \operatorname{Cot}\left[\frac{1}{4}(2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right]+\right.$$

$$8 a b f \operatorname{Cosh}[c+d x]+2 b^2 d e \operatorname{Cosh}[2(c+d x)]+2 b^2 d f x \operatorname{Cosh}[2(c+d x)]+8 a^2 c f \operatorname{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+$$

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

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

$$8 a^2 d f x \operatorname{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-16 i a^2 f \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \operatorname{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+8 a^2 d e \operatorname{Log}[a+b \operatorname{Sinh}[c+d x]]-$$

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

$$\left.8 a^2 f \operatorname{PolyLog}\left[2, \frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-8 a b d e \operatorname{Sinh}[c+d x]-8 a b d f x \operatorname{Sinh}[c+d x]-b^2 f \operatorname{Sinh}[2(c+d x)]\right)$$

Problem 366: Attempted integration timed out after 120 seconds.

$$\int \frac{\operatorname{Cosh}[c+d x] \operatorname{Sinh}[c+d x]^2}{(e+f x)(a+b \operatorname{Sinh}[c+d x])} \, dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\operatorname{Unintegrable}\left[\frac{\operatorname{Cosh}[c+d x] \operatorname{Sinh}[c+d x]^2}{(e+f x)(a+b \operatorname{Sinh}[c+d x])}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 367: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3 \operatorname{Cosh}[c+d x]^2 \operatorname{Sinh}[c+d x]^2}{a+b \operatorname{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 897 leaves, 31 steps):

$$-\frac{3 a e f^2 x}{4 b^2 d^2}-\frac{3 a f^3 x^2}{8 b^2 d^2}-\frac{a^3 (e+f x)^4}{4 b^4 f}-\frac{a (e+f x)^4}{8 b^2 f}+\frac{6 a^2 f^2 (e+f x) \operatorname{Cosh}[c+d x]}{b^3 d^3}+\frac{4 f^2 (e+f x) \operatorname{Cosh}[c+d x]}{3 b d^3}+$$
$$\frac{a^2 (e+f x)^3 \operatorname{Cosh}[c+d x]}{b^3 d}+\frac{3 a f^3 \operatorname{Cosh}[c+d x]^2}{8 b^2 d^4}+\frac{3 a f (e+f x)^2 \operatorname{Cosh}[c+d x]^2}{4 b^2 d^2}+\frac{2 f^2 (e+f x) \operatorname{Cosh}[c+d x]^3}{9 b d^3}+\frac{(e+f x)^3 \operatorname{Cosh}[c+d x]^3}{3 b d}+$$
$$\frac{a^2 \sqrt{a^2+b^2} (e+f x)^3 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d}-\frac{a^2 \sqrt{a^2+b^2} (e+f x)^3 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d}+\frac{3 a^2 \sqrt{a^2+b^2} f (e+f x)^2 \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d^2}-$$
$$\frac{3 a^2 \sqrt{a^2+b^2} f (e+f x)^2 \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d^2}-\frac{6 a^2 \sqrt{a^2+b^2} f^2 (e+f x) \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d^3}+$$
$$\frac{6 a^2 \sqrt{a^2+b^2} f^2 (e+f x) \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d^3}+\frac{6 a^2 \sqrt{a^2+b^2} f^3 \operatorname{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d^4}-\frac{6 a^2 \sqrt{a^2+b^2} f^3 \operatorname{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d^4}-$$
$$\frac{6 a^2 f^3 \operatorname{Sinh}[c+d x]}{b^3 d^4}-\frac{14 f^3 \operatorname{Sinh}[c+d x]}{9 b d^4}-\frac{3 a^2 f (e+f x)^2 \operatorname{Sinh}[c+d x]}{b^3 d^2}-\frac{2 f (e+f x)^2 \operatorname{Sinh}[c+d x]}{3 b d^2}-$$
$$\frac{3 a f^2 (e+f x) \operatorname{Cosh}[c+d x] \operatorname{Sinh}[c+d x]}{4 b^2 d^3}-\frac{a (e+f x)^3 \operatorname{Cosh}[c+d x] \operatorname{Sinh}[c+d x]}{2 b^2 d}-\frac{f (e+f x)^2 \operatorname{Cosh}[c+d x]^2 \operatorname{Sinh}[c+d x]}{3 b d^2}-\frac{2 f^3 \operatorname{Sinh}[c+d x]^3}{27 b d^4}$$

Result (type 4, 2729 leaves):

$$\frac{1}{4}\left(-\frac{2 a (2 a^2+b^2) e^3 x}{b^4}-\frac{3 a (2 a^2+b^2) e^2 f x^2}{b^4}-\frac{2 a (2 a^2+b^2) e f^2 x^3}{b^4}-\right.$$
$$\frac{a (2 a^2+b^2) f^3 x^4}{2 b^4}-\frac{1}{b^4 d^4 \sqrt{(a^2+b^2) e^{2 c}}} 4 a^2 \sqrt{-a^2-b^2} \left(2 d^3 e^3 \sqrt{(a^2+b^2) e^{2 c}} \operatorname{ArcTan}\left[\frac{a+b e^{c+d x}}{\sqrt{-a^2-b^2}}\right]+\right.$$
$$3 \sqrt{-a^2-b^2} d^3 e^2 e^c f x \operatorname{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{(a^2+b^2) e^{2 c}}}\right]+3 \sqrt{-a^2-b^2} d^3 e e^c f^2 x^2 \operatorname{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{(a^2+b^2) e^{2 c}}}\right]+$$

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

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

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

$$6\sqrt{-a^2-b^2}\ d\, e\, e^c f^2 \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2)\, e^{2c}}}\right]-6\sqrt{-a^2-b^2}\ d\, e^c f^3 x \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2)\, e^{2c}}}\right]+$$

$$6\sqrt{-a^2-b^2}\ d\, e\, e^c f^2 \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\right]+6\sqrt{-a^2-b^2}\ d\, e^c f^3 x \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\right]+$$

$$6\sqrt{-a^2-b^2}\ e^c f^3 \text{PolyLog}\left[4,-\frac{b\, e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2)\, e^{2c}}}\right]-6\sqrt{-a^2-b^2}\ e^c f^3 \text{PolyLog}\left[4,-\frac{b\, e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\right]\Bigg)+$$

$$\Bigg((4a^2+b^2)\,(d^3e^3+3d^2e^2f+6def^2+6f^3)\left(\frac{\text{Cosh}[c]}{2b^3d^4}-\frac{\text{Sinh}[c]}{2b^3d^4}\right)+(4a^2d^2e^2f+b^2d^2e^2f+8a^2def^2+2b^2def^2+8a^2f^3+2b^2f^3)$$

$$\left(\frac{3x\,\text{Cosh}[c]}{2b^3d^3}-\frac{3x\,\text{Sinh}[c]}{2b^3d^3}\right)+(4a^2def^2+b^2def^2+4a^2f^3+b^2f^3)\left(\frac{3x^2\,\text{Cosh}[c]}{2b^3d^2}-\frac{3x^2\,\text{Sinh}[c]}{2b^3d^2}\right)+$$

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

$$\Bigg((4a^2+b^2)\,(d^3e^3-3d^2e^2f+6def^2-6f^3)\left(\frac{\text{Cosh}[c]}{2b^3d^4}+\frac{\text{Sinh}[c]}{2b^3d^4}\right)+\frac{1}{2b^3d^2}3x^2\,(4a^2def^2\,\text{Cosh}[c]+b^2def^2\,\text{Cosh}[c]-$$

$$4a^2f^3\,\text{Cosh}[c]-b^2f^3\,\text{Cosh}[c]+4a^2def^2\,\text{Sinh}[c]+b^2def^2\,\text{Sinh}[c]-4a^2f^3\,\text{Sinh}[c]-b^2f^3\,\text{Sinh}[c])+\frac{1}{2b^3d^3}$$

$$3x\,(4a^2d^2e^2f\,\text{Cosh}[c]+b^2d^2e^2f\,\text{Cosh}[c]-8a^2def^2\,\text{Cosh}[c]-2b^2def^2\,\text{Cosh}[c]+8a^2f^3\,\text{Cosh}[c]+2b^2f^3\,\text{Cosh}[c]+$$
$$4a^2d^2e^2f\,\text{Sinh}[c]+b^2d^2e^2f\,\text{Sinh}[c]-8a^2def^2\,\text{Sinh}[c]-2b^2def^2\,\text{Sinh}[c]+8a^2f^3\,\text{Sinh}[c]+2b^2f^3\,\text{Sinh}[c])+$$

$$(4a^2+b^2)\left(\frac{f^3x^3\,\text{Cosh}[c]}{2b^3d}+\frac{f^3x^3\,\text{Sinh}[c]}{2b^3d}\right)\Bigg)\,(\text{Cosh}[dx]+\text{Sinh}[dx])+$$

$$\Bigg(\frac{a f^3x^3\,\text{Cosh}[2c]}{2b^2d}-\frac{a f^3x^3\,\text{Sinh}[2c]}{2b^2d}+(4d^3e^3+6d^2e^2f+6def^2+3f^3)\left(\frac{a\,\text{Cosh}[2c]}{8b^2d^4}-\frac{a\,\text{Sinh}[2c]}{8b^2d^4}\right)+$$

$$(2ad^2e^2f+2adef^2+af^3)\left(\frac{3x\,\text{Cosh}[2c]}{4b^2d^3}-\frac{3x\,\text{Sinh}[2c]}{4b^2d^3}\right)+(2adef^2+af^3)\left(\frac{3x^2\,\text{Cosh}[2c]}{4b^2d^2}-\frac{3x^2\,\text{Sinh}[2c]}{4b^2d^2}\right)\Bigg)$$

$$(\text{Cosh}[2dx]-\text{Sinh}[2dx])+\Bigg(-\frac{a f^3x^3\,\text{Cosh}[2c]}{2b^2d}-\frac{a f^3x^3\,\text{Sinh}[2c]}{2b^2d}+(4d^3e^3-6d^2e^2f+6def^2-3f^3)\left(-\frac{a\,\text{Cosh}[2c]}{8b^2d^4}-\frac{a\,\text{Sinh}[2c]}{8b^2d^4}\right)-$$

$$\frac{3 x^2 \left(2 a d e f^2 \text{Cosh}[2 c] - a f^3 \text{Cosh}[2 c] + 2 a d e f^2 \text{Sinh}[2 c] - a f^3 \text{Sinh}[2 c]\right)}{4 b^2 d^2} - \frac{1}{4 b^2 d^3}$$

$$3 x \left(2 a d^2 e^2 f \text{Cosh}[2 c] - 2 a d e f^2 \text{Cosh}[2 c] + a f^3 \text{Cosh}[2 c] + 2 a d^2 e^2 f \text{Sinh}[2 c] - 2 a d e f^2 \text{Sinh}[2 c] + a f^3 \text{Sinh}[2 c]\right)\Bigg)$$

$$(\text{Cosh}[2 d x] + \text{Sinh}[2 d x]) + \left(\frac{f^3 x^3 \text{Cosh}[3 c]}{6 b d} - \frac{f^3 x^3 \text{Sinh}[3 c]}{6 b d} + \left(9 d^3 e^3 + 9 d^2 e^2 f + 6 d e f^2 + 2 f^3\right) \left(\frac{\text{Cosh}[3 c]}{54 b d^4} - \frac{\text{Sinh}[3 c]}{54 b d^4}\right) +\right.$$

$$\left.\left(-9 d^2 e^2 f - 6 d e f^2 - 2 f^3\right) \left(-\frac{x \text{Cosh}[3 c]}{18 b d^3} + \frac{x \text{Sinh}[3 c]}{18 b d^3}\right) + \left(-3 d e f^2 - f^3\right) \left(-\frac{x^2 \text{Cosh}[3 c]}{6 b d^2} + \frac{x^2 \text{Sinh}[3 c]}{6 b d^2}\right)\right) (\text{Cosh}[3 d x] - \text{Sinh}[3 d x]) +$$

$$\left(\frac{f^3 x^3 \text{Cosh}[3 c]}{6 b d} + \frac{f^3 x^3 \text{Sinh}[3 c]}{6 b d} + \left(9 d^3 e^3 - 9 d^2 e^2 f + 6 d e f^2 - 2 f^3\right) \left(\frac{\text{Cosh}[3 c]}{54 b d^4} + \frac{\text{Sinh}[3 c]}{54 b d^4}\right) +\right.$$

$$\frac{x^2 \left(3 d e f^2 \text{Cosh}[3 c] - f^3 \text{Cosh}[3 c] + 3 d e f^2 \text{Sinh}[3 c] - f^3 \text{Sinh}[3 c]\right)}{6 b d^2} + \frac{1}{18 b d^3} x \left(9 d^2 e^2 f \text{Cosh}[3 c] - 6 d e f^2 \text{Cosh}[3 c] +\right.$$

$$\left.\left.2 f^3 \text{Cosh}[3 c] + 9 d^2 e^2 f \text{Sinh}[3 c] - 6 d e f^2 \text{Sinh}[3 c] + 2 f^3 \text{Sinh}[3 c]\right)\right) (\text{Cosh}[3 d x] + \text{Sinh}[3 d x])\Bigg)$$

Problem 369: Result more than twice size of optimal antiderivative.

$$\int \frac{(e + f x) \text{Cosh}[c + d x]^2 \text{Sinh}[c + d x]^2}{a + b \text{Sinh}[c + d x]} \, dx$$

Optimal (type 4, 403 leaves, 19 steps):

$$-\frac{a^3 e x}{b^4} - \frac{a e x}{2 b^2} - \frac{a^3 f x^2}{2 b^4} - \frac{a f x^2}{4 b^2} + \frac{a^2 (e + f x) \text{Cosh}[c + d x]}{b^3 d} + \frac{a f \text{Cosh}[c + d x]^2}{4 b^2 d^2} + \frac{(e + f x) \text{Cosh}[c + d x]^3}{3 b d} +$$

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

$$\frac{a^2 \sqrt{a^2 + b^2} f \text{PolyLog}\left[2, -\frac{b e^{c+d x}}{a + \sqrt{a^2+b^2}}\right]}{b^4 d^2} - \frac{a^2 f \text{Sinh}[c + d x]}{b^3 d^2} - \frac{f \text{Sinh}[c + d x]}{3 b d^2} - \frac{a (e + f x) \text{Cosh}[c + d x] \text{Sinh}[c + d x]}{2 b^2 d} - \frac{f \text{Sinh}[c + d x]^3}{9 b d^2}$$

Result (type 4, 1373 leaves):

$$\frac{1}{72\, b^4 \sqrt{-\left(a^2+b^2\right)^2}\, d^2}\left(-72\, a^3 \sqrt{-\left(a^2+b^2\right)^2}\, c\, d\, e - 36\, a\, b^2 \sqrt{-\left(a^2+b^2\right)^2}\, c\, d\, e + 36\, a^3 \sqrt{-\left(a^2+b^2\right)^2}\, c^2 f + 18\, a\, b^2 \sqrt{-\left(a^2+b^2\right)^2}\, c^2 f - \right.$$

$$72\, a^3 \sqrt{-\left(a^2+b^2\right)^2}\, d^2 e\, x - 36\, a\, b^2 \sqrt{-\left(a^2+b^2\right)^2}\, d^2 e\, x - 36\, a^3 \sqrt{-\left(a^2+b^2\right)^2}\, d^2 f\, x^2 - 18\, a\, b^2 \sqrt{-\left(a^2+b^2\right)^2}\, d^2 f\, x^2 +$$

$$144\, a^4 \sqrt{a^2+b^2}\, d\, e\, \text{ArcTan}\left[\frac{a + b\, \text{Cosh}[c+d\,x] + b\, \text{Sinh}[c+d\,x]}{\sqrt{-a^2-b^2}}\right] + 144\, a^2 b^2 \sqrt{a^2+b^2}\, d\, e\, \text{ArcTan}\left[\frac{a + b\, \text{Cosh}[c+d\,x] + b\, \text{Sinh}[c+d\,x]}{\sqrt{-a^2-b^2}}\right] -$$

$$144\, a^4 \sqrt{a^2+b^2}\, c\, f\, \text{ArcTan}\left[\frac{a + b\, \text{Cosh}[c+d\,x] + b\, \text{Sinh}[c+d\,x]}{\sqrt{-a^2-b^2}}\right] - 144\, a^2 b^2 \sqrt{a^2+b^2}\, c\, f\, \text{ArcTan}\left[\frac{a + b\, \text{Cosh}[c+d\,x] + b\, \text{Sinh}[c+d\,x]}{\sqrt{-a^2-b^2}}\right] +$$

$$72\, a^2 b \sqrt{-\left(a^2+b^2\right)^2}\, d\, e\, \text{Cosh}[c+d\,x] + 18\, b^3 \sqrt{-\left(a^2+b^2\right)^2}\, d\, e\, \text{Cosh}[c+d\,x] + 72\, a^2 b \sqrt{-\left(a^2+b^2\right)^2}\, d\, f\, x\, \text{Cosh}[c+d\,x] +$$

$$18\, b^3 \sqrt{-\left(a^2+b^2\right)^2}\, d\, f\, x\, \text{Cosh}[c+d\,x] + 9\, a\, b^2 \sqrt{-\left(a^2+b^2\right)^2}\, f\, \text{Cosh}[2\,(c+d\,x)] + 6\, b^3 \sqrt{-\left(a^2+b^2\right)^2}\, d\, e\, \text{Cosh}[3\,(c+d\,x)] +$$

$$6\, b^3 \sqrt{-\left(a^2+b^2\right)^2}\, d\, f\, x\, \text{Cosh}[3\,(c+d\,x)] + 72\, a^4 \sqrt{-a^2-b^2}\, c\, f\, \text{Log}\left[1 + \frac{b\,(\text{Cosh}[c+d\,x] + \text{Sinh}[c+d\,x])}{a - \sqrt{a^2+b^2}}\right] +$$

$$72\, a^2 b^2 \sqrt{-a^2-b^2}\, c\, f\, \text{Log}\left[1 + \frac{b\,(\text{Cosh}[c+d\,x] + \text{Sinh}[c+d\,x])}{a - \sqrt{a^2+b^2}}\right] + 72\, a^4 \sqrt{-a^2-b^2}\, d\, f\, x\, \text{Log}\left[1 + \frac{b\,(\text{Cosh}[c+d\,x] + \text{Sinh}[c+d\,x])}{a - \sqrt{a^2+b^2}}\right] +$$

$$72\, a^2 b^2 \sqrt{-a^2-b^2}\, d\, f\, x\, \text{Log}\left[1 + \frac{b\,(\text{Cosh}[c+d\,x] + \text{Sinh}[c+d\,x])}{a - \sqrt{a^2+b^2}}\right] - 72\, a^4 \sqrt{-a^2-b^2}\, c\, f\, \text{Log}\left[1 + \frac{b\,(\text{Cosh}[c+d\,x] + \text{Sinh}[c+d\,x])}{a + \sqrt{a^2+b^2}}\right] -$$

$$72\, a^2 b^2 \sqrt{-a^2-b^2}\, c\, f\, \text{Log}\left[1 + \frac{b\,(\text{Cosh}[c+d\,x] + \text{Sinh}[c+d\,x])}{a + \sqrt{a^2+b^2}}\right] - 72\, a^4 \sqrt{-a^2-b^2}\, d\, f\, x\, \text{Log}\left[1 + \frac{b\,(\text{Cosh}[c+d\,x] + \text{Sinh}[c+d\,x])}{a + \sqrt{a^2+b^2}}\right] -$$

$$72\, a^2 b^2 \sqrt{-a^2-b^2}\, d\, f\, x\, \text{Log}\left[1 + \frac{b\,(\text{Cosh}[c+d\,x] + \text{Sinh}[c+d\,x])}{a + \sqrt{a^2+b^2}}\right] - 72\, a^2 \left(-a^2-b^2\right)^{3/2} f\, \text{PolyLog}\left[2, \frac{b\,(\text{Cosh}[c+d\,x] + \text{Sinh}[c+d\,x])}{-a + \sqrt{a^2+b^2}}\right] +$$

$$72\, a^2 \left(-a^2-b^2\right)^{3/2} f\, \text{PolyLog}\left[2, -\frac{b\,(\text{Cosh}[c+d\,x] + \text{Sinh}[c+d\,x])}{a + \sqrt{a^2+b^2}}\right] - 72\, a^2 b \sqrt{-\left(a^2+b^2\right)^2}\, f\, \text{Sinh}[c+d\,x] - 18\, b^3 \sqrt{-\left(a^2+b^2\right)^2}\, f\, \text{Sinh}[c+d\,x] -$$

$$\left. 18\, a\, b^2 \sqrt{-\left(a^2+b^2\right)^2}\, d\, e\, \text{Sinh}[2\,(c+d\,x)] - 18\, a\, b^2 \sqrt{-\left(a^2+b^2\right)^2}\, d\, f\, x\, \text{Sinh}[2\,(c+d\,x)] - 2\, b^3 \sqrt{-\left(a^2+b^2\right)^2}\, f\, \text{Sinh}[3\,(c+d\,x)] \right)$$

Problem 371: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Cosh}[c+d\,x]^2\, \text{Sinh}[c+d\,x]^2}{(e+f\,x)\,(a+b\,\text{Sinh}[c+d\,x])}\, dx$$

Optimal (type 9, 38 leaves, 0 steps) :

$$\text{Unintegrable}\left[\frac{\text{Cosh}[c+d x]^2\,\text{Sinh}[c+d x]^2}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 372: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3\,\text{Cosh}[c+d x]^3\,\text{Sinh}[c+d x]^2}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 1123 leaves, 40 steps):

$$\frac{3 a^2 f^3 x}{8 b^3 d^3}-\frac{45 f^3 x}{256 b d^3}+\frac{a^2 (e+f x)^3}{4 b^3 d}-\frac{3 (e+f x)^3}{32 b d}-\frac{a^2 (a^2+b^2) (e+f x)^4}{4 b^5 f}+\frac{6 a^3 f^3 \text{Cosh}[c+d x]}{b^4 d^4}+\frac{40 a f^3 \text{Cosh}[c+d x]}{9 b^2 d^4}+$$
$$\frac{3 a^3 f (e+f x)^2 \text{Cosh}[c+d x]}{b^4 d^2}+\frac{2 a f (e+f x)^2 \text{Cosh}[c+d x]}{b^2 d^2}+\frac{9 f^2 (e+f x) \text{Cosh}[c+d x]^2}{32 b d^3}+\frac{2 a f^3 \text{Cosh}[c+d x]^3}{27 b^2 d^4}+$$
$$\frac{a f (e+f x)^2 \text{Cosh}[c+d x]^3}{3 b^2 d^2}+\frac{3 f^2 (e+f x) \text{Cosh}[c+d x]^4}{32 b d^3}+\frac{(e+f x)^3 \text{Cosh}[c+d x]^4}{4 b d}+\frac{a^2 (a^2+b^2) (e+f x)^3 \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d}+$$
$$\frac{a^2 (a^2+b^2) (e+f x)^3 \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d}+\frac{3 a^2 (a^2+b^2) f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d^2}+\frac{3 a^2 (a^2+b^2) f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d^2}-$$
$$\frac{6 a^2 (a^2+b^2) f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d^3}-\frac{6 a^2 (a^2+b^2) f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d^3}+\frac{6 a^2 (a^2+b^2) f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d^4}+$$
$$\frac{6 a^2 (a^2+b^2) f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d^4}-\frac{6 a^3 f^2 (e+f x) \text{Sinh}[c+d x]}{b^4 d^3}-\frac{40 a f^2 (e+f x) \text{Sinh}[c+d x]}{9 b^2 d^3}-\frac{a^3 (e+f x)^3 \text{Sinh}[c+d x]}{b^4 d}-$$
$$\frac{2 a (e+f x)^3 \text{Sinh}[c+d x]}{3 b^2 d}-\frac{3 a^2 f^3 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{8 b^3 d^4}-\frac{45 f^3 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{256 b d^4}-\frac{3 a^2 f (e+f x)^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 b^3 d^2}-$$
$$\frac{9 f (e+f x)^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{32 b d^2}-\frac{2 a f^2 (e+f x) \text{Cosh}[c+d x]^2 \text{Sinh}[c+d x]}{9 b^2 d^3}-\frac{a (e+f x)^3 \text{Cosh}[c+d x]^2 \text{Sinh}[c+d x]}{3 b^2 d}-$$
$$\frac{3 f^3 \text{Cosh}[c+d x]^3 \text{Sinh}[c+d x]}{128 b d^4}-\frac{3 f (e+f x)^2 \text{Cosh}[c+d x]^3 \text{Sinh}[c+d x]}{16 b d^2}+\frac{3 a^2 f^2 (e+f x) \text{Sinh}[c+d x]^2}{4 b^3 d^3}+\frac{a^2 (e+f x)^3 \text{Sinh}[c+d x]^2}{2 b^3 d}$$

Result (type 4, 8926 leaves):

$$-\frac{e^3\,\text{Log}[a+b\,\text{Sinh}[c+d\,x]]}{8\,b\,d}-\frac{1}{8\,b\,d^2}$$

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

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

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

$$\frac{1}{8\,b\,d^3}e\,f^2\left(-d^3\,x^3+3\,d^2\,x^2\,\text{Log}\left[1+\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+3\,d^2\,x^2\,\text{Log}\left[1+\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+6\,d\,x\,\text{PolyLog}\left[2,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+\right.$$

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

$$\frac{1}{32\,b\,d^4}\,f^3\left(-d^4\,x^4+4\,d^3\,x^3\,\text{Log}\left[1+\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+4\,d^3\,x^3\,\text{Log}\left[1+\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+12\,d^2\,x^2\,\text{PolyLog}\left[2,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+\right.$$

$$12\,d^2\,x^2\,\text{PolyLog}\left[2,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]-24\,d\,x\,\text{PolyLog}\left[3,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]-$$

$$\left.24\,d\,x\,\text{PolyLog}\left[3,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+24\,\text{PolyLog}\left[4,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+24\,\text{PolyLog}\left[4,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]\right)+$$

$$\frac{1}{32\,b^3}\,e\,f^2\left(2\left(4\,a^2+b^2\right)x^3\,\text{Coth}[c]-\frac{1}{d^3\left(-1+e^{2\,c}\right)}\,2\left(4\,a^2+b^2\right)\left(2\,d^3\,e^{2\,c}\,x^3+3\,d^2\,x^2\,\text{Log}\left[1+\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]-3\,d^2\,e^{2\,c}\,x^2\right.\right.$$

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

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

$$\left.6\, e^{2c}\, \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a\, e^{c}-\sqrt{\left(a^{2}+b^{2}\right) e^{2c}}}\right]-6\, \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a\, e^{c}+\sqrt{\left(a^{2}+b^{2}\right) e^{2c}}}\right]+6\, e^{2c}\, \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a\, e^{c}+\sqrt{\left(a^{2}+b^{2}\right) e^{2c}}}\right]\right)-$$

$$\frac{24\, a\, b\, \text{Cosh}[d\, x]\left(-2\, d\, x\, \text{Cosh}[c]+\left(2+d^{2} x^{2}\right) \text{Sinh}[c]\right)}{d^{3}}+\frac{3\, b^{2}\, \text{Cosh}[2\, d\, x]\left(\left(1+2\, d^{2} x^{2}\right) \text{Cosh}[2\, c]-2\, d\, x\, \text{Sinh}[2\, c]\right)}{d^{3}}-$$

$$\left.\frac{24\, a\, b\left(\left(2+d^{2} x^{2}\right) \text{Cosh}[c]-2\, d\, x\, \text{Sinh}[c]\right) \text{Sinh}[d\, x]}{d^{3}}+\frac{3\, b^{2}\left(-2\, d\, x\, \text{Cosh}[2\, c]+\left(1+2\, d^{2} x^{2}\right) \text{Sinh}[2\, c]\right) \text{Sinh}[2\, d\, x]}{d^{3}}\right)+$$

$$\frac{1}{64\, b^{3}} f^{3}\left(\left(4\, a^{2}+b^{2}\right) x^{4}\, \text{Coth}[c]-\frac{1}{d^{4}\left(-1+e^{2c}\right)} 2\left(4\, a^{2}+b^{2}\right)\left(d^{4}\, e^{2c}\, x^{4}+2\, d^{3} x^{3}\, \text{Log}\left[1+\frac{b\, e^{2c+dx}}{a\, e^{c}-\sqrt{\left(a^{2}+b^{2}\right) e^{2c}}}\right]-\right.\right.$$

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

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

$$12\, d\, x\, \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a\, e^{c}-\sqrt{\left(a^{2}+b^{2}\right) e^{2c}}}\right]+12\, d\, e^{2c}\, x\, \text{PolyLog}\left[3,-\frac{b\, e^{2c+dx}}{a\, e^{c}-\sqrt{\left(a^{2}+b^{2}\right) e^{2c}}}\right]-$$

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

$$\left.12\, e^{2c}\, \text{PolyLog}\left[4,-\frac{b\, e^{2c+dx}}{a\, e^{c}-\sqrt{\left(a^{2}+b^{2}\right) e^{2c}}}\right]+12\, \text{PolyLog}\left[4,-\frac{b\, e^{2c+dx}}{a\, e^{c}+\sqrt{\left(a^{2}+b^{2}\right) e^{2c}}}\right]-12\, e^{2c}\, \text{PolyLog}\left[4,-\frac{b\, e^{2c+dx}}{a\, e^{c}+\sqrt{\left(a^{2}+b^{2}\right) e^{2c}}}\right]\right)-$$

$$\frac{16\, a\, b\, \text{Cosh}[d\, x]\left(-3\left(2+d^{2} x^{2}\right) \text{Cosh}[c]+d\, x\left(6+d^{2} x^{2}\right) \text{Sinh}[c]\right)}{d^{4}}+\frac{b^{2}\, \text{Cosh}[2\, d\, x]\left(2\, d\, x\left(3+2\, d^{2} x^{2}\right) \text{Cosh}[2\, c]-3\left(1+2\, d^{2} x^{2}\right) \text{Sinh}[2\, c]\right)}{d^{4}}-$$

$$\left.\frac{16\, a\, b\left(d\, x\left(6+d^{2} x^{2}\right) \text{Cosh}[c]-3\left(2+d^{2} x^{2}\right) \text{Sinh}[c]\right) \text{Sinh}[d\, x]}{d^{4}}+\frac{b^{2}\left(-3\left(1+2\, d^{2} x^{2}\right) \text{Cosh}[2\, c]+2\, d\, x\left(3+2\, d^{2} x^{2}\right) \text{Sinh}[2\, c]\right) \text{Sinh}[2\, d\, x]}{d^{4}}\right)+$$

$$\frac{e^{3}\left(b^{2}\, \text{Cosh}[2\left(c+d\, x\right)]+\left(4\, a^{2}+b^{2}\right) \text{Log}[a+b\, \text{Sinh}[c+d\, x]]-4\, a\, b\, \text{Sinh}[c+d\, x]\right)}{16\, b^{3}\, d}+$$

$$\frac{1}{32\, b^{3}\, d^{2}}$$

$$3\, e^{2}\, f$$

$$\left(8\,a\,b\,\text{Cosh}[c+d\,x]+2\,b^2\,d\,x\,\text{Cosh}[2\,(c+d\,x)]-8\,a^2\,c\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]-2\,b^2\,c\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]+\right.$$

$$8\,a^2\left(-\frac{1}{8}\,(2\,c+i\,\pi+2\,d\,x)^2-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+i\,b)\,\text{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{a^2+b^2}}\right]+\frac{1}{2}\left(2\,c+i\,\pi+2\,d\,x+4\,i\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\right)\right.$$

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

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

$$2\,b^2\left(-\frac{1}{8}\,(2\,c+i\,\pi+2\,d\,x)^2-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+i\,b)\,\text{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{a^2+b^2}}\right]+\right.$$

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

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

$$\text{PolyLog}\left[2, \frac{\left(a-\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right] + \text{PolyLog}\left[2, \frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]\Bigg) - 8 a b d x \,\text{Sinh}[c+d x] - b^2 \,\text{Sinh}[2 (c+d x)]\Bigg) +$$

$$\frac{1}{96 b^5 d} e^3 \Big(6 b^2 (4 a^2+b^2) \,\text{Cosh}[2 (c+d x)] + 3 b^4 \,\text{Cosh}[4 (c+d x)] + 6 (16 a^4+12 a^2 b^2+b^4) \,\text{Log}[a+b \,\text{Sinh}[c+d x]] -$$
$$48 a b (2 a^2+b^2) \,\text{Sinh}[c+d x] - 8 a b^3 \,\text{Sinh}[3 (c+d x)]\Big) +$$

$$\frac{1}{384 b^5 d^2} e^2 f \Bigg(576 a b (2 a^2+b^2) \,\text{Cosh}[c+d x] + 72 b^2 (4 a^2+b^2) d x \,\text{Cosh}[2 (c+d x)] + 32 a b^3 \,\text{Cosh}[3 (c+d x)] +$$

$$36 b^4 d x \,\text{Cosh}[4 (c+d x)] - 1152 a^4 c \,\text{Log}\left[1+\frac{b \,\text{Sinh}[c+d x]}{a}\right] - 864 a^2 b^2 c \,\text{Log}\left[1+\frac{b \,\text{Sinh}[c+d x]}{a}\right] - 72 b^4 c \,\text{Log}\left[1+\frac{b \,\text{Sinh}[c+d x]}{a}\right] +$$

$$1152 a^4 \Bigg(-\frac{1}{8} (2 c + i \pi + 2 d x)^2 - 4 \,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a + i b) \,\text{Cot}\left[\frac{1}{4} (2 i c + \pi + 2 i d x)\right]}{\sqrt{a^2+b^2}}\right] +$$

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

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

$$864 a^2 b^2 \Bigg(-\frac{1}{8} (2 c + i \pi + 2 d x)^2 - 4 \,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a + i b) \,\text{Cot}\left[\frac{1}{4} (2 i c + \pi + 2 i d x)\right]}{\sqrt{a^2+b^2}}\right] +$$

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

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

$$72\,b^4\left(-\frac{1}{8}\,\left(2\,c+i\,\pi+2\,d\,x\right)^2-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{\left(a+i\,b\right)\,\text{Cot}\left[\frac{1}{4}\,\left(2\,i\,c+\pi+2\,i\,d\,x\right)\right]}{\sqrt{a^2+b^2}}\right]+\frac{1}{2}\left(2\,c+i\,\pi+2\,d\,x+4\,i\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\right)\right.$$

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

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

$$\left.576\,a\,b\,\left(2\,a^2+b^2\right)\,d\,x\,\text{Sinh}[c+d\,x]-36\,b^2\,\left(4\,a^2+b^2\right)\,\text{Sinh}\left[2\,\left(c+d\,x\right)\right]-96\,a\,b^3\,d\,x\,\text{Sinh}\left[3\,\left(c+d\,x\right)\right]-9\,b^4\,\text{Sinh}\left[4\,\left(c+d\,x\right)\right]\right)+$$

$$\frac{1}{55\,296\,b^5}\,f^3\left(864\,\left(16\,a^4+12\,a^2\,b^2+b^4\right)\,x^4\,\text{Coth}[c]-\frac{1}{d^4\,\left(-1+e^{2\,c}\right)}\,1728\,\left(16\,a^4+12\,a^2\,b^2+b^4\right)\right.$$

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

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

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

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

$$12\,e^{2c}\,\text{PolyLog}\left[4,-\frac{b\,e^{2c+d\,x}}{a\,e^c-\sqrt{\left(a^2+b^2\right)\,e^{2c}}}\right]+12\,\text{PolyLog}\left[4,-\frac{b\,e^{2c+d\,x}}{a\,e^c+\sqrt{\left(a^2+b^2\right)\,e^{2c}}}\right]-12\,e^{2c}\,\text{PolyLog}\left[4,-\frac{b\,e^{2c+d\,x}}{a\,e^c+\sqrt{\left(a^2+b^2\right)\,e^{2c}}}\right]\Bigg)+$$

$$\frac{13824\,a\,b\,\left(2\,a^2+b^2\right)\,\left(6+6\,d\,x+3\,d^2\,x^2+d^3\,x^3\right)\,\left(\text{Cosh}[c+d\,x]-\text{Sinh}[c+d\,x]\right)}{d^4}-$$

$$\frac{13824\,a\,b\,\left(2\,a^2+b^2\right)\,\left(-6+6\,d\,x-3\,d^2\,x^2+d^3\,x^3\right)\,\left(\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x]\right)}{d^4}+$$

$$\frac{432\,b^2\,\left(4\,a^2+b^2\right)\,\left(3+6\,d\,x+6\,d^2\,x^2+4\,d^3\,x^3\right)\,\left(\text{Cosh}[2\,(c+d\,x)]-\text{Sinh}[2\,(c+d\,x)]\right)}{d^4}+$$

$$\frac{432\,b^2\,\left(4\,a^2+b^2\right)\,\left(-3+6\,d\,x-6\,d^2\,x^2+4\,d^3\,x^3\right)\,\left(\text{Cosh}[2\,(c+d\,x)]+\text{Sinh}[2\,(c+d\,x)]\right)}{d^4}+$$

$$\frac{256\,a\,b^3\,\left(2+6\,d\,x+9\,d^2\,x^2+9\,d^3\,x^3\right)\,\left(\text{Cosh}[3\,(c+d\,x)]-\text{Sinh}[3\,(c+d\,x)]\right)}{d^4}-$$

$$\frac{256\,a\,b^3\,\left(-2+6\,d\,x-9\,d^2\,x^2+9\,d^3\,x^3\right)\,\left(\text{Cosh}[3\,(c+d\,x)]+\text{Sinh}[3\,(c+d\,x)]\right)}{d^4}+$$

$$\frac{27\,b^4\,\left(3+12\,d\,x+24\,d^2\,x^2+32\,d^3\,x^3\right)\,\left(\text{Cosh}[4\,(c+d\,x)]-\text{Sinh}[4\,(c+d\,x)]\right)}{d^4}+$$

$$\left.\frac{27\,b^4\,\left(-3+12\,d\,x-24\,d^2\,x^2+32\,d^3\,x^3\right)\,\left(\text{Cosh}[4\,(c+d\,x)]+\text{Sinh}[4\,(c+d\,x)]\right)}{d^4}\right)+$$

$$\frac{3}{16}\,e\,f^2\,\Bigg(-\frac{1}{3\,b^5\,d^3\,\left(-1+e^{2c}\right)}\left(16\,a^4+12\,a^2\,b^2+b^4\right)\,\Bigg(2\,d^3\,e^{2c}\,x^3+3\,d^2\,x^2\,\text{Log}\left[1+\frac{b\,e^{2c+d\,x}}{a\,e^c-\sqrt{\left(a^2+b^2\right)\,e^{2c}}}\right]-3\,d^2\,e^{2c}\,x^2\,\text{Log}\left[1+\frac{b\,e^{2c+d\,x}}{a\,e^c-\sqrt{\left(a^2+b^2\right)\,e^{2c}}}\right]+$$

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

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

$$6\,e^{2c}\,\mathrm{PolyLog}\left[3,\,-\frac{b\,e^{2c+dx}}{a\,e^{c}-\sqrt{\left(a^2+b^2\right)\,e^{2c}}}\right]-6\,\mathrm{PolyLog}\left[3,\,-\frac{b\,e^{2c+dx}}{a\,e^{c}+\sqrt{\left(a^2+b^2\right)\,e^{2c}}}\right]+6\,e^{2c}\,\mathrm{PolyLog}\left[3,\,-\frac{b\,e^{2c+dx}}{a\,e^{c}+\sqrt{\left(a^2+b^2\right)\,e^{2c}}}\right]\Bigg)+$$

$$\mathrm{Csch}[c]\left(\frac{\mathrm{Cosh}[4c+4dx]}{1728\,b^5\,d^3}-\frac{\mathrm{Sinh}[4c+4dx]}{1728\,b^5\,d^3}\right)\Big(-128\,a\,b^3\,\mathrm{Cosh}[dx]-384\,a\,b^3\,d\,x\,\mathrm{Cosh}[dx]-576\,a\,b^3\,d^2\,x^2\,\mathrm{Cosh}[dx]+128\,a\,b^3\,\mathrm{Cosh}[2c+dx]+$$

$$384\,a\,b^3\,d\,x\,\mathrm{Cosh}[2c+dx]+576\,a\,b^3\,d^2\,x^2\,\mathrm{Cosh}[2c+dx]-864\,a^2\,b^2\,\mathrm{Cosh}[c+2dx]-216\,b^4\,\mathrm{Cosh}[c+2dx]-1728\,a^2\,b^2\,d\,x\,\mathrm{Cosh}[c+2dx]-$$

$$432\,b^4\,d\,x\,\mathrm{Cosh}[c+2dx]-1728\,a^2\,b^2\,d^2\,x^2\,\mathrm{Cosh}[c+2dx]-432\,b^4\,d^2\,x^2\,\mathrm{Cosh}[c+2dx]+864\,a^2\,b^2\,\mathrm{Cosh}[3c+2dx]+216\,b^4\,\mathrm{Cosh}[3c+2dx]+$$

$$1728\,a^2\,b^2\,d\,x\,\mathrm{Cosh}[3c+2dx]+432\,b^4\,d\,x\,\mathrm{Cosh}[3c+2dx]+1728\,a^2\,b^2\,d^2\,x^2\,\mathrm{Cosh}[3c+2dx]+432\,b^4\,d^2\,x^2\,\mathrm{Cosh}[3c+2dx]-$$

$$13\,824\,a^3\,b\,\mathrm{Cosh}[2c+3dx]-6912\,a\,b^3\,\mathrm{Cosh}[2c+3dx]-13\,824\,a^3\,b\,d\,x\,\mathrm{Cosh}[2c+3dx]-6912\,a\,b^3\,d\,x\,\mathrm{Cosh}[2c+3dx]-$$

$$6912\,a^3\,b\,d^2\,x^2\,\mathrm{Cosh}[2c+3dx]-3456\,a\,b^3\,d^2\,x^2\,\mathrm{Cosh}[2c+3dx]+13\,824\,a^3\,b\,\mathrm{Cosh}[4c+3dx]+6912\,a\,b^3\,\mathrm{Cosh}[4c+3dx]+$$

$$13\,824\,a^3\,b\,d\,x\,\mathrm{Cosh}[4c+3dx]+6912\,a\,b^3\,d\,x\,\mathrm{Cosh}[4c+3dx]+6912\,a^3\,b\,d^2\,x^2\,\mathrm{Cosh}[4c+3dx]+3456\,a\,b^3\,d^2\,x^2\,\mathrm{Cosh}[4c+3dx]+$$

$$4608\,a^4\,d^3\,x^3\,\mathrm{Cosh}[3c+4dx]+3456\,a^2\,b^2\,d^3\,x^3\,\mathrm{Cosh}[3c+4dx]+288\,b^4\,d^3\,x^3\,\mathrm{Cosh}[3c+4dx]+4608\,a^4\,d^3\,x^3\,\mathrm{Cosh}[5c+4dx]+$$

$$3456\,a^2\,b^2\,d^3\,x^3\,\mathrm{Cosh}[5c+4dx]+288\,b^4\,d^3\,x^3\,\mathrm{Cosh}[5c+4dx]+13\,824\,a^3\,b\,\mathrm{Cosh}[4c+5dx]+6912\,a\,b^3\,\mathrm{Cosh}[4c+5dx]-$$

$$13\,824\,a^3\,b\,d\,x\,\mathrm{Cosh}[4c+5dx]-6912\,a\,b^3\,d\,x\,\mathrm{Cosh}[4c+5dx]+6912\,a^3\,b\,d^2\,x^2\,\mathrm{Cosh}[4c+5dx]+3456\,a\,b^3\,d^2\,x^2\,\mathrm{Cosh}[4c+5dx]-$$

$$13\,824\,a^3\,b\,\mathrm{Cosh}[6c+5dx]-6912\,a\,b^3\,\mathrm{Cosh}[6c+5dx]+13\,824\,a^3\,b\,d\,x\,\mathrm{Cosh}[6c+5dx]+6912\,a\,b^3\,d\,x\,\mathrm{Cosh}[6c+5dx]-$$

$$6912\,a^3\,b\,d^2\,x^2\,\mathrm{Cosh}[6c+5dx]-3456\,a\,b^3\,d^2\,x^2\,\mathrm{Cosh}[6c+5dx]-864\,a^2\,b^2\,\mathrm{Cosh}[5c+6dx]-216\,b^4\,\mathrm{Cosh}[5c+6dx]+$$

$$1728\,a^2\,b^2\,d\,x\,\mathrm{Cosh}[5c+6dx]+432\,b^4\,d\,x\,\mathrm{Cosh}[5c+6dx]-1728\,a^2\,b^2\,d^2\,x^2\,\mathrm{Cosh}[5c+6dx]-432\,b^4\,d^2\,x^2\,\mathrm{Cosh}[5c+6dx]+$$

$$864\,a^2\,b^2\,\mathrm{Cosh}[7c+6dx]+216\,b^4\,\mathrm{Cosh}[7c+6dx]-1728\,a^2\,b^2\,d\,x\,\mathrm{Cosh}[7c+6dx]-432\,b^4\,d\,x\,\mathrm{Cosh}[7c+6dx]+$$

$$1728\,a^2\,b^2\,d^2\,x^2\,\mathrm{Cosh}[7c+6dx]+432\,b^4\,d^2\,x^2\,\mathrm{Cosh}[7c+6dx]+128\,a\,b^3\,\mathrm{Cosh}[6c+7dx]-384\,a\,b^3\,d\,x\,\mathrm{Cosh}[6c+7dx]+$$

$$576\,a\,b^3\,d^2\,x^2\,\mathrm{Cosh}[6c+7dx]-128\,a\,b^3\,\mathrm{Cosh}[8c+7dx]+384\,a\,b^3\,d\,x\,\mathrm{Cosh}[8c+7dx]-576\,a\,b^3\,d^2\,x^2\,\mathrm{Cosh}[8c+7dx]-$$

$$27\,b^4\,\mathrm{Cosh}[7c+8dx]+108\,b^4\,d\,x\,\mathrm{Cosh}[7c+8dx]-216\,b^4\,d^2\,x^2\,\mathrm{Cosh}[7c+8dx]+27\,b^4\,\mathrm{Cosh}[9c+8dx]-108\,b^4\,d\,x\,\mathrm{Cosh}[9c+8dx]+$$

$$216\,b^4\,d^2\,x^2\,\mathrm{Cosh}[9c+8dx]+54\,b^4\,\mathrm{Sinh}[c]+216\,b^4\,d\,x\,\mathrm{Sinh}[c]+432\,b^4\,d^2\,x^2\,\mathrm{Sinh}[c]-128\,a\,b^3\,\mathrm{Sinh}[dx]-384\,a\,b^3\,d\,x\,\mathrm{Sinh}[dx]-$$

$$576\,a\,b^3\,d^2\,x^2\,\mathrm{Sinh}[dx]+128\,a\,b^3\,\mathrm{Sinh}[2c+dx]+384\,a\,b^3\,d\,x\,\mathrm{Sinh}[2c+dx]+576\,a\,b^3\,d^2\,x^2\,\mathrm{Sinh}[2c+dx]-864\,a^2\,b^2\,\mathrm{Sinh}[c+2dx]-$$

$$216\,b^4\,\mathrm{Sinh}[c+2dx]-1728\,a^2\,b^2\,d\,x\,\mathrm{Sinh}[c+2dx]-432\,b^4\,d\,x\,\mathrm{Sinh}[c+2dx]-1728\,a^2\,b^2\,d^2\,x^2\,\mathrm{Sinh}[c+2dx]-$$

$$432\,b^4\,d^2\,x^2\,\mathrm{Sinh}[c+2dx]+864\,a^2\,b^2\,\mathrm{Sinh}[3c+2dx]+216\,b^4\,\mathrm{Sinh}[3c+2dx]+1728\,a^2\,b^2\,d\,x\,\mathrm{Sinh}[3c+2dx]+$$

$$432\,b^4\,d\,x\,\mathrm{Sinh}[3c+2dx]+1728\,a^2\,b^2\,d^2\,x^2\,\mathrm{Sinh}[3c+2dx]+432\,b^4\,d^2\,x^2\,\mathrm{Sinh}[3c+2dx]-13\,824\,a^3\,b\,\mathrm{Sinh}[2c+3dx]-$$

$$6912\,a\,b^3\,\mathrm{Sinh}[2c+3dx]-13\,824\,a^3\,b\,d\,x\,\mathrm{Sinh}[2c+3dx]-6912\,a\,b^3\,d\,x\,\mathrm{Sinh}[2c+3dx]-6912\,a^3\,b\,d^2\,x^2\,\mathrm{Sinh}[2c+3dx]-$$

$$3456\,a\,b^3\,d^2\,x^2\,\mathrm{Sinh}[2c+3dx]+13\,824\,a^3\,b\,\mathrm{Sinh}[4c+3dx]+6912\,a\,b^3\,\mathrm{Sinh}[4c+3dx]+13\,824\,a^3\,b\,d\,x\,\mathrm{Sinh}[4c+3dx]+$$

$$6912\,a\,b^3\,d\,x\,\mathrm{Sinh}[4c+3dx]+6912\,a^3\,b\,d^2\,x^2\,\mathrm{Sinh}[4c+3dx]+3456\,a\,b^3\,d^2\,x^2\,\mathrm{Sinh}[4c+3dx]+4608\,a^4\,d^3\,x^3\,\mathrm{Sinh}[3c+4dx]+$$

$$3456\,a^2\,b^2\,d^3\,x^3\,\mathrm{Sinh}[3c+4dx]+288\,b^4\,d^3\,x^3\,\mathrm{Sinh}[3c+4dx]+4608\,a^4\,d^3\,x^3\,\mathrm{Sinh}[5c+4dx]+3456\,a^2\,b^2\,d^3\,x^3\,\mathrm{Sinh}[5c+4dx]+$$

$$288\,b^4\,d^3\,x^3\,\mathrm{Sinh}[5c+4dx]+13\,824\,a^3\,b\,\mathrm{Sinh}[4c+5dx]+6912\,a\,b^3\,\mathrm{Sinh}[4c+5dx]-13\,824\,a^3\,b\,d\,x\,\mathrm{Sinh}[4c+5dx]-$$

$$6912\,a\,b^3\,d\,x\,\mathrm{Sinh}[4c+5dx]+6912\,a^3\,b\,d^2\,x^2\,\mathrm{Sinh}[4c+5dx]+3456\,a\,b^3\,d^2\,x^2\,\mathrm{Sinh}[4c+5dx]-13\,824\,a^3\,b\,\mathrm{Sinh}[6c+5dx]-$$

$$6912\,a\,b^3\,\mathrm{Sinh}[6c+5dx]+13\,824\,a^3\,b\,d\,x\,\mathrm{Sinh}[6c+5dx]+6912\,a\,b^3\,d\,x\,\mathrm{Sinh}[6c+5dx]-6912\,a^3\,b\,d^2\,x^2\,\mathrm{Sinh}[6c+5dx]-$$

$$3456\,a\,b^3\,d^2\,x^2\,\mathrm{Sinh}[6c+5dx]-864\,a^2\,b^2\,\mathrm{Sinh}[5c+6dx]-216\,b^4\,\mathrm{Sinh}[5c+6dx]+1728\,a^2\,b^2\,d\,x\,\mathrm{Sinh}[5c+6dx]+$$

$$432\,b^4\,d\,x\,\mathrm{Sinh}[5c+6dx]-1728\,a^2\,b^2\,d^2\,x^2\,\mathrm{Sinh}[5c+6dx]-432\,b^4\,d^2\,x^2\,\mathrm{Sinh}[5c+6dx]+864\,a^2\,b^2\,\mathrm{Sinh}[7c+6dx]+$$

$$216\,b^4\,\mathrm{Sinh}[7c+6dx]-1728\,a^2\,b^2\,d\,x\,\mathrm{Sinh}[7c+6dx]-432\,b^4\,d\,x\,\mathrm{Sinh}[7c+6dx]+1728\,a^2\,b^2\,d^2\,x^2\,\mathrm{Sinh}[7c+6dx]+$$

$$432\,b^4\,d^2\,x^2\,\mathrm{Sinh}[7c+6dx]+128\,a\,b^3\,\mathrm{Sinh}[6c+7dx]-384\,a\,b^3\,d\,x\,\mathrm{Sinh}[6c+7dx]+576\,a\,b^3\,d^2\,x^2\,\mathrm{Sinh}[6c+7dx]-$$

$$128\,a\,b^3\,\mathrm{Sinh}[8c+7dx]+384\,a\,b^3\,d\,x\,\mathrm{Sinh}[8c+7dx]-576\,a\,b^3\,d^2\,x^2\,\mathrm{Sinh}[8c+7dx]-27\,b^4\,\mathrm{Sinh}[7c+8dx]+108\,b^4\,d\,x\,\mathrm{Sinh}[7c+8dx]-$$

$$216\,b^4\,d^2\,x^2\,\mathrm{Sinh}[7c+8dx]+27\,b^4\,\mathrm{Sinh}[9c+8dx]-108\,b^4\,d\,x\,\mathrm{Sinh}[9c+8dx]+216\,b^4\,d^2\,x^2\,\mathrm{Sinh}[9c+8dx]\Big)\Bigg)$$

Problem 373: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2 \operatorname{Cosh}[c+d x]^3 \operatorname{Sinh}[c+d x]^2}{a+b \operatorname{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 819 leaves, 28 steps):

$$\frac{a^2 e f x}{2 b^3 d}-\frac{3 e f x}{16 b d}+\frac{a^2 f^2 x^2}{4 b^3 d}-\frac{3 f^2 x^2}{32 b d}-\frac{a^2 (a^2+b^2) (e+f x)^3}{3 b^5 f}+\frac{2 a^3 f (e+f x) \operatorname{Cosh}[c+d x]}{b^4 d^2}+\frac{4 a f (e+f x) \operatorname{Cosh}[c+d x]}{3 b^2 d^2}+\frac{3 f^2 \operatorname{Cosh}[c+d x]^2}{32 b d^3}+\frac{2 a f (e+f x) \operatorname{Cosh}[c+d x]^3}{9 b^2 d^2}+\frac{f^2 \operatorname{Cosh}[c+d x]^4}{32 b d^3}+\frac{(e+f x)^2 \operatorname{Cosh}[c+d x]^4}{4 b d}+\frac{a^2 (a^2+b^2) (e+f x)^2 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d}+\frac{a^2 (a^2+b^2) (e+f x)^2 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d}+\frac{2 a^2 (a^2+b^2) f (e+f x) \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d^2}+\frac{2 a^2 (a^2+b^2) f (e+f x) \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d^2}-\frac{2 a^2 (a^2+b^2) f^2 \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d^3}-\frac{2 a^2 (a^2+b^2) f^2 \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d^3}-\frac{2 a^3 f^2 \operatorname{Sinh}[c+d x]}{b^4 d^3}-\frac{14 a f^2 \operatorname{Sinh}[c+d x]}{9 b^2 d^3}-\frac{a^3 (e+f x)^2 \operatorname{Sinh}[c+d x]}{b^4 d}-\frac{2 a (e+f x)^2 \operatorname{Sinh}[c+d x]}{3 b^2 d}-\frac{a^2 f (e+f x) \operatorname{Cosh}[c+d x] \operatorname{Sinh}[c+d x]}{2 b^3 d^2}-\frac{3 f (e+f x) \operatorname{Cosh}[c+d x] \operatorname{Sinh}[c+d x]}{16 b d^2}-\frac{a (e+f x)^2 \operatorname{Cosh}[c+d x]^2 \operatorname{Sinh}[c+d x]}{3 b^2 d}-\frac{f (e+f x) \operatorname{Cosh}[c+d x]^3 \operatorname{Sinh}[c+d x]}{8 b d^2}+\frac{a^2 f^2 \operatorname{Sinh}[c+d x]^2}{4 b^3 d^3}+\frac{a^2 (e+f x)^2 \operatorname{Sinh}[c+d x]^2}{2 b^3 d}-\frac{2 a f^2 \operatorname{Sinh}[c+d x]^3}{27 b^2 d^3}$$

Result (type 4, 5436 leaves):

$$-\frac{e^2 \operatorname{Log}[a+b \operatorname{Sinh}[c+d x]]}{8 b d}-$$

$$\frac{1}{4 b d^2} e f \left(-\frac{1}{8} (2 c+i \pi+2 d x)^2-4 \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \operatorname{ArcTan}\left[\frac{(a+i b) \operatorname{Cot}\left[\frac{1}{4} (2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right]+\frac{1}{2} \left(2 c+i \pi+2 d x+4 i \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right]\right)\right.$$

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

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

$$\frac{1}{24 b d^3} f^2 \Bigg(-d^3 x^3+3 d^2 x^2 \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+3 d^2 x^2 \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+6 d x \text{PolyLog}\left[2,-\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+$$

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

$$\frac{1}{96 b^3} f^2 \Bigg(2 \left(4 a^2+b^2\right) x^3 \text{Coth}[c]-\frac{1}{d^3 \left(-1+e^{2 c}\right)} 2 \left(4 a^2+b^2\right) \Bigg(2 d^3 e^{2 c} x^3+3 d^2 x^2 \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-3 d^2 e^{2 c} x^2$$

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

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

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

$$\frac{24 a b \text{Cosh}[d x] \left(-2 d x \text{Cosh}[c]+\left(2+d^2 x^2\right) \text{Sinh}[c]\right)}{d^3}+\frac{3 b^2 \text{Cosh}[2 d x] \left(\left(1+2 d^2 x^2\right) \text{Cosh}[2 c]-2 d x \text{Sinh}[2 c]\right)}{d^3}-$$

$$\frac{24 a b \left(\left(2+d^2 x^2\right) \text{Cosh}[c]-2 d x \text{Sinh}[c]\right) \text{Sinh}[d x]}{d^3}+\frac{3 b^2 \left(-2 d x \text{Cosh}[2 c]+\left(1+2 d^2 x^2\right) \text{Sinh}[2 c]\right) \text{Sinh}[2 d x]}{d^3}\Bigg)+$$

$$\frac{1}{13824 b^5 d^3} e^{-4 c} f^2 \Big(-4608 a^4 d^3 e^{4 c} x^3-3456 a^2 b^2 d^3 e^{4 c} x^3-288 b^4 d^3 e^{4 c} x^3+13824 a^3 b e^{3 c} \text{Cosh}[d x]+6912 a b^3 e^{3 c} \text{Cosh}[d x]-$$

$$13824 a^3 b e^{5 c} \text{Cosh}[d x]-6912 a b^3 e^{5 c} \text{Cosh}[d x]+13824 a^3 b d e^{3 c} x \text{Cosh}[d x]+6912 a b^3 d e^{3 c} x \text{Cosh}[d x]+$$
$$13824 a^3 b d e^{5 c} x \text{Cosh}[d x]+6912 a b^3 d e^{5 c} x \text{Cosh}[d x]+6912 a^3 b d^2 e^{3 c} x^2 \text{Cosh}[d x]+3456 a b^3 d^2 e^{3 c} x^2 \text{Cosh}[d x]-$$
$$6912 a^3 b d^2 e^{5 c} x^2 \text{Cosh}[d x]-3456 a b^3 d^2 e^{5 c} x^2 \text{Cosh}[d x]+864 a^2 b^2 e^{2 c} \text{Cosh}[2 d x]+216 b^4 e^{2 c} \text{Cosh}[2 d x]+864 a^2 b^2 e^{6 c} \text{Cosh}[2 d x]+$$
$$216 b^4 e^{6 c} \text{Cosh}[2 d x]+1728 a^2 b^2 d e^{2 c} x \text{Cosh}[2 d x]+432 b^4 d e^{2 c} x \text{Cosh}[2 d x]-1728 a^2 b^2 d e^{6 c} x \text{Cosh}[2 d x]-$$
$$432 b^4 d e^{6 c} x \text{Cosh}[2 d x]+1728 a^2 b^2 d^2 e^{2 c} x^2 \text{Cosh}[2 d x]+432 b^4 d^2 e^{2 c} x^2 \text{Cosh}[2 d x]+1728 a^2 b^2 d^2 e^{6 c} x^2 \text{Cosh}[2 d x]+$$
$$432 b^4 d^2 e^{6 c} x^2 \text{Cosh}[2 d x]+128 a b^3 e^c \text{Cosh}[3 d x]-128 a b^3 e^{7 c} \text{Cosh}[3 d x]+384 a b^3 d e^c x \text{Cosh}[3 d x]+384 a b^3 d e^{7 c} x \text{Cosh}[3 d x]+$$
$$576 a b^3 d^2 e^c x^2 \text{Cosh}[3 d x]-576 a b^3 d^2 e^{7 c} x^2 \text{Cosh}[3 d x]+27 b^4 \text{Cosh}[4 d x]+27 b^4 e^{8 c} \text{Cosh}[4 d x]+108 b^4 d x \text{Cosh}[4 d x]-$$

$$108\, b^4\, d\, e^{8c}\, x \operatorname{Cosh}[4\, d\, x] + 216\, b^4\, d^2\, x^2 \operatorname{Cosh}[4\, d\, x] + 216\, b^4\, d^2\, e^{8c}\, x^2 \operatorname{Cosh}[4\, d\, x] + 13824\, a^4\, d^2\, e^{4c}\, x^2 \operatorname{Log}\Big[1 + \frac{b\, e^{2c+d x}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\Big] +$$

$$10368\, a^2\, b^2\, d^2\, e^{4c}\, x^2 \operatorname{Log}\Big[1 + \frac{b\, e^{2c+d x}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\Big] + 864\, b^4\, d^2\, e^{4c}\, x^2 \operatorname{Log}\Big[1 + \frac{b\, e^{2c+d x}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\Big] +$$

$$13824\, a^4\, d^2\, e^{4c}\, x^2 \operatorname{Log}\Big[1 + \frac{b\, e^{2c+d x}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\Big] + 10368\, a^2\, b^2\, d^2\, e^{4c}\, x^2 \operatorname{Log}\Big[1 + \frac{b\, e^{2c+d x}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\Big] +$$

$$864\, b^4\, d^2\, e^{4c}\, x^2 \operatorname{Log}\Big[1 + \frac{b\, e^{2c+d x}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\Big] + 1728\, (16\, a^4 + 12\, a^2\, b^2 + b^4)\, d\, e^{4c}\, x \operatorname{PolyLog}\Big[2, -\frac{b\, e^{2c+d x}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\Big] +$$

$$1728\, (16\, a^4 + 12\, a^2\, b^2 + b^4)\, d\, e^{4c}\, x \operatorname{PolyLog}\Big[2, -\frac{b\, e^{2c+d x}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\Big] - 27648\, a^4\, e^{4c} \operatorname{PolyLog}\Big[3, -\frac{b\, e^{2c+d x}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\Big] -$$

$$20736\, a^2\, b^2\, e^{4c} \operatorname{PolyLog}\Big[3, -\frac{b\, e^{2c+d x}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\Big] - 1728\, b^4\, e^{4c} \operatorname{PolyLog}\Big[3, -\frac{b\, e^{2c+d x}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\Big] -$$

$$27648\, a^4\, e^{4c} \operatorname{PolyLog}\Big[3, -\frac{b\, e^{2c+d x}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\Big] - 20736\, a^2\, b^2\, e^{4c} \operatorname{PolyLog}\Big[3, -\frac{b\, e^{2c+d x}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\Big] -$$

$$1728\, b^4\, e^{4c} \operatorname{PolyLog}\Big[3, -\frac{b\, e^{2c+d x}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\Big] - 13824\, a^3\, b\, e^{3c} \operatorname{Sinh}[d\, x] - 6912\, a\, b^3\, e^{3c} \operatorname{Sinh}[d\, x] - 13824\, a^3\, b\, e^{5c} \operatorname{Sinh}[d\, x] -$$

$$6912\, a\, b^3\, e^{5c} \operatorname{Sinh}[d\, x] - 13824\, a^3\, b\, d\, e^{3c}\, x \operatorname{Sinh}[d\, x] - 6912\, a\, b^3\, d\, e^{3c}\, x \operatorname{Sinh}[d\, x] + 13824\, a^3\, b\, d\, e^{5c}\, x \operatorname{Sinh}[d\, x] + 6912\, a\, b^3\, d\, e^{5c}\, x \operatorname{Sinh}[d\, x] -$$
$$6912\, a^3\, b\, d^2\, e^{3c}\, x^2 \operatorname{Sinh}[d\, x] - 3456\, a\, b^3\, d^2\, e^{3c}\, x^2 \operatorname{Sinh}[d\, x] - 6912\, a^3\, b\, d^2\, e^{5c}\, x^2 \operatorname{Sinh}[d\, x] - 3456\, a\, b^3\, d^2\, e^{5c}\, x^2 \operatorname{Sinh}[d\, x] -$$
$$864\, a^2\, b^2\, e^{2c} \operatorname{Sinh}[2\, d\, x] - 216\, b^4\, e^{2c} \operatorname{Sinh}[2\, d\, x] + 864\, a^2\, b^2\, e^{6c} \operatorname{Sinh}[2\, d\, x] + 216\, b^4\, e^{6c} \operatorname{Sinh}[2\, d\, x] - 1728\, a^2\, b^2\, d\, e^{2c}\, x \operatorname{Sinh}[2\, d\, x] -$$
$$432\, b^4\, d\, e^{2c}\, x \operatorname{Sinh}[2\, d\, x] - 1728\, a^2\, b^2\, d\, e^{6c}\, x \operatorname{Sinh}[2\, d\, x] - 432\, b^4\, d\, e^{6c}\, x \operatorname{Sinh}[2\, d\, x] - 1728\, a^2\, b^2\, d^2\, e^{2c}\, x^2 \operatorname{Sinh}[2\, d\, x] -$$
$$432\, b^4\, d^2\, e^{2c}\, x^2 \operatorname{Sinh}[2\, d\, x] + 1728\, a^2\, b^2\, d^2\, e^{6c}\, x^2 \operatorname{Sinh}[2\, d\, x] + 432\, b^4\, d^2\, e^{6c}\, x^2 \operatorname{Sinh}[2\, d\, x] - 128\, a\, b^3\, e^{c} \operatorname{Sinh}[3\, d\, x] - 128\, a\, b^3\, e^{7c} \operatorname{Sinh}[3\, d\, x] -$$
$$384\, a\, b^3\, d\, e^{c}\, x \operatorname{Sinh}[3\, d\, x] + 384\, a\, b^3\, d\, e^{7c}\, x \operatorname{Sinh}[3\, d\, x] - 576\, a\, b^3\, d^2\, e^{c}\, x^2 \operatorname{Sinh}[3\, d\, x] - 576\, a\, b^3\, d^2\, e^{7c}\, x^2 \operatorname{Sinh}[3\, d\, x] - 27\, b^4 \operatorname{Sinh}[4\, d\, x] +$$

$$\left.27\, b^4\, e^{8c} \operatorname{Sinh}[4\, d\, x] - 108\, b^4\, d\, x \operatorname{Sinh}[4\, d\, x] - 108\, b^4\, d\, e^{8c}\, x \operatorname{Sinh}[4\, d\, x] - 216\, b^4\, d^2\, x^2 \operatorname{Sinh}[4\, d\, x] + 216\, b^4\, d^2\, e^{8c}\, x^2 \operatorname{Sinh}[4\, d\, x]\right) +$$

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

$$\frac{1}{16\, b^3\, d^2}$$

$$e\,f\left(8\,a\,b\,\text{Cosh}[c+d\,x]+2\,b^2\,d\,x\,\text{Cosh}\left[2\,(c+d\,x)\right]-8\,a^2\,c\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]-2\,b^2\,c\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]+\right.$$

$$8\,a^2\left(-\frac{1}{8}\,(2\,c+i\,\pi+2\,d\,x)^2-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+i\,b)\,\text{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{a^2+b^2}}\right]+\frac{1}{2}\left(2\,c+i\,\pi+2\,d\,x+4\,i\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\right)\right.$$

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

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

$$2\,b^2\left(-\frac{1}{8}\,(2\,c+i\,\pi+2\,d\,x)^2-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+i\,b)\,\text{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{a^2+b^2}}\right]+\right.$$

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

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

$$\text{PolyLog}\left[2, \frac{\left(a-\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right] + \text{PolyLog}\left[2, \frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]\Bigg) - 8 a b d x \,\text{Sinh}[c+d x] - b^2 \,\text{Sinh}[2 (c+d x)]\Bigg) +$$

$$\frac{1}{96 b^5 d} e^2 \Big(6 b^2 \left(4 a^2+b^2\right) \text{Cosh}[2 (c+d x)] + 3 b^4 \,\text{Cosh}[4 (c+d x)] + 6 \left(16 a^4+12 a^2 b^2+b^4\right) \text{Log}[a+b \,\text{Sinh}[c+d x]] -$$
$$48 a b \left(2 a^2+b^2\right) \text{Sinh}[c+d x] - 8 a b^3 \,\text{Sinh}[3 (c+d x)]\Big) +$$

$$\frac{1}{576 b^5 d^2} e f \Bigg(576 a b \left(2 a^2+b^2\right) \text{Cosh}[c+d x] + 72 b^2 \left(4 a^2+b^2\right) d x \,\text{Cosh}[2 (c+d x)] + 32 a b^3 \,\text{Cosh}[3 (c+d x)] + 36 b^4 d x \,\text{Cosh}[4 (c+d x)] -$$

$$1152 a^4 c \,\text{Log}\left[1+\frac{b \,\text{Sinh}[c+d x]}{a}\right] - 864 a^2 b^2 c \,\text{Log}\left[1+\frac{b \,\text{Sinh}[c+d x]}{a}\right] - 72 b^4 c \,\text{Log}\left[1+\frac{b \,\text{Sinh}[c+d x]}{a}\right] +$$

$$1152 a^4 \Bigg(-\frac{1}{8} (2 c+i \pi+2 d x)^2 - 4 \,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a+i b) \,\text{Cot}\left[\frac{1}{4} (2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right] +$$

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

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

$$864 a^2 b^2 \Bigg(-\frac{1}{8} (2 c+i \pi+2 d x)^2 - 4 \,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a+i b) \,\text{Cot}\left[\frac{1}{4} (2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right] +$$

$$\frac{1}{2}\left(2c+i\pi+2dx+4iArcSin\left[\frac{\sqrt{1+\frac{ia}{b}}}{\sqrt{2}}\right]\right)Log\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]+\frac{1}{2}\left(2c+i\pi+2dx-4iArcSin\left[\frac{\sqrt{1+\frac{ia}{b}}}{\sqrt{2}}\right]\right)$$

$$Log\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]-\frac{1}{2}i\pi Log[a+bSinh[c+dx]]+PolyLog\left[2,\frac{\left(a-\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]+PolyLog\left[2,\frac{\left(a+\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]\Bigg)+$$

$$72b^4\left(-\frac{1}{8}(2c+i\pi+2dx)^2-4ArcSin\left[\frac{\sqrt{1+\frac{ia}{b}}}{\sqrt{2}}\right]ArcTan\left[\frac{(a+ib)Cot\left[\frac{1}{4}(2ic+\pi+2idx)\right]}{\sqrt{a^2+b^2}}\right]+\frac{1}{2}\left(2c+i\pi+2dx+4iArcSin\left[\frac{\sqrt{1+\frac{ia}{b}}}{\sqrt{2}}\right]\right)\right.$$

$$Log\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]+\frac{1}{2}\left(2c+i\pi+2dx-4iArcSin\left[\frac{\sqrt{1+\frac{ia}{b}}}{\sqrt{2}}\right]\right)Log\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]-$$

$$\left.\frac{1}{2}i\pi Log[a+bSinh[c+dx]]+PolyLog\left[2,\frac{\left(a-\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]+PolyLog\left[2,\frac{\left(a+\sqrt{a^2+b^2}\right)e^{c+dx}}{b}\right]\right)-$$

$$576ab\left(2a^2+b^2\right)dxSinh[c+dx]-36b^2\left(4a^2+b^2\right)Sinh[2(c+dx)]-96ab^3dxSinh[3(c+dx)]-9b^4Sinh[4(c+dx)]\Bigg)$$

Problem 374: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(e+fx)\,Cosh[c+dx]^3\,Sinh[c+dx]^2}{a+bSinh[c+dx]}\,dx$$

Optimal (type 4, 499 leaves, 22 steps):

$$\frac{a^2 f x}{4 b^3 d}-\frac{3 f x}{32 b d}-\frac{a^2 \left(a^2+b^2\right) (e+f x)^2}{2 b^5 f}+\frac{a^3 f \text{Cosh}[c+d x]}{b^4 d^2}+\frac{2 a f \text{Cosh}[c+d x]}{3 b^2 d^2}+\frac{a f \text{Cosh}[c+d x]^3}{9 b^2 d^2}+\frac{(e+f x) \text{Cosh}[c+d x]^4}{4 b d}+$$
$$\frac{a^2 \left(a^2+b^2\right) (e+f x) \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d}+\frac{a^2 \left(a^2+b^2\right) (e+f x) \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d}+\frac{a^2 \left(a^2+b^2\right) f \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d^2}+$$
$$\frac{a^2 \left(a^2+b^2\right) f \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d^2}-\frac{a^3 (e+f x) \text{Sinh}[c+d x]}{b^4 d}-\frac{2 a (e+f x) \text{Sinh}[c+d x]}{3 b^2 d}-\frac{a^2 f \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 b^3 d^2}-$$
$$\frac{3 f \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{32 b d^2}-\frac{a (e+f x) \text{Cosh}[c+d x]^2 \text{Sinh}[c+d x]}{3 b^2 d}-\frac{f \text{Cosh}[c+d x]^3 \text{Sinh}[c+d x]}{16 b d^2}+\frac{a^2 (e+f x) \text{Sinh}[c+d x]^2}{2 b^3 d}$$

Result (type 4, 1457 leaves):

$$\frac{1}{1152 b^5 d^2}\left(-576 a^4 c^2 f-576 a^2 b^2 c^2 f-576 i a^4 c f \pi-576 i a^2 b^2 c f \pi+144 a^4 f \pi^2+144 a^2 b^2 f \pi^2-1152 a^4 c d f x-1152 a^2 b^2 c d f x-576 i a^4 d f \pi x-\right.$$
$$576 i a^2 b^2 d f \pi x-576 a^4 d^2 f x^2-576 a^2 b^2 d^2 f x^2-4608 a^4 f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a+i b) \text{Cot}\left[\frac{1}{4} (2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right]-$$
$$4608 a^2 b^2 f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a+i b) \text{Cot}\left[\frac{1}{4} (2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right]+1152 a^3 b f \text{Cosh}[c+d x]+$$
$$864 a b^3 f \text{Cosh}[c+d x]+288 a^2 b^2 d e \text{Cosh}[2 (c+d x)]+144 b^4 d e \text{Cosh}[2 (c+d x)]+288 a^2 b^2 d f x \text{Cosh}[2 (c+d x)]+$$
$$144 b^4 d f x \text{Cosh}[2 (c+d x)]+32 a b^3 f \text{Cosh}[3 (c+d x)]+36 b^4 d e \text{Cosh}[4 (c+d x)]+36 b^4 d f x \text{Cosh}[4 (c+d x)]+$$
$$1152 a^4 c f \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+1152 a^2 b^2 c f \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+576 i a^4 f \pi \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+$$
$$576 i a^2 b^2 f \pi \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+1152 a^4 d f x \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+1152 a^2 b^2 d f x \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+$$
$$2304 i a^4 f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+2304 i a^2 b^2 f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+$$
$$1152 a^4 c f \text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+1152 a^2 b^2 c f \text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+576 i a^4 f \pi \text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+$$

$576\,i\,a^2 b^2 f \pi \operatorname{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+1152\, a^4 d f x \operatorname{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+1152\, a^2 b^2 d f x \operatorname{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-$

$2304\, i\, a^4 f \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \operatorname{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-2304\, i\, a^2 b^2 f \operatorname{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \operatorname{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+$

$1152\, a^4 d e \operatorname{Log}[a+b \operatorname{Sinh}[c+d x]]+1152\, a^2 b^2 d e \operatorname{Log}[a+b \operatorname{Sinh}[c+d x]]-576\, i\, a^4 f \pi \operatorname{Log}[a+b \operatorname{Sinh}[c+d x]]-$

$576\, i\, a^2 b^2 f \pi \operatorname{Log}[a+b \operatorname{Sinh}[c+d x]]-1152\, a^4 c f \operatorname{Log}\left[1+\frac{b \operatorname{Sinh}[c+d x]}{a}\right]-1152\, a^2 b^2 c f \operatorname{Log}\left[1+\frac{b \operatorname{Sinh}[c+d x]}{a}\right]+$

$1152\, a^2 \left(a^2+b^2\right) f \operatorname{PolyLog}\left[2, \frac{\left(a-\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+1152\, a^2 \left(a^2+b^2\right) f \operatorname{PolyLog}\left[2, \frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-1152\, a^3 b d e \operatorname{Sinh}[c+d x]-$

$864\, a b^3 d e \operatorname{Sinh}[c+d x]-1152\, a^3 b d f x \operatorname{Sinh}[c+d x]-864\, a b^3 d f x \operatorname{Sinh}[c+d x]-144\, a^2 b^2 f \operatorname{Sinh}[2(c+d x)]-$

$\left.72\, b^4 f \operatorname{Sinh}[2(c+d x)]-96\, a b^3 d e \operatorname{Sinh}[3(c+d x)]-96\, a b^3 d f x \operatorname{Sinh}[3(c+d x)]-9\, b^4 f \operatorname{Sinh}[4(c+d x)]\right)$

Problem 376: Attempted integration timed out after 120 seconds.

$$\int \frac{\operatorname{Cosh}[c+d x]^3 \operatorname{Sinh}[c+d x]^2}{(e+f x)\,(a+b \operatorname{Sinh}[c+d x])}\, dx$$

Optimal (type 9, 38 leaves, 0 steps):

$$\operatorname{Unintegrable}\left[\frac{\operatorname{Cosh}[c+d x]^3 \operatorname{Sinh}[c+d x]^2}{(e+f x)\,(a+b \operatorname{Sinh}[c+d x])}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 381: Attempted integration timed out after 120 seconds.

$$\int \frac{\operatorname{Sinh}[c+d x] \operatorname{Tanh}[c+d x]}{(e+f x)\,(a+b \operatorname{Sinh}[c+d x])}\, dx$$

Optimal (type 9, 34 leaves, 0 steps):

$$\operatorname{Unintegrable}\left[\frac{\operatorname{Sinh}[c+d x] \operatorname{Tanh}[c+d x]}{(e+f x)\,(a+b \operatorname{Sinh}[c+d x])}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 384: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{(e+f x)\,\text{Tanh}[c+d x]^2}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 385 leaves, 21 steps):

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

Result (type 4, 432 leaves):

$$\frac{1}{2 d^2}\Bigg(-\frac{2 i f\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{a-i b}+\frac{2 i f\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{a+i b}+$$
$$\frac{f\,\text{Log}[\text{Cosh}[c+d x]]}{a-i b}+\frac{f\,\text{Log}[\text{Cosh}[c+d x]]}{a+i b}-\frac{1}{\left(-(a^2+b^2)^2\right)^{3/2}}2 a^2 (a^2+b^2)\Bigg(2\sqrt{a^2+b^2}\,d\,e\,\text{ArcTan}\left[\frac{a+b\,e^{c+d x}}{\sqrt{-a^2-b^2}}\right]-$$
$$2\sqrt{a^2+b^2}\,c\,f\,\text{ArcTan}\left[\frac{a+b\,e^{c+d x}}{\sqrt{-a^2-b^2}}\right]+\sqrt{-a^2-b^2}\,f\,(c+d x)\,\text{Log}\left[1+\frac{b\,e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\,f\,(c+d x)\,\text{Log}\left[1+\frac{b\,e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]+$$
$$\sqrt{-a^2-b^2}\,f\,\text{PolyLog}\left[2,\frac{b\,e^{c+d x}}{-a+\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\,f\,\text{PolyLog}\left[2,-\frac{b\,e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]\Bigg)-\frac{2 d\,(e+f x)\,\text{Sech}[c+d x]\,(b+a\,\text{Sinh}[c+d x])}{a^2+b^2}\Bigg)$$

Problem 386: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Tanh}[c+d x]^2}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])}\,dx$$

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

$$\text{Unintegrable}\left[\frac{\text{Tanh}[c+d\,x]^2}{(e+f\,x)\,(a+b\,\text{Sinh}[c+d\,x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 387: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f\,x)^2\,\text{Sech}[c+d\,x]\,\text{Tanh}[c+d\,x]^2}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 1256 leaves, 53 steps):

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

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

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

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

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

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

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

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

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

Result (type 4, 3124 leaves) :

$$-\frac{1}{6\left(a^2+b^2\right)^2 d^3\left(1+e^{2c}\right)}\left(-12 a^2 b d^3 e^2 e^{2c} x-12 a^2 b d e^{2c} f^2 x-12 b^3 d e^{2c} f^2 x-12 a^2 b d^3 e\, e^{2c} f x^2-4 a^2 b d^3 e^{2c} f^2 x^3-6 a^3 d^2 e^2 \text{ArcTan}\left[e^{c+dx}\right]+\right.$$

$$6 a b^2 d^2 e^2 \text{ArcTan}\left[e^{c+dx}\right]-6 a^3 d^2 e^2 e^{2c} \text{ArcTan}\left[e^{c+dx}\right]+6 a b^2 d^2 e^2 e^{2c} \text{ArcTan}\left[e^{c+dx}\right]-12 a^3 f^2 \text{ArcTan}\left[e^{c+dx}\right]-12 a b^2 f^2 \text{ArcTan}\left[e^{c+dx}\right]-$$

$$12 a^3 e^{2c} f^2 \text{ArcTan}\left[e^{c+dx}\right]-12 a b^2 e^{2c} f^2 \text{ArcTan}\left[e^{c+dx}\right]-6 i a^3 d^2 e f x \text{Log}\left[1-i e^{c+dx}\right]+6 i a b^2 d^2 e f x \text{Log}\left[1-i e^{c+dx}\right]-$$

$$6 i a^3 d^2 e\, e^{2c} f x \text{Log}\left[1-i e^{c+dx}\right]+6 i a b^2 d^2 e\, e^{2c} f x \text{Log}\left[1-i e^{c+dx}\right]-3 i a^3 d^2 f^2 x^2 \text{Log}\left[1-i e^{c+dx}\right]+3 i a b^2 d^2 f^2 x^2 \text{Log}\left[1-i e^{c+dx}\right]-$$

$$3 i a^3 d^2 e^{2c} f^2 x^2 \text{Log}\left[1-i e^{c+dx}\right]+3 i a b^2 d^2 e^{2c} f^2 x^2 \text{Log}\left[1-i e^{c+dx}\right]+6 i a^3 d^2 e f x \text{Log}\left[1+i e^{c+dx}\right]-6 i a b^2 d^2 e f x \text{Log}\left[1+i e^{c+dx}\right]+$$

$$6 i a^3 d^2 e\, e^{2c} f x \text{Log}\left[1+i e^{c+dx}\right]-6 i a b^2 d^2 e\, e^{2c} f x \text{Log}\left[1+i e^{c+dx}\right]+3 i a^3 d^2 f^2 x^2 \text{Log}\left[1+i e^{c+dx}\right]-3 i a b^2 d^2 f^2 x^2 \text{Log}\left[1+i e^{c+dx}\right]+$$

$$3 i a^3 d^2 e^{2c} f^2 x^2 \text{Log}\left[1+i e^{c+dx}\right]-3 i a b^2 d^2 e^{2c} f^2 x^2 \text{Log}\left[1+i e^{c+dx}\right]+6 a^2 b d^2 e^2 \text{Log}\left[1+e^{2(c+dx)}\right]+6 a^2 b d^2 e^2 e^{2c} \text{Log}\left[1+e^{2(c+dx)}\right]+$$

$$6 a^2 b f^2 \text{Log}\left[1+e^{2(c+dx)}\right]+6 b^3 f^2 \text{Log}\left[1+e^{2(c+dx)}\right]+6 a^2 b e^{2c} f^2 \text{Log}\left[1+e^{2(c+dx)}\right]+6 b^3 e^{2c} f^2 \text{Log}\left[1+e^{2(c+dx)}\right]+$$

$$12 a^2 b d^2 e f x \text{Log}\left[1+e^{2(c+dx)}\right]+12 a^2 b d^2 e\, e^{2c} f x \text{Log}\left[1+e^{2(c+dx)}\right]+6 a^2 b d^2 f^2 x^2 \text{Log}\left[1+e^{2(c+dx)}\right]+6 a^2 b d^2 e^{2c} f^2 x^2 \text{Log}\left[1+e^{2(c+dx)}\right]+$$

$$6 i a\left(a^2-b^2\right) d\left(1+e^{2c}\right) f(e+f x) \text{PolyLog}\left[2,-i e^{c+dx}\right]-6 i a\left(a^2-b^2\right) d\left(1+e^{2c}\right) f(e+f x) \text{PolyLog}\left[2, i e^{c+dx}\right]+$$

$$6 a^2 b d e f \text{PolyLog}\left[2,-e^{2(c+dx)}\right]+6 a^2 b d e\, e^{2c} f \text{PolyLog}\left[2,-e^{2(c+dx)}\right]+6 a^2 b d f^2 x \text{PolyLog}\left[2,-e^{2(c+dx)}\right]+$$

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

$$6 i a b^2 e^{2c} f^2 \text{PolyLog}\left[3,-i e^{c+dx}\right]+6 i a^3 f^2 \text{PolyLog}\left[3, i e^{c+dx}\right]-6 i a b^2 f^2 \text{PolyLog}\left[3, i e^{c+dx}\right]+6 i a^3 e^{2c} f^2 \text{PolyLog}\left[3, i e^{c+dx}\right]-$$

$$\left.6 i a b^2 e^{2c} f^2 \text{PolyLog}\left[3, i e^{c+dx}\right]-3 a^2 b f^2 \text{PolyLog}\left[3,-e^{2(c+dx)}\right]-3 a^2 b e^{2c} f^2 \text{PolyLog}\left[3,-e^{2(c+dx)}\right]\right)-$$

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

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

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

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

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

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

$$\left.6 e^{2c} f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]-6 f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+6 e^{2c} f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]\right)+$$

$$\frac{1}{24\left(a^2+b^2\right)^2 d^2} \text{Csch}[c] \text{Sech}[c] \text{Sech}[c+d x]^2\left(6 a^2 b e f+6 b^3 e f+12 a^2 b d^2 e^2 x+6 a^2 b f^2 x+6 b^3 f^2 x+12 a^2 b d^2 e f x^2+4 a^2 b d^2 f^2 x^3-\right.$$

$6 a^2 b e f \text{Cosh}[2 c] - 6 b^3 e f \text{Cosh}[2 c] - 6 a^2 b f^2 x \text{Cosh}[2 c] - 6 b^3 f^2 x \text{Cosh}[2 c] - 6 a^2 b e f \text{Cosh}[2 d x] - 6 b^3 e f \text{Cosh}[2 d x] -$
$6 a^2 b f^2 x \text{Cosh}[2 d x] - 6 b^3 f^2 x \text{Cosh}[2 d x] + 3 a^3 d e^2 \text{Cosh}[c - d x] + 3 a b^2 d e^2 \text{Cosh}[c - d x] + 6 a^3 d e f x \text{Cosh}[c - d x] +$
$6 a b^2 d e f x \text{Cosh}[c - d x] + 3 a^3 d f^2 x^2 \text{Cosh}[c - d x] + 3 a b^2 d f^2 x^2 \text{Cosh}[c - d x] - 3 a^3 d e^2 \text{Cosh}[3 c + d x] - 3 a b^2 d e^2 \text{Cosh}[3 c + d x] -$
$6 a^3 d e f x \text{Cosh}[3 c + d x] - 6 a b^2 d e f x \text{Cosh}[3 c + d x] - 3 a^3 d f^2 x^2 \text{Cosh}[3 c + d x] - 3 a b^2 d f^2 x^2 \text{Cosh}[3 c + d x] +$
$6 a^2 b e f \text{Cosh}[2 c + 2 d x] + 6 b^3 e f \text{Cosh}[2 c + 2 d x] + 12 a^2 b d^2 e^2 x \text{Cosh}[2 c + 2 d x] + 6 a^2 b f^2 x \text{Cosh}[2 c + 2 d x] + 6 b^3 f^2 x \text{Cosh}[2 c + 2 d x] +$
$12 a^2 b d^2 e f x^2 \text{Cosh}[2 c + 2 d x] + 4 a^2 b d^2 f^2 x^3 \text{Cosh}[2 c + 2 d x] - 6 a^2 b d e^2 \text{Sinh}[2 c] - 6 b^3 d e^2 \text{Sinh}[2 c] - 12 a^2 b d e f x \text{Sinh}[2 c] -$
$12 b^3 d e f x \text{Sinh}[2 c] - 6 a^2 b d f^2 x^2 \text{Sinh}[2 c] - 6 b^3 d f^2 x^2 \text{Sinh}[2 c] - 6 a^3 e f \text{Sinh}[c - d x] - 6 a b^2 e f \text{Sinh}[c - d x] - 6 a^3 f^2 x \text{Sinh}[c - d x] -$
$6 a b^2 f^2 x \text{Sinh}[c - d x] - 6 a^3 e f \text{Sinh}[3 c + d x] - 6 a b^2 e f \text{Sinh}[3 c + d x] - 6 a^3 f^2 x \text{Sinh}[3 c + d x] - 6 a b^2 f^2 x \text{Sinh}[3 c + d x]\Big)$

Problem 390: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sech}[c + d x] \, \text{Tanh}[c + d x]^2}{(e + f x) \, (a + b \, \text{Sinh}[c + d x])} \, dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sech}[c + d x] \, \text{Tanh}[c + d x]^2}{(e + f x) \, (a + b \, \text{Sinh}[c + d x])}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 391: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e + f x)^3 \, \text{Cosh}[c + d x] \, \text{Sinh}[c + d x]^3}{a + b \, \text{Sinh}[c + d x]} \, dx$$

Optimal (type 4, 792 leaves, 30 steps):

$$-\frac{3 a f^3 x}{8 b^2 d^3}-\frac{a (e+f x)^3}{4 b^2 d}+\frac{a^3 (e+f x)^4}{4 b^4 f}-\frac{6 a^2 f^3 \text{Cosh}[c+d x]}{b^3 d^4}+\frac{14 f^3 \text{Cosh}[c+d x]}{9 b d^4}-\frac{3 a^2 f (e+f x)^2 \text{Cosh}[c+d x]}{b^3 d^2}+\frac{2 f (e+f x)^2 \text{Cosh}[c+d x]}{3 b d^2}-$$
$$\frac{2 f^3 \text{Cosh}[c+d x]^3}{27 b d^4}-\frac{a^3 (e+f x)^3 \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d}-\frac{a^3 (e+f x)^3 \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d}-\frac{3 a^3 f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d^2}-$$
$$\frac{3 a^3 f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d^2}+\frac{6 a^3 f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d^3}+\frac{6 a^3 f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d^3}-$$
$$\frac{6 a^3 f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d^4}-\frac{6 a^3 f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d^4}+\frac{6 a^2 f^2 (e+f x) \text{Sinh}[c+d x]}{b^3 d^3}-\frac{4 f^2 (e+f x) \text{Sinh}[c+d x]}{3 b d^3}+$$
$$\frac{a^2 (e+f x)^3 \text{Sinh}[c+d x]}{b^3 d}+\frac{3 a f^3 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{8 b^2 d^4}+\frac{3 a f (e+f x)^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 b^2 d^2}-\frac{3 a f^2 (e+f x) \text{Sinh}[c+d x]^2}{4 b^2 d^3}-$$
$$\frac{a (e+f x)^3 \text{Sinh}[c+d x]^2}{2 b^2 d}-\frac{f (e+f x)^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]^2}{3 b d^2}+\frac{2 f^2 (e+f x) \text{Sinh}[c+d x]^3}{9 b d^3}+\frac{(e+f x)^3 \text{Sinh}[c+d x]^3}{3 b d}$$

Result (type 4, 4308 leaves) :

$$\frac{1}{864 b^4 d^4}$$
$$e^{-3 c} \Bigg(1296 a^3 c^2 d^2 e^2 e^{3 c} f+1296 i a^3 c d^2 e^2 e^{3 c} f \pi-324 a^3 d^2 e^2 e^{3 c} f \pi^2+2592 a^3 c d^3 e^2 e^{3 c} f x+1296 i a^3 d^3 e^2 e^{3 c} f \pi x+1296 a^3 d^4 e^2 e^{3 c} f x^2+$$
$$864 a^3 d^4 e e^{3 c} f^2 x^3+216 a^3 d^4 e^{3 c} f^3 x^4+10368 a^3 d^2 e^2 e^{3 c} f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a+i b) \text{Cot}\left[\frac{1}{4} (2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right]-$$
$$2592 a^2 b d e e^{2 c} f^2 \text{Cosh}[d x]+648 b^3 d e e^{2 c} f^2 \text{Cosh}[d x]+2592 a^2 b d e e^{4 c} f^2 \text{Cosh}[d x]-648 b^3 d e e^{4 c} f^2 \text{Cosh}[d x]-$$
$$2592 a^2 b e^{2 c} f^3 \text{Cosh}[d x]+648 b^3 e^{2 c} f^3 \text{Cosh}[d x]-2592 a^2 b e^{4 c} f^3 \text{Cosh}[d x]+648 b^3 e^{4 c} f^3 \text{Cosh}[d x]-2592 a^2 b d^2 e e^{2 c} f^2 x \text{Cosh}[d x]+$$
$$648 b^3 d^2 e e^{2 c} f^2 x \text{Cosh}[d x]-2592 a^2 b d^2 e e^{4 c} f^2 x \text{Cosh}[d x]+648 b^3 d^2 e e^{4 c} f^2 x \text{Cosh}[d x]-2592 a^2 b d e^{2 c} f^3 x \text{Cosh}[d x]+$$
$$648 b^3 d e^{2 c} f^3 x \text{Cosh}[d x]+2592 a^2 b d e^{4 c} f^3 x \text{Cosh}[d x]-648 b^3 d e^{4 c} f^3 x \text{Cosh}[d x]-1296 a^2 b d^3 e e^{2 c} f^2 x^2 \text{Cosh}[d x]+$$
$$324 b^3 d^3 e e^{2 c} f^2 x^2 \text{Cosh}[d x]+1296 a^2 b d^3 e e^{4 c} f^2 x^2 \text{Cosh}[d x]-324 b^3 d^3 e e^{4 c} f^2 x^2 \text{Cosh}[d x]-1296 a^2 b d^2 e^{2 c} f^3 x^2 \text{Cosh}[d x]+$$
$$324 b^3 d^2 e^{2 c} f^3 x^2 \text{Cosh}[d x]-1296 a^2 b d^2 e^{4 c} f^3 x^2 \text{Cosh}[d x]+324 b^3 d^2 e^{4 c} f^3 x^2 \text{Cosh}[d x]-432 a^2 b d^3 e^{2 c} f^3 x^3 \text{Cosh}[d x]+$$
$$108 b^3 d^3 e^{2 c} f^3 x^3 \text{Cosh}[d x]+432 a^2 b d^3 e^{4 c} f^3 x^3 \text{Cosh}[d x]-108 b^3 d^3 e^{4 c} f^3 x^3 \text{Cosh}[d x]-162 a b^2 d e e^c f^2 \text{Cosh}[2 d x]-$$
$$162 a b^2 d e e^{5 c} f^2 \text{Cosh}[2 d x]-81 a b^2 e^c f^3 \text{Cosh}[2 d x]+81 a b^2 e^{5 c} f^3 \text{Cosh}[2 d x]-324 a b^2 d^2 e e^c f^2 x \text{Cosh}[2 d x]+$$
$$324 a b^2 d^2 e e^{5 c} f^2 x \text{Cosh}[2 d x]-162 a b^2 d e^c f^3 x \text{Cosh}[2 d x]-162 a b^2 d e^{5 c} f^3 x \text{Cosh}[2 d x]-324 a b^2 d^3 e e^c f^2 x^2 \text{Cosh}[2 d x]-$$
$$324 a b^2 d^3 e e^{5 c} f^2 x^2 \text{Cosh}[2 d x]-162 a b^2 d^2 e^c f^3 x^2 \text{Cosh}[2 d x]+162 a b^2 d^2 e^{5 c} f^3 x^2 \text{Cosh}[2 d x]-108 a b^2 d^3 e^c f^3 x^3 \text{Cosh}[2 d x]-$$
$$108 a b^2 d^3 e^{5 c} f^3 x^3 \text{Cosh}[2 d x]-24 b^3 d e f^2 \text{Cosh}[3 d x]+24 b^3 d e e^{6 c} f^2 \text{Cosh}[3 d x]-8 b^3 f^3 \text{Cosh}[3 d x]-8 b^3 e^{6 c} f^3 \text{Cosh}[3 d x]-$$

$$72 b^3 d^2 e f^2 x \operatorname{Cosh}[3 d x] - 72 b^3 d^2 e e^{6 c} f^2 x \operatorname{Cosh}[3 d x] - 24 b^3 d f^3 x \operatorname{Cosh}[3 d x] + 24 b^3 d e^{6 c} f^3 x \operatorname{Cosh}[3 d x] - 108 b^3 d^3 e f^2 x^2 \operatorname{Cosh}[3 d x] +$$
$$108 b^3 d^3 e e^{6 c} f^2 x^2 \operatorname{Cosh}[3 d x] - 36 b^3 d^2 f^3 x^2 \operatorname{Cosh}[3 d x] - 36 b^3 d^2 e^{6 c} f^3 x^2 \operatorname{Cosh}[3 d x] - 36 b^3 d^3 f^3 x^3 \operatorname{Cosh}[3 d x] +$$
$$36 b^3 d^3 e^{6 c} f^3 x^3 \operatorname{Cosh}[3 d x] - 2592 a^2 b d^2 e^2 e^{3 c} f \operatorname{Cosh}[c + d x] + 648 b^3 d^2 e^2 e^{3 c} f \operatorname{Cosh}[c + d x] - 216 a b^2 d^3 e^3 e^{3 c} \operatorname{Cosh}\left[2 \left(c + d x\right)\right] -$$
$$648 a b^2 d^3 e^2 e^{3 c} f x \operatorname{Cosh}\left[2 \left(c + d x\right)\right] - 72 b^3 d^2 e^2 e^{3 c} f \operatorname{Cosh}\left[3 \left(c + d x\right)\right] - 2592 a^3 c d^2 e^2 e^{3 c} f \operatorname{Log}\left[1 + \frac{\left(-a + \sqrt{a^2 + b^2}\right) e^{c+d x}}{b}\right] -$$
$$1296 i a^3 d^2 e^2 e^{3 c} f \pi \operatorname{Log}\left[1 + \frac{\left(-a + \sqrt{a^2 + b^2}\right) e^{c+d x}}{b}\right] - 2592 a^3 d^3 e^2 e^{3 c} f x \operatorname{Log}\left[1 + \frac{\left(-a + \sqrt{a^2 + b^2}\right) e^{c+d x}}{b}\right] -$$
$$5184 i a^3 d^2 e^2 e^{3 c} f \operatorname{ArcSin}\left[\frac{\sqrt{1 + \frac{i a}{b}}}{\sqrt{2}}\right] \operatorname{Log}\left[1 + \frac{\left(-a + \sqrt{a^2 + b^2}\right) e^{c+d x}}{b}\right] - 2592 a^3 c d^2 e^2 e^{3 c} f \operatorname{Log}\left[1 - \frac{\left(a + \sqrt{a^2 + b^2}\right) e^{c+d x}}{b}\right] -$$
$$1296 i a^3 d^2 e^2 e^{3 c} f \pi \operatorname{Log}\left[1 - \frac{\left(a + \sqrt{a^2 + b^2}\right) e^{c+d x}}{b}\right] - 2592 a^3 d^3 e^2 e^{3 c} f x \operatorname{Log}\left[1 - \frac{\left(a + \sqrt{a^2 + b^2}\right) e^{c+d x}}{b}\right] +$$
$$5184 i a^3 d^2 e^2 e^{3 c} f \operatorname{ArcSin}\left[\frac{\sqrt{1 + \frac{i a}{b}}}{\sqrt{2}}\right] \operatorname{Log}\left[1 - \frac{\left(a + \sqrt{a^2 + b^2}\right) e^{c+d x}}{b}\right] - 2592 a^3 d^3 e e^{3 c} f^2 x^2 \operatorname{Log}\left[1 + \frac{b e^{2 c+d x}}{a e^c - \sqrt{\left(a^2 + b^2\right) e^{2 c}}}\right] -$$
$$864 a^3 d^3 e^{3 c} f^3 x^3 \operatorname{Log}\left[1 + \frac{b e^{2 c+d x}}{a e^c - \sqrt{\left(a^2 + b^2\right) e^{2 c}}}\right] - 2592 a^3 d^3 e e^{3 c} f^2 x^2 \operatorname{Log}\left[1 + \frac{b e^{2 c+d x}}{a e^c + \sqrt{\left(a^2 + b^2\right) e^{2 c}}}\right] -$$
$$864 a^3 d^3 e^{3 c} f^3 x^3 \operatorname{Log}\left[1 + \frac{b e^{2 c+d x}}{a e^c + \sqrt{\left(a^2 + b^2\right) e^{2 c}}}\right] - 864 a^3 d^3 e^3 e^{3 c} \operatorname{Log}[a + b \operatorname{Sinh}[c + d x]] + 1296 i a^3 d^2 e^2 e^{3 c} f \pi \operatorname{Log}[a + b \operatorname{Sinh}[c + d x]] +$$
$$2592 a^3 c d^2 e^2 e^{3 c} f \operatorname{Log}\left[1 + \frac{b \operatorname{Sinh}[c + d x]}{a}\right] - 2592 a^3 d^2 e^2 e^{3 c} f \operatorname{PolyLog}\left[2, \frac{\left(a - \sqrt{a^2 + b^2}\right) e^{c+d x}}{b}\right] -$$
$$2592 a^3 d^2 e^2 e^{3 c} f \operatorname{PolyLog}\left[2, \frac{\left(a + \sqrt{a^2 + b^2}\right) e^{c+d x}}{b}\right] - 5184 a^3 d^2 e e^{3 c} f^2 x \operatorname{PolyLog}\left[2, -\frac{b e^{2 c+d x}}{a e^c - \sqrt{\left(a^2 + b^2\right) e^{2 c}}}\right] -$$
$$2592 a^3 d^2 e^{3 c} f^3 x^2 \operatorname{PolyLog}\left[2, -\frac{b e^{2 c+d x}}{a e^c - \sqrt{\left(a^2 + b^2\right) e^{2 c}}}\right] - 5184 a^3 d^2 e e^{3 c} f^2 x \operatorname{PolyLog}\left[2, -\frac{b e^{2 c+d x}}{a e^c + \sqrt{\left(a^2 + b^2\right) e^{2 c}}}\right] -$$
$$2592 a^3 d^2 e^{3 c} f^3 x^2 \operatorname{PolyLog}\left[2, -\frac{b e^{2 c+d x}}{a e^c + \sqrt{\left(a^2 + b^2\right) e^{2 c}}}\right] + 5184 a^3 d e e^{3 c} f^2 \operatorname{PolyLog}\left[3, -\frac{b e^{2 c+d x}}{a e^c - \sqrt{\left(a^2 + b^2\right) e^{2 c}}}\right] +$$
$$5184 a^3 d e^{3 c} f^3 x \operatorname{PolyLog}\left[3, -\frac{b e^{2 c+d x}}{a e^c - \sqrt{\left(a^2 + b^2\right) e^{2 c}}}\right] + 5184 a^3 d e e^{3 c} f^2 \operatorname{PolyLog}\left[3, -\frac{b e^{2 c+d x}}{a e^c + \sqrt{\left(a^2 + b^2\right) e^{2 c}}}\right] +$$

$$5184\, a^3\, d\, e^{3c}\, f^3\, x\, \text{PolyLog}\left[3, -\frac{b\, e^{2c+dx}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\right] - 5184\, a^3\, e^{3c}\, f^3\, \text{PolyLog}\left[4, -\frac{b\, e^{2c+dx}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\right] -$$

$$5184\, a^3\, e^{3c}\, f^3\, \text{PolyLog}\left[4, -\frac{b\, e^{2c+dx}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\right] + 2592\, a^2\, b\, d\, e\, e^{2c}\, f^2\, \text{Sinh}[d\, x] - 648\, b^3\, d\, e\, e^{2c}\, f^2\, \text{Sinh}[d\, x] + 2592\, a^2\, b\, d\, e\, e^{4c}\, f^2\, \text{Sinh}[d\, x] -$$

$$648\, b^3\, d\, e\, e^{4c}\, f^2\, \text{Sinh}[d\, x] + 2592\, a^2\, b\, e^{2c}\, f^3\, \text{Sinh}[d\, x] - 648\, b^3\, e^{2c}\, f^3\, \text{Sinh}[d\, x] - 2592\, a^2\, b\, e^{4c}\, f^3\, \text{Sinh}[d\, x] + 648\, b^3\, e^{4c}\, f^3\, \text{Sinh}[d\, x] +$$
$$2592\, a^2\, b\, d^2\, e\, e^{2c}\, f^2\, x\, \text{Sinh}[d\, x] - 648\, b^3\, d^2\, e\, e^{2c}\, f^2\, x\, \text{Sinh}[d\, x] - 2592\, a^2\, b\, d^2\, e\, e^{4c}\, f^2\, x\, \text{Sinh}[d\, x] + 648\, b^3\, d^2\, e\, e^{4c}\, f^2\, x\, \text{Sinh}[d\, x] +$$
$$2592\, a^2\, b\, d\, e^{2c}\, f^3\, x\, \text{Sinh}[d\, x] - 648\, b^3\, d\, e^{2c}\, f^3\, x\, \text{Sinh}[d\, x] + 2592\, a^2\, b\, d\, e^{4c}\, f^3\, x\, \text{Sinh}[d\, x] - 648\, b^3\, d\, e^{4c}\, f^3\, x\, \text{Sinh}[d\, x] +$$
$$1296\, a^2\, b\, d^3\, e\, e^{2c}\, f^2\, x^2\, \text{Sinh}[d\, x] - 324\, b^3\, d^3\, e\, e^{2c}\, f^2\, x^2\, \text{Sinh}[d\, x] + 1296\, a^2\, b\, d^3\, e\, e^{4c}\, f^2\, x^2\, \text{Sinh}[d\, x] - 324\, b^3\, d^3\, e\, e^{4c}\, f^2\, x^2\, \text{Sinh}[d\, x] +$$
$$1296\, a^2\, b\, d^2\, e^{2c}\, f^3\, x^2\, \text{Sinh}[d\, x] - 324\, b^3\, d^2\, e^{2c}\, f^3\, x^2\, \text{Sinh}[d\, x] - 1296\, a^2\, b\, d^2\, e^{4c}\, f^3\, x^2\, \text{Sinh}[d\, x] + 324\, b^3\, d^2\, e^{4c}\, f^3\, x^2\, \text{Sinh}[d\, x] +$$
$$432\, a^2\, b\, d^3\, e^{2c}\, f^3\, x^3\, \text{Sinh}[d\, x] - 108\, b^3\, d^3\, e^{2c}\, f^3\, x^3\, \text{Sinh}[d\, x] + 432\, a^2\, b\, d^3\, e^{4c}\, f^3\, x^3\, \text{Sinh}[d\, x] - 108\, b^3\, d^3\, e^{4c}\, f^3\, x^3\, \text{Sinh}[d\, x] +$$
$$162\, a\, b^2\, d\, e\, e^c\, f^2\, \text{Sinh}[2\, d\, x] - 162\, a\, b^2\, d\, e\, e^{5c}\, f^2\, \text{Sinh}[2\, d\, x] + 81\, a\, b^2\, e^c\, f^3\, \text{Sinh}[2\, d\, x] + 81\, a\, b^2\, e^{5c}\, f^3\, \text{Sinh}[2\, d\, x] +$$
$$324\, a\, b^2\, d^2\, e\, e^c\, f^2\, x\, \text{Sinh}[2\, d\, x] + 324\, a\, b^2\, d^2\, e\, e^{5c}\, f^2\, x\, \text{Sinh}[2\, d\, x] + 162\, a\, b^2\, d\, e^c\, f^3\, x\, \text{Sinh}[2\, d\, x] - 162\, a\, b^2\, d\, e^{5c}\, f^3\, x\, \text{Sinh}[2\, d\, x] +$$
$$324\, a\, b^2\, d^3\, e\, e^c\, f^2\, x^2\, \text{Sinh}[2\, d\, x] - 324\, a\, b^2\, d^3\, e\, e^{5c}\, f^2\, x^2\, \text{Sinh}[2\, d\, x] + 162\, a\, b^2\, d^2\, e^c\, f^3\, x^2\, \text{Sinh}[2\, d\, x] + 162\, a\, b^2\, d^2\, e^{5c}\, f^3\, x^2\, \text{Sinh}[2\, d\, x] +$$
$$108\, a\, b^2\, d^3\, e^c\, f^3\, x^3\, \text{Sinh}[2\, d\, x] - 108\, a\, b^2\, d^3\, e^{5c}\, f^3\, x^3\, \text{Sinh}[2\, d\, x] + 24\, b^3\, d\, e\, f^2\, \text{Sinh}[3\, d\, x] + 24\, b^3\, d\, e\, e^{6c}\, f^2\, \text{Sinh}[3\, d\, x] + 8\, b^3\, f^3\, \text{Sinh}[3\, d\, x] -$$
$$8\, b^3\, e^{6c}\, f^3\, \text{Sinh}[3\, d\, x] + 72\, b^3\, d^2\, e\, f^2\, x\, \text{Sinh}[3\, d\, x] - 72\, b^3\, d^2\, e\, e^{6c}\, f^2\, x\, \text{Sinh}[3\, d\, x] + 24\, b^3\, d\, f^3\, x\, \text{Sinh}[3\, d\, x] + 24\, b^3\, d\, e^{6c}\, f^3\, x\, \text{Sinh}[3\, d\, x] +$$
$$108\, b^3\, d^3\, e\, f^2\, x^2\, \text{Sinh}[3\, d\, x] + 108\, b^3\, d^3\, e\, e^{6c}\, f^2\, x^2\, \text{Sinh}[3\, d\, x] + 36\, b^3\, d^2\, f^3\, x^2\, \text{Sinh}[3\, d\, x] - 36\, b^3\, d^2\, e^{6c}\, f^3\, x^2\, \text{Sinh}[3\, d\, x] + 36\, b^3\, d^3\, f^3\, x^3\, \text{Sinh}[3\, d\, x] +$$
$$36\, b^3\, d^3\, e^{6c}\, f^3\, x^3\, \text{Sinh}[3\, d\, x] + 864\, a^2\, b\, d^3\, e^3\, e^{3c}\, \text{Sinh}[c + d\, x] - 216\, b^3\, d^3\, e^3\, e^{3c}\, \text{Sinh}[c + d\, x] + 2592\, a^2\, b\, d^3\, e^2\, e^{3c}\, f\, x\, \text{Sinh}[c + d\, x] -$$

$$\left. 648\, b^3\, d^3\, e^2\, e^{3c}\, f\, x\, \text{Sinh}[c + d\, x] + 324\, a\, b^2\, d^2\, e^2\, e^{3c}\, f\, \text{Sinh}[2\, (c + d\, x)] + 72\, b^3\, d^3\, e^3\, e^{3c}\, \text{Sinh}[3\, (c + d\, x)] + 216\, b^3\, d^3\, e^2\, e^{3c}\, f\, x\, \text{Sinh}[3\, (c + d\, x)] \right)$$

Problem 392: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e + f\, x)^2\, \text{Cosh}[c + d\, x]\, \text{Sinh}[c + d\, x]^3}{a + b\, \text{Sinh}[c + d\, x]}\, dx$$

Optimal (type 4, 578 leaves, 22 steps):

$$-\frac{a e f x}{2 b^2 d}-\frac{a f^2 x^2}{4 b^2 d}+\frac{a^3 (e+f x)^3}{3 b^4 f}-\frac{2 a^2 f (e+f x) \text{Cosh}[c+d x]}{b^3 d^2}+\frac{4 f (e+f x) \text{Cosh}[c+d x]}{9 b d^2}-\frac{a^3 (e+f x)^2 \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^4 d}-$$

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

$$\frac{2 a^3 f^2 \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^4 d^3}+\frac{2 a^2 f^2 \text{Sinh}[c+d x]}{b^3 d^3}-\frac{4 f^2 \text{Sinh}[c+d x]}{9 b d^3}+\frac{a^2 (e+f x)^2 \text{Sinh}[c+d x]}{b^3 d}+\frac{a f (e+f x) \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{2 b^2 d^2}-$$

$$\frac{a f^2 \text{Sinh}[c+d x]^2}{4 b^2 d^3}-\frac{a (e+f x)^2 \text{Sinh}[c+d x]^2}{2 b^2 d}-\frac{2 f (e+f x) \text{Cosh}[c+d x] \text{Sinh}[c+d x]^2}{9 b d^2}+\frac{2 f^2 \text{Sinh}[c+d x]^3}{27 b d^3}+\frac{(e+f x)^2 \text{Sinh}[c+d x]^3}{3 b d}$$

Result (type 4, 2318 leaves) :

$$\frac{1}{432 b^4 d^3} e^{-3 c}$$

$$\Big(432 a^3 c^2 d e e^{3 c} f+432 i a^3 c d e e^{3 c} f \pi-108 a^3 d e e^{3 c} f \pi^2+864 a^3 c d^2 e e^{3 c} f x+432 i a^3 d^2 e e^{3 c} f \pi x+432 a^3 d^3 e e^{3 c} f x^2+144 a^3 d^3 e^{3 c} f^2 x^3+$$

$$3456 a^3 d e e^{3 c} f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a+i b) \text{Cot}\left[\frac{1}{4} (2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right]-432 a^2 b e^{2 c} f^2 \text{Cosh}[d x]+108 b^3 e^{2 c} f^2 \text{Cosh}[d x]+$$

$$432 a^2 b e^{4 c} f^2 \text{Cosh}[d x]-108 b^3 e^{4 c} f^2 \text{Cosh}[d x]-432 a^2 b d e^{2 c} f^2 x \text{Cosh}[d x]+108 b^3 d e^{2 c} f^2 x \text{Cosh}[d x]-432 a^2 b d e^{4 c} f^2 x \text{Cosh}[d x]+$$

$$108 b^3 d e^{4 c} f^2 x \text{Cosh}[d x]-216 a^2 b d^2 e^{2 c} f^2 x^2 \text{Cosh}[d x]+54 b^3 d^2 e^{2 c} f^2 x^2 \text{Cosh}[d x]+216 a^2 b d^2 e^{4 c} f^2 x^2 \text{Cosh}[d x]-$$

$$54 b^3 d^2 e^{4 c} f^2 x^2 \text{Cosh}[d x]-27 a b^2 e^c f^2 \text{Cosh}[2 d x]-27 a b^2 e^{5 c} f^2 \text{Cosh}[2 d x]-54 a b^2 d e^c f^2 x \text{Cosh}[2 d x]+$$

$$54 a b^2 d e^{5 c} f^2 x \text{Cosh}[2 d x]-54 a b^2 d^2 e^c f^2 x^2 \text{Cosh}[2 d x]-54 a b^2 d^2 e^{5 c} f^2 x^2 \text{Cosh}[2 d x]-4 b^3 f^2 \text{Cosh}[3 d x]+$$

$$4 b^3 e^{6 c} f^2 \text{Cosh}[3 d x]-12 b^3 d f^2 x \text{Cosh}[3 d x]-12 b^3 d e^{6 c} f^2 x \text{Cosh}[3 d x]-18 b^3 d^2 f^2 x^2 \text{Cosh}[3 d x]+18 b^3 d^2 e^{6 c} f^2 x^2 \text{Cosh}[3 d x]-$$

$$864 a^2 b d e e^{3 c} f \text{Cosh}[c+d x]+216 b^3 d e e^{3 c} f \text{Cosh}[c+d x]-108 a b^2 d^2 e^2 e^{3 c} \text{Cosh}[2 (c+d x)]-216 a b^2 d^2 e e^{3 c} f x \text{Cosh}[2 (c+d x)]-$$

$$24 b^3 d e e^{3 c} f \text{Cosh}[3 (c+d x)]-864 a^3 c d e e^{3 c} f \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-432 i a^3 d e e^{3 c} f \pi \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-$$

$$864 a^3 d^2 e e^{3 c} f x \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-1728 i a^3 d e e^{3 c} f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{Log}\left[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-$$

$$864 a^3 c d e e^{3 c} f \text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-432 i a^3 d e e^{3 c} f \pi \text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-$$

$$864\, a^3 d^2 e\, e^{3c} f x \,\text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]+1728\, i\, a^3 d\, e\, e^{3c} f \,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{Log}\left[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-$$

$$432\, a^3 d^2 e^{3c} f^2 x^2 \,\text{Log}\left[1+\frac{b\, e^{2c+d x}}{a\, e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]-432\, a^3 d^2 e^{3c} f^2 x^2 \,\text{Log}\left[1+\frac{b\, e^{2c+d x}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]-$$

$$432\, a^3 d^2 e^2 e^{3c} \,\text{Log}[a+b \,\text{Sinh}[c+d x]]+432\, i\, a^3 d\, e\, e^{3c} f \pi \,\text{Log}[a+b \,\text{Sinh}[c+d x]]+864\, a^3 c\, d\, e\, e^{3c} f \,\text{Log}\left[1+\frac{b \,\text{Sinh}[c+d x]}{a}\right]-$$

$$864\, a^3 d\, e\, e^{3c} f \,\text{PolyLog}\left[2,\frac{\left(a-\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-864\, a^3 d\, e\, e^{3c} f \,\text{PolyLog}\left[2,\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-$$

$$864\, a^3 d\, e^{3c} f^2 x \,\text{PolyLog}\left[2,-\frac{b\, e^{2c+d x}}{a\, e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]-864\, a^3 d\, e^{3c} f^2 x \,\text{PolyLog}\left[2,-\frac{b\, e^{2c+d x}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+$$

$$864\, a^3 e^{3c} f^2 \,\text{PolyLog}\left[3,-\frac{b\, e^{2c+d x}}{a\, e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+864\, a^3 e^{3c} f^2 \,\text{PolyLog}\left[3,-\frac{b\, e^{2c+d x}}{a\, e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+432\, a^2 b\, e^{2c} f^2 \,\text{Sinh}[d x]-$$

$$108\, b^3 e^{2c} f^2 \,\text{Sinh}[d x]+432\, a^2 b\, e^{4c} f^2 \,\text{Sinh}[d x]-108\, b^3 e^{4c} f^2 \,\text{Sinh}[d x]+432\, a^2 b\, d\, e^{2c} f^2 x \,\text{Sinh}[d x]-108\, b^3 d\, e^{2c} f^2 x \,\text{Sinh}[d x]-$$
$$432\, a^2 b\, d\, e^{4c} f^2 x \,\text{Sinh}[d x]+108\, b^3 d\, e^{4c} f^2 x \,\text{Sinh}[d x]+216\, a^2 b\, d^2 e^{2c} f^2 x^2 \,\text{Sinh}[d x]-54\, b^3 d^2 e^{2c} f^2 x^2 \,\text{Sinh}[d x]+$$
$$216\, a^2 b\, d^2 e^{4c} f^2 x^2 \,\text{Sinh}[d x]-54\, b^3 d^2 e^{4c} f^2 x^2 \,\text{Sinh}[d x]+27\, a\, b^2 e^c f^2 \,\text{Sinh}[2 d x]-27\, a\, b^2 e^{5c} f^2 \,\text{Sinh}[2 d x]+$$
$$54\, a\, b^2 d\, e^c f^2 x \,\text{Sinh}[2 d x]+54\, a\, b^2 d\, e^{5c} f^2 x \,\text{Sinh}[2 d x]+54\, a\, b^2 d^2 e^c f^2 x^2 \,\text{Sinh}[2 d x]-54\, a\, b^2 d^2 e^{5c} f^2 x^2 \,\text{Sinh}[2 d x]+$$
$$4\, b^3 f^2 \,\text{Sinh}[3 d x]+4\, b^3 e^{6c} f^2 \,\text{Sinh}[3 d x]+12\, b^3 d f^2 x \,\text{Sinh}[3 d x]-12\, b^3 d\, e^{6c} f^2 x \,\text{Sinh}[3 d x]+18\, b^3 d^2 f^2 x^2 \,\text{Sinh}[3 d x]+$$
$$18\, b^3 d^2 e^{6c} f^2 x^2 \,\text{Sinh}[3 d x]+432\, a^2 b\, d^2 e^2 e^{3c} \,\text{Sinh}[c+d x]-108\, b^3 d^2 e^2 e^{3c} \,\text{Sinh}[c+d x]+864\, a^2 b\, d^2 e\, e^{3c} f x \,\text{Sinh}[c+d x]-$$

$$\left.216\, b^3 d^2 e\, e^{3c} f x \,\text{Sinh}[c+d x]+108\, a\, b^2 d\, e\, e^{3c} f \,\text{Sinh}[2 (c+d x)]+36\, b^3 d^2 e^2 e^{3c} \,\text{Sinh}[3 (c+d x)]+72\, b^3 d^2 e\, e^{3c} f x \,\text{Sinh}[3 (c+d x)]\right)$$

Problem 393: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x) \,\text{Cosh}[c+d x] \,\text{Sinh}[c+d x]^3}{a+b \,\text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 348 leaves, 18 steps):

$$-\frac{a f x}{4 b^2 d}+\frac{a^3 (e+f x)^2}{2 b^4 f}-\frac{a^2 f \text{Cosh}[c+d x]}{b^3 d^2}+\frac{f \text{Cosh}[c+d x]}{3 b d^2}-\frac{f \text{Cosh}[c+d x]^3}{9 b d^2}-$$

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

$$\frac{a^2 (e+f x) \text{Sinh}[c+d x]}{b^3 d}+\frac{a f \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 b^2 d^2}-\frac{a (e+f x) \text{Sinh}[c+d x]^2}{2 b^2 d}+\frac{(e+f x) \text{Sinh}[c+d x]^3}{3 b d}$$

Result (type 4, 769 leaves) :

$$-\frac{1}{72\, b^4\, d^2}\Bigg(-36\, a^3\, c^2\, f - 36\, i\, a^3\, c\, f\, \pi + 9\, a^3\, f\, \pi^2 - 72\, a^3\, c\, d\, f\, x -$$

$$36\, i\, a^3\, d\, f\, \pi\, x - 36\, a^3\, d^2\, f\, x^2 - 288\, a^3\, f\, \text{ArcSin}\Big[\frac{\sqrt{1+\frac{i\, a}{b}}}{\sqrt{2}}\Big]\, \text{ArcTan}\Big[\frac{(a+i\, b)\, \text{Cot}\big[\frac{1}{4}\,(2\, i\, c+\pi+2\, i\, d\, x)\big]}{\sqrt{a^2+b^2}}\Big] +$$

$$72\, a^2\, b\, f\, \text{Cosh}[c+d\, x] - 18\, b^3\, f\, \text{Cosh}[c+d\, x] + 18\, a\, b^2\, d\, e\, \text{Cosh}[2\,(c+d\, x)] + 18\, a\, b^2\, d\, f\, x\, \text{Cosh}[2\,(c+d\, x)] +$$

$$2\, b^3\, f\, \text{Cosh}[3\,(c+d\, x)] + 72\, a^3\, c\, f\, \text{Log}\Big[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d\, x}}{b}\Big] + 36\, i\, a^3\, f\, \pi\, \text{Log}\Big[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d\, x}}{b}\Big] +$$

$$72\, a^3\, d\, f\, x\, \text{Log}\Big[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d\, x}}{b}\Big] + 144\, i\, a^3\, f\, \text{ArcSin}\Big[\frac{\sqrt{1+\frac{i\, a}{b}}}{\sqrt{2}}\Big]\, \text{Log}\Big[1+\frac{\left(-a+\sqrt{a^2+b^2}\right) e^{c+d\, x}}{b}\Big] +$$

$$72\, a^3\, c\, f\, \text{Log}\Big[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d\, x}}{b}\Big] + 36\, i\, a^3\, f\, \pi\, \text{Log}\Big[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d\, x}}{b}\Big] + 72\, a^3\, d\, f\, x\, \text{Log}\Big[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d\, x}}{b}\Big] -$$

$$144\, i\, a^3\, f\, \text{ArcSin}\Big[\frac{\sqrt{1+\frac{i\, a}{b}}}{\sqrt{2}}\Big]\, \text{Log}\Big[1-\frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d\, x}}{b}\Big] + 72\, a^3\, d\, e\, \text{Log}[a+b\, \text{Sinh}[c+d\, x]] -$$

$$36\, i\, a^3\, f\, \pi\, \text{Log}[a+b\, \text{Sinh}[c+d\, x]] - 72\, a^3\, c\, f\, \text{Log}\Big[1+\frac{b\, \text{Sinh}[c+d\, x]}{a}\Big] + 72\, a^3\, f\, \text{PolyLog}\Big[2,\, \frac{\left(a-\sqrt{a^2+b^2}\right) e^{c+d\, x}}{b}\Big] +$$

$$72\, a^3\, f\, \text{PolyLog}\Big[2,\, \frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d\, x}}{b}\Big] - 72\, a^2\, b\, d\, e\, \text{Sinh}[c+d\, x] + 18\, b^3\, d\, e\, \text{Sinh}[c+d\, x] - 72\, a^2\, b\, d\, f\, x\, \text{Sinh}[c+d\, x] +$$

$$18\, b^3\, d\, f\, x\, \text{Sinh}[c+d\, x] - 9\, a\, b^2\, f\, \text{Sinh}[2\,(c+d\, x)] - 6\, b^3\, d\, e\, \text{Sinh}[3\,(c+d\, x)] - 6\, b^3\, d\, f\, x\, \text{Sinh}[3\,(c+d\, x)]\Bigg)$$

Problem 395: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Cosh}[c+d\, x]\, \text{Sinh}[c+d\, x]^3}{(e+f\, x)\,(a+b\, \text{Sinh}[c+d\, x])}\, dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Cosh}[c+d x]\,\text{Sinh}[c+d x]^3}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 396: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3\,\text{Cosh}[c+d x]^2\,\text{Sinh}[c+d x]^3}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 1038 leaves, 38 steps):

$$\frac{3 a^2 e f^2 x}{4 b^3 d^2}+\frac{3 a^2 f^3 x^2}{8 b^3 d^2}+\frac{a^4 (e+f x)^4}{4 b^5 f}+\frac{a^2 (e+f x)^4}{8 b^3 f}-\frac{(e+f x)^4}{32 b f}-\frac{6 a^3 f^2 (e+f x)\,\text{Cosh}[c+d x]}{b^4 d^3}-\frac{4 a f^2 (e+f x)\,\text{Cosh}[c+d x]}{3 b^2 d^3}-$$
$$\frac{a^3 (e+f x)^3\,\text{Cosh}[c+d x]}{b^4 d}-\frac{3 a^2 f^3\,\text{Cosh}[c+d x]^2}{8 b^3 d^4}-\frac{3 a^2 f (e+f x)^2\,\text{Cosh}[c+d x]^2}{4 b^3 d^2}-\frac{2 a f^2 (e+f x)\,\text{Cosh}[c+d x]^3}{9 b^2 d^3}-$$
$$\frac{a (e+f x)^3\,\text{Cosh}[c+d x]^3}{3 b^2 d}-\frac{3 f^3\,\text{Cosh}[4 c+4 d x]}{1024 b d^4}-\frac{3 f (e+f x)^2\,\text{Cosh}[4 c+4 d x]}{128 b d^2}-\frac{a^3 \sqrt{a^2+b^2}\,(e+f x)^3\,\text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d}+$$
$$\frac{a^3 \sqrt{a^2+b^2}\,(e+f x)^3\,\text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d}-\frac{3 a^3 \sqrt{a^2+b^2}\,f (e+f x)^2\,\text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d^2}+\frac{3 a^3 \sqrt{a^2+b^2}\,f (e+f x)^2\,\text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d^2}+$$
$$\frac{6 a^3 \sqrt{a^2+b^2}\,f^2 (e+f x)\,\text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d^3}-\frac{6 a^3 \sqrt{a^2+b^2}\,f^2 (e+f x)\,\text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d^3}-\frac{6 a^3 \sqrt{a^2+b^2}\,f^3\,\text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d^4}+$$
$$\frac{6 a^3 \sqrt{a^2+b^2}\,f^3\,\text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d^4}+\frac{6 a^3 f^3\,\text{Sinh}[c+d x]}{b^4 d^4}+\frac{14 a f^3\,\text{Sinh}[c+d x]}{9 b^2 d^4}+\frac{3 a^3 f (e+f x)^2\,\text{Sinh}[c+d x]}{b^4 d^2}+$$
$$\frac{2 a f (e+f x)^2\,\text{Sinh}[c+d x]}{3 b^2 d^2}+\frac{3 a^2 f^2 (e+f x)\,\text{Cosh}[c+d x]\,\text{Sinh}[c+d x]}{4 b^3 d^3}+\frac{a^2 (e+f x)^3\,\text{Cosh}[c+d x]\,\text{Sinh}[c+d x]}{2 b^3 d}+$$
$$\frac{a f (e+f x)^2\,\text{Cosh}[c+d x]^2\,\text{Sinh}[c+d x]}{3 b^2 d^2}+\frac{2 a f^3\,\text{Sinh}[c+d x]^3}{27 b^2 d^4}+\frac{3 f^2 (e+f x)\,\text{Sinh}[4 c+4 d x]}{256 b d^3}+\frac{(e+f x)^3\,\text{Sinh}[4 c+4 d x]}{32 b d}$$

Result (type 4, 6403 leaves):

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

$$\frac{3}{8} e^2 f\left(\frac{x^2}{2\, b}+\frac{1}{b\, d^2} a\left(\frac{i\, \pi\, \text{ArcTanh}\left[\frac{-b+a\, \text{Tanh}\left[\frac{1}{2}(c+d\, x)\right]}{\sqrt{a^2+b^2}}\right]}{\sqrt{a^2+b^2}}+\frac{1}{\sqrt{-a^2-b^2}}\left(2\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\text{ArcTanh}\left[\frac{(a-i\, b)\,\text{Cot}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\right.\right.\right.$$

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

$$\left(\text{ArcCos}\left[-\frac{i\, a}{b}\right]-2\, i\left(\text{ArcTanh}\left[\frac{(a-i\, b)\,\text{Cot}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\text{ArcTanh}\left[\frac{(-a-i\, b)\,\text{Tan}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\right)$$

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

$$\left(\text{ArcCos}\left[-\frac{i\, a}{b}\right]+2\, i\left(\text{ArcTanh}\left[\frac{(a-i\, b)\,\text{Cot}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\text{ArcTanh}\left[\frac{(-a-i\, b)\,\text{Tan}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\right)$$

$$\text{Log}\left[\frac{\sqrt{-a^2-b^2}\; e^{\frac{1}{2} i\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)}}{\sqrt{2}\,\sqrt{-i\, b}\,\sqrt{a+b\,\text{Sinh}[c+d\, x]}}\right]-\left(\text{ArcCos}\left[-\frac{i\, a}{b}\right]+2\, i\,\text{ArcTanh}\left[\frac{(-a-i\, b)\,\text{Tan}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)$$

$$\text{Log}\left[1-\frac{i\left(a-i\sqrt{-a^2-b^2}\right)\left(a-i\, b-\sqrt{-a^2-b^2}\;\text{Tan}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]\right)}{b\left(a-i\, b+\sqrt{-a^2-b^2}\;\text{Tan}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]\right)}\right]+\left(-\text{ArcCos}\left[-\frac{i\, a}{b}\right]+\right.$$

$$\left.2\, i\,\text{ArcTanh}\left[\frac{(-a-i\, b)\,\text{Tan}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\text{Log}\left[1-\frac{i\left(a+i\sqrt{-a^2-b^2}\right)\left(a-i\, b-\sqrt{-a^2-b^2}\;\text{Tan}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]\right)}{b\left(a-i\, b+\sqrt{-a^2-b^2}\;\text{Tan}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]\right)}\right]+$$

$$i\left(\text{PolyLog}\left[2,\frac{i\left(a-i\sqrt{-a^2-b^2}\right)\left(a-i\, b-\sqrt{-a^2-b^2}\;\text{Tan}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]\right)}{b\left(a-i\, b+\sqrt{-a^2-b^2}\;\text{Tan}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]\right)}\right]-\right.$$

$$\left.\left.\left.\left.\text{PolyLog}\left[2,\frac{i\left(a+i\sqrt{-a^2-b^2}\right)\left(a-i\, b-\sqrt{-a^2-b^2}\;\text{Tan}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]\right)}{b\left(a-i\, b+\sqrt{-a^2-b^2}\;\text{Tan}\left[\frac{1}{2}\left(-i\, c+\frac{\pi}{2}-i\, d\, x\right)\right]\right)}\right]\right)\right)\right)\right)-$$

$$\frac{1}{8\,b} e\, f^2 \left(x^3 - \frac{1}{d^3 \sqrt{\left(a^2+b^2\right) e^{2c}}} 3\, a\, e^c \left(d^2 x^2 \,\text{Log}\left[1 + \frac{b\, e^{2c+d x}}{a\, e^c - \sqrt{\left(a^2+b^2\right) e^{2c}}}\right] - d^2 x^2 \,\text{Log}\left[1 + \frac{b\, e^{2c+d x}}{a\, e^c + \sqrt{\left(a^2+b^2\right) e^{2c}}}\right] + \right.\right.$$

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

$$\left.\left. 2 \,\text{PolyLog}\left[3, -\frac{b\, e^{2c+d x}}{a\, e^c - \sqrt{\left(a^2+b^2\right) e^{2c}}}\right] + 2 \,\text{PolyLog}\left[3, -\frac{b\, e^{2c+d x}}{a\, e^c + \sqrt{\left(a^2+b^2\right) e^{2c}}}\right]\right)\right) - \frac{1}{32\, b}$$

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

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

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

$$\left.\left. 6 \,\text{PolyLog}\left[4, -\frac{b\, e^{2c+d x}}{a\, e^c - \sqrt{\left(a^2+b^2\right) e^{2c}}}\right] - 6 \,\text{PolyLog}\left[4, -\frac{b\, e^{2c+d x}}{a\, e^c + \sqrt{\left(a^2+b^2\right) e^{2c}}}\right]\right)\right) -$$

$$\frac{1}{32\, b^3} e\, f^2 \left(2 \left(4\, a^2 + b^2\right) x^3 - \frac{1}{d^3 \sqrt{\left(a^2+b^2\right) e^{2c}}} 6\, a \left(4\, a^2 + 3\, b^2\right) e^c \left(d^2 x^2 \,\text{Log}\left[1 + \frac{b\, e^{2c+d x}}{a\, e^c - \sqrt{\left(a^2+b^2\right) e^{2c}}}\right] - \right.\right.$$

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

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

$$\frac{24\, a\, b \,\text{Cosh}[d\, x] \left(\left(2 + d^2 x^2\right) \text{Cosh}[c] - 2\, d\, x \,\text{Sinh}[c]\right)}{d^3} + \frac{3\, b^2 \,\text{Cosh}[2\, d\, x] \left(-2\, d\, x \,\text{Cosh}[2\, c] + \left(1 + 2\, d^2 x^2\right) \text{Sinh}[2\, c]\right)}{d^3} -$$

$$\frac{24\, a\, b \left(-2\, d\, x \,\text{Cosh}[c] + \left(2 + d^2 x^2\right) \text{Sinh}[c]\right) \text{Sinh}[d\, x]}{d^3} +$$

$$\left.\frac{3\, b^2 \left(\left(1 + 2\, d^2 x^2\right) \text{Cosh}[2\, c] - 2\, d\, x \,\text{Sinh}[2\, c]\right) \text{Sinh}[2\, d\, x]}{d^3}\right) -$$

$$\frac{1}{64 b^3} f^3 \left((4 a^2+b^2) x^4 - \frac{1}{d^4 \sqrt{(a^2+b^2) e^{2c}}} 4 a (4 a^2+3 b^2) e^c \left(d^3 x^3 \text{Log}\left[1+\frac{b e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2) e^{2c}}}\right] - d^3 x^3 \text{Log}\left[1+\frac{b e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2) e^{2c}}}\right] + \right.\right.$$

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

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

$$\frac{16 a b \text{Cosh}[d x] (d x (6+d^2 x^2) \text{Cosh}[c] - 3 (2+d^2 x^2) \text{Sinh}[c])}{d^4} + \frac{b^2 \text{Cosh}[2 d x] (-3 (1+2 d^2 x^2) \text{Cosh}[2 c] + 2 d x (3+2 d^2 x^2) \text{Sinh}[2 c])}{d^4} -$$

$$\frac{16 a b (-3 (2+d^2 x^2) \text{Cosh}[c] + d x (6+d^2 x^2) \text{Sinh}[c]) \text{Sinh}[d x]}{d^4} +$$

$$\left. \frac{b^2 (2 d x (3+2 d^2 x^2) \text{Cosh}[2 c] - 3 (1+2 d^2 x^2) \text{Sinh}[2 c]) \text{Sinh}[2 d x]}{d^4} \right) +$$

$$\frac{1}{16} f^3 \left(\frac{(16 a^4+12 a^2 b^2+b^4) x^4}{4 b^5} - \frac{1}{b^5 d^4 \sqrt{(a^2+b^2) e^{2c}}} a (16 a^4+20 a^2 b^2+5 b^4) e^c \right.$$

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

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

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

$$\left((2 a^2+b^2) \left(-\frac{24 a \text{Cosh}[c]}{b^4 d^4} + \frac{24 a \text{Sinh}[c]}{b^4 d^4}\right) + (2 a^3+a b^2) \left(-\frac{24 x \text{Cosh}[c]}{b^4 d^3} + \frac{24 x \text{Sinh}[c]}{b^4 d^3}\right) + \right.$$

$$\left. (2 a^3+a b^2) \left(-\frac{12 x^2 \text{Cosh}[c]}{b^4 d^2} + \frac{12 x^2 \text{Sinh}[c]}{b^4 d^2}\right) + (2 a^2+b^2) \left(-\frac{4 a x^3 \text{Cosh}[c]}{b^4 d} + \frac{4 a x^3 \text{Sinh}[c]}{b^4 d}\right)\right) (\text{Cosh}[d x] - \text{Sinh}[d x]) +$$

$$\left(-\frac{24 x (2 a^3 \text{Cosh}[c] + a b^2 \text{Cosh}[c] + 2 a^3 \text{Sinh}[c] + a b^2 \text{Sinh}[c])}{b^4 d^3} + \frac{12 x^2 (2 a^3 \text{Cosh}[c] + a b^2 \text{Cosh}[c] + 2 a^3 \text{Sinh}[c] + a b^2 \text{Sinh}[c])}{b^4 d^2} + \right.$$

$$\left. (2 a^2+b^2) \left(\frac{24 a \text{Cosh}[c]}{b^4 d^4} + \frac{24 a \text{Sinh}[c]}{b^4 d^4}\right) + (2 a^2+b^2) \left(-\frac{4 a x^3 \text{Cosh}[c]}{b^4 d} - \frac{4 a x^3 \text{Sinh}[c]}{b^4 d}\right)\right) (\text{Cosh}[d x] + \text{Sinh}[d x]) +$$

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

$$\left.\left(4 a^2+b^2\right)\left(-\frac{x^3 \operatorname{Cosh}[2 c]}{2 b^3 d}+\frac{x^3 \operatorname{Sinh}[2 c]}{2 b^3 d}\right)\right)(\operatorname{Cosh}[2 d x]-\operatorname{Sinh}[2 d x])+$$

$$\left(\frac{3 x\left(4 a^2 \operatorname{Cosh}[2 c]+b^2 \operatorname{Cosh}[2 c]+4 a^2 \operatorname{Sinh}[2 c]+b^2 \operatorname{Sinh}[2 c]\right)}{4 b^3 d^3}-\frac{3 x^2\left(4 a^2 \operatorname{Cosh}[2 c]+b^2 \operatorname{Cosh}[2 c]+4 a^2 \operatorname{Sinh}[2 c]+b^2 \operatorname{Sinh}[2 c]\right)}{4 b^3 d^2}+\right.$$

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

$$\left(-\frac{4 a \operatorname{Cosh}[3 c]}{27 b^2 d^4}-\frac{4 a x \operatorname{Cosh}[3 c]}{9 b^2 d^3}-\frac{2 a x^2 \operatorname{Cosh}[3 c]}{3 b^2 d^2}-\frac{2 a x^3 \operatorname{Cosh}[3 c]}{3 b^2 d}+\frac{4 a \operatorname{Sinh}[3 c]}{27 b^2 d^4}+\frac{4 a x \operatorname{Sinh}[3 c]}{9 b^2 d^3}+\frac{2 a x^2 \operatorname{Sinh}[3 c]}{3 b^2 d^2}+\frac{2 a x^3 \operatorname{Sinh}[3 c]}{3 b^2 d}\right)$$

$$(\operatorname{Cosh}[3 d x]-\operatorname{Sinh}[3 d x])+$$

$$\left(\frac{4 a \operatorname{Cosh}[3 c]}{27 b^2 d^4}-\frac{4 a x \operatorname{Cosh}[3 c]}{9 b^2 d^3}+\frac{2 a x^2 \operatorname{Cosh}[3 c]}{3 b^2 d^2}-\frac{2 a x^3 \operatorname{Cosh}[3 c]}{3 b^2 d}+\frac{4 a \operatorname{Sinh}[3 c]}{27 b^2 d^4}-\frac{4 a x \operatorname{Sinh}[3 c]}{9 b^2 d^3}+\frac{2 a x^2 \operatorname{Sinh}[3 c]}{3 b^2 d^2}-\frac{2 a x^3 \operatorname{Sinh}[3 c]}{3 b^2 d}\right)$$

$$(\operatorname{Cosh}[3 d x]+\operatorname{Sinh}[3 d x])+$$

$$\left(-\frac{3 \operatorname{Cosh}[4 c]}{128 b d^4}-\frac{3 x \operatorname{Cosh}[4 c]}{32 b d^3}-\frac{3 x^2 \operatorname{Cosh}[4 c]}{16 b d^2}-\frac{x^3 \operatorname{Cosh}[4 c]}{4 b d}+\frac{3 \operatorname{Sinh}[4 c]}{128 b d^4}+\frac{3 x \operatorname{Sinh}[4 c]}{32 b d^3}+\frac{3 x^2 \operatorname{Sinh}[4 c]}{16 b d^2}+\frac{x^3 \operatorname{Sinh}[4 c]}{4 b d}\right)$$

$$(\operatorname{Cosh}[4 d x]-\operatorname{Sinh}[4 d x])+$$

$$\left(-\frac{3 \operatorname{Cosh}[4 c]}{128 b d^4}+\frac{3 x \operatorname{Cosh}[4 c]}{32 b d^3}-\frac{3 x^2 \operatorname{Cosh}[4 c]}{16 b d^2}+\frac{x^3 \operatorname{Cosh}[4 c]}{4 b d}-\frac{3 \operatorname{Sinh}[4 c]}{128 b d^4}+\frac{3 x \operatorname{Sinh}[4 c]}{32 b d^3}-\frac{3 x^2 \operatorname{Sinh}[4 c]}{16 b d^2}+\frac{x^3 \operatorname{Sinh}[4 c]}{4 b d}\right)$$

$$\left.(\operatorname{Cosh}[4 d x]+\operatorname{Sinh}[4 d x])\right)-$$

$$\frac{e^3\left(\left(4 a^2+b^2\right)(c+d x)-\frac{2 a\left(4 a^2+3 b^2\right) \operatorname{ArcTan}\left[\frac{b-a \operatorname{Tanh}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}}-4 a b \operatorname{Cosh}[c+d x]+b^2 \operatorname{Sinh}[2(c+d x)]\right)}{16 b^3 d}-$$

$$\frac{1}{32 b^3 d^2}$$

3

e^2

f

$$\left(\left(4 a^2+b^2\right)(-c+d x)(c+d x)-\right.$$

$$8 a b d x \operatorname{Cosh}[c+d x]-b^2 \operatorname{Cosh}[2(c+d x)]-$$

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

$$\left.\left.\text{PolyLog}\left[2,\,\frac{b\,e^{c+d\,x}}{-a+\sqrt{a^2+b^2}}\right]-\text{PolyLog}\left[2,\,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]\right)\right)+8\,a\,b\,\text{Sinh}[c+d\,x]+2\,b^2\,d\,x\,\text{Sinh}\left[2\,\left(c+d\,x\right)\right]\Bigg)+\frac{1}{96\,b^5\,d}$$

$$e^3\left(6\,\left(16\,a^4+12\,a^2\,b^2+b^4\right)\,\left(c+d\,x\right)-\frac{12\,a\,\left(16\,a^4+20\,a^2\,b^2+5\,b^4\right)\,\text{ArcTan}\left[\frac{b-a\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}}-48\,a\,b\,\left(2\,a^2+b^2\right)\,\text{Cosh}[c+d\,x]-\right.$$

$$\left.8\,a\,b^3\,\text{Cosh}\left[3\,\left(c+d\,x\right)\right]+6\,b^2\,\left(4\,a^2+b^2\right)\,\text{Sinh}\left[2\,\left(c+d\,x\right)\right]+3\,b^4\,\text{Sinh}\left[4\,\left(c+d\,x\right)\right]\right)+$$

$$\frac{1}{384\,b^5\,d^2}\,e^2\,f\,\left(-576\,a^4\,c^2-432\,a^2\,b^2\,c^2-36\,b^4\,c^2+576\,a^4\,d^2\,x^2+432\,a^2\,b^2\,d^2\,x^2+36\,b^4\,d^2\,x^2-\right.$$

$$576\,a\,b\,\left(2\,a^2+b^2\right)\,d\,x\,\text{Cosh}[c+d\,x]-36\,\left(4\,a^2\,b^2+b^4\right)\,\text{Cosh}\left[2\,\left(c+d\,x\right)\right]-96\,a\,b^3\,d\,x\,\text{Cosh}\left[3\,\left(c+d\,x\right)\right]-$$

$$9\,b^4\,\text{Cosh}\left[4\,\left(c+d\,x\right)\right]-144\,a\,\left(16\,a^4+20\,a^2\,b^2+5\,b^4\right)\left(-\frac{c\,\text{ArcTan}\left[\frac{a+b\,e^{c+d\,x}}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}}+\frac{1}{2\,\sqrt{a^2+b^2}}\right.$$

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

$$1152\,a^3\,b\,\text{Sinh}[c+d\,x]+576\,a\,b^3\,\text{Sinh}[c+d\,x]+288\,a^2\,b^2\,d\,x\,\text{Sinh}\left[2\,\left(c+d\,x\right)\right]+72\,b^4\,d\,x\,\text{Sinh}\left[2\,\left(c+d\,x\right)\right]+$$

$$\left.32\,a\,b^3\,\text{Sinh}\left[3\,\left(c+d\,x\right)\right]+36\,b^4\,d\,x\,\text{Sinh}\left[4\,\left(c+d\,x\right)\right]\right)+$$

$$\frac{1}{2304\, b^5\, d^3} e\, f^2 \left(2304\, a^4\, d^3\, x^3 + 1728\, a^2\, b^2\, d^3\, x^3 + 144\, b^4\, d^3\, x^3 - 3456\, a\, b\, \left(2\, a^2 + b^2\right)\, \left(2 + d^2\, x^2\right)\, \text{Cosh}[c + d\, x] - 432\, b^2\, \left(4\, a^2 + b^2\right)\, d\, x\, \text{Cosh}\left[2\, \left(c + d\, x\right)\right] - 128\, a\, b^3\, \text{Cosh}\left[3\, \left(c + d\, x\right)\right] - 576\, a\, b^3\, d^2\, x^2\, \text{Cosh}\left[3\, \left(c + d\, x\right)\right] - 108\, b^4\, d\, x\, \text{Cosh}\left[4\, \left(c + d\, x\right)\right] - \frac{1}{\sqrt{\left(a^2 + b^2\right)\, e^{2\, c}}} 432\, a\, \left(16\, a^4 + 20\, a^2\, b^2 + 5\, b^4\right)\, e^{c} \left(d^2\, x^2\, \text{Log}\left[1 + \frac{b\, e^{2\, c+d\, x}}{a\, e^{c} - \sqrt{\left(a^2 + b^2\right)\, e^{2\, c}}}\right] - d^2\, x^2\, \text{Log}\left[1 + \frac{b\, e^{2\, c+d\, x}}{a\, e^{c} + \sqrt{\left(a^2 + b^2\right)\, e^{2\, c}}}\right] + 2\, d\, x\, \text{PolyLog}\left[2, -\frac{b\, e^{2\, c+d\, x}}{a\, e^{c} - \sqrt{\left(a^2 + b^2\right)\, e^{2\, c}}}\right] - 2\, d\, x\, \text{PolyLog}\left[2, -\frac{b\, e^{2\, c+d\, x}}{a\, e^{c} + \sqrt{\left(a^2 + b^2\right)\, e^{2\, c}}}\right] - 2\, \text{PolyLog}\left[3, -\frac{b\, e^{2\, c+d\, x}}{a\, e^{c} - \sqrt{\left(a^2 + b^2\right)\, e^{2\, c}}}\right] + 2\, \text{PolyLog}\left[3, -\frac{b\, e^{2\, c+d\, x}}{a\, e^{c} + \sqrt{\left(a^2 + b^2\right)\, e^{2\, c}}}\right]\right) + 13\,824\, a^3\, b\, d\, x\, \text{Sinh}[c + d\, x] + 6912\, a\, b^3\, d\, x\, \text{Sinh}[c + d\, x] + 864\, a^2\, b^2\, \text{Sinh}\left[2\, \left(c + d\, x\right)\right] + 216\, b^4\, \text{Sinh}\left[2\, \left(c + d\, x\right)\right] + 1728\, a^2\, b^2\, d^2\, x^2\, \text{Sinh}\left[2\, \left(c + d\, x\right)\right] + 432\, b^4\, d^2\, x^2\, \text{Sinh}\left[2\, \left(c + d\, x\right)\right] + 384\, a\, b^3\, d\, x\, \text{Sinh}\left[3\, \left(c + d\, x\right)\right] + 27\, b^4\, \text{Sinh}\left[4\, \left(c + d\, x\right)\right] + 216\, b^4\, d^2\, x^2\, \text{Sinh}\left[4\, \left(c + d\, x\right)\right]\right)$$

Problem 397: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 755 leaves, 31 steps):

$$\frac{a^2 f^2 x}{4 b^3 d^2}+\frac{a^4 (e+f x)^3}{3 b^5 f}+\frac{a^2 (e+f x)^3}{6 b^3 f}-\frac{(e+f x)^3}{24 b f}-\frac{2 a^3 f^2 \operatorname{Cosh}[c+d x]}{b^4 d^3}-\frac{4 a f^2 \operatorname{Cosh}[c+d x]}{9 b^2 d^3}-$$

$$\frac{a^3 (e+f x)^2 \operatorname{Cosh}[c+d x]}{b^4 d}-\frac{a^2 f (e+f x) \operatorname{Cosh}[c+d x]^2}{2 b^3 d^2}-\frac{2 a f^2 \operatorname{Cosh}[c+d x]^3}{27 b^2 d^3}-\frac{a (e+f x)^2 \operatorname{Cosh}[c+d x]^3}{3 b^2 d}-$$

$$\frac{f (e+f x) \operatorname{Cosh}[4 c+4 d x]}{64 b d^2}-\frac{a^3 \sqrt{a^2+b^2}\, (e+f x)^2 \operatorname{Log}\left[1+\frac{b\, e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^5 d}+\frac{a^3 \sqrt{a^2+b^2}\, (e+f x)^2 \operatorname{Log}\left[1+\frac{b\, e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d}-$$

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

$$\frac{2 a^3 \sqrt{a^2+b^2}\, f^2 \operatorname{PolyLog}\left[3,-\frac{b\, e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^5 d^3}+\frac{2 a^3 f (e+f x) \operatorname{Sinh}[c+d x]}{b^4 d^2}+\frac{4 a f (e+f x) \operatorname{Sinh}[c+d x]}{9 b^2 d^2}+\frac{a^2 f^2 \operatorname{Cosh}[c+d x] \operatorname{Sinh}[c+d x]}{4 b^3 d^3}+$$

$$\frac{a^2 (e+f x)^2 \operatorname{Cosh}[c+d x] \operatorname{Sinh}[c+d x]}{2 b^3 d}+\frac{2 a f (e+f x) \operatorname{Cosh}[c+d x]^2 \operatorname{Sinh}[c+d x]}{9 b^2 d^2}+\frac{f^2 \operatorname{Sinh}[4 c+4 d x]}{256 b d^3}+\frac{(e+f x)^2 \operatorname{Sinh}[4 c+4 d x]}{32 b d}$$

Result (type 4, 3674 leaves):

$$-\frac{e^2 \left(\frac{c}{d}+x-\frac{2 a \operatorname{ArcTan}\left[\frac{b-a \operatorname{Tanh}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}\, d}\right)}{8 b}-$$

$$\frac{1}{4} e f \left(\frac{x^2}{2 b}+\frac{1}{b d^2} a \left(\frac{i \pi \operatorname{ArcTanh}\left[\frac{-b+a \operatorname{Tanh}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}\right]}{\sqrt{a^2+b^2}}+\frac{1}{\sqrt{-a^2-b^2}} \left(2 \left(-i c+\frac{\pi}{2}-i d x\right) \operatorname{ArcTanh}\left[\frac{(a-i b) \operatorname{Cot}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\right.\right.\right.$$

$$2 \left(-i c+\operatorname{ArcCos}\left[-\frac{i a}{b}\right]\right) \operatorname{ArcTanh}\left[\frac{(-a-i b) \operatorname{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]+$$

$$\left(\operatorname{ArcCos}\left[-\frac{i a}{b}\right]-2 i \left(\operatorname{ArcTanh}\left[\frac{(a-i b) \operatorname{Cot}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\operatorname{ArcTanh}\left[\frac{(-a-i b) \operatorname{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\right)$$

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

$$\left(\operatorname{ArcCos}\left[-\frac{i a}{b}\right]+2 i \left(\operatorname{ArcTanh}\left[\frac{(a-i b) \operatorname{Cot}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\operatorname{ArcTanh}\left[\frac{(-a-i b) \operatorname{Tan}\left[\frac{1}{2} \left(-i c+\frac{\pi}{2}-i d x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\right)$$

$$\mathrm{Log}\left[\frac{\sqrt{-a^2-b^2}\ e^{\frac{1}{2}i\left(-ic+\frac{\pi}{2}-idx\right)}}{\sqrt{2}\ \sqrt{-ib}\ \sqrt{a+b\,\mathrm{Sinh}[c+dx]}}\right]-\left(\mathrm{ArcCos}\left[-\frac{ia}{b}\right]+2i\,\mathrm{ArcTanh}\left[\frac{(-a-ib)\,\mathrm{Tan}\left[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)$$

$$\mathrm{Log}\left[1-\frac{i\left(a-i\sqrt{-a^2-b^2}\right)\left(a-ib-\sqrt{-a^2-b^2}\ \mathrm{Tan}\left[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\right]\right)}{b\left(a-ib+\sqrt{-a^2-b^2}\ \mathrm{Tan}\left[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\right]\right)}\right]+\left(-\mathrm{ArcCos}\left[-\frac{ia}{b}\right]+\right.$$

$$\left.2i\,\mathrm{ArcTanh}\left[\frac{(-a-ib)\,\mathrm{Tan}\left[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\mathrm{Log}\left[1-\frac{i\left(a+i\sqrt{-a^2-b^2}\right)\left(a-ib-\sqrt{-a^2-b^2}\ \mathrm{Tan}\left[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\right]\right)}{b\left(a-ib+\sqrt{-a^2-b^2}\ \mathrm{Tan}\left[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\right]\right)}\right]+$$

$$i\left(\mathrm{PolyLog}\left[2,\frac{i\left(a-i\sqrt{-a^2-b^2}\right)\left(a-ib-\sqrt{-a^2-b^2}\ \mathrm{Tan}\left[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\right]\right)}{b\left(a-ib+\sqrt{-a^2-b^2}\ \mathrm{Tan}\left[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\right]\right)}\right]-\right.$$

$$\left.\left.\left.\left.\mathrm{PolyLog}\left[2,\frac{i\left(a+i\sqrt{-a^2-b^2}\right)\left(a-ib-\sqrt{-a^2-b^2}\ \mathrm{Tan}\left[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\right]\right)}{b\left(a-ib+\sqrt{-a^2-b^2}\ \mathrm{Tan}\left[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\right]\right)}\right]\right)\right)\right)\right)-$$

$$\frac{1}{24b}f^2\left(x^3-\frac{1}{d^3\sqrt{\left(a^2+b^2\right)e^{2c}}}3ae^c\left(d^2x^2\,\mathrm{Log}\left[1+\frac{b\,e^{2c+dx}}{ae^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-d^2x^2\,\mathrm{Log}\left[1+\frac{b\,e^{2c+dx}}{ae^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+\right.\right.$$

$$2dx\,\mathrm{PolyLog}\left[2,-\frac{b\,e^{2c+dx}}{ae^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-2dx\,\mathrm{PolyLog}\left[2,-\frac{b\,e^{2c+dx}}{ae^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-$$

$$\left.\left.2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{ae^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{ae^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]\right)\right)-$$

$$\frac{1}{96b^3}f^2\left(2\left(4a^2+b^2\right)x^3-\frac{1}{d^3\sqrt{\left(a^2+b^2\right)e^{2c}}}6a\left(4a^2+3b^2\right)e^c\left(d^2x^2\,\mathrm{Log}\left[1+\frac{b\,e^{2c+dx}}{ae^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-d^2x^2\,\mathrm{Log}\left[1+\frac{b\,e^{2c+dx}}{ae^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+\right.\right.$$

$$2dx\,\mathrm{PolyLog}\left[2,-\frac{b\,e^{2c+dx}}{ae^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-2dx\,\mathrm{PolyLog}\left[2,-\frac{b\,e^{2c+dx}}{ae^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-$$

$$\left.2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{ae^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{ae^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]\right)-$$

$$\frac{24ab\,\mathrm{Cosh}[dx]\left(\left(2+d^2x^2\right)\mathrm{Cosh}[c]-2dx\,\mathrm{Sinh}[c]\right)}{d^3}+\frac{3b^2\,\mathrm{Cosh}[2dx]\left(-2dx\,\mathrm{Cosh}[2c]+\left(1+2d^2x^2\right)\mathrm{Sinh}[2c]\right)}{d^3}-$$

$$\frac{24\,a\,b\,\left(-2\,d\,x\,\text{Cosh}[c]+\left(2+d^2\,x^2\right)\,\text{Sinh}[c]\right)\,\text{Sinh}[d\,x]}{d^3}+$$

$$\left.\frac{3\,b^2\,\left(\left(1+2\,d^2\,x^2\right)\,\text{Cosh}[2\,c]-2\,d\,x\,\text{Sinh}[2\,c]\right)\,\text{Sinh}[2\,d\,x]}{d^3}\right)-$$

$$\frac{e^2\left(\left(4\,a^2+b^2\right)\,(c+d\,x)-\frac{2\,a\,\left(4\,a^2+3\,b^2\right)\,\text{ArcTan}\left[\frac{b-a\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}}-4\,a\,b\,\text{Cosh}[c+d\,x]+b^2\,\text{Sinh}[2\,(c+d\,x)]\right)}{16\,b^3\,d}-$$

$$\frac{1}{16\,b^3\,d^2}$$

e

f

$$\left(\left(4\,a^2+b^2\right)\,(-c+d\,x)\,(c+d\,x)-\right.$$

$$8\,a\,b\,d\,x\,\text{Cosh}[c+d\,x]-$$

$$b^2\,\text{Cosh}[2\,(c+d\,x)]-$$

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

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

$$\left.8\,a\,b\,\text{Sinh}[c+d\,x]+2\,b^2\,d\,x\,\text{Sinh}[2\,(c+d\,x)]\right)+\frac{1}{96\,b^5\,d}$$

$$e^2\left(6\,\left(16\,a^4+12\,a^2\,b^2+b^4\right)\,(c+d\,x)-\frac{12\,a\,\left(16\,a^4+20\,a^2\,b^2+5\,b^4\right)\,\text{ArcTan}\left[\frac{b-a\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}}-\right.$$

$$48\,a\,b\,\left(2\,a^2+b^2\right)\,\text{Cosh}[c+d\,x]-8\,a\,b^3\,\text{Cosh}[3\,(c+d\,x)]+$$

$$6 b^2 \left(4 a^2+b^2\right) \text{Sinh}[2 (c+d x)]+3 b^4 \text{Sinh}[4 (c+d x)]\Bigg)+$$

$$\frac{1}{576 b^5 d^2} e f \Bigg(-576 a^4 c^2-432 a^2 b^2 c^2-36 b^4 c^2+576 a^4 d^2 x^2+432 a^2 b^2 d^2 x^2+36 b^4 d^2 x^2-$$

$$576 a b \left(2 a^2+b^2\right) d x \text{Cosh}[c+d x]-36 \left(4 a^2 b^2+b^4\right) \text{Cosh}[2 (c+d x)]-96 a b^3 d x \text{Cosh}[3 (c+d x)]-$$

$$9 b^4 \text{Cosh}[4 (c+d x)]-144 a \left(16 a^4+20 a^2 b^2+5 b^4\right) \left(-\frac{c \text{ArcTan}\left[\frac{a+b e^{c+d x}}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}}+\frac{1}{2 \sqrt{a^2+b^2}}\right.$$

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

$$1152 a^3 b \text{Sinh}[c+d x]+576 a b^3 \text{Sinh}[c+d x]+288 a^2 b^2 d x \text{Sinh}[2 (c+d x)]+72 b^4 d x \text{Sinh}[2 (c+d x)]+$$

$$32 a b^3 \text{Sinh}[3 (c+d x)]+36 b^4 d x \text{Sinh}[4 (c+d x)]\Bigg)+$$

$$\frac{1}{6912 b^5 d^3} f^2 \Bigg(2304 a^4 d^3 x^3+1728 a^2 b^2 d^3 x^3+144 b^4 d^3 x^3-3456 a b \left(2 a^2+b^2\right) \left(2+d^2 x^2\right) \text{Cosh}[c+d x]-$$

$$432 b^2 \left(4 a^2+b^2\right) d x \text{Cosh}[2 (c+d x)]-128 a b^3 \text{Cosh}[3 (c+d x)]-576 a b^3 d^2 x^2 \text{Cosh}[3 (c+d x)]-$$

$$108 b^4 d x \text{Cosh}[4 (c+d x)]-\frac{1}{\sqrt{\left(a^2+b^2\right) e^{2 c}}} 432 a \left(16 a^4+20 a^2 b^2+5 b^4\right) e^c$$

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

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

$$13824 a^3 b d x \text{Sinh}[c+d x]+6912 a b^3 d x \text{Sinh}[c+d x]+864 a^2 b^2 \text{Sinh}[2 (c+d x)]+216 b^4 \text{Sinh}[2 (c+d x)]+$$
$$1728 a^2 b^2 d^2 x^2 \text{Sinh}[2 (c+d x)]+432 b^4 d^2 x^2 \text{Sinh}[2 (c+d x)]+$$

$$384\, a\, b^3\, d\, x\, \text{Sinh}[3\,(c+d\,x)] + 27\, b^4\, \text{Sinh}[4\,(c+d\,x)] + 216\, b^4\, d^2\, x^2\, \text{Sinh}[4\,(c+d\,x)]\Big)$$

Problem 398: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f\,x)\,\text{Cosh}[c+d\,x]^2\,\text{Sinh}[c+d\,x]^3}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 474 leaves, 24 steps):

$$\frac{a^4\,e\,x}{b^5}+\frac{a^2\,e\,x}{2\,b^3}+\frac{a^4\,f\,x^2}{2\,b^5}+\frac{a^2\,f\,x^2}{4\,b^3}-\frac{(e+f\,x)^2}{16\,b\,f}-\frac{a^3\,(e+f\,x)\,\text{Cosh}[c+d\,x]}{b^4\,d}-\frac{a^2\,f\,\text{Cosh}[c+d\,x]^2}{4\,b^3\,d^2}-$$
$$\frac{a\,(e+f\,x)\,\text{Cosh}[c+d\,x]^3}{3\,b^2\,d}-\frac{f\,\text{Cosh}[4\,c+4\,d\,x]}{128\,b\,d^2}-\frac{a^3\,\sqrt{a^2+b^2}\,(e+f\,x)\,\text{Log}\left[1+\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{b^5\,d}+\frac{a^3\,\sqrt{a^2+b^2}\,(e+f\,x)\,\text{Log}\left[1+\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{b^5\,d}-$$
$$\frac{a^3\,\sqrt{a^2+b^2}\,f\,\text{PolyLog}\left[2,-\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{b^5\,d^2}+\frac{a^3\,\sqrt{a^2+b^2}\,f\,\text{PolyLog}\left[2,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{b^5\,d^2}+\frac{a^3\,f\,\text{Sinh}[c+d\,x]}{b^4\,d^2}+$$
$$\frac{a\,f\,\text{Sinh}[c+d\,x]}{3\,b^2\,d^2}+\frac{a^2\,(e+f\,x)\,\text{Cosh}[c+d\,x]\,\text{Sinh}[c+d\,x]}{2\,b^3\,d}+\frac{a\,f\,\text{Sinh}[c+d\,x]^3}{9\,b^2\,d^2}+\frac{(e+f\,x)\,\text{Sinh}[4\,c+4\,d\,x]}{32\,b\,d}$$

Result (type 4, 2286 leaves):

$$-\frac{e\left(\frac{c}{d}+x-\frac{2\,a\,\text{ArcTan}\left[\frac{b-a\,\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}\,d}\right)}{8\,b}-$$
$$\frac{1}{8}\,f\left(\frac{x^2}{2\,b}+\frac{1}{b\,d^2}\,a\left(\frac{i\,\pi\,\text{ArcTanh}\left[\frac{-b+a\,\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}\right]}{\sqrt{a^2+b^2}}+\frac{1}{\sqrt{-a^2-b^2}}\left(2\left(-i\,c+\frac{\pi}{2}-i\,d\,x\right)\text{ArcTanh}\left[\frac{(a-i\,b)\,\text{Cot}\left[\frac{1}{2}\left(-i\,c+\frac{\pi}{2}-i\,d\,x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\right.\right.\right.$$
$$2\left(-i\,c+\text{ArcCos}\left[-\frac{i\,a}{b}\right]\right)\text{ArcTanh}\left[\frac{(-a-i\,b)\,\text{Tan}\left[\frac{1}{2}\left(-i\,c+\frac{\pi}{2}-i\,d\,x\right)\right]}{\sqrt{-a^2-b^2}}\right]+$$
$$\left(\text{ArcCos}\left[-\frac{i\,a}{b}\right]-2\,i\left(\text{ArcTanh}\left[\frac{(a-i\,b)\,\text{Cot}\left[\frac{1}{2}\left(-i\,c+\frac{\pi}{2}-i\,d\,x\right)\right]}{\sqrt{-a^2-b^2}}\right]-\text{ArcTanh}\left[\frac{(-a-i\,b)\,\text{Tan}\left[\frac{1}{2}\left(-i\,c+\frac{\pi}{2}-i\,d\,x\right)\right]}{\sqrt{-a^2-b^2}}\right]\right)\right)$$

$$\mathrm{Log}\Big[\frac{\sqrt{-a^2-b^2}\ e^{-\frac{1}{2}i\left(-ic+\frac{\pi}{2}-idx\right)}}{\sqrt{2}\ \sqrt{-ib}\ \sqrt{a+b\,\mathrm{Sinh}[c+dx]}}\Big]+$$

$$\Big(\mathrm{ArcCos}\Big[-\frac{ia}{b}\Big]+2i\Big(\mathrm{ArcTanh}\Big[\frac{(a-ib)\,\mathrm{Cot}\big[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\big]}{\sqrt{-a^2-b^2}}\Big]-\mathrm{ArcTanh}\Big[\frac{(-a-ib)\,\mathrm{Tan}\big[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\big]}{\sqrt{-a^2-b^2}}\Big]\Big)\Big)$$

$$\mathrm{Log}\Big[\frac{\sqrt{-a^2-b^2}\ e^{\frac{1}{2}i\left(-ic+\frac{\pi}{2}-idx\right)}}{\sqrt{2}\ \sqrt{-ib}\ \sqrt{a+b\,\mathrm{Sinh}[c+dx]}}\Big]-\Big(\mathrm{ArcCos}\Big[-\frac{ia}{b}\Big]+2i\,\mathrm{ArcTanh}\Big[\frac{(-a-ib)\,\mathrm{Tan}\big[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\big]}{\sqrt{-a^2-b^2}}\Big]\Big)$$

$$\mathrm{Log}\Big[1-\frac{i\left(a-i\sqrt{-a^2-b^2}\right)\left(a-ib-\sqrt{-a^2-b^2}\ \mathrm{Tan}\big[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\big]\right)}{b\left(a-ib+\sqrt{-a^2-b^2}\ \mathrm{Tan}\big[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\big]\right)}\Big]+\Big(-\mathrm{ArcCos}\Big[-\frac{ia}{b}\Big]+$$

$$2i\,\mathrm{ArcTanh}\Big[\frac{(-a-ib)\,\mathrm{Tan}\big[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\big]}{\sqrt{-a^2-b^2}}\Big]\Big)\ \mathrm{Log}\Big[1-\frac{i\left(a+i\sqrt{-a^2-b^2}\right)\left(a-ib-\sqrt{-a^2-b^2}\ \mathrm{Tan}\big[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\big]\right)}{b\left(a-ib+\sqrt{-a^2-b^2}\ \mathrm{Tan}\big[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\big]\right)}\Big]+$$

$$i\Big(\mathrm{PolyLog}\Big[2,\ \frac{i\left(a-i\sqrt{-a^2-b^2}\right)\left(a-ib-\sqrt{-a^2-b^2}\ \mathrm{Tan}\big[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\big]\right)}{b\left(a-ib+\sqrt{-a^2-b^2}\ \mathrm{Tan}\big[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\big]\right)}\Big]-$$

$$\mathrm{PolyLog}\Big[2,\ \frac{i\left(a+i\sqrt{-a^2-b^2}\right)\left(a-ib-\sqrt{-a^2-b^2}\ \mathrm{Tan}\big[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\big]\right)}{b\left(a-ib+\sqrt{-a^2-b^2}\ \mathrm{Tan}\big[\frac{1}{2}\left(-ic+\frac{\pi}{2}-idx\right)\big]\right)}\Big]\Big)\Big)\Big)\Big)-$$

$$\frac{e\left(\left(4a^2+b^2\right)(c+dx)-\frac{2a\left(4a^2+3b^2\right)\mathrm{ArcTan}\Big[\frac{b-a\,\mathrm{Tanh}\left[\frac{1}{2}(c+dx)\right]}{\sqrt{-a^2-b^2}}\Big]}{\sqrt{-a^2-b^2}}-4ab\,\mathrm{Cosh}[c+dx]+b^2\,\mathrm{Sinh}[2(c+dx)]\right)}{16b^3d}-$$

$$\frac{1}{32b^3d^2}$$
$$f$$
$$\Big(\left(4a^2+b^2\right)$$
$$(-c+dx)$$
$$(c+dx)-8abd$$
$$x\,\mathrm{Cosh}[c+dx]-$$

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

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

$$\left. 8 a b \operatorname{Sinh}[c + d x] + 2 b^2 d x \operatorname{Sinh}[2 (c + d x)] \right) + \frac{1}{96 b^5 d}$$

$$e \left(6 (16 a^4 + 12 a^2 b^2 + b^4) (c + d x) - \frac{12 a (16 a^4 + 20 a^2 b^2 + 5 b^4) \operatorname{ArcTan}\left[\frac{b - a \operatorname{Tanh}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}} - \right.$$

$$48 a b (2 a^2 + b^2) \operatorname{Cosh}[c + d x] -$$
$$8 a b^3 \operatorname{Cosh}[3 (c + d x)] +$$
$$6 b^2 (4 a^2 + b^2) \operatorname{Sinh}[2 (c + d x)] +$$

$$\left. 3 b^4 \operatorname{Sinh}[4 (c + d x)] \right) +$$

$$\frac{1}{1152 b^5 d^2} f \left(-576 a^4 c^2 - 432 a^2 b^2 c^2 - 36 b^4 c^2 + 576 a^4 d^2 x^2 + 432 a^2 b^2 d^2 x^2 + 36 b^4 d^2 x^2 - \right.$$

$$576 a b (2 a^2 + b^2) d x \operatorname{Cosh}[c + d x] - 36 (4 a^2 b^2 + b^4) \operatorname{Cosh}[2 (c + d x)] - 96 a b^3 d x \operatorname{Cosh}[3 (c + d x)] -$$

$$9 b^4 \operatorname{Cosh}[4 (c + d x)] - 144 a (16 a^4 + 20 a^2 b^2 + 5 b^4) \left(-\frac{c \operatorname{ArcTan}\left[\frac{a+b e^{c+d x}}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}} + \frac{1}{2 \sqrt{a^2+b^2}} \right.$$

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

$$1152\, a^3\, b\, \text{Sinh}[c+d\,x] + 576\, a\, b^3\, \text{Sinh}[c+d\,x] + 288\, a^2\, b^2\, d\, x\, \text{Sinh}[2\,(c+d\,x)] + 72\, b^4\, d\, x\, \text{Sinh}[2\,(c+d\,x)] +$$

$$\left. 32\, a\, b^3\, \text{Sinh}[3\,(c+d\,x)] + 36\, b^4\, d\, x\, \text{Sinh}[4\,(c+d\,x)] \right)$$

Problem 400: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Cosh}[c+d\,x]^2\, \text{Sinh}[c+d\,x]^3}{(e+f\,x)\,(a+b\,\text{Sinh}[c+d\,x])}\, dx$$

Optimal (type 9, 38 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Cosh}[c+d\,x]^2\, \text{Sinh}[c+d\,x]^3}{(e+f\,x)\,(a+b\,\text{Sinh}[c+d\,x])}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 401: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f\,x)^3\, \text{Cosh}[c+d\,x]^3\, \text{Sinh}[c+d\,x]^3}{a+b\,\text{Sinh}[c+d\,x]}\, dx$$

Optimal (type 4, 1443 leaves, 55 steps):

$$-\frac{3 a^3 f^3 x}{8 b^4 d^3}+\frac{45 a f^3 x}{256 b^2 d^3}-\frac{a^3 (e+f x)^3}{4 b^4 d}+\frac{3 a (e+f x)^3}{32 b^2 d}+\frac{a^3 (a^2+b^2) (e+f x)^4}{4 b^6 f}-\frac{6 a^4 f^3 \text{Cosh}[c+d x]}{b^5 d^4}-\frac{40 a^2 f^3 \text{Cosh}[c+d x]}{9 b^3 d^4}+\frac{3 f^3 \text{Cosh}[c+d x]}{4 b d^4}-$$
$$\frac{3 a^4 f (e+f x)^2 \text{Cosh}[c+d x]}{b^5 d^2}-\frac{2 a^2 f (e+f x)^2 \text{Cosh}[c+d x]}{b^3 d^2}+\frac{3 f (e+f x)^2 \text{Cosh}[c+d x]}{8 b d^2}-\frac{9 a f^2 (e+f x) \text{Cosh}[c+d x]^2}{32 b^2 d^3}-$$
$$\frac{2 a^2 f^3 \text{Cosh}[c+d x]^3}{27 b^3 d^4}-\frac{a^2 f (e+f x)^2 \text{Cosh}[c+d x]^3}{3 b^3 d^2}-\frac{3 a f^2 (e+f x) \text{Cosh}[c+d x]^4}{32 b^2 d^3}-\frac{a (e+f x)^3 \text{Cosh}[c+d x]^4}{4 b^2 d}-\frac{f^3 \text{Cosh}[3 c+3 d x]}{216 b d^4}-$$
$$\frac{f (e+f x)^2 \text{Cosh}[3 c+3 d x]}{48 b d^2}-\frac{3 f^3 \text{Cosh}[5 c+5 d x]}{5000 b d^4}-\frac{3 f (e+f x)^2 \text{Cosh}[5 c+5 d x]}{400 b d^2}-\frac{a^3 (a^2+b^2) (e+f x)^3 \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^6 d}-$$
$$\frac{a^3 (a^2+b^2) (e+f x)^3 \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^6 d}-\frac{3 a^3 (a^2+b^2) f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^6 d^2}-\frac{3 a^3 (a^2+b^2) f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^6 d^2}+$$
$$\frac{6 a^3 (a^2+b^2) f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^6 d^3}+\frac{6 a^3 (a^2+b^2) f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^6 d^3}-\frac{6 a^3 (a^2+b^2) f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^6 d^4}-$$
$$\frac{6 a^3 (a^2+b^2) f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^6 d^4}+\frac{6 a^4 f^2 (e+f x) \text{Sinh}[c+d x]}{b^5 d^3}+\frac{40 a^2 f^2 (e+f x) \text{Sinh}[c+d x]}{9 b^3 d^3}-\frac{3 f^2 (e+f x) \text{Sinh}[c+d x]}{4 b d^3}+$$
$$\frac{a^4 (e+f x)^3 \text{Sinh}[c+d x]}{b^5 d}+\frac{2 a^2 (e+f x)^3 \text{Sinh}[c+d x]}{3 b^3 d}-\frac{(e+f x)^3 \text{Sinh}[c+d x]}{8 b d}+\frac{3 a^3 f^3 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{8 b^4 d^4}+$$
$$\frac{45 a f^3 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{256 b^2 d^4}+\frac{3 a^3 f (e+f x)^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 b^4 d^2}+\frac{9 a f (e+f x)^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{32 b^2 d^2}+$$
$$\frac{2 a^2 f^2 (e+f x) \text{Cosh}[c+d x]^2 \text{Sinh}[c+d x]}{9 b^3 d^3}+\frac{a^2 (e+f x)^3 \text{Cosh}[c+d x]^2 \text{Sinh}[c+d x]}{3 b^3 d}+\frac{3 a f^3 \text{Cosh}[c+d x]^3 \text{Sinh}[c+d x]}{128 b^2 d^4}+$$
$$\frac{3 a f (e+f x)^2 \text{Cosh}[c+d x]^3 \text{Sinh}[c+d x]}{16 b^2 d^2}-\frac{3 a^3 f^2 (e+f x) \text{Sinh}[c+d x]^2}{4 b^4 d^3}-\frac{a^3 (e+f x)^3 \text{Sinh}[c+d x]^2}{2 b^4 d}+$$
$$\frac{f^2 (e+f x) \text{Sinh}[3 c+3 d x]}{72 b d^3}+\frac{(e+f x)^3 \text{Sinh}[3 c+3 d x]}{48 b d}+\frac{3 f^2 (e+f x) \text{Sinh}[5 c+5 d x]}{1000 b d^3}+\frac{(e+f x)^3 \text{Sinh}[5 c+5 d x]}{80 b d}$$

Result (type 4, 5008 leaves) :

$$\frac{1}{8}\left(\frac{1}{b^6 d^4 (-1+e^{2 c})} 4 a^3 (a^2+b^2) \left(4 d^4 e^3 e^{2 c} x+6 d^4 e^2 e^{2 c} f x^2+4 d^4 e e^{2 c} f^2 x^3+d^4 e^{2 c} f^3 x^4+2 d^3 e^3 \text{Log}\left[2 a e^{c+d x}+b \left(-1+e^{2 (c+d x)}\right)\right]-\right.\right.$$
$$2 d^3 e^3 e^{2 c} \text{Log}\left[2 a e^{c+d x}+b \left(-1+e^{2 (c+d x)}\right)\right]+6 d^3 e^2 f x \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{(a^2+b^2) e^{2 c}}}\right]-6 d^3 e^2 e^{2 c} f x \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{(a^2+b^2) e^{2 c}}}\right]+$$

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

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

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

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

$$6 d^2 \left(-1+e^{2c}\right) f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2) e^{2c}}}\right]-12 d e f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2) e^{2c}}}\right]+$$

$$12 d e e^{2c} f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2) e^{2c}}}\right]-12 d f^3 x \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2) e^{2c}}}\right]+$$

$$12 d e^{2c} f^3 x \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2) e^{2c}}}\right]-12 d e f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2) e^{2c}}}\right]+$$

$$12 d e e^{2c} f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2) e^{2c}}}\right]-12 d f^3 x \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2) e^{2c}}}\right]+$$

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

$$\left.12 e^{2c} f^3 \text{PolyLog}\left[4,-\frac{b e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2) e^{2c}}}\right]+12 f^3 \text{PolyLog}\left[4,-\frac{b e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2) e^{2c}}}\right]-12 e^{2c} f^3 \text{PolyLog}\left[4,-\frac{b e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2) e^{2c}}}\right]\right)-$$

$$\frac{8 a^3 (a^2+b^2) e^3 x (1+\text{Cosh}[2c]+\text{Sinh}[2c])}{b^6 (-1+\text{Cosh}[2c]+\text{Sinh}[2c])}-\frac{12 a^3 (a^2+b^2) e^2 f x^2 (1+\text{Cosh}[2c]+\text{Sinh}[2c])}{b^6 (-1+\text{Cosh}[2c]+\text{Sinh}[2c])}-$$

$$\frac{8 a^3 (a^2+b^2) e f^2 x^3 (1+\text{Cosh}[2c]+\text{Sinh}[2c])}{b^6 (-1+\text{Cosh}[2c]+\text{Sinh}[2c])}-$$

$$\frac{2 a^3 (a^2+b^2) f^3 x^4 (1+\text{Cosh}[2c]+\text{Sinh}[2c])}{b^6 (-1+\text{Cosh}[2c]+\text{Sinh}[2c])}+$$

$$\left(\left(-8 a^4-6 a^2 b^2+b^4\right) \left(d^3 e^3+3 d^2 e^2 f+6 d e f^2+6 f^3\right) \left(\frac{\text{Cosh}[c]}{2 b^5 d^4}-\frac{\text{Sinh}[c]}{2 b^5 d^4}\right)+\right.$$

$$(-8 a^4 d^2 e^2 f-6 a^2 b^2 d^2 e^2 f+b^4 d^2 e^2 f-16 a^4 d e f^2-12 a^2 b^2 d e f^2+2 b^4 d e f^2-16 a^4 f^3-12 a^2 b^2 f^3+2 b^4 f^3) \left(\frac{3 x \operatorname{Cosh}[c]}{2 b^5 d^3}-\frac{3 x \operatorname{Sinh}[c]}{2 b^5 d^3}\right)+$$

$$(-8 a^4 d e f^2-6 a^2 b^2 d e f^2+b^4 d e f^2-8 a^4 f^3-6 a^2 b^2 f^3+b^4 f^3) \left(\frac{3 x^2 \operatorname{Cosh}[c]}{2 b^5 d^2}-\frac{3 x^2 \operatorname{Sinh}[c]}{2 b^5 d^2}\right)+$$

$$(-8 a^4-6 a^2 b^2+b^4) \left(\frac{f^3 x^3 \operatorname{Cosh}[c]}{2 b^5 d}-\frac{f^3 x^3 \operatorname{Sinh}[c]}{2 b^5 d}\right)\Bigg)\Bigg) (\operatorname{Cosh}[d x]-\operatorname{Sinh}[d x])+$$

$$\Bigg(\Bigg((-8 a^4-6 a^2 b^2+b^4) (d^3 e^3-3 d^2 e^2 f+6 d e f^2-6 f^3) \left(-\frac{\operatorname{Cosh}[c]}{2 b^5 d^4}-\frac{\operatorname{Sinh}[c]}{2 b^5 d^4}\right)-\frac{1}{2 b^5 d^2}$$

$$3 x^2 (-8 a^4 d e f^2 \operatorname{Cosh}[c]-6 a^2 b^2 d e f^2 \operatorname{Cosh}[c]+b^4 d e f^2 \operatorname{Cosh}[c]+8 a^4 f^3 \operatorname{Cosh}[c]+6 a^2 b^2 f^3 \operatorname{Cosh}[c]-b^4 f^3 \operatorname{Cosh}[c]-$$

$$8 a^4 d e f^2 \operatorname{Sinh}[c]-6 a^2 b^2 d e f^2 \operatorname{Sinh}[c]+b^4 d e f^2 \operatorname{Sinh}[c]+8 a^4 f^3 \operatorname{Sinh}[c]+6 a^2 b^2 f^3 \operatorname{Sinh}[c]-b^4 f^3 \operatorname{Sinh}[c])-$$

$$\frac{1}{2 b^5 d^3} 3 x (-8 a^4 d^2 e^2 f \operatorname{Cosh}[c]-6 a^2 b^2 d^2 e^2 f \operatorname{Cosh}[c]+b^4 d^2 e^2 f \operatorname{Cosh}[c]+16 a^4 d e f^2 \operatorname{Cosh}[c]+12 a^2 b^2 d e f^2 \operatorname{Cosh}[c]-2 b^4 d e f^2 \operatorname{Cosh}[c]-$$

$$16 a^4 f^3 \operatorname{Cosh}[c]-12 a^2 b^2 f^3 \operatorname{Cosh}[c]+2 b^4 f^3 \operatorname{Cosh}[c]-8 a^4 d^2 e^2 f \operatorname{Sinh}[c]-6 a^2 b^2 d^2 e^2 f \operatorname{Sinh}[c]+b^4 d^2 e^2 f \operatorname{Sinh}[c]+$$

$$16 a^4 d e f^2 \operatorname{Sinh}[c]+12 a^2 b^2 d e f^2 \operatorname{Sinh}[c]-2 b^4 d e f^2 \operatorname{Sinh}[c]-16 a^4 f^3 \operatorname{Sinh}[c]-12 a^2 b^2 f^3 \operatorname{Sinh}[c]+2 b^4 f^3 \operatorname{Sinh}[c])+$$

$$(-8 a^4-6 a^2 b^2+b^4) \left(-\frac{f^3 x^3 \operatorname{Cosh}[c]}{2 b^5 d}-\frac{f^3 x^3 \operatorname{Sinh}[c]}{2 b^5 d}\right)\Bigg)\Bigg) (\operatorname{Cosh}[d x]+\operatorname{Sinh}[d x])+$$

$$\Bigg(\Bigg((2 a^2+b^2) (4 d^3 e^3+6 d^2 e^2 f+6 d e f^2+3 f^3) \left(-\frac{a \operatorname{Cosh}[2 c]}{8 b^4 d^4}+\frac{a \operatorname{Sinh}[2 c]}{8 b^4 d^4}\right)+$$

$$(4 a^3 d^2 e^2 f+2 a b^2 d^2 e^2 f+4 a^3 d e f^2+2 a b^2 d e f^2+2 a^3 f^3+a b^2 f^3) \left(-\frac{3 x \operatorname{Cosh}[2 c]}{4 b^4 d^3}+\frac{3 x \operatorname{Sinh}[2 c]}{4 b^4 d^3}\right)+$$

$$(4 a^3 d e f^2+2 a b^2 d e f^2+2 a^3 f^3+a b^2 f^3) \left(-\frac{3 x^2 \operatorname{Cosh}[2 c]}{4 b^4 d^2}+\frac{3 x^2 \operatorname{Sinh}[2 c]}{4 b^4 d^2}\right)+$$

$$(2 a^2+b^2) \left(-\frac{a f^3 x^3 \operatorname{Cosh}[2 c]}{2 b^4 d}+\frac{a f^3 x^3 \operatorname{Sinh}[2 c]}{2 b^4 d}\right)\Bigg)\Bigg) (\operatorname{Cosh}[2 d x]-\operatorname{Sinh}[2 d x])+$$

$$\Bigg(\Bigg((2 a^2+b^2) (4 d^3 e^3-6 d^2 e^2 f+6 d e f^2-3 f^3) \left(-\frac{a \operatorname{Cosh}[2 c]}{8 b^4 d^4}-\frac{a \operatorname{Sinh}[2 c]}{8 b^4 d^4}\right)-\frac{1}{4 b^4 d^2} 3 x^2 (4 a^3 d e f^2 \operatorname{Cosh}[2 c]+2 a b^2 d e f^2 \operatorname{Cosh}[2 c]-$$

$$2 a^3 f^3 \operatorname{Cosh}[2 c]-a b^2 f^3 \operatorname{Cosh}[2 c]+4 a^3 d e f^2 \operatorname{Sinh}[2 c]+2 a b^2 d e f^2 \operatorname{Sinh}[2 c]-2 a^3 f^3 \operatorname{Sinh}[2 c]-a b^2 f^3 \operatorname{Sinh}[2 c])-\frac{1}{4 b^4 d^3}$$

$$3 x (4 a^3 d^2 e^2 f \operatorname{Cosh}[2 c]+2 a b^2 d^2 e^2 f \operatorname{Cosh}[2 c]-4 a^3 d e f^2 \operatorname{Cosh}[2 c]-2 a b^2 d e f^2 \operatorname{Cosh}[2 c]+2 a^3 f^3 \operatorname{Cosh}[2 c]+a b^2 f^3 \operatorname{Cosh}[2 c]+$$

$$4 a^3 d^2 e^2 f \operatorname{Sinh}[2 c]+2 a b^2 d^2 e^2 f \operatorname{Sinh}[2 c]-4 a^3 d e f^2 \operatorname{Sinh}[2 c]-2 a b^2 d e f^2 \operatorname{Sinh}[2 c]+2 a^3 f^3 \operatorname{Sinh}[2 c]+a b^2 f^3 \operatorname{Sinh}[2 c])+$$

$$(2 a^2+b^2) \left(-\frac{a f^3 x^3 \operatorname{Cosh}[2 c]}{2 b^4 d}-\frac{a f^3 x^3 \operatorname{Sinh}[2 c]}{2 b^4 d}\right)\Bigg)\Bigg) (\operatorname{Cosh}[2 d x]+\operatorname{Sinh}[2 d x])+$$

$$\Bigg(\Bigg((4 a^2+b^2) (9 d^3 e^3+9 d^2 e^2 f+6 d e f^2+2 f^3) \left(-\frac{\operatorname{Cosh}[3 c]}{108 b^3 d^4}+\frac{\operatorname{Sinh}[3 c]}{108 b^3 d^4}\right)+(36 a^2 d^2 e^2 f+9 b^2 d^2 e^2 f+24 a^2 d e f^2+6 b^2 d e f^2+8 a^2 f^3+2 b^2 f^3)$$

$$\left(-\frac{x \operatorname{Cosh}[3 c]}{36 b^3 d^3}+\frac{x \operatorname{Sinh}[3 c]}{36 b^3 d^3}\right)+(12 a^2 d e f^2+3 b^2 d e f^2+4 a^2 f^3+b^2 f^3) \left(-\frac{x^2 \operatorname{Cosh}[3 c]}{12 b^3 d^2}+\frac{x^2 \operatorname{Sinh}[3 c]}{12 b^3 d^2}\right)+$$

$$(4 a^2+b^2) \left(-\frac{f^3 x^3 \operatorname{Cosh}[3 c]}{12 b^3 d}+\frac{f^3 x^3 \operatorname{Sinh}[3 c]}{12 b^3 d}\right)\Bigg)\Bigg) (\operatorname{Cosh}[3 d x]-\operatorname{Sinh}[3 d x])+$$

$$\Bigg((4a^2+b^2)(9d^3e^3-9d^2e^2f+6def^2-2f^3)\left(\frac{\text{Cosh}[3c]}{108b^3d^4}+\frac{\text{Sinh}[3c]}{108b^3d^4}\right)+\frac{1}{12b^3d^2}x^2\big(12a^2def^2\,\text{Cosh}[3c]+3b^2def^2\,\text{Cosh}[3c]-$$

$$4a^2f^3\,\text{Cosh}[3c]-b^2f^3\,\text{Cosh}[3c]+12a^2def^2\,\text{Sinh}[3c]+3b^2def^2\,\text{Sinh}[3c]-4a^2f^3\,\text{Sinh}[3c]-b^2f^3\,\text{Sinh}[3c]\big)+\frac{1}{36b^3d^3}$$

$$x\big(36a^2d^2e^2f\,\text{Cosh}[3c]+9b^2d^2e^2f\,\text{Cosh}[3c]-24a^2def^2\,\text{Cosh}[3c]-6b^2def^2\,\text{Cosh}[3c]+8a^2f^3\,\text{Cosh}[3c]+2b^2f^3\,\text{Cosh}[3c]+$$

$$36a^2d^2e^2f\,\text{Sinh}[3c]+9b^2d^2e^2f\,\text{Sinh}[3c]-24a^2def^2\,\text{Sinh}[3c]-6b^2def^2\,\text{Sinh}[3c]+8a^2f^3\,\text{Sinh}[3c]+2b^2f^3\,\text{Sinh}[3c]\big)+$$

$$(4a^2+b^2)\left(\frac{f^3x^3\,\text{Cosh}[3c]}{12b^3d}+\frac{f^3x^3\,\text{Sinh}[3c]}{12b^3d}\right)\Bigg)\,(\text{Cosh}[3dx]+\text{Sinh}[3dx])+$$

$$\Bigg(-\frac{af^3x^3\,\text{Cosh}[4c]}{8b^2d}+\frac{af^3x^3\,\text{Sinh}[4c]}{8b^2d}+(32d^3e^3+24d^2e^2f+12def^2+3f^3)\left(-\frac{a\,\text{Cosh}[4c]}{256b^2d^4}+\frac{a\,\text{Sinh}[4c]}{256b^2d^4}\right)+$$

$$(8ad^2e^2f+4adef^2+af^3)\left(-\frac{3x\,\text{Cosh}[4c]}{64b^2d^3}+\frac{3x\,\text{Sinh}[4c]}{64b^2d^3}\right)+(4adef^2+af^3)\left(-\frac{3x^2\,\text{Cosh}[4c]}{32b^2d^2}+\frac{3x^2\,\text{Sinh}[4c]}{32b^2d^2}\right)\Bigg)$$

$$(\text{Cosh}[4dx]-\text{Sinh}[4dx])+\Bigg(-\frac{af^3x^3\,\text{Cosh}[4c]}{8b^2d}-\frac{af^3x^3\,\text{Sinh}[4c]}{8b^2d}+(32d^3e^3-24d^2e^2f+12def^2-3f^3)\left(-\frac{a\,\text{Cosh}[4c]}{256b^2d^4}-\frac{a\,\text{Sinh}[4c]}{256b^2d^4}\right)-$$

$$\frac{3x^2\,(4adef^2\,\text{Cosh}[4c]-af^3\,\text{Cosh}[4c]+4adef^2\,\text{Sinh}[4c]-af^3\,\text{Sinh}[4c])}{32b^2d^2}-\frac{1}{64b^2d^3}$$

$$3x\,(8ad^2e^2f\,\text{Cosh}[4c]-4adef^2\,\text{Cosh}[4c]+af^3\,\text{Cosh}[4c]+8ad^2e^2f\,\text{Sinh}[4c]-4adef^2\,\text{Sinh}[4c]+af^3\,\text{Sinh}[4c])\Bigg)$$

$$(\text{Cosh}[4dx]+\text{Sinh}[4dx])+\Bigg(-\frac{f^3x^3\,\text{Cosh}[5c]}{20bd}+\frac{f^3x^3\,\text{Sinh}[5c]}{20bd}+(125d^3e^3+75d^2e^2f+30def^2+6f^3)\left(-\frac{\text{Cosh}[5c]}{2500bd^4}+\frac{\text{Sinh}[5c]}{2500bd^4}\right)+$$

$$(25d^2e^2f+10def^2+2f^3)\left(-\frac{3x\,\text{Cosh}[5c]}{500bd^3}+\frac{3x\,\text{Sinh}[5c]}{500bd^3}\right)+(5def^2+f^3)\left(-\frac{3x^2\,\text{Cosh}[5c]}{100bd^2}+\frac{3x^2\,\text{Sinh}[5c]}{100bd^2}\right)\Bigg)$$

$$(\text{Cosh}[5dx]-\text{Sinh}[5dx])+\Bigg(\frac{f^3x^3\,\text{Cosh}[5c]}{20bd}+\frac{f^3x^3\,\text{Sinh}[5c]}{20bd}+(125d^3e^3-75d^2e^2f+30def^2-6f^3)\left(\frac{\text{Cosh}[5c]}{2500bd^4}+\frac{\text{Sinh}[5c]}{2500bd^4}\right)+$$

$$\frac{3x^2\,(5def^2\,\text{Cosh}[5c]-f^3\,\text{Cosh}[5c]+5def^2\,\text{Sinh}[5c]-f^3\,\text{Sinh}[5c])}{100bd^2}+\frac{1}{500bd^3}$$

$$3x\,(25d^2e^2f\,\text{Cosh}[5c]-10def^2\,\text{Cosh}[5c]+2f^3\,\text{Cosh}[5c]+25d^2e^2f\,\text{Sinh}[5c]-10def^2\,\text{Sinh}[5c]+2f^3\,\text{Sinh}[5c])\Bigg)\,(\text{Cosh}[5dx]+$$

$$\text{Sinh}[5dx])\Bigg)$$

Problem 402: Result more than twice size of optimal antiderivative.

$$\int\frac{(e+fx)^2\,\text{Cosh}[c+dx]^3\,\text{Sinh}[c+dx]^3}{a+b\,\text{Sinh}[c+dx]}\,dx$$

Optimal (type 4, 1049 leaves, 40 steps):

$$-\frac{a^3 e f x}{2 b^4 d}+\frac{3 a e f x}{16 b^2 d}-\frac{a^3 f^2 x^2}{4 b^4 d}+\frac{3 a f^2 x^2}{32 b^2 d}+\frac{a^3 \left(a^2+b^2\right) (e+f x)^3}{3 b^6 f}-\frac{2 a^4 f (e+f x) \text{Cosh}[c+d x]}{b^5 d^2}-\frac{4 a^2 f (e+f x) \text{Cosh}[c+d x]}{3 b^3 d^2}+\frac{f (e+f x) \text{Cosh}[c+d x]}{4 b d^2}-\frac{3 a f^2 \text{Cosh}[c+d x]^2}{32 b^2 d^3}-\frac{2 a^2 f (e+f x) \text{Cosh}[c+d x]^3}{9 b^3 d^2}-\frac{a f^2 \text{Cosh}[c+d x]^4}{32 b^2 d^3}-\frac{a (e+f x)^2 \text{Cosh}[c+d x]^4}{4 b^2 d}-\frac{f (e+f x) \text{Cosh}[3 c+3 d x]}{72 b d^2}-\frac{f (e+f x) \text{Cosh}[5 c+5 d x]}{200 b d^2}-\frac{a^3 \left(a^2+b^2\right) (e+f x)^2 \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^6 d}-\frac{a^3 \left(a^2+b^2\right) (e+f x)^2 \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^6 d}-\frac{2 a^3 \left(a^2+b^2\right) f (e+f x) \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^6 d^2}-\frac{2 a^3 \left(a^2+b^2\right) f (e+f x) \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^6 d^2}+\frac{2 a^3 \left(a^2+b^2\right) f^2 \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^6 d^3}+\frac{2 a^3 \left(a^2+b^2\right) f^2 \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^6 d^3}+\frac{2 a^4 f^2 \text{Sinh}[c+d x]}{b^5 d^3}+\frac{14 a^2 f^2 \text{Sinh}[c+d x]}{9 b^3 d^3}-\frac{f^2 \text{Sinh}[c+d x]}{4 b d^3}+\frac{a^4 (e+f x)^2 \text{Sinh}[c+d x]}{b^5 d}+\frac{2 a^2 (e+f x)^2 \text{Sinh}[c+d x]}{3 b^3 d}-\frac{(e+f x)^2 \text{Sinh}[c+d x]}{8 b d}+\frac{a^3 f (e+f x) \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{2 b^4 d^2}+\frac{3 a f (e+f x) \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{16 b^2 d^2}+\frac{a^2 (e+f x)^2 \text{Cosh}[c+d x]^2 \text{Sinh}[c+d x]}{3 b^3 d}+\frac{a f (e+f x) \text{Cosh}[c+d x]^3 \text{Sinh}[c+d x]}{8 b^2 d^2}-\frac{a^3 f^2 \text{Sinh}[c+d x]^2}{4 b^4 d^3}-\frac{a^3 (e+f x)^2 \text{Sinh}[c+d x]^2}{2 b^4 d}+\frac{2 a^2 f^2 \text{Sinh}[c+d x]^3}{27 b^3 d^3}+\frac{f^2 \text{Sinh}[3 c+3 d x]}{216 b d^3}+\frac{(e+f x)^2 \text{Sinh}[3 c+3 d x]}{48 b d}+\frac{f^2 \text{Sinh}[5 c+5 d x]}{1000 b d^3}+\frac{(e+f x)^2 \text{Sinh}[5 c+5 d x]}{80 b d}$$

Result (type 4, 2913 leaves):

$$\frac{1}{8}\left(\frac{1}{3 b^6 d^3 \left(-1+e^{2 c}\right)} 8 a^3 \left(a^2+b^2\right) \left(6 d^3 e^2 e^{2 c} x+6 d^3 e\, e^{2 c} f x^2+2 d^3 e^{2 c} f^2 x^3+\right.\right.$$
$$3 d^2 e^2 \text{Log}\left[2 a e^{c+d x}+b \left(-1+e^{2 (c+d x)}\right)\right]-3 d^2 e^2 e^{2 c} \text{Log}\left[2 a e^{c+d x}+b \left(-1+e^{2 (c+d x)}\right)\right]+6 d^2 e f x \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-$$
$$6 d^2 e\, e^{2 c} f x \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+3 d^2 f^2 x^2 \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-3 d^2 e^{2 c} f^2 x^2 \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+$$
$$6 d^2 e f x \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-6 d^2 e\, e^{2 c} f x \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+3 d^2 f^2 x^2 \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-$$
$$3 d^2 e^{2 c} f^2 x^2 \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-6 d \left(-1+e^{2 c}\right) f (e+f x) \text{PolyLog}\left[2,-\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-$$

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

$$6\,e^{2\,c}\,f^{2}\,\text{PolyLog}\left[3,\,-\frac{b\,e^{2\,c+d\,x}}{a\,e^{c}-\sqrt{\left(a^{2}+b^{2}\right)\,e^{2\,c}}}\right]-6\,f^{2}\,\text{PolyLog}\left[3,\,-\frac{b\,e^{2\,c+d\,x}}{a\,e^{c}+\sqrt{\left(a^{2}+b^{2}\right)\,e^{2\,c}}}\right]+6\,e^{2\,c}\,f^{2}\,\text{PolyLog}\left[3,\,-\frac{b\,e^{2\,c+d\,x}}{a\,e^{c}+\sqrt{\left(a^{2}+b^{2}\right)\,e^{2\,c}}}\right]\Bigg)-$$

$$\frac{8\,a^{3}\,\left(a^{2}+b^{2}\right)\,e^{2}\,x\,\left(1+\text{Cosh}[2\,c]+\text{Sinh}[2\,c]\right)}{b^{6}\,\left(-1+\text{Cosh}[2\,c]+\text{Sinh}[2\,c]\right)}-\frac{8\,a^{3}\,\left(a^{2}+b^{2}\right)\,e\,f\,x^{2}\,\left(1+\text{Cosh}[2\,c]+\text{Sinh}[2\,c]\right)}{b^{6}\,\left(-1+\text{Cosh}[2\,c]+\text{Sinh}[2\,c]\right)}-$$

$$\frac{8\,a^{3}\,\left(a^{2}+b^{2}\right)\,f^{2}\,x^{3}\,\left(1+\text{Cosh}[2\,c]+\text{Sinh}[2\,c]\right)}{3\,b^{6}\,\left(-1+\text{Cosh}[2\,c]+\text{Sinh}[2\,c]\right)}+$$

$$\Bigg(\left(-8\,a^{4}-6\,a^{2}\,b^{2}+b^{4}\right)\,\left(d^{2}\,e^{2}+2\,d\,e\,f+2\,f^{2}\right)\,\left(\frac{\text{Cosh}[c]}{2\,b^{5}\,d^{3}}-\frac{\text{Sinh}[c]}{2\,b^{5}\,d^{3}}\right)+\left(8\,a^{4}\,d\,e\,f+6\,a^{2}\,b^{2}\,d\,e\,f-b^{4}\,d\,e\,f+8\,a^{4}\,f^{2}+6\,a^{2}\,b^{2}\,f^{2}-b^{4}\,f^{2}\right)$$

$$\left(-\frac{x\,\text{Cosh}[c]}{b^{5}\,d^{2}}+\frac{x\,\text{Sinh}[c]}{b^{5}\,d^{2}}\right)+\left(-8\,a^{4}-6\,a^{2}\,b^{2}+b^{4}\right)\,\left(\frac{f^{2}\,x^{2}\,\text{Cosh}[c]}{2\,b^{5}\,d}-\frac{f^{2}\,x^{2}\,\text{Sinh}[c]}{2\,b^{5}\,d}\right)\Bigg)$$

$$\left(\text{Cosh}[d\,x]-\text{Sinh}[d\,x]\right)+\Bigg(\left(-8\,a^{4}-6\,a^{2}\,b^{2}+b^{4}\right)\,\left(d^{2}\,e^{2}-2\,d\,e\,f+2\,f^{2}\right)\,\left(-\frac{\text{Cosh}[c]}{2\,b^{5}\,d^{3}}-\frac{\text{Sinh}[c]}{2\,b^{5}\,d^{3}}\right)+\frac{1}{b^{5}\,d^{2}}$$

$$x\,\left(8\,a^{4}\,d\,e\,f\,\text{Cosh}[c]+6\,a^{2}\,b^{2}\,d\,e\,f\,\text{Cosh}[c]-b^{4}\,d\,e\,f\,\text{Cosh}[c]-8\,a^{4}\,f^{2}\,\text{Cosh}[c]-6\,a^{2}\,b^{2}\,f^{2}\,\text{Cosh}[c]+b^{4}\,f^{2}\,\text{Cosh}[c]+\right.$$

$$\left.8\,a^{4}\,d\,e\,f\,\text{Sinh}[c]+6\,a^{2}\,b^{2}\,d\,e\,f\,\text{Sinh}[c]-b^{4}\,d\,e\,f\,\text{Sinh}[c]-8\,a^{4}\,f^{2}\,\text{Sinh}[c]-6\,a^{2}\,b^{2}\,f^{2}\,\text{Sinh}[c]+b^{4}\,f^{2}\,\text{Sinh}[c]\right)+$$

$$\left(-8\,a^{4}-6\,a^{2}\,b^{2}+b^{4}\right)\,\left(-\frac{f^{2}\,x^{2}\,\text{Cosh}[c]}{2\,b^{5}\,d}-\frac{f^{2}\,x^{2}\,\text{Sinh}[c]}{2\,b^{5}\,d}\right)\Bigg)\,\left(\text{Cosh}[d\,x]+\text{Sinh}[d\,x]\right)+$$

$$\Bigg(\left(2\,a^{2}+b^{2}\right)\,\left(2\,d^{2}\,e^{2}+2\,d\,e\,f+f^{2}\right)\,\left(-\frac{a\,\text{Cosh}[2\,c]}{4\,b^{4}\,d^{3}}+\frac{a\,\text{Sinh}[2\,c]}{4\,b^{4}\,d^{3}}\right)+\left(4\,a^{3}\,d\,e\,f+2\,a\,b^{2}\,d\,e\,f+2\,a^{3}\,f^{2}+a\,b^{2}\,f^{2}\right)\,\left(-\frac{x\,\text{Cosh}[2\,c]}{2\,b^{4}\,d^{2}}+\frac{x\,\text{Sinh}[2\,c]}{2\,b^{4}\,d^{2}}\right)+$$

$$\left(2\,a^{2}+b^{2}\right)\,\left(-\frac{a\,f^{2}\,x^{2}\,\text{Cosh}[2\,c]}{2\,b^{4}\,d}+\frac{a\,f^{2}\,x^{2}\,\text{Sinh}[2\,c]}{2\,b^{4}\,d}\right)\Bigg)\,\left(\text{Cosh}[2\,d\,x]-\text{Sinh}[2\,d\,x]\right)+$$

$$\Bigg(\left(2\,a^{2}+b^{2}\right)\,\left(2\,d^{2}\,e^{2}-2\,d\,e\,f+f^{2}\right)\,\left(-\frac{a\,\text{Cosh}[2\,c]}{4\,b^{4}\,d^{3}}-\frac{a\,\text{Sinh}[2\,c]}{4\,b^{4}\,d^{3}}\right)+\frac{1}{2\,b^{4}\,d^{2}}x\,\left(-4\,a^{3}\,d\,e\,f\,\text{Cosh}[2\,c]-2\,a\,b^{2}\,d\,e\,f\,\text{Cosh}[2\,c]+\right.$$

$$\left.2\,a^{3}\,f^{2}\,\text{Cosh}[2\,c]+a\,b^{2}\,f^{2}\,\text{Cosh}[2\,c]-4\,a^{3}\,d\,e\,f\,\text{Sinh}[2\,c]-2\,a\,b^{2}\,d\,e\,f\,\text{Sinh}[2\,c]+2\,a^{3}\,f^{2}\,\text{Sinh}[2\,c]+a\,b^{2}\,f^{2}\,\text{Sinh}[2\,c]\right)+$$

$$\left(2\,a^{2}+b^{2}\right)\,\left(-\frac{a\,f^{2}\,x^{2}\,\text{Cosh}[2\,c]}{2\,b^{4}\,d}-\frac{a\,f^{2}\,x^{2}\,\text{Sinh}[2\,c]}{2\,b^{4}\,d}\right)\Bigg)\,\left(\text{Cosh}[2\,d\,x]+\text{Sinh}[2\,d\,x]\right)+$$

$$\Bigg(\left(4\,a^{2}+b^{2}\right)\,\left(9\,d^{2}\,e^{2}+6\,d\,e\,f+2\,f^{2}\right)\,\left(-\frac{\text{Cosh}[3\,c]}{108\,b^{3}\,d^{3}}+\frac{\text{Sinh}[3\,c]}{108\,b^{3}\,d^{3}}\right)+\left(12\,a^{2}\,d\,e\,f+3\,b^{2}\,d\,e\,f+4\,a^{2}\,f^{2}+b^{2}\,f^{2}\right)\,\left(-\frac{x\,\text{Cosh}[3\,c]}{18\,b^{3}\,d^{2}}+\frac{x\,\text{Sinh}[3\,c]}{18\,b^{3}\,d^{2}}\right)+$$

$$\left(4\,a^{2}+b^{2}\right)\,\left(-\frac{f^{2}\,x^{2}\,\text{Cosh}[3\,c]}{12\,b^{3}\,d}+\frac{f^{2}\,x^{2}\,\text{Sinh}[3\,c]}{12\,b^{3}\,d}\right)\Bigg)\,\left(\text{Cosh}[3\,d\,x]-\text{Sinh}[3\,d\,x]\right)+$$

$$\Bigg(\left(4\,a^{2}+b^{2}\right)\,\left(9\,d^{2}\,e^{2}-6\,d\,e\,f+2\,f^{2}\right)\,\left(\frac{\text{Cosh}[3\,c]}{108\,b^{3}\,d^{3}}+\frac{\text{Sinh}[3\,c]}{108\,b^{3}\,d^{3}}\right)+\frac{1}{18\,b^{3}\,d^{2}}x\,\left(12\,a^{2}\,d\,e\,f\,\text{Cosh}[3\,c]+3\,b^{2}\,d\,e\,f\,\text{Cosh}[3\,c]-\right.$$

$$\left.4\,a^{2}\,f^{2}\,\text{Cosh}[3\,c]-b^{2}\,f^{2}\,\text{Cosh}[3\,c]+12\,a^{2}\,d\,e\,f\,\text{Sinh}[3\,c]+3\,b^{2}\,d\,e\,f\,\text{Sinh}[3\,c]-4\,a^{2}\,f^{2}\,\text{Sinh}[3\,c]-b^{2}\,f^{2}\,\text{Sinh}[3\,c]\right)+$$

$$\left(4 a^2+b^2\right)\left(\frac{f^2 x^2 \text{Cosh}[3 c]}{12 b^3 d}+\frac{f^2 x^2 \text{Sinh}[3 c]}{12 b^3 d}\right)\right)(\text{Cosh}[3 d x]+\text{Sinh}[3 d x])+$$
$$\left(-\frac{a f^2 x^2 \text{Cosh}[4 c]}{8 b^2 d}+\frac{a f^2 x^2 \text{Sinh}[4 c]}{8 b^2 d}+\left(8 d^2 e^2+4 d e f+f^2\right)\left(-\frac{a \text{Cosh}[4 c]}{64 b^2 d^3}+\frac{a \text{Sinh}[4 c]}{64 b^2 d^3}\right)+\left(4 a d e f+a f^2\right)\left(-\frac{x \text{Cosh}[4 c]}{16 b^2 d^2}+\frac{x \text{Sinh}[4 c]}{16 b^2 d^2}\right)\right)$$
$$(\text{Cosh}[4 d x]-\text{Sinh}[4 d x])+$$
$$\left(-\frac{a f^2 x^2 \text{Cosh}[4 c]}{8 b^2 d}-\frac{a f^2 x^2 \text{Sinh}[4 c]}{8 b^2 d}+\left(8 d^2 e^2-4 d e f+f^2\right)\left(-\frac{a \text{Cosh}[4 c]}{64 b^2 d^3}-\frac{a \text{Sinh}[4 c]}{64 b^2 d^3}\right)+\right.$$
$$\left.\frac{x\left(-4 a d e f \text{Cosh}[4 c]+a f^2 \text{Cosh}[4 c]-4 a d e f \text{Sinh}[4 c]+a f^2 \text{Sinh}[4 c]\right)}{16 b^2 d^2}\right)(\text{Cosh}[4 d x]+\text{Sinh}[4 d x])+$$
$$\left(-\frac{f^2 x^2 \text{Cosh}[5 c]}{20 b d}+\frac{f^2 x^2 \text{Sinh}[5 c]}{20 b d}+\left(25 d^2 e^2+10 d e f+2 f^2\right)\left(-\frac{\text{Cosh}[5 c]}{500 b d^3}+\frac{\text{Sinh}[5 c]}{500 b d^3}\right)+\left(5 d e f+f^2\right)\left(-\frac{x \text{Cosh}[5 c]}{50 b d^2}+\frac{x \text{Sinh}[5 c]}{50 b d^2}\right)\right)$$
$$(\text{Cosh}[5 d x]-\text{Sinh}[5 d x])+$$
$$\left(\frac{f^2 x^2 \text{Cosh}[5 c]}{20 b d}+\frac{f^2 x^2 \text{Sinh}[5 c]}{20 b d}+\left(25 d^2 e^2-10 d e f+2 f^2\right)\left(\frac{\text{Cosh}[5 c]}{500 b d^3}+\frac{\text{Sinh}[5 c]}{500 b d^3}\right)+\right.$$
$$\left.\frac{x\left(5 d e f \text{Cosh}[5 c]-f^2 \text{Cosh}[5 c]+5 d e f \text{Sinh}[5 c]-f^2 \text{Sinh}[5 c]\right)}{50 b d^2}\right)(\text{Cosh}[5 d x]+\text{Sinh}[5 d x])\Bigg)$$

Problem 403: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x) \text{Cosh}[c+d x]^3 \text{Sinh}[c+d x]^3}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 641 leaves, 31 steps):

$$-\frac{a^3 f x}{4 b^4 d}+\frac{3 a f x}{32 b^2 d}+\frac{a^3\left(a^2+b^2\right)(e+f x)^2}{2 b^6 f}-\frac{a^4 f \text{Cosh}[c+d x]}{b^5 d^2}-\frac{2 a^2 f \text{Cosh}[c+d x]}{3 b^3 d^2}+\frac{f \text{Cosh}[c+d x]}{8 b d^2}-\frac{a^2 f \text{Cosh}[c+d x]^3}{9 b^3 d^2}-\frac{a (e+f x) \text{Cosh}[c+d x]^4}{4 b^2 d}-$$
$$\frac{f \text{Cosh}[3 c+3 d x]}{144 b d^2}-\frac{f \text{Cosh}[5 c+5 d x]}{400 b d^2}-\frac{a^3\left(a^2+b^2\right)(e+f x) \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^6 d}-\frac{a^3\left(a^2+b^2\right)(e+f x) \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^6 d}-$$
$$\frac{a^3\left(a^2+b^2\right) f \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b^6 d^2}-\frac{a^3\left(a^2+b^2\right) f \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b^6 d^2}+\frac{a^4 (e+f x) \text{Sinh}[c+d x]}{b^5 d}+\frac{2 a^2 (e+f x) \text{Sinh}[c+d x]}{3 b^3 d}-$$
$$\frac{(e+f x) \text{Sinh}[c+d x]}{8 b d}+\frac{a^3 f \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 b^4 d^2}+\frac{3 a f \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{32 b^2 d^2}+\frac{a^2 (e+f x) \text{Cosh}[c+d x]^2 \text{Sinh}[c+d x]}{3 b^3 d}+$$
$$\frac{a f \text{Cosh}[c+d x]^3 \text{Sinh}[c+d x]}{16 b^2 d^2}-\frac{a^3 (e+f x) \text{Sinh}[c+d x]^2}{2 b^4 d}+\frac{(e+f x) \text{Sinh}[3 c+3 d x]}{48 b d}+\frac{(e+f x) \text{Sinh}[5 c+5 d x]}{80 b d}$$

Result (type 4, 3316 leaves):

$$\frac{1}{8}\left(-\frac{8 a^5 e \operatorname{Log}\left[1+\frac{b \operatorname{Sinh}[c+d x]}{a}\right]}{b^6 d}-\frac{8 a^3 e \operatorname{Log}\left[1+\frac{b \operatorname{Sinh}[c+d x]}{a}\right]}{b^4 d}+\frac{8 a^5 c f \operatorname{Log}\left[1+\frac{b \operatorname{Sinh}[c+d x]}{a}\right]}{b^6 d^2}+\right.$$

$$\frac{8 a^3 c f \operatorname{Log}\left[1+\frac{b \operatorname{Sinh}[c+d x]}{a}\right]}{b^4 d^2}-\frac{1}{b^5 d^2} 8 a^5 f\left(\frac{(c+d x) \operatorname{Log}[a+b \operatorname{Sinh}[c+d x]]}{b}-\frac{1}{b} i\left(\frac{1}{2} i\left(\frac{\pi}{2}-i(c+d x)\right)^2-4 i \operatorname{ArcSin}\left[\frac{\sqrt{\frac{i(a-i b)}{b}}}{\sqrt{2}}\right]\right.\right.$$

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

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

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

$$\frac{1}{b^3 d^2} 8 a^3 f\left(\frac{(c+d x) \operatorname{Log}[a+b \operatorname{Sinh}[c+d x]]}{b}-\frac{1}{b} i\left(\frac{1}{2} i\left(\frac{\pi}{2}-i(c+d x)\right)^2-4 i \operatorname{ArcSin}\left[\frac{\sqrt{\frac{i(a-i b)}{b}}}{\sqrt{2}}\right]\right.\right.$$

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

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

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

$$\frac{1}{d}\left(\frac{\text{Cosh}\left[5\left(c + d x\right)\right]}{7200\, b^5\, d} - \frac{\text{Sinh}\left[5\left(c + d x\right)\right]}{7200\, b^5\, d}\right) \left(-360\, b^4\, d\, e - 72\, b^4\, f + 360\, b^4\, c\, f - 360\, b^4\, f\left(c + d x\right) - 900\, a\, b^3\, d\, e\, \text{Cosh}\left[c + d x\right] -\right.$$

$$225\, a\, b^3\, f\, \text{Cosh}\left[c + d x\right] + 900\, a\, b^3\, c\, f\, \text{Cosh}\left[c + d x\right] - 900\, a\, b^3\, f\left(c + d x\right) \text{Cosh}\left[c + d x\right] - 2400\, a^2\, b^2\, d\, e\, \text{Cosh}\left[2\left(c + d x\right)\right] -$$

$$600\, b^4\, d\, e\, \text{Cosh}\left[2\left(c + d x\right)\right] - 800\, a^2\, b^2\, f\, \text{Cosh}\left[2\left(c + d x\right)\right] - 200\, b^4\, f\, \text{Cosh}\left[2\left(c + d x\right)\right] + 2400\, a^2\, b^2\, c\, f\, \text{Cosh}\left[2\left(c + d x\right)\right] +$$

$$600\, b^4\, c\, f\, \text{Cosh}\left[2\left(c + d x\right)\right] - 2400\, a^2\, b^2\, f\left(c + d x\right) \text{Cosh}\left[2\left(c + d x\right)\right] - 600\, b^4\, f\left(c + d x\right) \text{Cosh}\left[2\left(c + d x\right)\right] - 7200\, a^3\, b\, d\, e\, \text{Cosh}\left[3\left(c + d x\right)\right] -$$

$$3600\, a\, b^3\, d\, e\, \text{Cosh}\left[3\left(c + d x\right)\right] - 3600\, a^3\, b\, f\, \text{Cosh}\left[3\left(c + d x\right)\right] - 1800\, a\, b^3\, f\, \text{Cosh}\left[3\left(c + d x\right)\right] + 7200\, a^3\, b\, c\, f\, \text{Cosh}\left[3\left(c + d x\right)\right] +$$

$$3600\, a\, b^3\, c\, f\, \text{Cosh}\left[3\left(c + d x\right)\right] - 7200\, a^3\, b\, f\left(c + d x\right) \text{Cosh}\left[3\left(c + d x\right)\right] - 3600\, a\, b^3\, f\left(c + d x\right) \text{Cosh}\left[3\left(c + d x\right)\right] -$$

$$28\,800\, a^4\, d\, e\, \text{Cosh}\left[4\left(c + d x\right)\right] - 21\,600\, a^2\, b^2\, d\, e\, \text{Cosh}\left[4\left(c + d x\right)\right] + 3600\, b^4\, d\, e\, \text{Cosh}\left[4\left(c + d x\right)\right] - 28\,800\, a^4\, f\, \text{Cosh}\left[4\left(c + d x\right)\right] -$$

$$21\,600\, a^2\, b^2\, f\, \text{Cosh}\left[4\left(c + d x\right)\right] + 3600\, b^4\, f\, \text{Cosh}\left[4\left(c + d x\right)\right] + 28\,800\, a^4\, c\, f\, \text{Cosh}\left[4\left(c + d x\right)\right] + 21\,600\, a^2\, b^2\, c\, f\, \text{Cosh}\left[4\left(c + d x\right)\right] -$$

$$3600\, b^4\, c\, f\, \text{Cosh}\left[4\left(c + d x\right)\right] - 28\,800\, a^4\, f\left(c + d x\right) \text{Cosh}\left[4\left(c + d x\right)\right] - 21\,600\, a^2\, b^2\, f\left(c + d x\right) \text{Cosh}\left[4\left(c + d x\right)\right] +$$

$$3600\, b^4\, f\left(c + d x\right) \text{Cosh}\left[4\left(c + d x\right)\right] + 28\,800\, a^4\, d\, e\, \text{Cosh}\left[6\left(c + d x\right)\right] + 21\,600\, a^2\, b^2\, d\, e\, \text{Cosh}\left[6\left(c + d x\right)\right] - 3600\, b^4\, d\, e\, \text{Cosh}\left[6\left(c + d x\right)\right] -$$

$$28\,800\, a^4\, f\, \text{Cosh}\left[6\left(c + d x\right)\right] - 21\,600\, a^2\, b^2\, f\, \text{Cosh}\left[6\left(c + d x\right)\right] + 3600\, b^4\, f\, \text{Cosh}\left[6\left(c + d x\right)\right] - 28\,800\, a^4\, c\, f\, \text{Cosh}\left[6\left(c + d x\right)\right] -$$

$$21\,600\, a^2\, b^2\, c\, f\, \text{Cosh}\left[6\left(c + d x\right)\right] + 3600\, b^4\, c\, f\, \text{Cosh}\left[6\left(c + d x\right)\right] + 28\,800\, a^4\, f\left(c + d x\right) \text{Cosh}\left[6\left(c + d x\right)\right] +$$

$$21\,600\, a^2\, b^2\, f\left(c + d x\right) \text{Cosh}\left[6\left(c + d x\right)\right] - 3600\, b^4\, f\left(c + d x\right) \text{Cosh}\left[6\left(c + d x\right)\right] - 7200\, a^3\, b\, d\, e\, \text{Cosh}\left[7\left(c + d x\right)\right] -$$

$$3600\, a\, b^3\, d\, e\, \text{Cosh}\left[7\left(c + d x\right)\right] + 3600\, a^3\, b\, f\, \text{Cosh}\left[7\left(c + d x\right)\right] + 1800\, a\, b^3\, f\, \text{Cosh}\left[7\left(c + d x\right)\right] + 7200\, a^3\, b\, c\, f\, \text{Cosh}\left[7\left(c + d x\right)\right] +$$

$$3600\, a\, b^3\, c\, f\, \text{Cosh}\left[7\left(c + d x\right)\right] - 7200\, a^3\, b\, f\left(c + d x\right) \text{Cosh}\left[7\left(c + d x\right)\right] - 3600\, a\, b^3\, f\left(c + d x\right) \text{Cosh}\left[7\left(c + d x\right)\right] +$$

$$2400\, a^2\, b^2\, d\, e\, \text{Cosh}\left[8\left(c + d x\right)\right] + 600\, b^4\, d\, e\, \text{Cosh}\left[8\left(c + d x\right)\right] - 800\, a^2\, b^2\, f\, \text{Cosh}\left[8\left(c + d x\right)\right] - 200\, b^4\, f\, \text{Cosh}\left[8\left(c + d x\right)\right] -$$

$$2400\, a^2\, b^2\, c\, f\, \text{Cosh}\left[8\left(c + d x\right)\right] - 600\, b^4\, c\, f\, \text{Cosh}\left[8\left(c + d x\right)\right] + 2400\, a^2\, b^2\, f\left(c + d x\right) \text{Cosh}\left[8\left(c + d x\right)\right] +$$

$$600\, b^4\, f\left(c + d x\right) \text{Cosh}\left[8\left(c + d x\right)\right] - 900\, a\, b^3\, d\, e\, \text{Cosh}\left[9\left(c + d x\right)\right] + 225\, a\, b^3\, f\, \text{Cosh}\left[9\left(c + d x\right)\right] + 900\, a\, b^3\, c\, f\, \text{Cosh}\left[9\left(c + d x\right)\right] -$$

$$900\, a\, b^3\, f\left(c + d x\right) \text{Cosh}\left[9\left(c + d x\right)\right] + 360\, b^4\, d\, e\, \text{Cosh}\left[10\left(c + d x\right)\right] - 72\, b^4\, f\, \text{Cosh}\left[10\left(c + d x\right)\right] - 360\, b^4\, c\, f\, \text{Cosh}\left[10\left(c + d x\right)\right] +$$

$$360\, b^4\, f\left(c + d x\right) \text{Cosh}\left[10\left(c + d x\right)\right] - 900\, a\, b^3\, d\, e\, \text{Sinh}\left[c + d x\right] - 225\, a\, b^3\, f\, \text{Sinh}\left[c + d x\right] + 900\, a\, b^3\, c\, f\, \text{Sinh}\left[c + d x\right] -$$

$$900\, a\, b^3\, f\left(c + d x\right) \text{Sinh}\left[c + d x\right] - 2400\, a^2\, b^2\, d\, e\, \text{Sinh}\left[2\left(c + d x\right)\right] - 600\, b^4\, d\, e\, \text{Sinh}\left[2\left(c + d x\right)\right] - 800\, a^2\, b^2\, f\, \text{Sinh}\left[2\left(c + d x\right)\right] -$$

$$200\, b^4\, f\, \text{Sinh}\left[2\left(c + d x\right)\right] + 2400\, a^2\, b^2\, c\, f\, \text{Sinh}\left[2\left(c + d x\right)\right] + 600\, b^4\, c\, f\, \text{Sinh}\left[2\left(c + d x\right)\right] - 2400\, a^2\, b^2\, f\left(c + d x\right) \text{Sinh}\left[2\left(c + d x\right)\right] -$$

$$600\, b^4\, f\left(c + d x\right) \text{Sinh}\left[2\left(c + d x\right)\right] - 7200\, a^3\, b\, d\, e\, \text{Sinh}\left[3\left(c + d x\right)\right] - 3600\, a\, b^3\, d\, e\, \text{Sinh}\left[3\left(c + d x\right)\right] - 3600\, a^3\, b\, f\, \text{Sinh}\left[3\left(c + d x\right)\right] -$$

$$1800\, a\, b^3\, f\, \text{Sinh}\left[3\left(c + d x\right)\right] + 7200\, a^3\, b\, c\, f\, \text{Sinh}\left[3\left(c + d x\right)\right] + 3600\, a\, b^3\, c\, f\, \text{Sinh}\left[3\left(c + d x\right)\right] - 7200\, a^3\, b\, f\left(c + d x\right) \text{Sinh}\left[3\left(c + d x\right)\right] -$$

$$3600\, a\, b^3\, f\left(c + d x\right) \text{Sinh}\left[3\left(c + d x\right)\right] - 28\,800\, a^4\, d\, e\, \text{Sinh}\left[4\left(c + d x\right)\right] - 21\,600\, a^2\, b^2\, d\, e\, \text{Sinh}\left[4\left(c + d x\right)\right] +$$

$$3600\, b^4\, d\, e\, \text{Sinh}\left[4\left(c + d x\right)\right] - 28\,800\, a^4\, f\, \text{Sinh}\left[4\left(c + d x\right)\right] - 21\,600\, a^2\, b^2\, f\, \text{Sinh}\left[4\left(c + d x\right)\right] + 3600\, b^4\, f\, \text{Sinh}\left[4\left(c + d x\right)\right] +$$

$$28\,800\, a^4\, c\, f\, \text{Sinh}\left[4\left(c + d x\right)\right] + 21\,600\, a^2\, b^2\, c\, f\, \text{Sinh}\left[4\left(c + d x\right)\right] - 3600\, b^4\, c\, f\, \text{Sinh}\left[4\left(c + d x\right)\right] - 28\,800\, a^4\, f\left(c + d x\right) \text{Sinh}\left[4\left(c + d x\right)\right] -$$

$21600 a^2 b^2 f (c+d x) \text{Sinh}[4 (c+d x)] + 3600 b^4 f (c+d x) \text{Sinh}[4 (c+d x)] + 28800 a^4 d e \text{Sinh}[6 (c+d x)] +$
$21600 a^2 b^2 d e \text{Sinh}[6 (c+d x)] - 3600 b^4 d e \text{Sinh}[6 (c+d x)] - 28800 a^4 f \text{Sinh}[6 (c+d x)] - 21600 a^2 b^2 f \text{Sinh}[6 (c+d x)] +$
$3600 b^4 f \text{Sinh}[6 (c+d x)] - 28800 a^4 c f \text{Sinh}[6 (c+d x)] - 21600 a^2 b^2 c f \text{Sinh}[6 (c+d x)] + 3600 b^4 c f \text{Sinh}[6 (c+d x)] +$
$28800 a^4 f (c+d x) \text{Sinh}[6 (c+d x)] + 21600 a^2 b^2 f (c+d x) \text{Sinh}[6 (c+d x)] - 3600 b^4 f (c+d x) \text{Sinh}[6 (c+d x)] -$
$7200 a^3 b d e \text{Sinh}[7 (c+d x)] - 3600 a b^3 d e \text{Sinh}[7 (c+d x)] + 3600 a^3 b f \text{Sinh}[7 (c+d x)] + 1800 a b^3 f \text{Sinh}[7 (c+d x)] +$
$7200 a^3 b c f \text{Sinh}[7 (c+d x)] + 3600 a b^3 c f \text{Sinh}[7 (c+d x)] - 7200 a^3 b f (c+d x) \text{Sinh}[7 (c+d x)] - 3600 a b^3 f (c+d x) \text{Sinh}[7 (c+d x)] +$
$2400 a^2 b^2 d e \text{Sinh}[8 (c+d x)] + 600 b^4 d e \text{Sinh}[8 (c+d x)] - 800 a^2 b^2 f \text{Sinh}[8 (c+d x)] - 200 b^4 f \text{Sinh}[8 (c+d x)] -$
$2400 a^2 b^2 c f \text{Sinh}[8 (c+d x)] - 600 b^4 c f \text{Sinh}[8 (c+d x)] + 2400 a^2 b^2 f (c+d x) \text{Sinh}[8 (c+d x)] + 600 b^4 f (c+d x) \text{Sinh}[8 (c+d x)] -$
$900 a b^3 d e \text{Sinh}[9 (c+d x)] + 225 a b^3 f \text{Sinh}[9 (c+d x)] + 900 a b^3 c f \text{Sinh}[9 (c+d x)] - 900 a b^3 f (c+d x) \text{Sinh}[9 (c+d x)] +$

$360 b^4 d e \text{Sinh}[10 (c+d x)] - 72 b^4 f \text{Sinh}[10 (c+d x)] - 360 b^4 c f \text{Sinh}[10 (c+d x)] + 360 b^4 f (c+d x) \text{Sinh}[10 (c+d x)]) \Bigg)$

Problem 405: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Cosh}[c+d x]^3 \text{Sinh}[c+d x]^3}{(e+f x) (a+b \text{Sinh}[c+d x])} \, dx$$

Optimal (type 9, 38 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Cosh}[c+d x]^3 \text{Sinh}[c+d x]^3}{(e+f x) (a+b \text{Sinh}[c+d x])}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 406: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3 \text{Sinh}[c+d x]^2 \text{Tanh}[c+d x]}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 1519 leaves, 61 steps):

$$\frac{a(e+fx)^4}{4b^2f}+\frac{2a^2(e+fx)^3\text{ArcTan}[e^{c+dx}]}{b^3d}-\frac{2(e+fx)^3\text{ArcTan}[e^{c+dx}]}{bd}-\frac{2a^4(e+fx)^3\text{ArcTan}[e^{c+dx}]}{b^3(a^2+b^2)d}-\frac{6f^3\text{Cosh}[c+dx]}{bd^4}-$$

$$\frac{3f(e+fx)^2\text{Cosh}[c+dx]}{bd^2}-\frac{a^3(e+fx)^3\text{Log}\left[1+\frac{be^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{b^2(a^2+b^2)d}-\frac{a^3(e+fx)^3\text{Log}\left[1+\frac{be^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{b^2(a^2+b^2)d}-\frac{a(e+fx)^3\text{Log}[1+e^{2(c+dx)}]}{b^2d}+$$

$$\frac{a^3(e+fx)^3\text{Log}[1+e^{2(c+dx)}]}{b^2(a^2+b^2)d}-\frac{3ia^2f(e+fx)^2\text{PolyLog}[2,-ie^{c+dx}]}{b^3d^2}+\frac{3if(e+fx)^2\text{PolyLog}[2,-ie^{c+dx}]}{bd^2}+$$

$$\frac{3ia^4f(e+fx)^2\text{PolyLog}[2,-ie^{c+dx}]}{b^3(a^2+b^2)d^2}+\frac{3ia^2f(e+fx)^2\text{PolyLog}[2,ie^{c+dx}]}{b^3d^2}-\frac{3if(e+fx)^2\text{PolyLog}[2,ie^{c+dx}]}{bd^2}-$$

$$\frac{3ia^4f(e+fx)^2\text{PolyLog}[2,ie^{c+dx}]}{b^3(a^2+b^2)d^2}-\frac{3a^3f(e+fx)^2\text{PolyLog}\left[2,-\frac{be^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{b^2(a^2+b^2)d^2}-\frac{3a^3f(e+fx)^2\text{PolyLog}\left[2,-\frac{be^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{b^2(a^2+b^2)d^2}-$$

$$\frac{3af(e+fx)^2\text{PolyLog}[2,-e^{2(c+dx)}]}{2b^2d^2}+\frac{3a^3f(e+fx)^2\text{PolyLog}[2,-e^{2(c+dx)}]}{2b^2(a^2+b^2)d^2}+\frac{6ia^2f^2(e+fx)\text{PolyLog}[3,-ie^{c+dx}]}{b^3d^3}-$$

$$\frac{6if^2(e+fx)\text{PolyLog}[3,-ie^{c+dx}]}{bd^3}-\frac{6ia^4f^2(e+fx)\text{PolyLog}[3,-ie^{c+dx}]}{b^3(a^2+b^2)d^3}-\frac{6ia^2f^2(e+fx)\text{PolyLog}[3,ie^{c+dx}]}{b^3d^3}+$$

$$\frac{6if^2(e+fx)\text{PolyLog}[3,ie^{c+dx}]}{bd^3}+\frac{6ia^4f^2(e+fx)\text{PolyLog}[3,ie^{c+dx}]}{b^3(a^2+b^2)d^3}+\frac{6a^3f^2(e+fx)\text{PolyLog}\left[3,-\frac{be^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{b^2(a^2+b^2)d^3}+$$

$$\frac{6a^3f^2(e+fx)\text{PolyLog}\left[3,-\frac{be^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{b^2(a^2+b^2)d^3}+\frac{3af^2(e+fx)\text{PolyLog}[3,-e^{2(c+dx)}]}{2b^2d^3}-\frac{3a^3f^2(e+fx)\text{PolyLog}[3,-e^{2(c+dx)}]}{2b^2(a^2+b^2)d^3}-$$

$$\frac{6ia^2f^3\text{PolyLog}[4,-ie^{c+dx}]}{b^3d^4}+\frac{6if^3\text{PolyLog}[4,-ie^{c+dx}]}{bd^4}+\frac{6ia^4f^3\text{PolyLog}[4,-ie^{c+dx}]}{b^3(a^2+b^2)d^4}+\frac{6ia^2f^3\text{PolyLog}[4,ie^{c+dx}]}{b^3d^4}-$$

$$\frac{6if^3\text{PolyLog}[4,ie^{c+dx}]}{bd^4}-\frac{6ia^4f^3\text{PolyLog}[4,ie^{c+dx}]}{b^3(a^2+b^2)d^4}-\frac{6a^3f^3\text{PolyLog}\left[4,-\frac{be^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{b^2(a^2+b^2)d^4}-\frac{6a^3f^3\text{PolyLog}\left[4,-\frac{be^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{b^2(a^2+b^2)d^4}-$$

$$\frac{3af^3\text{PolyLog}[4,-e^{2(c+dx)}]}{4b^2d^4}+\frac{3a^3f^3\text{PolyLog}[4,-e^{2(c+dx)}]}{4b^2(a^2+b^2)d^4}+\frac{6f^2(e+fx)\text{Sinh}[c+dx]}{bd^3}+\frac{(e+fx)^3\text{Sinh}[c+dx]}{bd}$$

Result (type 4, 4100 leaves) :

$$-\frac{1}{4(a^2+b^2)d^4(1+e^{2c})}\Big(-8ad^4e^3e^{2c}x-12ad^4e^2e^{2c}fx^2-8ad^4e\,e^{2c}f^2x^3-2ad^4e^{2c}f^3x^4+8bd^3e^3\text{ArcTan}[e^{c+dx}]+8bd^3e^3e^{2c}\text{ArcTan}[e^{c+dx}]+$$

$$12ibd^3e^2fx\text{Log}[1-ie^{c+dx}]+12ibd^3e^2e^{2c}fx\text{Log}[1-ie^{c+dx}]+12ibd^3ef^2x^2\text{Log}[1-ie^{c+dx}]+12ibd^3e\,e^{2c}f^2x^2\text{Log}[1-ie^{c+dx}]+$$

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

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

$$12\, d\, e\, e^{2c} f^2 \,\text{PolyLog}\left[3, -\frac{b\, e^{2c+dx}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\right] - 12\, d\, f^3\, x\, \text{PolyLog}\left[3, -\frac{b\, e^{2c+dx}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\right] +$$

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

$$12\, e^{2c} f^3\, \text{PolyLog}\left[4, -\frac{b\, e^{2c+dx}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\right] + 12\, f^3\, \text{PolyLog}\left[4, -\frac{b\, e^{2c+dx}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\right] - 12\, e^{2c} f^3\, \text{PolyLog}\left[4, -\frac{b\, e^{2c+dx}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\right]\Bigg) -$$

$$\left(3 x^2 \left(a^3 e^2 f + a b^2 e^2 f + 2 a^3 e^2 f \,\text{Cosh}[2c] - 2 a b^2 e^2 f \,\text{Cosh}[2c] + a^3 e^2 f \,\text{Cosh}[4c] + a b^2 e^2 f \,\text{Cosh}[4c] + 2 a^3 e^2 f \,\text{Sinh}[2c] - 2 a b^2 e^2 f \,\text{Sinh}[2c] + a^3 e^2 f \,\text{Sinh}[4c] + a b^2 e^2 f \,\text{Sinh}[4c]\right)\right) \Big/$$

$$\left(2 b^2 \left(a^2+b^2\right) \left(-1+\text{Cosh}[2c]+\text{Sinh}[2c]\right) \left(1+\text{Cosh}[2c]+\text{Sinh}[2c]\right)\right) -$$

$$\left(x^3 \left(a^3 e f^2 + a b^2 e f^2 + 2 a^3 e f^2 \,\text{Cosh}[2c] - 2 a b^2 e f^2 \,\text{Cosh}[2c] + a^3 e f^2 \,\text{Cosh}[4c] + a b^2 e f^2 \,\text{Cosh}[4c] + 2 a^3 e f^2 \,\text{Sinh}[2c] - 2 a b^2 e f^2 \,\text{Sinh}[2c] + a^3 e f^2 \,\text{Sinh}[4c] + a b^2 e f^2 \,\text{Sinh}[4c]\right)\right) \Big/$$

$$\left(b^2 \left(a^2+b^2\right) \left(-1+\text{Cosh}[2c]+\text{Sinh}[2c]\right) \left(1+\text{Cosh}[2c]+\text{Sinh}[2c]\right)\right) -$$

$$\left(x^4 \left(a^3 f^3 + a b^2 f^3 + 2 a^3 f^3 \,\text{Cosh}[2c] - 2 a b^2 f^3 \,\text{Cosh}[2c] + a^3 f^3 \,\text{Cosh}[4c] + a b^2 f^3 \,\text{Cosh}[4c] + 2 a^3 f^3 \,\text{Sinh}[2c] - 2 a b^2 f^3 \,\text{Sinh}[2c] + a^3 f^3 \,\text{Sinh}[4c] + a b^2 f^3 \,\text{Sinh}[4c]\right)\right) \Big/ \left(4 b^2 \left(a^2+b^2\right) \left(-1+\text{Cosh}[2c]+\text{Sinh}[2c]\right) \left(1+\text{Cosh}[2c]+\text{Sinh}[2c]\right)\right) +$$

$$x \left(-\frac{a\, e^3}{\left(a^2+b^2\right) \left(-1+\text{Cosh}[2c]+\text{Sinh}[2c]\right) \left(1+\text{Cosh}[2c]+\text{Sinh}[2c]\right)} - \frac{a^3 e^3}{b^2 \left(a^2+b^2\right) \left(-1+\text{Cosh}[2c]+\text{Sinh}[2c]\right) \left(1+\text{Cosh}[2c]+\text{Sinh}[2c]\right)} + \right.$$

$$\frac{2 a e^3 \,\text{Cosh}[2c] + 2 a e^3 \,\text{Sinh}[2c]}{\left(a^2+b^2\right) \left(-1+\text{Cosh}[2c]+\text{Sinh}[2c]\right) \left(1+\text{Cosh}[2c]+\text{Sinh}[2c]\right)} + \frac{-\frac{2 a^3 e^3 \,\text{Cosh}[2c]}{b^2} - \frac{2 a^3 e^3 \,\text{Sinh}[2c]}{b^2}}{\left(a^2+b^2\right) \left(-1+\text{Cosh}[2c]+\text{Sinh}[2c]\right) \left(1+\text{Cosh}[2c]+\text{Sinh}[2c]\right)} +$$

$$\left.\frac{-a e^3 \,\text{Cosh}[4c] - a e^3 \,\text{Sinh}[4c]}{\left(a^2+b^2\right) \left(-1+\text{Cosh}[2c]+\text{Sinh}[2c]\right) \left(1+\text{Cosh}[2c]+\text{Sinh}[2c]\right)} + \frac{-\frac{a^3 e^3 \,\text{Cosh}[4c]}{b^2} - \frac{a^3 e^3 \,\text{Sinh}[4c]}{b^2}}{\left(a^2+b^2\right) \left(-1+\text{Cosh}[2c]+\text{Sinh}[2c]\right) \left(1+\text{Cosh}[2c]+\text{Sinh}[2c]\right)}\right) +$$

$$\left(-\frac{f^3 x^3 \,\text{Cosh}[c]}{2 b d} + \frac{f^3 x^3 \,\text{Sinh}[c]}{2 b d} + \left(d^3 e^3 + 3 d^2 e^2 f + 6 d e f^2 + 6 f^3\right) \left(-\frac{\text{Cosh}[c]}{2 b d^4} + \frac{\text{Sinh}[c]}{2 b d^4}\right) + \right.$$

$$\left.\left(d^2 e^2 f + 2 d e f^2 + 2 f^3\right) \left(-\frac{3 x \,\text{Cosh}[c]}{2 b d^3} + \frac{3 x \,\text{Sinh}[c]}{2 b d^3}\right) + \left(d e f^2 + f^3\right) \left(-\frac{3 x^2 \,\text{Cosh}[c]}{2 b d^2} + \frac{3 x^2 \,\text{Sinh}[c]}{2 b d^2}\right)\right) \left(\text{Cosh}[d x] - \text{Sinh}[d x]\right) +$$

$$\left(\frac{f^3 x^3 \,\text{Cosh}[c]}{2 b d} + \frac{f^3 x^3 \,\text{Sinh}[c]}{2 b d} + \left(d^3 e^3 - 3 d^2 e^2 f + 6 d e f^2 - 6 f^3\right) \left(\frac{\text{Cosh}[c]}{2 b d^4} + \frac{\text{Sinh}[c]}{2 b d^4}\right) + \right.$$

$$\frac{3 x^2 \left(d e f^2 \,\text{Cosh}[c] - f^3 \,\text{Cosh}[c] + d e f^2 \,\text{Sinh}[c] - f^3 \,\text{Sinh}[c]\right)}{2 b d^2} + \frac{1}{2 b d^3}$$

$$\left.3 x \left(d^2 e^2 f \,\text{Cosh}[c] - 2 d e f^2 \,\text{Cosh}[c] + 2 f^3 \,\text{Cosh}[c] + d^2 e^2 f \,\text{Sinh}[c] - 2 d e f^2 \,\text{Sinh}[c] + 2 f^3 \,\text{Sinh}[c]\right)\right) \left(\text{Cosh}[d x] + \text{Sinh}[d x]\right)$$

Problem 410: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sinh}[c+d x]^2 \,\text{Tanh}[c+d x]}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])}\,dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sinh}[c+d x]^2\,\text{Tanh}[c+d x]}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 413: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{(e+f x)\,\text{Sinh}[c+d x]\,\text{Tanh}[c+d x]^2}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 454 leaves, 25 steps):

$$\frac{e x}{b}+\frac{f x^2}{2 b}-\frac{a f \,\text{ArcTan}[\text{Sinh}[c+d x]]}{b^2 d^2}+\frac{a^3 f\,\text{ArcTan}[\text{Sinh}[c+d x]]}{b^2\,(a^2+b^2)\,d^2}-\frac{a^3\,(e+f x)\,\text{Log}\left[1+\frac{b\,e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b\,(a^2+b^2)^{3/2}\,d}+\frac{a^3\,(e+f x)\,\text{Log}\left[1+\frac{b\,e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b\,(a^2+b^2)^{3/2}\,d}-$$
$$\frac{a^2 f\,\text{Log}[\text{Cosh}[c+d x]]}{b^3 d^2}+\frac{f\,\text{Log}[\text{Cosh}[c+d x]]}{b d^2}+\frac{a^4 f\,\text{Log}[\text{Cosh}[c+d x]]}{b^3\,(a^2+b^2)\,d^2}-\frac{a^3 f\,\text{PolyLog}\left[2,-\frac{b\,e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{b\,(a^2+b^2)^{3/2}\,d^2}+\frac{a^3 f\,\text{PolyLog}\left[2,-\frac{b\,e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{b\,(a^2+b^2)^{3/2}\,d^2}+$$
$$\frac{a\,(e+f x)\,\text{Sech}[c+d x]}{b^2 d}-\frac{a^3\,(e+f x)\,\text{Sech}[c+d x]}{b^2\,(a^2+b^2)\,d}+\frac{a^2\,(e+f x)\,\text{Tanh}[c+d x]}{b^3 d}-\frac{(e+f x)\,\text{Tanh}[c+d x]}{b d}-\frac{a^4\,(e+f x)\,\text{Tanh}[c+d x]}{b^3\,(a^2+b^2)\,d}$$

Result (type 4, 519 leaves):

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

$$\frac{f \text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2} (c+d x)\right]\right]}{(a+\mathrm{i} b) d^2}-\frac{\mathrm{i} f \text{Log}[\text{Cosh}[c+d x]]}{2 (a-\mathrm{i} b) d^2}+\frac{\mathrm{i} f \text{Log}[\text{Cosh}[c+d x]]}{2 (a+\mathrm{i} b) d^2}+\frac{1}{b \left(-\left(a^2+b^2\right)^2\right)^{3/2} d^2}$$

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

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

$$\frac{1}{\left(a^2+b^2\right) d^2}\text{Sech}[c+d x] (a d e-a c f+a f (c+d x)-b d e \text{Sinh}[c+d x]+b c f \text{Sinh}[c+d x]-b f (c+d x) \text{Sinh}[c+d x])$$

Problem 415: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sinh}[c+d x] \text{Tanh}[c+d x]^2}{(e+f x) (a+b \text{Sinh}[c+d x])} \, dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sinh}[c+d x] \text{Tanh}[c+d x]^2}{(e+f x) (a+b \text{Sinh}[c+d x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 416: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2 \text{Tanh}[c+d x]^3}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 1479 leaves, 71 steps):

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

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

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

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

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

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

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

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

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

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

$$\frac{a (e+f x)^2 \text{Sech}[c+d x]^2}{2 b^2 d}-\frac{a^3 (e+f x)^2 \text{Sech}[c+d x]^2}{2 b^2 \left(a^2+b^2\right) d}-\frac{a f (e+f x) \text{Tanh}[c+d x]}{b^2 d^2}+\frac{a^3 f (e+f x) \text{Tanh}[c+d x]}{b^2 \left(a^2+b^2\right) d^2}+$$

$$\frac{a^2 (e+f x)^2 \text{Sech}[c+d x] \text{Tanh}[c+d x]}{2 b^3 d}-\frac{(e+f x)^2 \text{Sech}[c+d x] \text{Tanh}[c+d x]}{2 b d}-\frac{a^4 (e+f x)^2 \text{Sech}[c+d x] \text{Tanh}[c+d x]}{2 b^3 \left(a^2+b^2\right) d}$$

Result (type 4, 3102 leaves) :

$$\frac{1}{6 \left(a^2+b^2\right)^2 d^3 \left(1+e^{2 c}\right)}$$

$$\Big(-12 a^3 d^3 e^2 \mathbb{e}^{2 c} x-12 a^3 d \mathbb{e}^{2 c} f^2 x-12 a b^2 d \mathbb{e}^{2 c} f^2 x-12 a^3 d^3 e \mathbb{e}^{2 c} f x^2-4 a^3 d^3 \mathbb{e}^{2 c} f^2 x^3+18 a^2 b d^2 e^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]+6 b^3 d^2 e^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]+$$

$$18 a^2 b d^2 e^2 \mathbb{e}^{2 c} \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]+6 b^3 d^2 e^2 \mathbb{e}^{2 c} \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]+12 a^2 b f^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]+12 b^3 f^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]+12 a^2 b \mathbb{e}^{2 c} f^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]+$$

$$12 b^3 \mathbb{e}^{2 c} f^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]+18 \mathbb{i} a^2 b d^2 e f x \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+6 \mathbb{i} b^3 d^2 e f x \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+18 \mathbb{i} a^2 b d^2 e \mathbb{e}^{2 c} f x \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+$$

$$6 \mathbb{i} b^3 d^2 e \mathbb{e}^{2 c} f x \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+9 \mathbb{i} a^2 b d^2 f^2 x^2 \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+3 \mathbb{i} b^3 d^2 f^2 x^2 \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+9 \mathbb{i} a^2 b d^2 \mathbb{e}^{2 c} f^2 x^2 \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+$$

$$3 \mathbb{i} b^3 d^2 \mathbb{e}^{2 c} f^2 x^2 \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]-18 \mathbb{i} a^2 b d^2 e f x \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-6 \mathbb{i} b^3 d^2 e f x \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-18 \mathbb{i} a^2 b d^2 e \mathbb{e}^{2 c} f x \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-$$

$$6 \mathbb{i} b^3 d^2 e \mathbb{e}^{2 c} f x \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-9 \mathbb{i} a^2 b d^2 f^2 x^2 \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-3 \mathbb{i} b^3 d^2 f^2 x^2 \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-9 \mathbb{i} a^2 b d^2 \mathbb{e}^{2 c} f^2 x^2 \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-$$

$$3 \mathbb{i} b^3 d^2 \mathbb{e}^{2 c} f^2 x^2 \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]+6 a^3 d^2 e^2 \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]+6 a^3 d^2 e^2 \mathbb{e}^{2 c} \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]+6 a^3 f^2 \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]+$$

$$6 a b^2 f^2 \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]+6 a^3 \mathbb{e}^{2 c} f^2 \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]+6 a b^2 \mathbb{e}^{2 c} f^2 \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]+12 a^3 d^2 e f x \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]+$$

$$12 a^3 d^2 e \mathbb{e}^{2 c} f x \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]+6 a^3 d^2 f^2 x^2 \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]+6 a^3 d^2 \mathbb{e}^{2 c} f^2 x^2 \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]-$$

$$6 \mathbb{i} b \left(3 a^2+b^2\right) d \left(1+\mathbb{e}^{2 c}\right) f (e+f x) \text{PolyLog}\left[2,-\mathbb{i} \mathbb{e}^{c+d x}\right]+6 \mathbb{i} b \left(3 a^2+b^2\right) d \left(1+\mathbb{e}^{2 c}\right) f (e+f x) \text{PolyLog}\left[2,\mathbb{i} \mathbb{e}^{c+d x}\right]+$$

$$6 a^3 d e f \text{PolyLog}\left[2,-\mathbb{e}^{2 (c+d x)}\right]+6 a^3 d e \mathbb{e}^{2 c} f \text{PolyLog}\left[2,-\mathbb{e}^{2 (c+d x)}\right]+6 a^3 d f^2 x \text{PolyLog}\left[2,-\mathbb{e}^{2 (c+d x)}\right]+$$

$$6 a^3 d \mathbb{e}^{2 c} f^2 x \text{PolyLog}\left[2,-\mathbb{e}^{2 (c+d x)}\right]+18 \mathbb{i} a^2 b f^2 \text{PolyLog}\left[3,-\mathbb{i} \mathbb{e}^{c+d x}\right]+6 \mathbb{i} b^3 f^2 \text{PolyLog}\left[3,-\mathbb{i} \mathbb{e}^{c+d x}\right]+$$

$$18 \mathbb{i} a^2 b \mathbb{e}^{2 c} f^2 \text{PolyLog}\left[3,-\mathbb{i} \mathbb{e}^{c+d x}\right]+6 \mathbb{i} b^3 \mathbb{e}^{2 c} f^2 \text{PolyLog}\left[3,-\mathbb{i} \mathbb{e}^{c+d x}\right]-18 \mathbb{i} a^2 b f^2 \text{PolyLog}\left[3,\mathbb{i} \mathbb{e}^{c+d x}\right]-6 \mathbb{i} b^3 f^2 \text{PolyLog}\left[3,\mathbb{i} \mathbb{e}^{c+d x}\right]-$$

$$18 \mathbb{i} a^2 b \mathbb{e}^{2 c} f^2 \text{PolyLog}\left[3,\mathbb{i} \mathbb{e}^{c+d x}\right]-6 \mathbb{i} b^3 \mathbb{e}^{2 c} f^2 \text{PolyLog}\left[3,\mathbb{i} \mathbb{e}^{c+d x}\right]-3 a^3 f^2 \text{PolyLog}\left[3,-\mathbb{e}^{2 (c+d x)}\right]-3 a^3 \mathbb{e}^{2 c} f^2 \text{PolyLog}\left[3,-\mathbb{e}^{2 (c+d x)}\right]\Big)+$$

$$\frac{1}{3 \left(a^2+b^2\right)^2 d^3 \left(-1+\mathbb{e}^{2 c}\right)} a^3 \Bigg(6 d^3 e^2 \mathbb{e}^{2 c} x+6 d^3 e \mathbb{e}^{2 c} f x^2+2 d^3 \mathbb{e}^{2 c} f^2 x^3+3 d^2 e^2 \text{Log}\left[2 a \mathbb{e}^{c+d x}+b \left(-1+\mathbb{e}^{2 (c+d x)}\right)\right]-$$

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

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

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

$$6 d \left(-1+\mathbb{e}^{2 c}\right) f (e+f x) \text{PolyLog}\left[2,-\frac{b \mathbb{e}^{2 c+d x}}{a \mathbb{e}^c-\sqrt{\left(a^2+b^2\right) \mathbb{e}^{2 c}}}\right]-6 d \left(-1+\mathbb{e}^{2 c}\right) f (e+f x) \text{PolyLog}\left[2,-\frac{b \mathbb{e}^{2 c+d x}}{a \mathbb{e}^c+\sqrt{\left(a^2+b^2\right) \mathbb{e}^{2 c}}}\right]-$$

$$6 f^2 \text{PolyLog}\left[3,-\frac{b \mathbb{e}^{2 c+d x}}{a \mathbb{e}^c-\sqrt{\left(a^2+b^2\right) \mathbb{e}^{2 c}}}\right]+6 \mathbb{e}^{2 c} f^2 \text{PolyLog}\left[3,-\frac{b \mathbb{e}^{2 c+d x}}{a \mathbb{e}^c-\sqrt{\left(a^2+b^2\right) \mathbb{e}^{2 c}}}\right]-$$

$$6 f^2 \text{PolyLog}\left[3,-\frac{b \mathbb{e}^{2 c+d x}}{a \mathbb{e}^c+\sqrt{\left(a^2+b^2\right) \mathbb{e}^{2 c}}}\right]+6 \mathbb{e}^{2 c} f^2 \text{PolyLog}\left[3,-\frac{b \mathbb{e}^{2 c+d x}}{a \mathbb{e}^c+\sqrt{\left(a^2+b^2\right) \mathbb{e}^{2 c}}}\right]\Bigg)+\frac{1}{24 \left(a^2+b^2\right)^2 d^2}$$

$$\text{Csch}[c] \text{Sech}[c] \text{Sech}[c+d x]^2 \Big(-6 a^3 e f-6 a b^2 e f-12 a^3 d^2 e^2 x-6 a^3 f^2 x-6 a b^2 f^2 x-12 a^3 d^2 e f x^2-4 a^3 d^2 f^2 x^3+6 a^3 e f \text{Cosh}[2 c]+$$

$$6 a b^2 e f \text{Cosh}[2 c]+6 a^3 f^2 x \text{Cosh}[2 c]+6 a b^2 f^2 x \text{Cosh}[2 c]+6 a^3 e f \text{Cosh}[2 d x]+6 a b^2 e f \text{Cosh}[2 d x]+6 a^3 f^2 x \text{Cosh}[2 d x]+$$

$$6 a b^2 f^2 x \text{Cosh}[2 d x]+3 a^2 b d e^2 \text{Cosh}[c-d x]+3 b^3 d e^2 \text{Cosh}[c-d x]+6 a^2 b d e f x \text{Cosh}[c-d x]+6 b^3 d e f x \text{Cosh}[c-d x]+$$

$$3 a^2 b d f^2 x^2 \text{Cosh}[c-d x]+3 b^3 d f^2 x^2 \text{Cosh}[c-d x]-3 a^2 b d e^2 \text{Cosh}[3 c+d x]-3 b^3 d e^2 \text{Cosh}[3 c+d x]-6 a^2 b d e f x \text{Cosh}[3 c+d x]-$$

$$6 b^3 d e f x \text{Cosh}[3 c+d x]-3 a^2 b d f^2 x^2 \text{Cosh}[3 c+d x]-3 b^3 d f^2 x^2 \text{Cosh}[3 c+d x]-6 a^3 e f \text{Cosh}[2 c+2 d x]-6 a b^2 e f \text{Cosh}[2 c+2 d x]-$$

$$12 a^3 d^2 e^2 x \text{Cosh}[2 c+2 d x]-6 a^3 f^2 x \text{Cosh}[2 c+2 d x]-6 a b^2 f^2 x \text{Cosh}[2 c+2 d x]-12 a^3 d^2 e f x^2 \text{Cosh}[2 c+2 d x]-$$

$4 a^3 d^2 f^2 x^3 \text{Cosh}[2 c + 2 d x] + 6 a^3 d e^2 \text{Sinh}[2 c] + 6 a b^2 d e^2 \text{Sinh}[2 c] + 12 a^3 d e f x \text{Sinh}[2 c] + 12 a b^2 d e f x \text{Sinh}[2 c] + 6 a^3 d f^2 x^2 \text{Sinh}[2 c] + 6 a b^2 d f^2 x^2 \text{Sinh}[2 c] - 6 a^2 b e f \text{Sinh}[c - d x] - 6 b^3 e f \text{Sinh}[c - d x] - 6 a^2 b f^2 x \text{Sinh}[c - d x] - 6 b^3 f^2 x \text{Sinh}[c - d x] - 6 a^2 b e f \text{Sinh}[3 c + d x] - 6 b^3 e f \text{Sinh}[3 c + d x] - 6 a^2 b f^2 x \text{Sinh}[3 c + d x] - 6 b^3 f^2 x \text{Sinh}[3 c + d x])$

Problem 419: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Tanh}[c + d x]^3}{(e + f x) (a + b \text{Sinh}[c + d x])} \, dx$$

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

$$\text{Unintegrable}\left[\frac{\text{Tanh}[c + d x]^3}{(e + f x) (a + b \text{Sinh}[c + d x])}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 420: Result more than twice size of optimal antiderivative.

$$\int \frac{(e + f x)^3 \text{Coth}[c + d x]}{a + b \text{Sinh}[c + d x]} \, dx$$

Optimal (type 4, 451 leaves, 18 steps):

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

Result (type 4, 1002 leaves):

$$-\frac{1}{4 a d^4}\Big(-4 d^3 e^3 \text{Log}\left[1-e^{2 (c+d x)}\right]-12 d^3 e^2 f x \text{Log}\left[1-e^{2 (c+d x)}\right]-12 d^3 e f^2 x^2 \text{Log}\left[1-e^{2 (c+d x)}\right]-$$

$$4 d^3 f^3 x^3 \text{Log}\left[1-e^{2 (c+d x)}\right]+4 d^3 e^3 \text{Log}\left[2 a e^{c+d x}+b\left(-1+e^{2 (c+d x)}\right)\right]+12 d^3 e^2 f x \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+$$

$$12 d^3 e f^2 x^2 \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+4 d^3 f^3 x^3 \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+12 d^3 e^2 f x \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+$$

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

$$12 d^2 f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+12 d^2 e^2 f \text{PolyLog}\left[2,-\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+$$

$$24 d^2 e f^2 x \text{PolyLog}\left[2,-\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+12 d^2 f^3 x^2 \text{PolyLog}\left[2,-\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+6 d e f^2 \text{PolyLog}\left[3, e^{2 (c+d x)}\right]+$$

$$6 d f^3 x \text{PolyLog}\left[3, e^{2 (c+d x)}\right]-24 d e f^2 \text{PolyLog}\left[3,-\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-24 d f^3 x \text{PolyLog}\left[3,-\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-$$

$$24 d e f^2 \text{PolyLog}\left[3,-\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-24 d f^3 x \text{PolyLog}\left[3,-\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-$$

$$3 f^3 \text{PolyLog}\left[4, e^{2 (c+d x)}\right]+24 f^3 \text{PolyLog}\left[4,-\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+24 f^3 \text{PolyLog}\left[4,-\frac{b e^{2 c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]\Big)$$

Problem 422: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x) \text{Coth}[c+d x]}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 205 leaves, 12 steps):

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

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

Result (type 4, 443 leaves):

$$\frac{1}{a d^2}\left(f (c+d x) \text{Log}\left[1-e^{-2 (c+d x)}\right]+d e \text{Log}[\text{Sinh}[c+d x]]-c f \text{Log}[\text{Sinh}[c+d x]]-f (c+d x) \text{Log}[a+b \text{Sinh}[c+d x]]-\right.$$

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

$$\left(-\frac{1}{8} i (2 c+i \pi+2 d x)^2-4 i \text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(a+i b) \text{Cot}\left[\frac{1}{4} (2 i c+\pi+2 i d x)\right]}{\sqrt{a^2+b^2}}\right]-\frac{1}{2}\left(-2 i c+\pi-2 i d x+4 \text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right]\right)\right.$$

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

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

Problem 425: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3 \text{Cosh}[c+d x] \text{Coth}[c+d x]}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 638 leaves, 33 steps):

$$\frac{(e+fx)^4}{4bf}-\frac{2(e+fx)^3\,\text{ArcTanh}\left[e^{c+dx}\right]}{ad}-\frac{\sqrt{a^2+b^2}\,(e+fx)^3\,\text{Log}\left[1+\frac{b\,e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{abd}+\frac{\sqrt{a^2+b^2}\,(e+fx)^3\,\text{Log}\left[1+\frac{b\,e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{abd}-$$

$$\frac{3f(e+fx)^2\,\text{PolyLog}\left[2,-e^{c+dx}\right]}{ad^2}+\frac{3f(e+fx)^2\,\text{PolyLog}\left[2,e^{c+dx}\right]}{ad^2}-\frac{3\sqrt{a^2+b^2}\,f(e+fx)^2\,\text{PolyLog}\left[2,-\frac{b\,e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{abd^2}+$$

$$\frac{3\sqrt{a^2+b^2}\,f(e+fx)^2\,\text{PolyLog}\left[2,-\frac{b\,e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{abd^2}+\frac{6f^2(e+fx)\,\text{PolyLog}\left[3,-e^{c+dx}\right]}{ad^3}-\frac{6f^2(e+fx)\,\text{PolyLog}\left[3,e^{c+dx}\right]}{ad^3}+$$

$$\frac{6\sqrt{a^2+b^2}\,f^2(e+fx)\,\text{PolyLog}\left[3,-\frac{b\,e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{abd^3}-\frac{6\sqrt{a^2+b^2}\,f^2(e+fx)\,\text{PolyLog}\left[3,-\frac{b\,e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{abd^3}-\frac{6f^3\,\text{PolyLog}\left[4,-e^{c+dx}\right]}{ad^4}+$$

$$\frac{6f^3\,\text{PolyLog}\left[4,e^{c+dx}\right]}{ad^4}-\frac{6\sqrt{a^2+b^2}\,f^3\,\text{PolyLog}\left[4,-\frac{b\,e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{abd^4}+\frac{6\sqrt{a^2+b^2}\,f^3\,\text{PolyLog}\left[4,-\frac{b\,e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{abd^4}$$

Result (type 4, 1374 leaves) :

$$\frac{x\left(4e^3+6e^2fx+4ef^2x^2+f^3x^3\right)}{4b}+$$

$$\frac{1}{a\,d^4}\left(-2d^3e^3\,\text{ArcTanh}\left[e^{c+dx}\right]+3d^3e^2fx\,\text{Log}\left[1-e^{c+dx}\right]+3d^3ef^2x^2\,\text{Log}\left[1-e^{c+dx}\right]+d^3f^3x^3\,\text{Log}\left[1-e^{c+dx}\right]-3d^3e^2fx\,\text{Log}\left[1+e^{c+dx}\right]-3d^3ef^2x^2\right.$$
$$\text{Log}\left[1+e^{c+dx}\right]-d^3f^3x^3\,\text{Log}\left[1+e^{c+dx}\right]-3d^2f\,(e+fx)^2\,\text{PolyLog}\left[2,-e^{c+dx}\right]+3d^2f\,(e+fx)^2\,\text{PolyLog}\left[2,e^{c+dx}\right]+6def^2\,\text{PolyLog}\left[3,-e^{c+dx}\right]+$$
$$\left.6df^3x\,\text{PolyLog}\left[3,-e^{c+dx}\right]-6def^2\,\text{PolyLog}\left[3,e^{c+dx}\right]-6df^3x\,\text{PolyLog}\left[3,e^{c+dx}\right]-6f^3\,\text{PolyLog}\left[4,-e^{c+dx}\right]+6f^3\,\text{PolyLog}\left[4,e^{c+dx}\right]\right)+$$

$$\frac{1}{a\,b\,d^4\sqrt{\left(a^2+b^2\right)e^{2c}}}\sqrt{-a^2-b^2}\left(2d^3e^3\sqrt{\left(a^2+b^2\right)e^{2c}}\,\text{ArcTan}\left[\frac{a+b\,e^{c+dx}}{\sqrt{-a^2-b^2}}\right]+3\sqrt{-a^2-b^2}\,d^3e^2e^cfx\,\text{Log}\left[1+\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+\right.$$
$$3\sqrt{-a^2-b^2}\,d^3e\,e^cf^2x^2\,\text{Log}\left[1+\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+\sqrt{-a^2-b^2}\,d^3e^cf^3x^3\,\text{Log}\left[1+\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-$$
$$3\sqrt{-a^2-b^2}\,d^3e^2e^cfx\,\text{Log}\left[1+\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-3\sqrt{-a^2-b^2}\,d^3e\,e^cf^2x^2\,\text{Log}\left[1+\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-$$
$$\sqrt{-a^2-b^2}\,d^3e^cf^3x^3\,\text{Log}\left[1+\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+3\sqrt{-a^2-b^2}\,d^2e^cf\,(e+fx)^2\,\text{PolyLog}\left[2,-\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-$$
$$3\sqrt{-a^2-b^2}\,d^2e^cf\,(e+fx)^2\,\text{PolyLog}\left[2,-\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-$$
$$6\sqrt{-a^2-b^2}\,d\,e\,e^cf^2\,\text{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-6\sqrt{-a^2-b^2}\,d\,e^cf^3x\,\text{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+$$
$$6\sqrt{-a^2-b^2}\,d\,e\,e^cf^2\,\text{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+6\sqrt{-a^2-b^2}\,d\,e^cf^3x\,\text{PolyLog}\left[3,-\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+$$
$$\left.6\sqrt{-a^2-b^2}\,e^cf^3\,\text{PolyLog}\left[4,-\frac{b\,e^{2c+dx}}{a\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-6\sqrt{-a^2-b^2}\,e^cf^3\,\text{PolyLog}\left[4,-\frac{b\,e^{2c+dx}}{a\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]\right)$$

Problem 430: Result more than twice size of optimal antiderivative.

$$\int\frac{(e+fx)^3\,\text{Cosh}[c+dx]^2\,\text{Coth}[c+dx]}{a+b\,\text{Sinh}[c+dx]}\,dx$$

Optimal (type 4, 656 leaves, 34 steps):

$$-\frac{(e+fx)^4}{4af}+\frac{(a^2+b^2)(e+fx)^4}{4ab^2f}-\frac{6f^3\,\text{Cosh}[c+dx]}{bd^4}-\frac{3f(e+fx)^2\,\text{Cosh}[c+dx]}{bd^2}-\frac{(a^2+b^2)(e+fx)^3\,\text{Log}\left[1+\frac{be^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{ab^2d}-$$

$$\frac{(a^2+b^2)(e+fx)^3\,\text{Log}\left[1+\frac{be^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{ab^2d}+\frac{(e+fx)^3\,\text{Log}\left[1-e^{2(c+dx)}\right]}{ad}-\frac{3(a^2+b^2)f(e+fx)^2\,\text{PolyLog}\left[2,-\frac{be^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{ab^2d^2}-$$

$$\frac{3(a^2+b^2)f(e+fx)^2\,\text{PolyLog}\left[2,-\frac{be^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{ab^2d^2}+\frac{3f(e+fx)^2\,\text{PolyLog}\left[2,e^{2(c+dx)}\right]}{2ad^2}+\frac{6(a^2+b^2)f^2(e+fx)\,\text{PolyLog}\left[3,-\frac{be^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{ab^2d^3}+$$

$$\frac{6(a^2+b^2)f^2(e+fx)\,\text{PolyLog}\left[3,-\frac{be^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{ab^2d^3}-\frac{3f^2(e+fx)\,\text{PolyLog}\left[3,e^{2(c+dx)}\right]}{2ad^3}-\frac{6(a^2+b^2)f^3\,\text{PolyLog}\left[4,-\frac{be^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{ab^2d^4}-$$

$$\frac{6(a^2+b^2)f^3\,\text{PolyLog}\left[4,-\frac{be^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{ab^2d^4}+\frac{3f^3\,\text{PolyLog}\left[4,e^{2(c+dx)}\right]}{4ad^4}+\frac{6f^2(e+fx)\,\text{Sinh}[c+dx]}{bd^3}+\frac{(e+fx)^3\,\text{Sinh}[c+dx]}{bd}$$

Result (type 4, 3073 leaves) :

$$-\frac{1}{4ad^4(-1+e^{2c})}\Big(8d^4e^3e^{2c}x+12d^4e^2e^{2c}fx^2+8d^4e\,e^{2c}f^2x^3+2d^4e^{2c}f^3x^4+4d^3e^3\,\text{Log}\left[1-e^{2(c+dx)}\right]-4d^3e^3e^{2c}\,\text{Log}\left[1-e^{2(c+dx)}\right]+$$
$$12d^3e^2fx\,\text{Log}\left[1-e^{2(c+dx)}\right]-12d^3e^2e^{2c}fx\,\text{Log}\left[1-e^{2(c+dx)}\right]+12d^3ef^2x^2\,\text{Log}\left[1-e^{2(c+dx)}\right]-12d^3e\,e^{2c}f^2x^2\,\text{Log}\left[1-e^{2(c+dx)}\right]+$$
$$4d^3f^3x^3\,\text{Log}\left[1-e^{2(c+dx)}\right]-4d^3e^{2c}f^3x^3\,\text{Log}\left[1-e^{2(c+dx)}\right]-6d^2(-1+e^{2c})f(e+fx)^2\,\text{PolyLog}\left[2,e^{2(c+dx)}\right]+$$
$$6d(-1+e^{2c})f^2(e+fx)\,\text{PolyLog}\left[3,e^{2(c+dx)}\right]+3f^3\,\text{PolyLog}\left[4,e^{2(c+dx)}\right]-3e^{2c}f^3\,\text{PolyLog}\left[4,e^{2(c+dx)}\right]\Big)+$$

$$\frac{1}{2ab^2d^4(-1+e^{2c})}(a^2+b^2)\Bigg(4d^4e^3e^{2c}x+6d^4e^2e^{2c}fx^2+4d^4e\,e^{2c}f^2x^3+d^4e^{2c}f^3x^4+2d^3e^3\,\text{Log}\left[2ae^{c+dx}+b\left(-1+e^{2(c+dx)}\right)\right]-$$

$$2d^3e^3e^{2c}\,\text{Log}\left[2ae^{c+dx}+b\left(-1+e^{2(c+dx)}\right)\right]+6d^3e^2fx\,\text{Log}\left[1+\frac{be^{2c+dx}}{ae^c-\sqrt{(a^2+b^2)e^{2c}}}\right]-6d^3e^2e^{2c}fx\,\text{Log}\left[1+\frac{be^{2c+dx}}{ae^c-\sqrt{(a^2+b^2)e^{2c}}}\right]+$$

$$6d^3ef^2x^2\,\text{Log}\left[1+\frac{be^{2c+dx}}{ae^c-\sqrt{(a^2+b^2)e^{2c}}}\right]-6d^3e\,e^{2c}f^2x^2\,\text{Log}\left[1+\frac{be^{2c+dx}}{ae^c-\sqrt{(a^2+b^2)e^{2c}}}\right]+2d^3f^3x^3\,\text{Log}\left[1+\frac{be^{2c+dx}}{ae^c-\sqrt{(a^2+b^2)e^{2c}}}\right]-$$

$$2d^3e^{2c}f^3x^3\,\text{Log}\left[1+\frac{be^{2c+dx}}{ae^c-\sqrt{(a^2+b^2)e^{2c}}}\right]+6d^3e^2fx\,\text{Log}\left[1+\frac{be^{2c+dx}}{ae^c+\sqrt{(a^2+b^2)e^{2c}}}\right]-6d^3e^2e^{2c}fx\,\text{Log}\left[1+\frac{be^{2c+dx}}{ae^c+\sqrt{(a^2+b^2)e^{2c}}}\right]+$$

$$6d^3ef^2x^2\,\text{Log}\left[1+\frac{be^{2c+dx}}{ae^c+\sqrt{(a^2+b^2)e^{2c}}}\right]-6d^3e\,e^{2c}f^2x^2\,\text{Log}\left[1+\frac{be^{2c+dx}}{ae^c+\sqrt{(a^2+b^2)e^{2c}}}\right]+2d^3f^3x^3\,\text{Log}\left[1+\frac{be^{2c+dx}}{ae^c+\sqrt{(a^2+b^2)e^{2c}}}\right]-$$

$$2d^3e^{2c}f^3x^3\,\text{Log}\left[1+\frac{be^{2c+dx}}{ae^c+\sqrt{(a^2+b^2)e^{2c}}}\right]-6d^2(-1+e^{2c})f(e+fx)^2\,\text{PolyLog}\left[2,-\frac{be^{2c+dx}}{ae^c-\sqrt{(a^2+b^2)e^{2c}}}\right]-$$

$$6\, d^2 \left(-1+\mathrm{e}^{2c}\right) f\, (e+f x)^2\, \text{PolyLog}\left[2,\, -\frac{b\, \mathrm{e}^{2c+d x}}{a\, \mathrm{e}^c+\sqrt{\left(a^2+b^2\right)\, \mathrm{e}^{2c}}}\right] - 12\, d\, e\, f^2\, \text{PolyLog}\left[3,\, -\frac{b\, \mathrm{e}^{2c+d x}}{a\, \mathrm{e}^c-\sqrt{\left(a^2+b^2\right)\, \mathrm{e}^{2c}}}\right] +$$

$$12\, d\, e\, \mathrm{e}^{2c} f^2\, \text{PolyLog}\left[3,\, -\frac{b\, \mathrm{e}^{2c+d x}}{a\, \mathrm{e}^c-\sqrt{\left(a^2+b^2\right)\, \mathrm{e}^{2c}}}\right] - 12\, d\, f^3\, x\, \text{PolyLog}\left[3,\, -\frac{b\, \mathrm{e}^{2c+d x}}{a\, \mathrm{e}^c-\sqrt{\left(a^2+b^2\right)\, \mathrm{e}^{2c}}}\right] +$$

$$12\, d\, \mathrm{e}^{2c} f^3\, x\, \text{PolyLog}\left[3,\, -\frac{b\, \mathrm{e}^{2c+d x}}{a\, \mathrm{e}^c-\sqrt{\left(a^2+b^2\right)\, \mathrm{e}^{2c}}}\right] - 12\, d\, e\, f^2\, \text{PolyLog}\left[3,\, -\frac{b\, \mathrm{e}^{2c+d x}}{a\, \mathrm{e}^c+\sqrt{\left(a^2+b^2\right)\, \mathrm{e}^{2c}}}\right] +$$

$$12\, d\, e\, \mathrm{e}^{2c} f^2\, \text{PolyLog}\left[3,\, -\frac{b\, \mathrm{e}^{2c+d x}}{a\, \mathrm{e}^c+\sqrt{\left(a^2+b^2\right)\, \mathrm{e}^{2c}}}\right] - 12\, d\, f^3\, x\, \text{PolyLog}\left[3,\, -\frac{b\, \mathrm{e}^{2c+d x}}{a\, \mathrm{e}^c+\sqrt{\left(a^2+b^2\right)\, \mathrm{e}^{2c}}}\right] +$$

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

$$12\, \mathrm{e}^{2c} f^3\, \text{PolyLog}\left[4,\, -\frac{b\, \mathrm{e}^{2c+d x}}{a\, \mathrm{e}^c-\sqrt{\left(a^2+b^2\right)\, \mathrm{e}^{2c}}}\right] + 12\, f^3\, \text{PolyLog}\left[4,\, -\frac{b\, \mathrm{e}^{2c+d x}}{a\, \mathrm{e}^c+\sqrt{\left(a^2+b^2\right)\, \mathrm{e}^{2c}}}\right] - 12\, \mathrm{e}^{2c} f^3\, \text{PolyLog}\left[4,\, -\frac{b\, \mathrm{e}^{2c+d x}}{a\, \mathrm{e}^c+\sqrt{\left(a^2+b^2\right)\, \mathrm{e}^{2c}}}\right]\Bigg) +$$

$$\text{Csch}[c] \left(\frac{\text{Cosh}[c+d x]}{8\, b^2\, d^4} - \frac{\text{Sinh}[c+d x]}{8\, b^2\, d^4}\right) \big(-4\, a\, d^4\, e^3\, x\, \text{Cosh}[d x] - 6\, a\, d^4\, e^2\, f\, x^2\, \text{Cosh}[d x] - 4\, a\, d^4\, e\, f^2\, x^3\, \text{Cosh}[d x] - a\, d^4\, f^3\, x^4\, \text{Cosh}[d x] -$$
$$4\, a\, d^4\, e^3\, x\, \text{Cosh}[2c+d x] - 6\, a\, d^4\, e^2\, f\, x^2\, \text{Cosh}[2c+d x] - 4\, a\, d^4\, e\, f^2\, x^3\, \text{Cosh}[2c+d x] - a\, d^4\, f^3\, x^4\, \text{Cosh}[2c+d x] -$$
$$2\, b\, d^3\, e^3\, \text{Cosh}[c+2 d x] + 6\, b\, d^2\, e^2\, f\, \text{Cosh}[c+2 d x] - 12\, b\, d\, e\, f^2\, \text{Cosh}[c+2 d x] + 12\, b\, f^3\, \text{Cosh}[c+2 d x] - 6\, b\, d^3\, e^2\, f\, x\, \text{Cosh}[c+2 d x] +$$
$$12\, b\, d^2\, e\, f^2\, x\, \text{Cosh}[c+2 d x] - 12\, b\, d\, f^3\, x\, \text{Cosh}[c+2 d x] - 6\, b\, d^3\, e\, f^2\, x^2\, \text{Cosh}[c+2 d x] + 6\, b\, d^2\, f^3\, x^2\, \text{Cosh}[c+2 d x] -$$
$$2\, b\, d^3\, f^3\, x^3\, \text{Cosh}[c+2 d x] + 2\, b\, d^3\, e^3\, \text{Cosh}[3c+2 d x] - 6\, b\, d^2\, e^2\, f\, \text{Cosh}[3c+2 d x] + 12\, b\, d\, e\, f^2\, \text{Cosh}[3c+2 d x] -$$
$$12\, b\, f^3\, \text{Cosh}[3c+2 d x] + 6\, b\, d^3\, e^2\, f\, x\, \text{Cosh}[3c+2 d x] - 12\, b\, d^2\, e\, f^2\, x\, \text{Cosh}[3c+2 d x] + 12\, b\, d\, f^3\, x\, \text{Cosh}[3c+2 d x] +$$
$$6\, b\, d^3\, e\, f^2\, x^2\, \text{Cosh}[3c+2 d x] - 6\, b\, d^2\, f^3\, x^2\, \text{Cosh}[3c+2 d x] + 2\, b\, d^3\, f^3\, x^3\, \text{Cosh}[3c+2 d x] - 4\, b\, d^3\, e^3\, \text{Sinh}[c] -$$
$$12\, b\, d^2\, e^2\, f\, \text{Sinh}[c] - 24\, b\, d\, e\, f^2\, \text{Sinh}[c] - 24\, b\, f^3\, \text{Sinh}[c] - 12\, b\, d^3\, e^2\, f\, x\, \text{Sinh}[c] - 24\, b\, d^2\, e\, f^2\, x\, \text{Sinh}[c] - 24\, b\, d\, f^3\, x\, \text{Sinh}[c] -$$
$$12\, b\, d^3\, e\, f^2\, x^2\, \text{Sinh}[c] - 12\, b\, d^2\, f^3\, x^2\, \text{Sinh}[c] - 4\, b\, d^3\, f^3\, x^3\, \text{Sinh}[c] - 4\, a\, d^4\, e^3\, x\, \text{Sinh}[d x] - 6\, a\, d^4\, e^2\, f\, x^2\, \text{Sinh}[d x] -$$
$$4\, a\, d^4\, e\, f^2\, x^3\, \text{Sinh}[d x] - a\, d^4\, f^3\, x^4\, \text{Sinh}[d x] - 4\, a\, d^4\, e^3\, x\, \text{Sinh}[2c+d x] - 6\, a\, d^4\, e^2\, f\, x^2\, \text{Sinh}[2c+d x] - 4\, a\, d^4\, e\, f^2\, x^3\, \text{Sinh}[2c+d x] -$$
$$a\, d^4\, f^3\, x^4\, \text{Sinh}[2c+d x] - 2\, b\, d^3\, e^3\, \text{Sinh}[c+2 d x] + 6\, b\, d^2\, e^2\, f\, \text{Sinh}[c+2 d x] - 12\, b\, d\, e\, f^2\, \text{Sinh}[c+2 d x] + 12\, b\, f^3\, \text{Sinh}[c+2 d x] -$$
$$6\, b\, d^3\, e^2\, f\, x\, \text{Sinh}[c+2 d x] + 12\, b\, d^2\, e\, f^2\, x\, \text{Sinh}[c+2 d x] - 12\, b\, d\, f^3\, x\, \text{Sinh}[c+2 d x] - 6\, b\, d^3\, e\, f^2\, x^2\, \text{Sinh}[c+2 d x] +$$
$$6\, b\, d^2\, f^3\, x^2\, \text{Sinh}[c+2 d x] - 2\, b\, d^3\, f^3\, x^3\, \text{Sinh}[c+2 d x] + 2\, b\, d^3\, e^3\, \text{Sinh}[3c+2 d x] - 6\, b\, d^2\, e^2\, f\, \text{Sinh}[3c+2 d x] +$$
$$12\, b\, d\, e\, f^2\, \text{Sinh}[3c+2 d x] - 12\, b\, f^3\, \text{Sinh}[3c+2 d x] + 6\, b\, d^3\, e^2\, f\, x\, \text{Sinh}[3c+2 d x] - 12\, b\, d^2\, e\, f^2\, x\, \text{Sinh}[3c+2 d x] +$$
$$12\, b\, d\, f^3\, x\, \text{Sinh}[3c+2 d x] + 6\, b\, d^3\, e\, f^2\, x^2\, \text{Sinh}[3c+2 d x] - 6\, b\, d^2\, f^3\, x^2\, \text{Sinh}[3c+2 d x] + 2\, b\, d^3\, f^3\, x^3\, \text{Sinh}[3c+2 d x]\big)$$

Problem 431: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2\, \text{Cosh}[c+d x]^2\, \text{Coth}[c+d x]}{a+b\, \text{Sinh}[c+d x]}\, dx$$

Optimal (type 4, 486 leaves, 26 steps):

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

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

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

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

Result (type 4, 1089 leaves) :

$$\frac{1}{6}\left(-\frac{2\,a\,x\,\left(3\,e^2+3\,e\,f\,x+f^2\,x^2\right)\,\text{Coth}[c]}{b^2}+\right.$$

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

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

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

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

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

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

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

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

$$\left.\frac{6\,\text{Cosh}[d\,x]\,\left(-2\,d\,f\,(e+f\,x)\,\text{Cosh}[c]+\left(2\,f^2+d^2\,(e+f\,x)^2\right)\,\text{Sinh}[c]\right)}{b\,d^3}+\frac{6\,\left(\left(2\,f^2+d^2\,(e+f\,x)^2\right)\,\text{Cosh}[c]-2\,d\,f\,(e+f\,x)\,\text{Sinh}[c]\right)\,\text{Sinh}[d\,x]}{b\,d^3}\right)$$

Problem 432: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(e+f\,x)\,\text{Cosh}[c+d\,x]^2\,\text{Coth}[c+d\,x]}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 322 leaves, 22 steps):

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

Result (type 4, 794 leaves) :

$$-\frac{1}{a\,b^2\,d^2}\Bigg(a\,b\,f\,\text{Cosh}[c+d\,x]-b^2\,d\,e\,\text{Log}[\text{Sinh}[c+d\,x]]+b^2\,c\,f\,\text{Log}[\text{Sinh}[c+d\,x]]+a^2\,d\,e\,\text{Log}\Big[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\Big]+b^2\,d\,e\,\text{Log}\Big[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\Big]-$$

$$a^2\,c\,f\,\text{Log}\Big[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\Big]-b^2\,c\,f\,\text{Log}\Big[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\Big]-\frac{1}{2}\,b^2\,f\,\Big((c+d\,x)\,\Big(c+d\,x+2\,\text{Log}\big[1-e^{-2\,(c+d\,x)}\big]\Big)-\text{PolyLog}\big[2,\,e^{-2\,(c+d\,x)}\big]\Big)+$$

$$a^2\,f\,\Bigg(-\frac{1}{8}\,(2\,c+i\,\pi+2\,d\,x)^2-4\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\Big]\,\text{ArcTan}\Big[\frac{(a+i\,b)\,\text{Cot}\big[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\big]}{\sqrt{a^2+b^2}}\Big]+\frac{1}{2}\,\Bigg(2\,c+i\,\pi+2\,d\,x+4\,i\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\Big]\Bigg)$$

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

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

$$b^2\,f\,\Bigg(-\frac{1}{8}\,(2\,c+i\,\pi+2\,d\,x)^2-4\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\Big]\,\text{ArcTan}\Big[\frac{(a+i\,b)\,\text{Cot}\big[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\big]}{\sqrt{a^2+b^2}}\Big]+\frac{1}{2}\,\Bigg(2\,c+i\,\pi+2\,d\,x+4\,i\,\text{ArcSin}\Big[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\Big]\Bigg)$$

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

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

Problem 434: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Cosh}[c+d\,x]^2\,\text{Coth}[c+d\,x]}{(e+f\,x)\,(a+b\,\text{Sinh}[c+d\,x])}\,dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Cosh}[c+d\,x]^2\,\text{Coth}[c+d\,x]}{(e+f\,x)\,(a+b\,\text{Sinh}[c+d\,x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 435: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f\,x)^3\,\text{Csch}[c+d\,x]\,\text{Sech}[c+d\,x]}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 1049 leaves, 40 steps):

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

Result (type 4, 4437 leaves) :

$$2\left(-\frac{1}{8\,(a^2+b^2)\,d^4\,(1+e^c)}\right.$$
$$a\,\Big(4\,d^4\,e^3\,e^c\,x+6\,d^4\,e^2\,e^c\,f\,x^2+4\,d^4\,e\,e^c\,f^2\,x^3+d^4\,e^c\,f^3\,x^4-4\,d^3\,e^3\,\text{Log}\left[1+e^{c+d\,x}\right]-4\,d^3\,e^3\,e^c\,\text{Log}\left[1+e^{c+d\,x}\right]-12\,d^3\,e^2\,f\,x\,\text{Log}\left[1+e^{c+d\,x}\right]-$$
$$12\,d^3\,e^2\,e^c\,f\,x\,\text{Log}\left[1+e^{c+d\,x}\right]-12\,d^3\,e\,f^2\,x^2\,\text{Log}\left[1+e^{c+d\,x}\right]-12\,d^3\,e\,e^c\,f^2\,x^2\,\text{Log}\left[1+e^{c+d\,x}\right]-4\,d^3\,f^3\,x^3\,\text{Log}\left[1+e^{c+d\,x}\right]-$$
$$4\,d^3\,e^c\,f^3\,x^3\,\text{Log}\left[1+e^{c+d\,x}\right]-12\,d^2\,(1+e^c)\,f\,(e+f\,x)^2\,\text{PolyLog}\left[2,-e^{c+d\,x}\right]+24\,d\,(1+e^c)\,f^2\,(e+f\,x)\,\text{PolyLog}\left[3,-e^{c+d\,x}\right]-$$
$$24\,f^3\,\text{PolyLog}\left[4,-e^{c+d\,x}\right]-24\,e^c\,f^3\,\text{PolyLog}\left[4,-e^{c+d\,x}\right]\Big)+$$
$$\frac{1}{8\,(a^2+b^2)\,d^4\,(-i+e^c)}\,a\,\Big(4\,d^4\,e^3\,e^c\,x+6\,d^4\,e^2\,e^c\,f\,x^2+4\,d^4\,e\,e^c\,f^2\,x^3+d^4\,e^c\,f^3\,x^4+4\,i\,d^3\,e^3\,\text{Log}\left[1+i\,e^{c+d\,x}\right]-4\,d^3\,e^3\,e^c\,\text{Log}\left[1+i\,e^{c+d\,x}\right]+$$
$$12\,i\,d^3\,e^2\,f\,x\,\text{Log}\left[1+i\,e^{c+d\,x}\right]-12\,d^3\,e^2\,e^c\,f\,x\,\text{Log}\left[1+i\,e^{c+d\,x}\right]+12\,i\,d^3\,e\,f^2\,x^2\,\text{Log}\left[1+i\,e^{c+d\,x}\right]-12\,d^3\,e\,e^c\,f^2\,x^2\,\text{Log}\left[1+i\,e^{c+d\,x}\right]+$$
$$4\,i\,d^3\,f^3\,x^3\,\text{Log}\left[1+i\,e^{c+d\,x}\right]-4\,d^3\,e^c\,f^3\,x^3\,\text{Log}\left[1+i\,e^{c+d\,x}\right]-12\,d^2\,(-i+e^c)\,f\,(e+f\,x)^2\,\text{PolyLog}\left[2,-i\,e^{c+d\,x}\right]+$$

$$24\,d\,\left(-\mathrm{i}+\mathrm{e}^{c}\right)f^{2}\,(e+f\,x)\,\mathrm{PolyLog}\left[3,-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+24\,\mathrm{i}\,f^{3}\,\mathrm{PolyLog}\left[4,-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-24\,\mathrm{e}^{c}\,f^{3}\,\mathrm{PolyLog}\left[4,-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]\Big)-$$

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

$$3\,d^{3}\,e^{2}\,f\,x\,\mathrm{Log}\left[1+\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-3\,d^{3}\,e\,f^{2}\,x^{2}\,\mathrm{Log}\left[1+\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-d^{3}\,f^{3}\,x^{3}\,\mathrm{Log}\left[1+\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-3\,d^{2}\,f\,(e+f\,x)^{2}\,\mathrm{PolyLog}\left[2,-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+$$

$$3\,d^{2}\,f\,(e+f\,x)^{2}\,\mathrm{PolyLog}\left[2,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+6\,d\,e\,f^{2}\,\mathrm{PolyLog}\left[3,-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+6\,d\,f^{3}\,x\,\mathrm{PolyLog}\left[3,-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-$$

$$6\,d\,e\,f^{2}\,\mathrm{PolyLog}\left[3,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-6\,d\,f^{3}\,x\,\mathrm{PolyLog}\left[3,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-6\,f^{3}\,\mathrm{PolyLog}\left[4,-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+6\,f^{3}\,\mathrm{PolyLog}\left[4,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]\Big)+$$

$$\frac{1}{4\,\left(a^{2}+b^{2}\right)d^{4}}\,a\,\Big(2\,\mathrm{i}\,d^{3}\,e^{3}\,\mathrm{ArcTan}\left[\mathrm{e}^{c+d\,x}\right]+2\,d^{3}\,e^{3}\,\mathrm{Log}\left[1-\mathrm{e}^{c+d\,x}\right]+6\,d^{3}\,e^{2}\,f\,x\,\mathrm{Log}\left[1-\mathrm{e}^{c+d\,x}\right]+6\,d^{3}\,e\,f^{2}\,x^{2}\,\mathrm{Log}\left[1-\mathrm{e}^{c+d\,x}\right]+$$

$$2\,d^{3}\,f^{3}\,x^{3}\,\mathrm{Log}\left[1-\mathrm{e}^{c+d\,x}\right]-6\,d^{3}\,e^{2}\,f\,x\,\mathrm{Log}\left[1-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-6\,d^{3}\,e\,f^{2}\,x^{2}\,\mathrm{Log}\left[1-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-2\,d^{3}\,f^{3}\,x^{3}\,\mathrm{Log}\left[1-\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-d^{3}\,e^{3}\,\mathrm{Log}\left[1+\mathrm{e}^{2\,(c+d\,x)}\right]-$$

$$6\,d^{2}\,f\,(e+f\,x)^{2}\,\mathrm{PolyLog}\left[2,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+6\,d^{2}\,f\,(e+f\,x)^{2}\,\mathrm{PolyLog}\left[2,\mathrm{e}^{c+d\,x}\right]+12\,d\,e\,f^{2}\,\mathrm{PolyLog}\left[3,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+12\,d\,f^{3}\,x\,\mathrm{PolyLog}\left[3,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]-$$

$$12\,d\,e\,f^{2}\,\mathrm{PolyLog}\left[3,\mathrm{e}^{c+d\,x}\right]-12\,d\,f^{3}\,x\,\mathrm{PolyLog}\left[3,\mathrm{e}^{c+d\,x}\right]-12\,f^{3}\,\mathrm{PolyLog}\left[4,\mathrm{i}\,\mathrm{e}^{c+d\,x}\right]+12\,f^{3}\,\mathrm{PolyLog}\left[4,\mathrm{e}^{c+d\,x}\right]\Big)-\frac{1}{8\,a\,\left(a^{2}+b^{2}\right)d^{4}\,\left(-1+\mathrm{e}^{2\,c}\right)}$$

$$b^{2}\,\Big(8\,d^{4}\,e^{3}\,\mathrm{e}^{2\,c}\,x+12\,d^{4}\,e^{2}\,\mathrm{e}^{2\,c}\,f\,x^{2}+8\,d^{4}\,e\,\mathrm{e}^{2\,c}\,f^{2}\,x^{3}+2\,d^{4}\,\mathrm{e}^{2\,c}\,f^{3}\,x^{4}+4\,d^{3}\,e^{3}\,\mathrm{Log}\left[1-\mathrm{e}^{2\,(c+d\,x)}\right]-4\,d^{3}\,e^{3}\,\mathrm{e}^{2\,c}\,\mathrm{Log}\left[1-\mathrm{e}^{2\,(c+d\,x)}\right]+$$

$$12\,d^{3}\,e^{2}\,f\,x\,\mathrm{Log}\left[1-\mathrm{e}^{2\,(c+d\,x)}\right]-12\,d^{3}\,e^{2}\,\mathrm{e}^{2\,c}\,f\,x\,\mathrm{Log}\left[1-\mathrm{e}^{2\,(c+d\,x)}\right]+12\,d^{3}\,e\,f^{2}\,x^{2}\,\mathrm{Log}\left[1-\mathrm{e}^{2\,(c+d\,x)}\right]-12\,d^{3}\,e\,\mathrm{e}^{2\,c}\,f^{2}\,x^{2}\,\mathrm{Log}\left[1-\mathrm{e}^{2\,(c+d\,x)}\right]+$$

$$4\,d^{3}\,f^{3}\,x^{3}\,\mathrm{Log}\left[1-\mathrm{e}^{2\,(c+d\,x)}\right]-4\,d^{3}\,\mathrm{e}^{2\,c}\,f^{3}\,x^{3}\,\mathrm{Log}\left[1-\mathrm{e}^{2\,(c+d\,x)}\right]-6\,d^{2}\,\left(-1+\mathrm{e}^{2\,c}\right)f\,(e+f\,x)^{2}\,\mathrm{PolyLog}\left[2,\mathrm{e}^{2\,(c+d\,x)}\right]+$$

$$6\,d\,\left(-1+\mathrm{e}^{2\,c}\right)f^{2}\,(e+f\,x)\,\mathrm{PolyLog}\left[3,\mathrm{e}^{2\,(c+d\,x)}\right]+3\,f^{3}\,\mathrm{PolyLog}\left[4,\mathrm{e}^{2\,(c+d\,x)}\right]-3\,\mathrm{e}^{2\,c}\,f^{3}\,\mathrm{PolyLog}\left[4,\mathrm{e}^{2\,(c+d\,x)}\right]\Big)+$$

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

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

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

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

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

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

$$6\,d^{2}\,\left(-1+\mathrm{e}^{2\,c}\right)f\,(e+f\,x)^{2}\,\mathrm{PolyLog}\left[2,-\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}+\sqrt{\left(a^{2}+b^{2}\right)\mathrm{e}^{2\,c}}}\right]-12\,d\,e\,f^{2}\,\mathrm{PolyLog}\left[3,-\frac{b\,\mathrm{e}^{2\,c+d\,x}}{a\,\mathrm{e}^{c}-\sqrt{\left(a^{2}+b^{2}\right)\mathrm{e}^{2\,c}}}\right]+$$

$$12\, d\, e\, e^{2c} f^2\, \text{PolyLog}\left[3, -\frac{b\, e^{2c+dx}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\right] - 12\, d\, f^3\, x\, \text{PolyLog}\left[3, -\frac{b\, e^{2c+dx}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\right] +$$

$$12\, d\, e^{2c} f^3\, x\, \text{PolyLog}\left[3, -\frac{b\, e^{2c+dx}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\right] - 12\, d\, e\, f^2\, \text{PolyLog}\left[3, -\frac{b\, e^{2c+dx}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\right] +$$

$$12\, d\, e\, e^{2c} f^2\, \text{PolyLog}\left[3, -\frac{b\, e^{2c+dx}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\right] - 12\, d\, f^3\, x\, \text{PolyLog}\left[3, -\frac{b\, e^{2c+dx}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\right] +$$

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

$$12\, e^{2c} f^3\, \text{PolyLog}\left[4, -\frac{b\, e^{2c+dx}}{a\, e^c - \sqrt{(a^2+b^2)\, e^{2c}}}\right] + 12\, f^3\, \text{PolyLog}\left[4, -\frac{b\, e^{2c+dx}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\right] - 12\, e^{2c} f^3\, \text{PolyLog}\left[4, -\frac{b\, e^{2c+dx}}{a\, e^c + \sqrt{(a^2+b^2)\, e^{2c}}}\right]\Bigg) -$$

$$\frac{b^2\, x\, (4\, e^3 + 6\, e^2\, f\, x + 4\, e\, f^2\, x^2 + f^3\, x^3)\, \text{Csch}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}\right] \text{Sech}[c]}{32\, a\, (a^2+b^2)} + \frac{3\, a\, e^2\, f\, x^2\, \text{Csch}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}\right]}{16\, (a^2+b^2) \left(\text{Cosh}\left[\frac{c}{2}\right] - i\, \text{Sinh}\left[\frac{c}{2}\right]\right) \left(\text{Cosh}\left[\frac{c}{2}\right] + i\, \text{Sinh}\left[\frac{c}{2}\right]\right)} +$$

$$\frac{3\, b^2\, e^2\, f\, x^2\, \text{Csch}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}\right]}{16\, a\, (a^2+b^2) \left(\text{Cosh}\left[\frac{c}{2}\right] - i\, \text{Sinh}\left[\frac{c}{2}\right]\right) \left(\text{Cosh}\left[\frac{c}{2}\right] + i\, \text{Sinh}\left[\frac{c}{2}\right]\right)} +$$

$$\frac{a\, e\, f^2\, x^3\, \text{Csch}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}\right]}{8\, (a^2+b^2) \left(\text{Cosh}\left[\frac{c}{2}\right] - i\, \text{Sinh}\left[\frac{c}{2}\right]\right) \left(\text{Cosh}\left[\frac{c}{2}\right] + i\, \text{Sinh}\left[\frac{c}{2}\right]\right)} +$$

$$\frac{b^2\, e\, f^2\, x^3\, \text{Csch}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}\right]}{8\, a\, (a^2+b^2) \left(\text{Cosh}\left[\frac{c}{2}\right] - i\, \text{Sinh}\left[\frac{c}{2}\right]\right) \left(\text{Cosh}\left[\frac{c}{2}\right] + i\, \text{Sinh}\left[\frac{c}{2}\right]\right)} +$$

$$\frac{a\, f^3\, x^4\, \text{Csch}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}\right]}{32\, (a^2+b^2) \left(\text{Cosh}\left[\frac{c}{2}\right] - i\, \text{Sinh}\left[\frac{c}{2}\right]\right) \left(\text{Cosh}\left[\frac{c}{2}\right] + i\, \text{Sinh}\left[\frac{c}{2}\right]\right)} +$$

$$\frac{b^2\, f^3\, x^4\, \text{Csch}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}\right]}{32\, a\, (a^2+b^2) \left(\text{Cosh}\left[\frac{c}{2}\right] - i\, \text{Sinh}\left[\frac{c}{2}\right]\right) \left(\text{Cosh}\left[\frac{c}{2}\right] + i\, \text{Sinh}\left[\frac{c}{2}\right]\right)} -$$

$$\frac{3\, a\, e^2\, f\, x^2\, \text{Cosh}[c]\, \text{Csch}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}\right]}{16\, (a^2+b^2) \left(\text{Cosh}\left[\frac{c}{2}\right] - i\, \text{Sinh}\left[\frac{c}{2}\right]\right) \left(\text{Cosh}\left[\frac{c}{2}\right] + i\, \text{Sinh}\left[\frac{c}{2}\right]\right)} -$$

$$\frac{a\, e\, f^2\, x^3\, \text{Cosh}[c]\, \text{Csch}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}\right]}{8\, (a^2+b^2) \left(\text{Cosh}\left[\frac{c}{2}\right] - i\, \text{Sinh}\left[\frac{c}{2}\right]\right) \left(\text{Cosh}\left[\frac{c}{2}\right] + i\, \text{Sinh}\left[\frac{c}{2}\right]\right)} -$$

$$\frac{a\, f^3\, x^4\, \text{Cosh}[c]\, \text{Csch}\left[\frac{c}{2}\right]\, \text{Sech}\left[\frac{c}{2}\right]}{32\, \left(a^2+b^2\right)\, \left(\text{Cosh}\left[\frac{c}{2}\right]-i\, \text{Sinh}\left[\frac{c}{2}\right]\right)\, \left(\text{Cosh}\left[\frac{c}{2}\right]+i\, \text{Sinh}\left[\frac{c}{2}\right]\right)}-$$

$$\frac{3\, i\, a\, e^2\, f\, x^2\, \text{Csch}\left[\frac{c}{2}\right]\, \text{Sech}\left[\frac{c}{2}\right]\, \text{Sinh}[c]}{16\, \left(a^2+b^2\right)\, \left(\text{Cosh}\left[\frac{c}{2}\right]-i\, \text{Sinh}\left[\frac{c}{2}\right]\right)\, \left(\text{Cosh}\left[\frac{c}{2}\right]+i\, \text{Sinh}\left[\frac{c}{2}\right]\right)}-$$

$$\frac{i\, a\, e\, f^2\, x^3\, \text{Csch}\left[\frac{c}{2}\right]\, \text{Sech}\left[\frac{c}{2}\right]\, \text{Sinh}[c]}{8\, \left(a^2+b^2\right)\, \left(\text{Cosh}\left[\frac{c}{2}\right]-i\, \text{Sinh}\left[\frac{c}{2}\right]\right)\, \left(\text{Cosh}\left[\frac{c}{2}\right]+i\, \text{Sinh}\left[\frac{c}{2}\right]\right)}-$$

$$\frac{i\, a\, f^3\, x^4\, \text{Csch}\left[\frac{c}{2}\right]\, \text{Sech}\left[\frac{c}{2}\right]\, \text{Sinh}[c]}{32\, \left(a^2+b^2\right)\, \left(\text{Cosh}\left[\frac{c}{2}\right]-i\, \text{Sinh}\left[\frac{c}{2}\right]\right)\, \left(\text{Cosh}\left[\frac{c}{2}\right]+i\, \text{Sinh}\left[\frac{c}{2}\right]\right)}-$$

$$\left.\frac{e^3\, x\, \text{Csch}\left[\frac{c}{2}\right]\, \text{Sech}\left[\frac{c}{2}\right]\, \left(-a^2-b^2+a^2\, \text{Cosh}[c]+i\, a^2\, \text{Sinh}[c]\right)}{8\, a\, \left(a^2+b^2\right)\, \left(\text{Cosh}\left[\frac{c}{2}\right]-i\, \text{Sinh}\left[\frac{c}{2}\right]\right)\, \left(\text{Cosh}\left[\frac{c}{2}\right]+i\, \text{Sinh}\left[\frac{c}{2}\right]\right)}\right)$$

Problem 436: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f\, x)^2\, \text{Csch}[c+d\, x]\, \text{Sech}[c+d\, x]}{a+b\, \text{Sinh}[c+d\, x]}\, dx$$

Optimal (type 4, 734 leaves, 33 steps):

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

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

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

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

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

Result (type 4, 3426 leaves):

$$2\Bigg(\frac{1}{6\,(a^2+b^2)\,d^3\,(1+\mathbb{e}^c)}\,a\,\Big(-d^3\,\mathbb{e}^c\,x\,(3\,e^2+3\,e\,f\,x+f^2\,x^2)+$$

$$3\,d^2\,(1+\mathbb{e}^c)\,(e+f\,x)^2\,\mathrm{Log}[1+\mathbb{e}^{c+d\,x}]+6\,d\,(1+\mathbb{e}^c)\,f\,(e+f\,x)\,\mathrm{PolyLog}[2,-\mathbb{e}^{c+d\,x}]-6\,(1+\mathbb{e}^c)\,f^2\,\mathrm{PolyLog}[3,-\mathbb{e}^{c+d\,x}]\Big)+$$

$$\Big(d^2\,\big(-\mathbb{i}\,d\,\mathbb{e}^c\,x\,(-3\,\mathbb{i}\,b\,e\,f\,x+a\,(3\,e^2+3\,e\,f\,x+f^2\,x^2))+3\,(1+\mathbb{i}\,\mathbb{e}^c)\,(-2\,\mathbb{i}\,b\,e\,f\,x+a\,(e+f\,x)^2)\,\mathrm{Log}[1+\mathbb{i}\,\mathbb{e}^{c+d\,x}]\big)+$$

$$6\,d\,(1+\mathbb{i}\,\mathbb{e}^c)\,f\,(-\mathbb{i}\,b\,e+a\,(e+f\,x))\,\mathrm{PolyLog}[2,-\mathbb{i}\,\mathbb{e}^{c+d\,x}]-6\,\mathbb{i}\,a\,(-\mathbb{i}+\mathbb{e}^c)\,f^2\,\mathrm{PolyLog}[3,-\mathbb{i}\,\mathbb{e}^{c+d\,x}]\Big)\Big/\big(6\,(a-\mathbb{i}\,b)\,(-\mathbb{i}\,a+b)\,d^3\,(-\mathbb{i}+\mathbb{e}^c)\big)-$$

$$\frac{1}{2\,(a^2+b^2)\,d^3}\,\mathbb{i}\,b\,\Big(-2\,\mathbb{i}\,d^2\,e^2\,\mathrm{ArcTan}[\mathbb{e}^{c+d\,x}]+d^2\,f^2\,x^2\,\mathrm{Log}[1-\mathbb{i}\,\mathbb{e}^{c+d\,x}]-d^2\,f^2\,x^2\,\mathrm{Log}[1+\mathbb{i}\,\mathbb{e}^{c+d\,x}]-2\,d\,f^2\,x\,\mathrm{PolyLog}[2,-\mathbb{i}\,\mathbb{e}^{c+d\,x}]+$$

$$2\,d\,f^2\,x\,\mathrm{PolyLog}[2,\mathbb{i}\,\mathbb{e}^{c+d\,x}]+2\,f^2\,\mathrm{PolyLog}[3,-\mathbb{i}\,\mathbb{e}^{c+d\,x}]-2\,f^2\,\mathrm{PolyLog}[3,\mathbb{i}\,\mathbb{e}^{c+d\,x}]\Big)+$$

$$\frac{1}{4\,(a^2+b^2)\,d^3\,(-\mathbb{i}+\mathbb{e}^{2\,c})}\,\Big(2\,\mathbb{i}\,b\,d^3\,e\,\mathbb{e}^{2\,c}\,f\,x^2+2\,a\,d^2\,e^2\,\mathrm{ArcTan}[\mathbb{e}^{c+d\,x}]+2\,\mathbb{i}\,a\,d^2\,e^2\,\mathbb{e}^{2\,c}\,\mathrm{ArcTan}[\mathbb{e}^{c+d\,x}]-2\,\mathbb{i}\,a\,d^2\,e^2\,\mathrm{Log}[1-\mathbb{e}^{c+d\,x}]+$$

$$2\,a\,d^2\,e^2\,\mathbb{e}^{2\,c}\,\mathrm{Log}[1-\mathbb{e}^{c+d\,x}]-4\,\mathbb{i}\,a\,d^2\,e\,f\,x\,\mathrm{Log}[1-\mathbb{e}^{c+d\,x}]+4\,a\,d^2\,e\,\mathbb{e}^{2\,c}\,f\,x\,\mathrm{Log}[1-\mathbb{e}^{c+d\,x}]-2\,\mathbb{i}\,a\,d^2\,f^2\,x^2\,\mathrm{Log}[1-\mathbb{e}^{c+d\,x}]+$$

$$2\,a\,d^2\,\mathbb{e}^{2\,c}\,f^2\,x^2\,\mathrm{Log}[1-\mathbb{e}^{c+d\,x}]+4\,\mathbb{i}\,a\,d^2\,e\,f\,x\,\mathrm{Log}[1-\mathbb{i}\,\mathbb{e}^{c+d\,x}]-4\,b\,d^2\,e\,f\,x\,\mathrm{Log}[1-\mathbb{i}\,\mathbb{e}^{c+d\,x}]-4\,a\,d^2\,e\,\mathbb{e}^{2\,c}\,f\,x\,\mathrm{Log}[1-\mathbb{i}\,\mathbb{e}^{c+d\,x}]-$$

$$4\,\mathbb{i}\,b\,d^2\,e\,\mathbb{e}^{2\,c}\,f\,x\,\mathrm{Log}[1-\mathbb{i}\,\mathbb{e}^{c+d\,x}]+2\,\mathbb{i}\,a\,d^2\,f^2\,x^2\,\mathrm{Log}[1-\mathbb{i}\,\mathbb{e}^{c+d\,x}]-2\,a\,d^2\,\mathbb{e}^{2\,c}\,f^2\,x^2\,\mathrm{Log}[1-\mathbb{i}\,\mathbb{e}^{c+d\,x}]+\mathbb{i}\,a\,d^2\,e^2\,\mathrm{Log}[1+\mathbb{e}^{2\,(c+d\,x)}]-$$

$$a\,d^2\,e^2\,\mathbb{e}^{2\,c}\,\mathrm{Log}[1+\mathbb{e}^{2\,(c+d\,x)}]-4\,d\,(-\mathbb{i}+\mathbb{e}^{2\,c})\,f\,(\mathbb{i}\,b\,e+a\,(e+f\,x))\,\mathrm{PolyLog}[2,\mathbb{i}\,\mathbb{e}^{c+d\,x}]+4\,a\,d\,(-\mathbb{i}+\mathbb{e}^{2\,c})\,f\,(e+f\,x)\,\mathrm{PolyLog}[2,\mathbb{e}^{c+d\,x}]-$$

$$4\,\mathbb{i}\,a\,f^2\,\mathrm{PolyLog}[3,\mathbb{i}\,\mathbb{e}^{c+d\,x}]+4\,a\,\mathbb{e}^{2\,c}\,f^2\,\mathrm{PolyLog}[3,\mathbb{i}\,\mathbb{e}^{c+d\,x}]+4\,\mathbb{i}\,a\,f^2\,\mathrm{PolyLog}[3,\mathbb{e}^{c+d\,x}]-4\,a\,\mathbb{e}^{2\,c}\,f^2\,\mathrm{PolyLog}[3,\mathbb{e}^{c+d\,x}]\Big)-$$

$$\Big(b^2\,\big(4\,d^3\,\mathbb{e}^{2\,c}\,x\,(3\,e^2+3\,e\,f\,x+f^2\,x^2)-6\,d^2\,(-1+\mathbb{e}^{2\,c})\,(e+f\,x)^2\,\mathrm{Log}[1-\mathbb{e}^{2\,(c+d\,x)}]-6\,d\,(-1+\mathbb{e}^{2\,c})\,f\,(e+f\,x)\,\mathrm{PolyLog}[2,\mathbb{e}^{2\,(c+d\,x)}]+$$

$$3\,(-1+\mathbb{e}^{2\,c})\,f^2\,\mathrm{PolyLog}[3,\mathbb{e}^{2\,(c+d\,x)}]\big)\Big)\Big/\big(12\,a\,(a^2+b^2)\,d^3\,(-1+\mathbb{e}^{2\,c})\big)+$$

$$\frac{1}{6\,a\,(a^2+b^2)\,d^3\,(-1+\mathbb{e}^{2\,c})}\,b^2\,\Big(6\,d^3\,e^2\,\mathbb{e}^{2\,c}\,x+6\,d^3\,e\,\mathbb{e}^{2\,c}\,f\,x^2+2\,d^3\,\mathbb{e}^{2\,c}\,f^2\,x^3+3\,d^2\,e^2\,\mathrm{Log}[2\,a\,\mathbb{e}^{c+d\,x}+b\,(-1+\mathbb{e}^{2\,(c+d\,x)})]-$$

$$3\,d^2\,e^2\,\mathbb{e}^{2\,c}\,\mathrm{Log}[2\,a\,\mathbb{e}^{c+d\,x}+b\,(-1+\mathbb{e}^{2\,(c+d\,x)})]+6\,d^2\,e\,f\,x\,\mathrm{Log}\Big[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]-6\,d^2\,e\,\mathbb{e}^{2\,c}\,f\,x\,\mathrm{Log}\Big[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]+$$

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

$$6\,d^2\,e\,f\,x\,\mathrm{Log}\Big[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]-6\,d^2\,e\,\mathbb{e}^{2\,c}\,f\,x\,\mathrm{Log}\Big[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]+3\,d^2\,f^2\,x^2\,\mathrm{Log}\Big[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]-$$

$$3\,d^2\,\mathbb{e}^{2\,c}\,f^2\,x^2\,\mathrm{Log}\Big[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]-6\,d\,(-1+\mathbb{e}^{2\,c})\,f\,(e+f\,x)\,\mathrm{PolyLog}\Big[2,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]-$$

$$6\,d\,(-1+\mathbb{e}^{2\,c})\,f\,(e+f\,x)\,\mathrm{PolyLog}\Big[2,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]-6\,f^2\,\mathrm{PolyLog}\Big[3,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{(a^2+b^2)\,\mathbb{e}^{2\,c}}}\Big]+$$

$$6\,e^{2c} f^2\,\mathrm{PolyLog}\Big[3,-\frac{b\,e^{2c+dx}}{a\,e^{c}-\sqrt{\left(a^2+b^2\right)e^{2c}}}\Big]-6 f^2\,\mathrm{PolyLog}\Big[3,-\frac{b\,e^{2c+dx}}{a\,e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}}\Big]+6\,e^{2c} f^2\,\mathrm{PolyLog}\Big[3,-\frac{b\,e^{2c+dx}}{a\,e^{c}+\sqrt{\left(a^2+b^2\right)e^{2c}}}\Big]\Bigg)-$$

$$\frac{b^2 x\left(3e^2+3efx+f^2x^2\right)\mathrm{Csch}\left[\frac{c}{2}\right]\mathrm{Sech}\left[\frac{c}{2}\right]\mathrm{Sech}[c]}{24a\left(a^2+b^2\right)}+\frac{x\,\mathrm{Csch}\left[\frac{c}{2}\right]\mathrm{Sech}\left[\frac{c}{2}\right]\left(a^2e^2+b^2e^2-a^2e^2\mathrm{Cosh}[c]-i\,a^2e^2\mathrm{Sinh}[c]\right)}{8a\left(a^2+b^2\right)\left(\mathrm{Cosh}\left[\frac{c}{2}\right]-i\,\mathrm{Sinh}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cosh}\left[\frac{c}{2}\right]+i\,\mathrm{Sinh}\left[\frac{c}{2}\right]\right)}+$$

$$\frac{b^2 e f x^2\,\mathrm{Cosh}[2c]}{a\left(a^2+b^2\right)\left(-1+\mathrm{Cosh}[2c]+\mathrm{Sinh}[2c]\right)\left(1+\mathrm{Cosh}[2c]+\mathrm{Sinh}[2c]\right)}+$$

$$\frac{b^2 f^2 x^3\,\mathrm{Cosh}[2c]}{3a\left(a^2+b^2\right)\left(-1+\mathrm{Cosh}[2c]+\mathrm{Sinh}[2c]\right)\left(1+\mathrm{Cosh}[2c]+\mathrm{Sinh}[2c]\right)}+$$

$$\frac{b^2 e f x^2\,\mathrm{Sinh}[2c]}{a\left(a^2+b^2\right)\left(-1+\mathrm{Cosh}[2c]+\mathrm{Sinh}[2c]\right)\left(1+\mathrm{Cosh}[2c]+\mathrm{Sinh}[2c]\right)}+$$

$$\frac{b^2 f^2 x^3\,\mathrm{Sinh}[2c]}{3a\left(a^2+b^2\right)\left(-1+\mathrm{Cosh}[2c]+\mathrm{Sinh}[2c]\right)\left(1+\mathrm{Cosh}[2c]+\mathrm{Sinh}[2c]\right)}-$$

$$\left(\left(\frac{1}{2}-\frac{i}{2}\right)a e f x^2\,\mathrm{Cosh}[c]\right)\Big/\Big(\left(a^2+b^2\right)$$

$$\left(-1-(1+i)\,\mathrm{Cosh}[c]-2i\,\mathrm{Cosh}[2c]+(1-i)\,\mathrm{Cosh}[3c]+\mathrm{Cosh}[4c]-(1+i)\,\mathrm{Sinh}[c]-2i\,\mathrm{Sinh}[2c]+(1-i)\,\mathrm{Sinh}[3c]+\mathrm{Sinh}[4c]\right)\Big)+$$

$$\left(b e f x^2\,\mathrm{Cosh}[c]\right)\Big/\Big(2\left(a^2+b^2\right)\Big(-1-(1+i)\,\mathrm{Cosh}[c]-2i\,\mathrm{Cosh}[2c]+(1-i)\,\mathrm{Cosh}[3c]+\mathrm{Cosh}[4c]-(1+i)\,\mathrm{Sinh}[c]-$$

$$2i\,\mathrm{Sinh}[2c]+(1-i)\,\mathrm{Sinh}[3c]+\mathrm{Sinh}[4c]\Big)\Big)-\left(\left(\frac{1}{6}-\frac{i}{6}\right)a f^2 x^3\,\mathrm{Cosh}[c]\right)\Big/\Big(\left(a^2+b^2\right)$$

$$\left(-1-(1+i)\,\mathrm{Cosh}[c]-2i\,\mathrm{Cosh}[2c]+(1-i)\,\mathrm{Cosh}[3c]+\mathrm{Cosh}[4c]-(1+i)\,\mathrm{Sinh}[c]-2i\,\mathrm{Sinh}[2c]+(1-i)\,\mathrm{Sinh}[3c]+\mathrm{Sinh}[4c]\right)\Big)-$$

$$\left(\left(\frac{1}{2}+\frac{i}{2}\right)a e f x^2\,\mathrm{Cosh}[3c]\right)\Big/\Big(\left(a^2+b^2\right)\Big(-1-(1+i)\,\mathrm{Cosh}[c]-2i\,\mathrm{Cosh}[2c]+(1-i)\,\mathrm{Cosh}[3c]+\mathrm{Cosh}[4c]-$$

$$(1+i)\,\mathrm{Sinh}[c]-2i\,\mathrm{Sinh}[2c]+(1-i)\,\mathrm{Sinh}[3c]+\mathrm{Sinh}[4c]\Big)\Big)-\left(b e f x^2\,\mathrm{Cosh}[3c]\right)\Big/\Big(2\left(a^2+b^2\right)$$

$$\left(-1-(1+i)\,\mathrm{Cosh}[c]-2i\,\mathrm{Cosh}[2c]+(1-i)\,\mathrm{Cosh}[3c]+\mathrm{Cosh}[4c]-(1+i)\,\mathrm{Sinh}[c]-2i\,\mathrm{Sinh}[2c]+(1-i)\,\mathrm{Sinh}[3c]+\mathrm{Sinh}[4c]\right)\Big)-$$

$$\left(\left(\frac{1}{6}+\frac{i}{6}\right)a f^2 x^3\,\mathrm{Cosh}[3c]\right)\Big/\Big(\left(a^2+b^2\right)\Big(-1-(1+i)\,\mathrm{Cosh}[c]-2i\,\mathrm{Cosh}[2c]+(1-i)\,\mathrm{Cosh}[3c]+\mathrm{Cosh}[4c]-$$

$$(1+i)\,\mathrm{Sinh}[c]-2i\,\mathrm{Sinh}[2c]+(1-i)\,\mathrm{Sinh}[3c]+\mathrm{Sinh}[4c]\Big)\Big)-\left(\left(\frac{1}{2}-\frac{i}{2}\right)a e f x^2\,\mathrm{Sinh}[c]\right)\Big/\Big(\left(a^2+b^2\right)$$

$$\left(-1-(1+i)\,\mathrm{Cosh}[c]-2i\,\mathrm{Cosh}[2c]+(1-i)\,\mathrm{Cosh}[3c]+\mathrm{Cosh}[4c]-(1+i)\,\mathrm{Sinh}[c]-2i\,\mathrm{Sinh}[2c]+(1-i)\,\mathrm{Sinh}[3c]+\mathrm{Sinh}[4c]\right)\Big)+$$

$$\left(b e f x^2\,\mathrm{Sinh}[c]\right)\Big/\Big(2\left(a^2+b^2\right)\Big(-1-(1+i)\,\mathrm{Cosh}[c]-2i\,\mathrm{Cosh}[2c]+(1-i)\,\mathrm{Cosh}[3c]+\mathrm{Cosh}[4c]-(1+i)\,\mathrm{Sinh}[c]-$$

$$2i\,\mathrm{Sinh}[2c]+(1-i)\,\mathrm{Sinh}[3c]+\mathrm{Sinh}[4c]\Big)\Big)-\left(\left(\frac{1}{6}-\frac{i}{6}\right)a f^2 x^3\,\mathrm{Sinh}[c]\right)\Big/\Big(\left(a^2+b^2\right)$$

$$\left(-1-(1+i)\,\mathrm{Cosh}[c]-2i\,\mathrm{Cosh}[2c]+(1-i)\,\mathrm{Cosh}[3c]+\mathrm{Cosh}[4c]-(1+i)\,\mathrm{Sinh}[c]-2i\,\mathrm{Sinh}[2c]+(1-i)\,\mathrm{Sinh}[3c]+\mathrm{Sinh}[4c]\right)\Big)-$$

$$\left(\left(\frac{1}{2}+\frac{i}{2}\right)a e f x^2\,\mathrm{Sinh}[3c]\right)\Big/\Big(\left(a^2+b^2\right)\Big(-1-(1+i)\,\mathrm{Cosh}[c]-2i\,\mathrm{Cosh}[2c]+(1-i)\,\mathrm{Cosh}[3c]+$$

$$\mathrm{Cosh}[4c]-(1+i)\,\mathrm{Sinh}[c]-2i\,\mathrm{Sinh}[2c]+(1-i)\,\mathrm{Sinh}[3c]+\mathrm{Sinh}[4c]\Big)\Big)-$$

$$\left(b e f x^2\,\mathrm{Sinh}[3c]\right)\Big/\Big(2\left(a^2+b^2\right)\Big(-1-(1+i)\,\mathrm{Cosh}[c]-2i\,\mathrm{Cosh}[2c]+(1-i)\,\mathrm{Cosh}[3c]+\mathrm{Cosh}[4c]-(1+i)\,\mathrm{Sinh}[c]-$$

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

$$\left(-1-(1+i)\,\text{Cosh}[c]-2\,i\,\text{Cosh}[2c]+(1-i)\,\text{Cosh}[3c]+\text{Cosh}[4c]-(1+i)\,\text{Sinh}[c]-2\,i\,\text{Sinh}[2c]+(1-i)\,\text{Sinh}[3c]+\text{Sinh}[4c]\right)\Big)$$

Problem 437: Result more than twice size of optimal antiderivative.

$$\int\frac{(e+f x)\,\text{Csch}[c+d x]\,\text{Sech}[c+d x]}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 439 leaves, 26 steps):

$$-\frac{2b(e+fx)\,\text{ArcTan}[e^{c+dx}]}{(a^2+b^2)\,d}-\frac{2(e+fx)\,\text{ArcTanh}[e^{2c+2dx}]}{a\,d}-\frac{b^2(e+fx)\,\text{Log}\left[1+\frac{b\,e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{a(a^2+b^2)\,d}-\frac{b^2(e+fx)\,\text{Log}\left[1+\frac{b\,e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{a(a^2+b^2)\,d}+$$

$$\frac{b^2(e+fx)\,\text{Log}[1+e^{2(c+dx)}]}{a(a^2+b^2)\,d}+\frac{i\,b\,f\,\text{PolyLog}[2,-i\,e^{c+dx}]}{(a^2+b^2)\,d^2}-\frac{i\,b\,f\,\text{PolyLog}[2,i\,e^{c+dx}]}{(a^2+b^2)\,d^2}-\frac{b^2 f\,\text{PolyLog}\left[2,-\frac{b\,e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{a(a^2+b^2)\,d^2}-$$

$$\frac{b^2 f\,\text{PolyLog}\left[2,-\frac{b\,e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{a(a^2+b^2)\,d^2}+\frac{b^2 f\,\text{PolyLog}[2,-e^{2(c+dx)}]}{2a(a^2+b^2)\,d^2}-\frac{f\,\text{PolyLog}[2,-e^{2c+2dx}]}{2a\,d^2}+\frac{f\,\text{PolyLog}[2,e^{2c+2dx}]}{2a\,d^2}$$

Result (type 4, 1880 leaves):

$$\frac{1}{8a(a^2+b^2)\,d^2}\Bigg(8b^2c^2f-8\,i\,a^2cf\pi+4abcf\pi+4\,i\,b^2cf\pi-b^2f\pi^2+16b^2cdfx-8\,i\,a^2df\pi x+4abdf\pi x+4\,i\,b^2df\pi x+8b^2d^2fx^2+$$

$$32b^2f\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i a}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+i b)\,\text{Cot}\left[\frac{1}{4}(2\,i\,c+\pi+2\,i\,d x)\right]}{\sqrt{a^2+b^2}}\right]-16a^2de\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}(c+dx)\right]\right]-$$

$$8\,i\,abde\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}(c+dx)\right]\right]-8b^2de\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}(c+dx)\right]\right]+16a^2cf\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}(c+dx)\right]\right]+$$

$$8\,i\,abcf\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}(c+dx)\right]\right]+8b^2cf\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}(c+dx)\right]\right]-2\,i\,a^2f\pi\,\text{Log}[2]+abf\pi\,\text{Log}[4]+$$

$$8a^2cf\,\text{Log}[1-e^{-c-dx}]+8b^2cf\,\text{Log}[1-e^{-c-dx}]+8a^2dfx\,\text{Log}[1-e^{-c-dx}]+8b^2dfx\,\text{Log}[1-e^{-c-dx}]-8a^2cf\,\text{Log}[1-i\,e^{-c-dx}]+$$

$$8\,i\,abcf\,\text{Log}[1-i\,e^{-c-dx}]+4\,i\,a^2f\pi\,\text{Log}[1-i\,e^{-c-dx}]+4abf\pi\,\text{Log}[1-i\,e^{-c-dx}]-8a^2dfx\,\text{Log}[1-i\,e^{-c-dx}]+$$

$$8\,i\,abdfx\,\text{Log}[1-i\,e^{-c-dx}]-8a^2cf\,\text{Log}[1+i\,e^{-c-dx}]-8\,i\,abcf\,\text{Log}[1+i\,e^{-c-dx}]-4\,i\,a^2f\pi\,\text{Log}[1+i\,e^{-c-dx}]+4abf\pi\,\text{Log}[1+i\,e^{-c-dx}]-$$

$$8 a^2 d f x \,\text{Log}\left[1+i e^{-c-d x}\right]-8 i a b d f x \,\text{Log}\left[1+i e^{-c-d x}\right]+8 a^2 c f \,\text{Log}\left[1+e^{-c-d x}\right]+8 b^2 c f \,\text{Log}\left[1+e^{-c-d x}\right]+8 a^2 d f x \,\text{Log}\left[1+e^{-c-d x}\right]+$$

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

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

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

$$8 a^2 d e \,\text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]\right]+8 b^2 d e \,\text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]\right]-8 a^2 c f \,\text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]\right]-8 b^2 c f \,\text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]\right]-$$

$$16 i a^2 f \pi \,\text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]\right]-4 i a^2 f \pi \,\text{Log}\left[\text{Sin}\left[\frac{1}{4} (\pi+2 i (c+d x))\right]\right]-4 a b f \pi \,\text{Log}\left[\text{Sin}\left[\frac{1}{4} (\pi+2 i (c+d x))\right]\right]+$$

$$4 i a^2 f \pi \,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right]-4 a b f \pi \,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right]-$$

$$8 a^2 d e \,\text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right]+8 i a b d e \,\text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right]+$$

$$8 a^2 c f \,\text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right]-8 i a b c f \,\text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]+i \,\text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right]-$$

$$4 i a b d e \,\text{Log}[-1+\text{Cosh}[c+d x]+i \,\text{Sinh}[c+d x]]+4 b^2 d e \,\text{Log}[-1+\text{Cosh}[c+d x]+i \,\text{Sinh}[c+d x]]+$$

$$4 i a b c f \,\text{Log}[-1+\text{Cosh}[c+d x]+i \,\text{Sinh}[c+d x]]-4 b^2 c f \,\text{Log}[-1+\text{Cosh}[c+d x]+i \,\text{Sinh}[c+d x]]+4 i b^2 f \pi \,\text{Log}[a+b \,\text{Sinh}[c+d x]]-$$

$$8 b^2 d e \,\text{Log}\left[1+\frac{b \,\text{Sinh}[c+d x]}{a}\right]+8 b^2 c f \,\text{Log}\left[1+\frac{b \,\text{Sinh}[c+d x]}{a}\right]-8 \left(a^2+b^2\right) f \,\text{PolyLog}\left[2,-e^{-c-d x}\right]+$$

$$8 a (a+i b) f \,\text{PolyLog}\left[2,-i e^{-c-d x}\right]+8 a^2 f \,\text{PolyLog}\left[2, i e^{-c-d x}\right]-8 i a b f \,\text{PolyLog}\left[2, i e^{-c-d x}\right]-8 a^2 f \,\text{PolyLog}\left[2, e^{-c-d x}\right]-$$

$$\left.8 b^2 f \,\text{PolyLog}\left[2, e^{-c-d x}\right]-8 b^2 f \,\text{PolyLog}\left[2, \frac{\left(a-\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]-8 b^2 f \,\text{PolyLog}\left[2, \frac{\left(a+\sqrt{a^2+b^2}\right) e^{c+d x}}{b}\right]\right)$$

Problem 442: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x) \,\text{Csch}[c+d x] \,\text{Sech}[c+d x]^2}{a+b \,\text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 442 leaves, 26 steps):

$$-\frac{f\,\text{ArcTan}[\text{Sinh}[c+d x]]}{a d^2}+\frac{b^2 f\,\text{ArcTan}[\text{Sinh}[c+d x]]}{a\left(a^2+b^2\right) d^2}-\frac{2 f x\,\text{ArcTanh}\left[e^{c+d x}\right]}{a d}+\frac{f x\,\text{ArcTanh}[\text{Cosh}[c+d x]]}{a d}-\frac{(e+f x)\,\text{ArcTanh}[\text{Cosh}[c+d x]]}{a d}-$$
$$\frac{b^3 (e+f x) \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a\left(a^2+b^2\right)^{3/2} d}+\frac{b^3 (e+f x) \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a\left(a^2+b^2\right)^{3/2} d}+\frac{b f\,\text{Log}[\text{Cosh}[c+d x]]}{\left(a^2+b^2\right) d^2}-\frac{f\,\text{PolyLog}\left[2,-e^{c+d x}\right]}{a d^2}+\frac{f\,\text{PolyLog}\left[2,e^{c+d x}\right]}{a d^2}-$$
$$\frac{b^3 f\,\text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a\left(a^2+b^2\right)^{3/2} d^2}+\frac{b^3 f\,\text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a\left(a^2+b^2\right)^{3/2} d^2}+\frac{(e+f x)\,\text{Sech}[c+d x]}{a d}-\frac{b^2 (e+f x)\,\text{Sech}[c+d x]}{a\left(a^2+b^2\right) d}-\frac{b (e+f x)\,\text{Tanh}[c+d x]}{\left(a^2+b^2\right) d}$$

Result (type 4, 922 leaves):

$$4\left(-\frac{f\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right] \text{Csch}[c+d x]\,(a+b\,\text{Sinh}[c+d x])}{4(a-i b) d^2\,(b+a\,\text{Csch}[c+d x])}-\frac{f\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right] \text{Csch}[c+d x]\,(a+b\,\text{Sinh}[c+d x])}{4(a+i b) d^2\,(b+a\,\text{Csch}[c+d x])}-\right.$$
$$\frac{i f\,\text{Csch}[c+d x]\,\text{Log}[\text{Cosh}[c+d x]]\,(a+b\,\text{Sinh}[c+d x])}{8(a-i b) d^2\,(b+a\,\text{Csch}[c+d x])}+\frac{i f\,\text{Csch}[c+d x]\,\text{Log}[\text{Cosh}[c+d x]]\,(a+b\,\text{Sinh}[c+d x])}{8(a+i b) d^2\,(b+a\,\text{Csch}[c+d x])}+$$
$$\frac{e\,\text{Csch}[c+d x]\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right](a+b\,\text{Sinh}[c+d x])}{4 a d\,(b+a\,\text{Csch}[c+d x])}-\frac{c f\,\text{Csch}[c+d x]\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right](a+b\,\text{Sinh}[c+d x])}{4 a d^2\,(b+a\,\text{Csch}[c+d x])}-$$
$$\left(i f\,\text{Csch}[c+d x]\left(i(c+d x)\left(\text{Log}\left[1-e^{-c-d x}\right]-\text{Log}\left[1+e^{-c-d x}\right]\right)+i\left(\text{PolyLog}\left[2,-e^{-c-d x}\right]-\text{PolyLog}\left[2,e^{-c-d x}\right]\right)\right)(a+b\,\text{Sinh}[c+d x])\right)\Big/$$
$$\left(4 a d^2\,(b+a\,\text{Csch}[c+d x])\right)+\frac{1}{4 a\left(-\left(a^2+b^2\right)^2\right)^{3/2} d^2\,(b+a\,\text{Csch}[c+d x])} b^3\left(a^2+b^2\right) \text{Csch}[c+d x]$$
$$\left(2\sqrt{a^2+b^2}\,d e\,\text{ArcTan}\left[\frac{a+b\,\text{Cosh}[c+d x]+b\,\text{Sinh}[c+d x]}{\sqrt{-a^2-b^2}}\right]-2\sqrt{a^2+b^2}\,c f\,\text{ArcTan}\left[\frac{a+b\,\text{Cosh}[c+d x]+b\,\text{Sinh}[c+d x]}{\sqrt{-a^2-b^2}}\right]+\right.$$
$$\sqrt{-a^2-b^2}\,f\,(c+d x)\,\text{Log}\left[1+\frac{b\,(\text{Cosh}[c+d x]+\text{Sinh}[c+d x])}{a-\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\,f\,(c+d x)\,\text{Log}\left[1+\frac{b\,(\text{Cosh}[c+d x]+\text{Sinh}[c+d x])}{a+\sqrt{a^2+b^2}}\right]+$$
$$\left.\sqrt{-a^2-b^2}\,f\,\text{PolyLog}\left[2,\frac{b\,(\text{Cosh}[c+d x]+\text{Sinh}[c+d x])}{-a+\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\,f\,\text{PolyLog}\left[2,-\frac{b\,(\text{Cosh}[c+d x]+\text{Sinh}[c+d x])}{a+\sqrt{a^2+b^2}}\right]\right)$$
$$(a+b\,\text{Sinh}[c+d x])+\left(\text{Csch}[c+d x]\,\text{Sech}[c+d x]\,(a+b\,\text{Sinh}[c+d x])\right.$$
$$\left.\left.\left(a d e-a c f+a f\,(c+d x)-b d e\,\text{Sinh}[c+d x]+b c f\,\text{Sinh}[c+d x]-b f\,(c+d x)\,\text{Sinh}[c+d x]\right)\right)\Big/\left(4\left(a^2+b^2\right) d^2\,(b+a\,\text{Csch}[c+d x])\right)\right)$$

Problem 443: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csch}[c+d x]\,\text{Sech}[c+d x]^2}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 3, 113 leaves, 10 steps):

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

Result (type 3, 233 leaves):

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

Problem 444: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Csch}[c+d x] \text{Sech}[c+d x]^2}{(e+f x) (a+b \text{Sinh}[c+d x])} \, dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Csch}[c+d x] \text{Sech}[c+d x]^2}{(e+f x) (a+b \text{Sinh}[c+d x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 445: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2 \text{Csch}[c+d x] \text{Sech}[c+d x]^3}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 1185 leaves, 57 steps):

$$\frac{e f x}{a d}+\frac{f^2 x^2}{2 a d}-\frac{2 b^3 (e+f x)^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]}{\left(a^2+b^2\right)^2 d}-\frac{b (e+f x)^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]}{\left(a^2+b^2\right) d}+\frac{b f^2 \text{ArcTan}[\text{Sinh}[c+d x]]}{\left(a^2+b^2\right) d^3}-$$

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

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

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

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

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

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

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

$$\frac{f (e+f x) \text{Tanh}[c+d x]}{a d^2}+\frac{b^2 f (e+f x) \text{Tanh}[c+d x]}{a \left(a^2+b^2\right) d^2}-\frac{b (e+f x)^2 \text{Sech}[c+d x] \text{Tanh}[c+d x]}{2 \left(a^2+b^2\right) d}-\frac{(e+f x)^2 \text{Tanh}[c+d x]^2}{2 a d}$$

Result (type 4, 3699 leaves):

$$-\frac{1}{6 \left(a^2+b^2\right)^2 d^3 \left(1+\mathbb{e}^{2 c}\right)}$$

$$\Big(-12 a^3 d^3 e^2 \mathbb{e}^{2 c} x-24 a b^2 d^3 e^2 \mathbb{e}^{2 c} x+12 a^3 d \mathbb{e}^{2 c} f^2 x+12 a b^2 d \mathbb{e}^{2 c} f^2 x-12 a^3 d^3 e \mathbb{e}^{2 c} f x^2-24 a b^2 d^3 e \mathbb{e}^{2 c} f x^2-4 a^3 d^3 \mathbb{e}^{2 c} f^2 x^3-$$

$$8 a b^2 d^3 \mathbb{e}^{2 c} f^2 x^3+6 a^2 b d^2 e^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]+18 b^3 d^2 e^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]+6 a^2 b d^2 e^2 \mathbb{e}^{2 c} \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]+18 b^3 d^2 e^2 \mathbb{e}^{2 c} \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]-$$

$$12 a^2 b f^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]-12 b^3 f^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]-12 a^2 b \mathbb{e}^{2 c} f^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]-12 b^3 \mathbb{e}^{2 c} f^2 \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]+6 \mathbb{i} a^2 b d^2 e f x \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+$$

$$18 \mathbb{i} b^3 d^2 e f x \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+6 \mathbb{i} a^2 b d^2 e \mathbb{e}^{2 c} f x \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+18 \mathbb{i} b^3 d^2 e \mathbb{e}^{2 c} f x \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+3 \mathbb{i} a^2 b d^2 f^2 x^2 \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+$$

$$9 \mathbb{i} b^3 d^2 f^2 x^2 \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+3 \mathbb{i} a^2 b d^2 \mathbb{e}^{2 c} f^2 x^2 \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]+9 \mathbb{i} b^3 d^2 \mathbb{e}^{2 c} f^2 x^2 \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]-6 \mathbb{i} a^2 b d^2 e f x \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-$$

$$18 \mathbb{i} b^3 d^2 e f x \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-6 \mathbb{i} a^2 b d^2 e \mathbb{e}^{2 c} f x \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-18 \mathbb{i} b^3 d^2 e \mathbb{e}^{2 c} f x \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-3 \mathbb{i} a^2 b d^2 f^2 x^2 \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-$$

$$9 \mathbb{i} b^3 d^2 f^2 x^2 \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-3 \mathbb{i} a^2 b d^2 \mathbb{e}^{2 c} f^2 x^2 \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-9 \mathbb{i} b^3 d^2 \mathbb{e}^{2 c} f^2 x^2 \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]+6 a^3 d^2 e^2 \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]+$$

$$12 a b^2 d^2 e^2 \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]+6 a^3 d^2 e^2 \mathbb{e}^{2 c} \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]+12 a b^2 d^2 e^2 \mathbb{e}^{2 c} \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]-6 a^3 f^2 \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]-$$

$$6\,a\,b^2 f^2 \text{Log}\left[1+e^{2(c+d x)}\right]-6\,a^3 e^{2c} f^2 \text{Log}\left[1+e^{2(c+d x)}\right]-6\,a\,b^2 e^{2c} f^2 \text{Log}\left[1+e^{2(c+d x)}\right]+12\,a^3 d^2 e\,f\,x\,\text{Log}\left[1+e^{2(c+d x)}\right]+$$
$$24\,a\,b^2 d^2 e\,f\,x\,\text{Log}\left[1+e^{2(c+d x)}\right]+12\,a^3 d^2 e\,e^{2c} f\,x\,\text{Log}\left[1+e^{2(c+d x)}\right]+24\,a\,b^2 d^2 e\,e^{2c} f\,x\,\text{Log}\left[1+e^{2(c+d x)}\right]+$$
$$6\,a^3 d^2 f^2 x^2 \text{Log}\left[1+e^{2(c+d x)}\right]+12\,a\,b^2 d^2 f^2 x^2 \text{Log}\left[1+e^{2(c+d x)}\right]+6\,a^3 d^2 e^{2c} f^2 x^2 \text{Log}\left[1+e^{2(c+d x)}\right]+12\,a\,b^2 d^2 e^{2c} f^2 x^2 \text{Log}\left[1+e^{2(c+d x)}\right]-$$
$$6\,i\,b\left(a^2+3 b^2\right) d\left(1+e^{2c}\right) f\,(e+f x)\,\text{PolyLog}\left[2,-i\,e^{c+d x}\right]+6\,i\,b\left(a^2+3 b^2\right) d\left(1+e^{2c}\right) f\,(e+f x)\,\text{PolyLog}\left[2,i\,e^{c+d x}\right]+$$
$$6\,a^3 d\,e\,f\,\text{PolyLog}\left[2,-e^{2(c+d x)}\right]+12\,a\,b^2 d\,e\,f\,\text{PolyLog}\left[2,-e^{2(c+d x)}\right]+6\,a^3 d\,e\,e^{2c} f\,\text{PolyLog}\left[2,-e^{2(c+d x)}\right]+$$
$$12\,a\,b^2 d\,e\,e^{2c} f\,\text{PolyLog}\left[2,-e^{2(c+d x)}\right]+6\,a^3 d\,f^2 x\,\text{PolyLog}\left[2,-e^{2(c+d x)}\right]+12\,a\,b^2 d\,f^2 x\,\text{PolyLog}\left[2,-e^{2(c+d x)}\right]+$$
$$6\,a^3 d\,e^{2c} f^2 x\,\text{PolyLog}\left[2,-e^{2(c+d x)}\right]+12\,a\,b^2 d\,e^{2c} f^2 x\,\text{PolyLog}\left[2,-e^{2(c+d x)}\right]+6\,i\,a^2 b\,f^2\,\text{PolyLog}\left[3,-i\,e^{c+d x}\right]+$$
$$18\,i\,b^3 f^2\,\text{PolyLog}\left[3,-i\,e^{c+d x}\right]+6\,i\,a^2 b\,e^{2c} f^2\,\text{PolyLog}\left[3,-i\,e^{c+d x}\right]+18\,i\,b^3 e^{2c} f^2\,\text{PolyLog}\left[3,-i\,e^{c+d x}\right]-$$
$$6\,i\,a^2 b\,f^2\,\text{PolyLog}\left[3,i\,e^{c+d x}\right]-18\,i\,b^3 f^2\,\text{PolyLog}\left[3,i\,e^{c+d x}\right]-6\,i\,a^2 b\,e^{2c} f^2\,\text{PolyLog}\left[3,i\,e^{c+d x}\right]-18\,i\,b^3 e^{2c} f^2\,\text{PolyLog}\left[3,i\,e^{c+d x}\right]-$$
$$3\,a^3 f^2\,\text{PolyLog}\left[3,-e^{2(c+d x)}\right]-6\,a\,b^2 f^2\,\text{PolyLog}\left[3,-e^{2(c+d x)}\right]-3\,a^3 e^{2c} f^2\,\text{PolyLog}\left[3,-e^{2(c+d x)}\right]-6\,a\,b^2 e^{2c} f^2\,\text{PolyLog}\left[3,-e^{2(c+d x)}\right]\Big]\Big)+$$

$$\frac{-\frac{4 e^{2c} x\left(3 e^2+3 e f x+f^2 x^2\right)}{-1+e^{2c}}+\frac{6 (e+f x)^2 \text{Log}\left[1-e^{2(c+d x)}\right]}{d}+\frac{6 f (e+f x) \text{PolyLog}\left[2,e^{2(c+d x)}\right]}{d^2}-\frac{3 f^2 \text{PolyLog}\left[3,e^{2(c+d x)}\right]}{d^3}}{6\,a}+$$

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

$$\frac{1}{24\left(a^2+b^2\right)^2 d^2}\,\text{Csch}[c]\,\text{Sech}[c]\,\text{Sech}[c+d x]^2\Big(-6\,a^3 e\,f-6\,a\,b^2 e\,f+12\,a^3 d^2 e^2 x+24\,a\,b^2 d^2 e^2 x-6\,a^3 f^2 x-6\,a\,b^2 f^2 x+12\,a^3 d^2 e\,f\,x^2+$$
$$24\,a\,b^2 d^2 e\,f\,x^2+4\,a^3 d^2 f^2 x^3+8\,a\,b^2 d^2 f^2 x^3+6\,a^3 e\,f\,\text{Cosh}[2\,c]+6\,a\,b^2 e\,f\,\text{Cosh}[2\,c]+6\,a^3 f^2 x\,\text{Cosh}[2\,c]+6\,a\,b^2 f^2 x\,\text{Cosh}[2\,c]+$$
$$6\,a^3 e\,f\,\text{Cosh}[2\,d\,x]+6\,a\,b^2 e\,f\,\text{Cosh}[2\,d\,x]+6\,a^3 f^2 x\,\text{Cosh}[2\,d\,x]+6\,a\,b^2 f^2 x\,\text{Cosh}[2\,d\,x]+3\,a^2 b\,d\,e^2\,\text{Cosh}[c-d\,x]+3\,b^3 d\,e^2\,\text{Cosh}[c-d\,x]+$$

$6 a^2 b d e f x \operatorname{Cosh}[c - d x] + 6 b^3 d e f x \operatorname{Cosh}[c - d x] + 3 a^2 b d f^2 x^2 \operatorname{Cosh}[c - d x] + 3 b^3 d f^2 x^2 \operatorname{Cosh}[c - d x] - 3 a^2 b d e^2 \operatorname{Cosh}[3 c + d x] -$
$3 b^3 d e^2 \operatorname{Cosh}[3 c + d x] - 6 a^2 b d e f x \operatorname{Cosh}[3 c + d x] - 6 b^3 d e f x \operatorname{Cosh}[3 c + d x] - 3 a^2 b d f^2 x^2 \operatorname{Cosh}[3 c + d x] - 3 b^3 d f^2 x^2 \operatorname{Cosh}[3 c + d x] -$
$6 a^3 e f \operatorname{Cosh}[2 c + 2 d x] - 6 a b^2 e f \operatorname{Cosh}[2 c + 2 d x] + 12 a^3 d^2 e^2 x \operatorname{Cosh}[2 c + 2 d x] + 24 a b^2 d^2 e^2 x \operatorname{Cosh}[2 c + 2 d x] - 6 a^3 f^2 x \operatorname{Cosh}[2 c + 2 d x] -$
$6 a b^2 f^2 x \operatorname{Cosh}[2 c + 2 d x] + 12 a^3 d^2 e f x^2 \operatorname{Cosh}[2 c + 2 d x] + 24 a b^2 d^2 e f x^2 \operatorname{Cosh}[2 c + 2 d x] + 4 a^3 d^2 f^2 x^3 \operatorname{Cosh}[2 c + 2 d x] +$
$8 a b^2 d^2 f^2 x^3 \operatorname{Cosh}[2 c + 2 d x] + 6 a^3 d e^2 \operatorname{Sinh}[2 c] + 6 a b^2 d e^2 \operatorname{Sinh}[2 c] + 12 a^3 d e f x \operatorname{Sinh}[2 c] + 12 a b^2 d e f x \operatorname{Sinh}[2 c] +$
$6 a^3 d f^2 x^2 \operatorname{Sinh}[2 c] + 6 a b^2 d f^2 x^2 \operatorname{Sinh}[2 c] - 6 a^2 b e f \operatorname{Sinh}[c - d x] - 6 b^3 e f \operatorname{Sinh}[c - d x] - 6 a^2 b f^2 x \operatorname{Sinh}[c - d x] -$
$6 b^3 f^2 x \operatorname{Sinh}[c - d x] - 6 a^2 b e f \operatorname{Sinh}[3 c + d x] - 6 b^3 e f \operatorname{Sinh}[3 c + d x] - 6 a^2 b f^2 x \operatorname{Sinh}[3 c + d x] - 6 b^3 f^2 x \operatorname{Sinh}[3 c + d x])$

Problem 448: Attempted integration timed out after 120 seconds.

$$\int \frac{\operatorname{Csch}[c + d x] \operatorname{Sech}[c + d x]^3}{(e + f x) (a + b \operatorname{Sinh}[c + d x])} \, dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\operatorname{Csch}[c + d x] \operatorname{Sech}[c + d x]^3}{(e + f x) (a + b \operatorname{Sinh}[c + d x])}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 449: Result more than twice size of optimal antiderivative.

$$\int \frac{(e + f x)^3 \operatorname{Coth}[c + d x] \operatorname{Csch}[c + d x]}{a + b \operatorname{Sinh}[c + d x]} \, dx$$

Optimal (type 4, 601 leaves, 27 steps):

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

Result (type 4, 2646 leaves):

$$-\frac{(e+f x)^3 \text{Csch}[c]}{a d}+$$
$$\frac{1}{4 a^2 d^4 \left(-1+e^{2 c}\right)}\left(8 b d^4 e^3 e^{2 c} x+12 b d^4 e^2 e^{2 c} f x^2+8 b d^4 e e^{2 c} f^2 x^3+2 b d^4 e^{2 c} f^3 x^4+24 a d^2 e^2 f \text{ArcTanh}\left[e^{c+d x}\right]-24 a d^2 e^2 e^{2 c} f \text{ArcTanh}\left[e^{c+d x}\right]-\right.$$
$$24 a d^2 e f^2 x \text{Log}\left[1-e^{c+d x}\right]+24 a d^2 e e^{2 c} f^2 x \text{Log}\left[1-e^{c+d x}\right]-12 a d^2 f^3 x^2 \text{Log}\left[1-e^{c+d x}\right]+12 a d^2 e^{2 c} f^3 x^2 \text{Log}\left[1-e^{c+d x}\right]+$$
$$24 a d^2 e f^2 x \text{Log}\left[1+e^{c+d x}\right]-24 a d^2 e e^{2 c} f^2 x \text{Log}\left[1+e^{c+d x}\right]+12 a d^2 f^3 x^2 \text{Log}\left[1+e^{c+d x}\right]-12 a d^2 e^{2 c} f^3 x^2 \text{Log}\left[1+e^{c+d x}\right]+$$
$$4 b d^3 e^3 \text{Log}\left[1-e^{2 (c+d x)}\right]-4 b d^3 e^3 e^{2 c} \text{Log}\left[1-e^{2 (c+d x)}\right]+12 b d^3 e^2 f x \text{Log}\left[1-e^{2 (c+d x)}\right]-12 b d^3 e^2 e^{2 c} f x \text{Log}\left[1-e^{2 (c+d x)}\right]+$$
$$12 b d^3 e f^2 x^2 \text{Log}\left[1-e^{2 (c+d x)}\right]-12 b d^3 e e^{2 c} f^2 x^2 \text{Log}\left[1-e^{2 (c+d x)}\right]+4 b d^3 f^3 x^3 \text{Log}\left[1-e^{2 (c+d x)}\right]-4 b d^3 e^{2 c} f^3 x^3 \text{Log}\left[1-e^{2 (c+d x)}\right]-$$
$$24 a d \left(-1+e^{2 c}\right) f^2 (e+f x) \text{PolyLog}\left[2,-e^{c+d x}\right]+24 a d \left(-1+e^{2 c}\right) f^2 (e+f x) \text{PolyLog}\left[2,e^{c+d x}\right]+6 b d^2 e^2 f \text{PolyLog}\left[2,e^{2 (c+d x)}\right]-$$
$$6 b d^2 e^2 e^{2 c} f \text{PolyLog}\left[2,e^{2 (c+d x)}\right]+12 b d^2 e f^2 x \text{PolyLog}\left[2,e^{2 (c+d x)}\right]-12 b d^2 e e^{2 c} f^2 x \text{PolyLog}\left[2,e^{2 (c+d x)}\right]+$$
$$6 b d^2 f^3 x^2 \text{PolyLog}\left[2,e^{2 (c+d x)}\right]-6 b d^2 e^{2 c} f^3 x^2 \text{PolyLog}\left[2,e^{2 (c+d x)}\right]-24 a f^3 \text{PolyLog}\left[3,-e^{c+d x}\right]+24 a e^{2 c} f^3 \text{PolyLog}\left[3,-e^{c+d x}\right]+$$
$$24 a f^3 \text{PolyLog}\left[3,e^{c+d x}\right]-24 a e^{2 c} f^3 \text{PolyLog}\left[3,e^{c+d x}\right]-6 b d e f^2 \text{PolyLog}\left[3,e^{2 (c+d x)}\right]+6 b d e e^{2 c} f^2 \text{PolyLog}\left[3,e^{2 (c+d x)}\right]-$$
$$\left.6 b d f^3 x \text{PolyLog}\left[3,e^{2 (c+d x)}\right]+6 b d e^{2 c} f^3 x \text{PolyLog}\left[3,e^{2 (c+d x)}\right]+3 b f^3 \text{PolyLog}\left[4,e^{2 (c+d x)}\right]-3 b e^{2 c} f^3 \text{PolyLog}\left[4,e^{2 (c+d x)}\right]\right)-$$
$$\frac{1}{2 a^2 d^4 \left(-1+e^{2 c}\right)} b \left(4 d^4 e^3 e^{2 c} x+6 d^4 e^2 e^{2 c} f x^2+4 d^4 e e^{2 c} f^2 x^3+d^4 e^{2 c} f^3 x^4+2 d^3 e^3 \text{Log}\left[2 a e^{c+d x}+b \left(-1+e^{2 (c+d x)}\right)\right]-\right.$$
$$2 d^3 e^3 e^{2 c} \text{Log}\left[2 a e^{c+d x}+b \left(-1+e^{2 (c+d x)}\right)\right]+6 d^3 e^2 f x \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-6 d^3 e^2 e^{2 c} f x \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+$$
$$6 d^3 e f^2 x^2 \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-6 d^3 e e^{2 c} f^2 x^2 \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]+2 d^3 f^3 x^3 \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2 c}}}\right]-$$

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

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

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

$$6 d^2 \left(-1+e^{2c}\right) f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2) e^{2c}}}\right]-12 d e f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2) e^{2c}}}\right]+$$

$$12 d e e^{2c} f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2) e^{2c}}}\right]-12 d f^3 x \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2) e^{2c}}}\right]+12 d e^{2c} f^3 x$$

$$\text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2) e^{2c}}}\right]-12 d e f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2) e^{2c}}}\right]+12 d e e^{2c} f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2) e^{2c}}}\right]-$$

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

$$12 e^{2c} f^3 \text{PolyLog}\left[4,-\frac{b e^{2c+dx}}{a e^c-\sqrt{(a^2+b^2) e^{2c}}}\right]+12 f^3 \text{PolyLog}\left[4,-\frac{b e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2) e^{2c}}}\right]-12 e^{2c} f^3 \text{PolyLog}\left[4,-\frac{b e^{2c+dx}}{a e^c+\sqrt{(a^2+b^2) e^{2c}}}\right]\Bigg)+$$

$$\frac{\text{Csch}\left[\frac{c}{2}\right] \text{Csch}\left[\frac{c}{2}+\frac{dx}{2}\right] \left(e^3 \text{Sinh}\left[\frac{dx}{2}\right]+3 e^2 f x \text{Sinh}\left[\frac{dx}{2}\right]+3 e f^2 x^2 \text{Sinh}\left[\frac{dx}{2}\right]+f^3 x^3 \text{Sinh}\left[\frac{dx}{2}\right]\right)}{2 a d}+$$

$$\frac{\text{Sech}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}+\frac{dx}{2}\right] \left(e^3 \text{Sinh}\left[\frac{dx}{2}\right]+3 e^2 f x \text{Sinh}\left[\frac{dx}{2}\right]+3 e f^2 x^2 \text{Sinh}\left[\frac{dx}{2}\right]+f^3 x^3 \text{Sinh}\left[\frac{dx}{2}\right]\right)}{2 a d}$$

Problem 451: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x) \text{Coth}[c+d x] \text{Csch}[c+d x]}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 243 leaves, 15 steps):

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

Result (type 4, 712 leaves):

$$\frac{1}{8\,a^2\,d^2}\Bigg(-8\,b\,c^2\,f-4\,i\,b\,c\,f\,\pi+b\,f\,\pi^2-16\,b\,c\,d\,f\,x-4\,i\,b\,d\,f\,\pi\,x-8\,b\,d^2\,f\,x^2-32\,b\,f\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{i\,a}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+i\,b)\,\text{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,d\,e\,\text{Coth}\left[\frac{1}{2}\,(c+d\,x)\right]-4\,a\,d\,f\,x\,\text{Coth}\left[\frac{1}{2}\,(c+d\,x)\right]-8\,b\,c\,f\,\text{Log}\left[1-e^{-2\,(c+d\,x)}\right]-8\,b\,d\,f\,x\,\text{Log}\left[1-e^{-2\,(c+d\,x)}\right]+$$

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

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

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

$$8\,b\,c\,f\,\text{Log}[\text{Sinh}[c+d\,x]]-4\,i\,b\,f\,\pi\,\text{Log}[a+b\,\text{Sinh}[c+d\,x]]+8\,b\,d\,e\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]-8\,b\,c\,f\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]+$$

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

$$8\,b\,f\,\text{PolyLog}\left[2,\frac{\left(a+\sqrt{a^2+b^2}\right)e^{c+d\,x}}{b}\right]+4\,a\,d\,e\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]+4\,a\,d\,f\,x\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg)$$

Problem 453: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Coth}[c+d x]\,\text{Csch}[c+d x]}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])}\,dx$$

Optimal (type 9, 34 leaves, 0 steps):

$$\text{Unintegrable}\Big[\frac{\text{Coth}[c+d x]\,\text{Csch}[c+d x]}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},\,x\Big]$$

Result (type 1, 1 leaves):

???

Problem 454: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3\,\text{Coth}[c+d x]^2}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 721 leaves, 41 steps):

$$-\frac{(e+f x)^3}{a d}+\frac{2 b (e+f x)^3\,\text{ArcTanh}\big[e^{c+d x}\big]}{a^2 d}-\frac{(e+f x)^3\,\text{Coth}[c+d x]}{a d}+\frac{\sqrt{a^2+b^2}\,(e+f x)^3\,\text{Log}\Big[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\Big]}{a^2 d}-$$
$$\frac{\sqrt{a^2+b^2}\,(e+f x)^3\,\text{Log}\Big[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\Big]}{a^2 d}+\frac{3 f (e+f x)^2\,\text{Log}\big[1-e^{2 (c+d x)}\big]}{a d^2}+\frac{3 b f (e+f x)^2\,\text{PolyLog}\big[2,-e^{c+d x}\big]}{a^2 d^2}-$$
$$\frac{3 b f (e+f x)^2\,\text{PolyLog}\big[2,e^{c+d x}\big]}{a^2 d^2}+\frac{3\sqrt{a^2+b^2}\,f (e+f x)^2\,\text{PolyLog}\Big[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\Big]}{a^2 d^2}-\frac{3\sqrt{a^2+b^2}\,f (e+f x)^2\,\text{PolyLog}\Big[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\Big]}{a^2 d^2}+$$
$$\frac{3 f^2 (e+f x)\,\text{PolyLog}\big[2,e^{2 (c+d x)}\big]}{a d^3}-\frac{6 b f^2 (e+f x)\,\text{PolyLog}\big[3,-e^{c+d x}\big]}{a^2 d^3}+\frac{6 b f^2 (e+f x)\,\text{PolyLog}\big[3,e^{c+d x}\big]}{a^2 d^3}-$$
$$\frac{6\sqrt{a^2+b^2}\,f^2 (e+f x)\,\text{PolyLog}\Big[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\Big]}{a^2 d^3}+\frac{6\sqrt{a^2+b^2}\,f^2 (e+f x)\,\text{PolyLog}\Big[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\Big]}{a^2 d^3}-\frac{3 f^3\,\text{PolyLog}\big[3,e^{2 (c+d x)}\big]}{2 a d^4}+$$
$$\frac{6 b f^3\,\text{PolyLog}\big[4,-e^{c+d x}\big]}{a^2 d^4}-\frac{6 b f^3\,\text{PolyLog}\big[4,e^{c+d x}\big]}{a^2 d^4}+\frac{6\sqrt{a^2+b^2}\,f^3\,\text{PolyLog}\Big[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\Big]}{a^2 d^4}-\frac{6\sqrt{a^2+b^2}\,f^3\,\text{PolyLog}\Big[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\Big]}{a^2 d^4}$$

Result (type 4, 2213 leaves):

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

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

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

$$\frac{\text{Csch}\left[\frac{c}{2}\right]\,\text{Csch}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\,\left(e^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]+3\,e^2\,f\,x\,\text{Sinh}\left[\frac{d\,x}{2}\right]+3\,e\,f^2\,x^2\,\text{Sinh}\left[\frac{d\,x}{2}\right]+f^3\,x^3\,\text{Sinh}\left[\frac{d\,x}{2}\right]\right)}{2\,a\,d}$$

Problem 455: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f\,x)^2\,\text{Coth}[c+d\,x]^2}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 517 leaves, 34 steps):

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

Result (type 4, 1037 leaves):

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

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

$$\frac{\text{Sech}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}+\frac{d x}{2}\right]\left(-e^2 \text{Sinh}\left[\frac{d x}{2}\right]-2 e f x \text{Sinh}\left[\frac{d x}{2}\right]-f^2 x^2 \text{Sinh}\left[\frac{d x}{2}\right]\right)}{2 a d}+$$

$$\frac{\text{Csch}\left[\frac{c}{2}\right] \text{Csch}\left[\frac{c}{2}+\frac{d x}{2}\right]\left(e^2 \text{Sinh}\left[\frac{d x}{2}\right]+2 e f x \text{Sinh}\left[\frac{d x}{2}\right]+f^2 x^2 \text{Sinh}\left[\frac{d x}{2}\right]\right)}{2 a d}$$

Problem 458: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Coth}[c+d x]^2}{(e+f x)\,(a+b \text{Sinh}[c+d x])}\,dx$$

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

$$\text{Unintegrable}\left[\frac{\text{Coth}[c+d x]^2}{(e+f x)\,(a+b \text{Sinh}[c+d x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 459: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+fx)^3 \operatorname{Cosh}[c+dx] \operatorname{Coth}[c+dx]^2}{a+b \operatorname{Sinh}[c+dx]} \, dx$$

Optimal (type 4, 718 leaves, 48 steps):

$$\frac{b(e+fx)^4}{4a^2 f} - \frac{(a^2+b^2)(e+fx)^4}{4a^2 b f} - \frac{6f(e+fx)^2 \operatorname{ArcTanh}[e^{c+dx}]}{a d^2} - \frac{(e+fx)^3 \operatorname{Csch}[c+dx]}{a d} + \frac{(a^2+b^2)(e+fx)^3 \operatorname{Log}\left[1+\frac{b e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{a^2 b d} + \frac{(a^2+b^2)(e+fx)^3 \operatorname{Log}\left[1+\frac{b e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{a^2 b d} - \frac{b(e+fx)^3 \operatorname{Log}[1-e^{2(c+dx)}]}{a^2 d} - \frac{6f^2(e+fx) \operatorname{PolyLog}[2,-e^{c+dx}]}{a d^3} + \frac{6f^2(e+fx) \operatorname{PolyLog}[2,e^{c+dx}]}{a d^3} + \frac{3(a^2+b^2) f (e+fx)^2 \operatorname{PolyLog}\left[2,-\frac{b e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{a^2 b d^2} + \frac{3(a^2+b^2) f (e+fx)^2 \operatorname{PolyLog}\left[2,-\frac{b e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{a^2 b d^2} - \frac{3bf(e+fx)^2 \operatorname{PolyLog}[2,e^{2(c+dx)}]}{2a^2 d^2} + \frac{6f^3 \operatorname{PolyLog}[3,-e^{c+dx}]}{a d^4} - \frac{6f^3 \operatorname{PolyLog}[3,e^{c+dx}]}{a d^4} - \frac{6(a^2+b^2) f^2 (e+fx) \operatorname{PolyLog}\left[3,-\frac{b e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{a^2 b d^3} - \frac{6(a^2+b^2) f^2 (e+fx) \operatorname{PolyLog}\left[3,-\frac{b e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{a^2 b d^3} + \frac{3bf^2(e+fx) \operatorname{PolyLog}[3,e^{2(c+dx)}]}{2a^2 d^3} + \frac{6(a^2+b^2) f^3 \operatorname{PolyLog}\left[4,-\frac{b e^{c+dx}}{a-\sqrt{a^2+b^2}}\right]}{a^2 b d^4} + \frac{6(a^2+b^2) f^3 \operatorname{PolyLog}\left[4,-\frac{b e^{c+dx}}{a+\sqrt{a^2+b^2}}\right]}{a^2 b d^4} - \frac{3bf^3 \operatorname{PolyLog}[4,e^{2(c+dx)}]}{4a^2 d^4}$$

Result (type 4, 2744 leaves):

$$\frac{1}{4a^2 d^4(-1+e^{2c})} \Big(8bd^4e^3e^{2c}x + 12bd^4e^2e^{2c}fx^2 + 8bd^4e\,e^{2c}f^2x^3 + 2bd^4e^{2c}f^3x^4 + 24ad^2e^2f \operatorname{ArcTanh}[e^{c+dx}] - 24ad^2e^2e^{2c}f \operatorname{ArcTanh}[e^{c+dx}] - 24ad^2ef^2x \operatorname{Log}[1-e^{c+dx}] + 24ad^2e\,e^{2c}f^2x \operatorname{Log}[1-e^{c+dx}] - 12ad^2f^3x^2 \operatorname{Log}[1-e^{c+dx}] + 12ad^2e^{2c}f^3x^2 \operatorname{Log}[1-e^{c+dx}] + 24ad^2ef^2x \operatorname{Log}[1+e^{c+dx}] - 24ad^2e\,e^{2c}f^2x \operatorname{Log}[1+e^{c+dx}] + 12ad^2f^3x^2 \operatorname{Log}[1+e^{c+dx}] - 12ad^2e^{2c}f^3x^2 \operatorname{Log}[1+e^{c+dx}] + 4bd^3e^3 \operatorname{Log}[1-e^{2(c+dx)}] - 4bd^3e^3e^{2c} \operatorname{Log}[1-e^{2(c+dx)}] + 12bd^3e^2fx \operatorname{Log}[1-e^{2(c+dx)}] - 12bd^3e^2e^{2c}fx \operatorname{Log}[1-e^{2(c+dx)}] + 12bd^3ef^2x^2 \operatorname{Log}[1-e^{2(c+dx)}] - 12bd^3e\,e^{2c}f^2x^2 \operatorname{Log}[1-e^{2(c+dx)}] + 4bd^3f^3x^3 \operatorname{Log}[1-e^{2(c+dx)}] - 4bd^3e^{2c}f^3x^3 \operatorname{Log}[1-e^{2(c+dx)}] - 24ad(-1+e^{2c})f^2(e+fx) \operatorname{PolyLog}[2,-e^{c+dx}] + 24ad(-1+e^{2c})f^2(e+fx) \operatorname{PolyLog}[2,e^{c+dx}] + 6bd^2e^2f \operatorname{PolyLog}[2,e^{2(c+dx)}] - 6bd^2e^2e^{2c}f \operatorname{PolyLog}[2,e^{2(c+dx)}] + 12bd^2ef^2x \operatorname{PolyLog}[2,e^{2(c+dx)}] - 12bd^2e\,e^{2c}f^2x \operatorname{PolyLog}[2,e^{2(c+dx)}] + 6bd^2f^3x^2 \operatorname{PolyLog}[2,e^{2(c+dx)}] - 6bd^2e^{2c}f^3x^2 \operatorname{PolyLog}[2,e^{2(c+dx)}] - 24af^3 \operatorname{PolyLog}[3,-e^{c+dx}] + 24ae^{2c}f^3 \operatorname{PolyLog}[3,-e^{c+dx}] + 24af^3 \operatorname{PolyLog}[3,e^{c+dx}] - 24ae^{2c}f^3 \operatorname{PolyLog}[3,e^{c+dx}] - 6bdef^2 \operatorname{PolyLog}[3,e^{2(c+dx)}] + 6bde\,e^{2c}f^2 \operatorname{PolyLog}[3,e^{2(c+dx)}] - 6bdf^3x \operatorname{PolyLog}[3,e^{2(c+dx)}] + 6bde^{2c}f^3x \operatorname{PolyLog}[3,e^{2(c+dx)}] + 3bf^3 \operatorname{PolyLog}[4,e^{2(c+dx)}] - 3be^{2c}f^3 \operatorname{PolyLog}[4,e^{2(c+dx)}]\Big) -$$

$$\frac{1}{2a^2 b d^4(-1+e^{2c})}(a^2+b^2)\Big(4d^4e^3e^{2c}x + 6d^4e^2e^{2c}fx^2 + 4d^4e\,e^{2c}f^2x^3 + d^4e^{2c}f^3x^4 + 2d^3e^3 \operatorname{Log}[2a\,e^{c+dx} + b(-1+e^{2(c+dx)})] -$$

$$2\,d^3\,e^3\,\mathbb{e}^{2\,c}\,\mathrm{Log}\left[2\,a\,\mathbb{e}^{c+d\,x}+b\,\left(-1+\mathbb{e}^{2\,(c+d\,x)}\right)\right]+6\,d^3\,e^2\,f\,x\,\mathrm{Log}\left[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-6\,d^3\,e^2\,\mathbb{e}^{2\,c}\,f\,x\,\mathrm{Log}\left[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]+$$

$$6\,d^3\,e\,f^2\,x^2\,\mathrm{Log}\left[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-6\,d^3\,e\,\mathbb{e}^{2\,c}\,f^2\,x^2\,\mathrm{Log}\left[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]+2\,d^3\,f^3\,x^3\,\mathrm{Log}\left[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-$$

$$2\,d^3\,\mathbb{e}^{2\,c}\,f^3\,x^3\,\mathrm{Log}\left[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]+6\,d^3\,e^2\,f\,x\,\mathrm{Log}\left[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-6\,d^3\,e^2\,\mathbb{e}^{2\,c}\,f\,x\,\mathrm{Log}\left[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]+$$

$$6\,d^3\,e\,f^2\,x^2\,\mathrm{Log}\left[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-6\,d^3\,e\,\mathbb{e}^{2\,c}\,f^2\,x^2\,\mathrm{Log}\left[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]+2\,d^3\,f^3\,x^3\,\mathrm{Log}\left[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-$$

$$2\,d^3\,\mathbb{e}^{2\,c}\,f^3\,x^3\,\mathrm{Log}\left[1+\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-6\,d^2\,\left(-1+\mathbb{e}^{2\,c}\right)\,f\,(e+f\,x)^2\,\mathrm{PolyLog}\left[2,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-$$

$$6\,d^2\,\left(-1+\mathbb{e}^{2\,c}\right)\,f\,(e+f\,x)^2\,\mathrm{PolyLog}\left[2,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-12\,d\,e\,f^2\,\mathrm{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]+$$

$$12\,d\,e\,\mathbb{e}^{2\,c}\,f^2\,\mathrm{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-12\,d\,f^3\,x\,\mathrm{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]+12\,d\,\mathbb{e}^{2\,c}\,f^3\,x$$

$$\mathrm{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-12\,d\,e\,f^2\,\mathrm{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]+12\,d\,e\,\mathbb{e}^{2\,c}\,f^2\,\mathrm{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-$$

$$12\,d\,f^3\,x\,\mathrm{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]+12\,d\,\mathbb{e}^{2\,c}\,f^3\,x\,\mathrm{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]+12\,f^3\,\mathrm{PolyLog}\left[4,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-$$

$$\left.12\,\mathbb{e}^{2\,c}\,f^3\,\mathrm{PolyLog}\left[4,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c-\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]+12\,f^3\,\mathrm{PolyLog}\left[4,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]-12\,\mathbb{e}^{2\,c}\,f^3\,\mathrm{PolyLog}\left[4,-\frac{b\,\mathbb{e}^{2\,c+d\,x}}{a\,\mathbb{e}^c+\sqrt{\left(a^2+b^2\right)\,\mathbb{e}^{2\,c}}}\right]\right)+$$

$$\frac{1}{8\,a\,b\,d}\left(-4\,b\,e^3-12\,b\,e^2\,f\,x-12\,b\,e\,f^2\,x^2-4\,b\,f^3\,x^3+4\,a\,d\,e^3\,x\,\mathrm{Cosh}[c]+6\,a\,d\,e^2\,f\,x^2\,\mathrm{Cosh}[c]+4\,a\,d\,e\,f^2\,x^3\,\mathrm{Cosh}[c]+a\,d\,f^3\,x^4\,\mathrm{Cosh}[c]\right)$$

$$\mathrm{Csch}\left[\frac{c}{2}\right]\,\mathrm{Sech}\left[\frac{c}{2}\right]+$$

$$\frac{\mathrm{Csch}\left[\frac{c}{2}\right]\,\mathrm{Csch}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\,\left(e^3\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]+3\,e^2\,f\,x\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]+3\,e\,f^2\,x^2\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]+f^3\,x^3\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]\right)}{2\,a\,d}+$$

$$\frac{\mathrm{Sech}\left[\frac{c}{2}\right]\,\mathrm{Sech}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\,\left(e^3\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]+3\,e^2\,f\,x\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]+3\,e\,f^2\,x^2\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]+f^3\,x^3\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]\right)}{2\,a\,d}$$

Problem 460: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2 \operatorname{Cosh}[c+d x] \operatorname{Coth}[c+d x]^2}{a+b \operatorname{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 518 leaves, 37 steps) :

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

Result (type 4, 1367 leaves) :

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

$$\frac{1}{3a^2 b d^3\left(-1+e^{2c}\right)}\left(a^2+b^2\right)\left(6 d^3 e^2 e^{2c} x+6 d^3 e\, e^{2c} f x^2+2 d^3 e^{2c} f^2 x^3+3 d^2 e^2\,\text{Log}\left[2 a e^{c+d x}+b\left(-1+e^{2(c+d x)}\right)\right]-\right.$$
$$3 d^2 e^2 e^{2c}\,\text{Log}\left[2 a e^{c+d x}+b\left(-1+e^{2(c+d x)}\right)\right]+6 d^2 e f x\,\text{Log}\left[1+\frac{b e^{2c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-6 d^2 e\, e^{2c} f x\,\text{Log}\left[1+\frac{b e^{2c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+$$
$$3 d^2 f^2 x^2\,\text{Log}\left[1+\frac{b e^{2c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-3 d^2 e^{2c} f^2 x^2\,\text{Log}\left[1+\frac{b e^{2c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+$$
$$6 d^2 e f x\,\text{Log}\left[1+\frac{b e^{2c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-6 d^2 e\, e^{2c} f x\,\text{Log}\left[1+\frac{b e^{2c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+3 d^2 f^2 x^2\,\text{Log}\left[1+\frac{b e^{2c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-$$
$$3 d^2 e^{2c} f^2 x^2\,\text{Log}\left[1+\frac{b e^{2c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-6 d\left(-1+e^{2c}\right) f\left(e+f x\right)\text{PolyLog}\left[2,-\frac{b e^{2c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-$$
$$6 d\left(-1+e^{2c}\right) f\left(e+f x\right)\text{PolyLog}\left[2,-\frac{b e^{2c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-6 f^2\,\text{PolyLog}\left[3,-\frac{b e^{2c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+$$
$$\left.6 e^{2c} f^2\,\text{PolyLog}\left[3,-\frac{b e^{2c+d x}}{a e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-6 f^2\,\text{PolyLog}\left[3,-\frac{b e^{2c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+6 e^{2c} f^2\,\text{PolyLog}\left[3,-\frac{b e^{2c+d x}}{a e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]\right)+$$
$$\frac{1}{6 a b d}\left(-3 b e^2-6 b e f x-3 b f^2 x^2+3 a d e^2 x\,\text{Cosh}[c]+3 a d e f x^2\,\text{Cosh}[c]+a d f^2 x^3\,\text{Cosh}[c]\right)\text{Csch}\left[\frac{c}{2}\right]\text{Sech}\left[\frac{c}{2}\right]+$$
$$\frac{\text{Csch}\left[\frac{c}{2}\right]\text{Csch}\left[\frac{c}{2}+\frac{d x}{2}\right]\left(e^2\,\text{Sinh}\left[\frac{d x}{2}\right]+2 e f x\,\text{Sinh}\left[\frac{d x}{2}\right]+f^2 x^2\,\text{Sinh}\left[\frac{d x}{2}\right]\right)}{2 a d}+$$
$$\frac{\text{Sech}\left[\frac{c}{2}\right]\text{Sech}\left[\frac{c}{2}+\frac{d x}{2}\right]\left(e^2\,\text{Sinh}\left[\frac{d x}{2}\right]+2 e f x\,\text{Sinh}\left[\frac{d x}{2}\right]+f^2 x^2\,\text{Sinh}\left[\frac{d x}{2}\right]\right)}{2 a d}$$

Problem 461: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)\,\text{Cosh}[c+d x]\,\text{Coth}[c+d x]^2}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 324 leaves, 28 steps):

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

Result (type 4, 1196 leaves):

$$\frac{\left(-d\,e\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+c\,f\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]-f\,(c+d x)\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]\right)\text{Csch}\left[\frac{1}{2}(c+d x)\right]}{2 a d^2}-\frac{b\,e\,\text{Log}[\text{Sinh}[c+d x]]}{a^2 d}+\frac{b\,c\,f\,\text{Log}[\text{Sinh}[c+d x]]}{a^2 d^2}+\frac{e\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d x]}{a}\right]}{b d}+\frac{b\,e\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d x]}{a}\right]}{a^2 d}-\frac{c\,f\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d x]}{a}\right]}{b d^2}-\frac{b\,c\,f\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d x]}{a}\right]}{a^2 d^2}+\frac{f\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{a d^2}+\frac{i\,b\,f\left(i\,(c+d x)\,\text{Log}\left[1-e^{-2\,(c+d x)}\right]-\frac{1}{2}\,i\left(-(c+d x)^2+\text{PolyLog}\left[2,e^{-2\,(c+d x)}\right]\right)\right)}{a^2 d^2}+$$

$$\frac{1}{d^2}f\left(\frac{(c+d x)\,\text{Log}[a+b\,\text{Sinh}[c+d x]]}{b}-\frac{1}{b}\,i\left(\frac{1}{2}\,i\left(\frac{\pi}{2}-i\,(c+d x)\right)^2-4\,i\,\text{ArcSin}\left[\frac{\sqrt{\frac{i\,(a-i\,b)}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+i\,b)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-i\,(c+d x)\right)\right]}{\sqrt{a^2+b^2}}\right]-\right.\right.$$

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

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

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

$$\frac{1}{a^2 d^2}\,b^2 f\left(\frac{\left(c+d x\right)\text{Log}\left[a+b\,\text{Sinh}\left[c+d x\right]\right]}{b}-\frac{1}{b}\,i\left(\frac{1}{2}\,i\left(\frac{\pi}{2}-i\left(c+d x\right)\right)^2-4\,i\,\text{ArcSin}\left[\frac{\sqrt{\frac{i\,(a-i\,b)}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{\left(a+i\,b\right)\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-i\left(c+d x\right)\right)\right]}{\sqrt{a^2+b^2}}\right]-\right.\right.$$

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

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

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

$$\frac{\text{Sech}\left[\frac{1}{2}\left(c+d x\right)\right]\left(d\,e\,\text{Sinh}\left[\frac{1}{2}\left(c+d x\right)\right]-c\,f\,\text{Sinh}\left[\frac{1}{2}\left(c+d x\right)\right]+f\left(c+d x\right)\text{Sinh}\left[\frac{1}{2}\left(c+d x\right)\right]\right)}{2\,a\,d^2}$$

Problem 463: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Cosh}[c+d x]\,\text{Coth}[c+d x]^2}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])}\,dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Cosh}[c+d x]\,\text{Coth}[c+d x]^2}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 464: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3\,\text{Csch}[c+d x]^2\,\text{Sech}[c+d x]}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 1428 leaves, 64 steps):

$$-\frac{2\,(e+f x)^3\,\text{ArcTan}\left[\mathbb{e}^{c+d x}\right]}{a\,d}+\frac{2\,b^2\,(e+f x)^3\,\text{ArcTan}\left[\mathbb{e}^{c+d x}\right]}{a\,\left(a^2+b^2\right)\,d}-\frac{6\,f\,(e+f x)^2\,\text{ArcTanh}\left[\mathbb{e}^{c+d x}\right]}{a\,d^2}+\frac{2\,b\,(e+f x)^3\,\text{ArcTanh}\left[\mathbb{e}^{2 c+2 d x}\right]}{a^2\,d}-$$

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

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

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

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

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

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

$$\frac{6\,b^3\,f^2\,(e+f x)\,\text{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^2\,\left(a^2+b^2\right)\,d^3}-\frac{6\,b^3\,f^2\,(e+f x)\,\text{PolyLog}\left[3,-\frac{b\,\mathbb{e}^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^2\,\left(a^2+b^2\right)\,d^3}+\frac{3\,b^3\,f^2\,(e+f x)\,\text{PolyLog}\left[3,-\mathbb{e}^{2\,(c+d x)}\right]}{2\,a^2\,\left(a^2+b^2\right)\,d^3}-$$

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

$$\frac{6\,\mathbb{i}\,b^2\,f^3\,\text{PolyLog}\left[4,-\mathbb{i}\,\mathbb{e}^{c+d x}\right]}{a\,\left(a^2+b^2\right)\,d^4}-\frac{6\,\mathbb{i}\,f^3\,\text{PolyLog}\left[4,\mathbb{i}\,\mathbb{e}^{c+d x}\right]}{a\,d^4}+\frac{6\,\mathbb{i}\,b^2\,f^3\,\text{PolyLog}\left[4,\mathbb{i}\,\mathbb{e}^{c+d x}\right]}{a\,\left(a^2+b^2\right)\,d^4}+\frac{6\,b^3\,f^3\,\text{PolyLog}\left[4,-\frac{b\,\mathbb{e}^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^2\,\left(a^2+b^2\right)\,d^4}+$$

$$\frac{6\,b^3\,f^3\,\text{PolyLog}\left[4,-\frac{b\,\mathbb{e}^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^2\,\left(a^2+b^2\right)\,d^4}-\frac{3\,b^3\,f^3\,\text{PolyLog}\left[4,-\mathbb{e}^{2\,(c+d x)}\right]}{4\,a^2\,\left(a^2+b^2\right)\,d^4}+\frac{3\,b\,f^3\,\text{PolyLog}\left[4,-\mathbb{e}^{2 c+2 d x}\right]}{4\,a^2\,d^4}-\frac{3\,b\,f^3\,\text{PolyLog}\left[4,\mathbb{e}^{2 c+2 d x}\right]}{4\,a^2\,d^4}$$

Result (type 4, 4187 leaves) :

$$\frac{1}{4\,\left(a^2+b^2\right)\,d^4\,\left(1+\mathbb{e}^{2 c}\right)}\left(-8\,b\,d^4\,e^3\,\mathbb{e}^{2 c}\,x-12\,b\,d^4\,e^2\,\mathbb{e}^{2 c}\,f\,x^2-8\,b\,d^4\,e\,\mathbb{e}^{2 c}\,f^2\,x^3-2\,b\,d^4\,\mathbb{e}^{2 c}\,f^3\,x^4-8\,a\,d^3\,e^3\,\text{ArcTan}\left[\mathbb{e}^{c+d x}\right]-\right.$$

$$8\,a\,d^3\,e^3\,\mathbb{e}^{2 c}\,\text{ArcTan}\left[\mathbb{e}^{c+d x}\right]-12\,\mathbb{i}\,a\,d^3\,e^2\,f\,x\,\text{Log}\left[1-\mathbb{i}\,\mathbb{e}^{c+d x}\right]-12\,\mathbb{i}\,a\,d^3\,e^2\,\mathbb{e}^{2 c}\,f\,x\,\text{Log}\left[1-\mathbb{i}\,\mathbb{e}^{c+d x}\right]-12\,\mathbb{i}\,a\,d^3\,e\,f^2\,x^2\,\text{Log}\left[1-\mathbb{i}\,\mathbb{e}^{c+d x}\right]-$$

$$12\,\mathbb{i}\,a\,d^3\,e\,\mathbb{e}^{2 c}\,f^2\,x^2\,\text{Log}\left[1-\mathbb{i}\,\mathbb{e}^{c+d x}\right]-4\,\mathbb{i}\,a\,d^3\,f^3\,x^3\,\text{Log}\left[1-\mathbb{i}\,\mathbb{e}^{c+d x}\right]-4\,\mathbb{i}\,a\,d^3\,\mathbb{e}^{2 c}\,f^3\,x^3\,\text{Log}\left[1-\mathbb{i}\,\mathbb{e}^{c+d x}\right]+12\,\mathbb{i}\,a\,d^3\,e^2\,f\,x\,\text{Log}\left[1+\mathbb{i}\,\mathbb{e}^{c+d x}\right]+$$

$$12\,\mathbb{i}\,a\,d^3\,e^2\,\mathbb{e}^{2 c}\,f\,x\,\text{Log}\left[1+\mathbb{i}\,\mathbb{e}^{c+d x}\right]+12\,\mathbb{i}\,a\,d^3\,e\,f^2\,x^2\,\text{Log}\left[1+\mathbb{i}\,\mathbb{e}^{c+d x}\right]+12\,\mathbb{i}\,a\,d^3\,e\,\mathbb{e}^{2 c}\,f^2\,x^2\,\text{Log}\left[1+\mathbb{i}\,\mathbb{e}^{c+d x}\right]+4\,\mathbb{i}\,a\,d^3\,f^3\,x^3\,\text{Log}\left[1+\mathbb{i}\,\mathbb{e}^{c+d x}\right]+$$

$$4\,\mathbb{i}\,a\,d^3\,\mathbb{e}^{2 c}\,f^3\,x^3\,\text{Log}\left[1+\mathbb{i}\,\mathbb{e}^{c+d x}\right]+4\,b\,d^3\,e^3\,\text{Log}\left[1+\mathbb{e}^{2\,(c+d x)}\right]+4\,b\,d^3\,e^3\,\mathbb{e}^{2 c}\,\text{Log}\left[1+\mathbb{e}^{2\,(c+d x)}\right]+12\,b\,d^3\,e^2\,f\,x\,\text{Log}\left[1+\mathbb{e}^{2\,(c+d x)}\right]+$$

$$12\,b\,d^3\,e^2\,\mathbb{e}^{2\,c}\,f\,x\,\text{Log}\left[1+\mathbb{e}^{2\,(c+d\,x)}\right]+12\,b\,d^3\,e\,f^2\,x^2\,\text{Log}\left[1+\mathbb{e}^{2\,(c+d\,x)}\right]+12\,b\,d^3\,e\,\mathbb{e}^{2\,c}\,f^2\,x^2\,\text{Log}\left[1+\mathbb{e}^{2\,(c+d\,x)}\right]+4\,b\,d^3\,f^3\,x^3\,\text{Log}\left[1+\mathbb{e}^{2\,(c+d\,x)}\right]+$$

$$4\,b\,d^3\,\mathbb{e}^{2\,c}\,f^3\,x^3\,\text{Log}\left[1+\mathbb{e}^{2\,(c+d\,x)}\right]+12\,\mathbb{i}\,a\,d^2\,\left(1+\mathbb{e}^{2\,c}\right)\,f\,\left(e+f\,x\right)^2\,\text{PolyLog}\left[2,-\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]-12\,\mathbb{i}\,a\,d^2\,\left(1+\mathbb{e}^{2\,c}\right)\,f\,\left(e+f\,x\right)^2\,\text{PolyLog}\left[2,\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]+$$

$$6\,b\,d^2\,e^2\,f\,\text{PolyLog}\left[2,-\mathbb{e}^{2\,(c+d\,x)}\right]+6\,b\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\text{PolyLog}\left[2,-\mathbb{e}^{2\,(c+d\,x)}\right]+12\,b\,d^2\,e\,f^2\,x\,\text{PolyLog}\left[2,-\mathbb{e}^{2\,(c+d\,x)}\right]+$$

$$12\,b\,d^2\,e\,\mathbb{e}^{2\,c}\,f^2\,x\,\text{PolyLog}\left[2,-\mathbb{e}^{2\,(c+d\,x)}\right]+6\,b\,d^2\,f^3\,x^2\,\text{PolyLog}\left[2,-\mathbb{e}^{2\,(c+d\,x)}\right]+6\,b\,d^2\,\mathbb{e}^{2\,c}\,f^3\,x^2\,\text{PolyLog}\left[2,-\mathbb{e}^{2\,(c+d\,x)}\right]-$$

$$24\,\mathbb{i}\,a\,d\,e\,f^2\,\text{PolyLog}\left[3,-\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]-24\,\mathbb{i}\,a\,d\,e\,\mathbb{e}^{2\,c}\,f^2\,\text{PolyLog}\left[3,-\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]-24\,\mathbb{i}\,a\,d\,f^3\,x\,\text{PolyLog}\left[3,-\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]-$$

$$24\,\mathbb{i}\,a\,d\,\mathbb{e}^{2\,c}\,f^3\,x\,\text{PolyLog}\left[3,-\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]+24\,\mathbb{i}\,a\,d\,e\,f^2\,\text{PolyLog}\left[3,\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]+24\,\mathbb{i}\,a\,d\,e\,\mathbb{e}^{2\,c}\,f^2\,\text{PolyLog}\left[3,\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]+$$

$$24\,\mathbb{i}\,a\,d\,f^3\,x\,\text{PolyLog}\left[3,\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]+24\,\mathbb{i}\,a\,d\,\mathbb{e}^{2\,c}\,f^3\,x\,\text{PolyLog}\left[3,\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]-6\,b\,d\,e\,f^2\,\text{PolyLog}\left[3,-\mathbb{e}^{2\,(c+d\,x)}\right]-6\,b\,d\,e\,\mathbb{e}^{2\,c}\,f^2\,\text{PolyLog}\left[3,-\mathbb{e}^{2\,(c+d\,x)}\right]-$$

$$6\,b\,d\,f^3\,x\,\text{PolyLog}\left[3,-\mathbb{e}^{2\,(c+d\,x)}\right]-6\,b\,d\,\mathbb{e}^{2\,c}\,f^3\,x\,\text{PolyLog}\left[3,-\mathbb{e}^{2\,(c+d\,x)}\right]+24\,\mathbb{i}\,a\,f^3\,\text{PolyLog}\left[4,-\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]+24\,\mathbb{i}\,a\,\mathbb{e}^{2\,c}\,f^3\,\text{PolyLog}\left[4,-\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]-$$

$$24\,\mathbb{i}\,a\,f^3\,\text{PolyLog}\left[4,\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]-24\,\mathbb{i}\,a\,\mathbb{e}^{2\,c}\,f^3\,\text{PolyLog}\left[4,\mathbb{i}\,\mathbb{e}^{c+d\,x}\right]+3\,b\,f^3\,\text{PolyLog}\left[4,-\mathbb{e}^{2\,(c+d\,x)}\right]+3\,b\,\mathbb{e}^{2\,c}\,f^3\,\text{PolyLog}\left[4,-\mathbb{e}^{2\,(c+d\,x)}\right]\Big)+$$

$$\frac{1}{4\,a^2\,d^4\,\left(-1+\mathbb{e}^{2\,c}\right)}\Big(8\,b\,d^4\,e^3\,\mathbb{e}^{2\,c}\,x+12\,b\,d^4\,e^2\,\mathbb{e}^{2\,c}\,f\,x^2+8\,b\,d^4\,e\,\mathbb{e}^{2\,c}\,f^2\,x^3+2\,b\,d^4\,\mathbb{e}^{2\,c}\,f^3\,x^4+24\,a\,d^2\,e^2\,f\,\text{ArcTanh}\left[\mathbb{e}^{c+d\,x}\right]-24\,a\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\text{ArcTanh}\left[\mathbb{e}^{c+d\,x}\right]-$$

$$24\,a\,d^2\,e\,f^2\,x\,\text{Log}\left[1-\mathbb{e}^{c+d\,x}\right]+24\,a\,d^2\,e\,\mathbb{e}^{2\,c}\,f^2\,x\,\text{Log}\left[1-\mathbb{e}^{c+d\,x}\right]-12\,a\,d^2\,f^3\,x^2\,\text{Log}\left[1-\mathbb{e}^{c+d\,x}\right]+12\,a\,d^2\,\mathbb{e}^{2\,c}\,f^3\,x^2\,\text{Log}\left[1-\mathbb{e}^{c+d\,x}\right]+$$

$$24\,a\,d^2\,e\,f^2\,x\,\text{Log}\left[1+\mathbb{e}^{c+d\,x}\right]-24\,a\,d^2\,e\,\mathbb{e}^{2\,c}\,f^2\,x\,\text{Log}\left[1+\mathbb{e}^{c+d\,x}\right]+12\,a\,d^2\,f^3\,x^2\,\text{Log}\left[1+\mathbb{e}^{c+d\,x}\right]-12\,a\,d^2\,\mathbb{e}^{2\,c}\,f^3\,x^2\,\text{Log}\left[1+\mathbb{e}^{c+d\,x}\right]+$$

$$4\,b\,d^3\,e^3\,\text{Log}\left[1-\mathbb{e}^{2\,(c+d\,x)}\right]-4\,b\,d^3\,e^3\,\mathbb{e}^{2\,c}\,\text{Log}\left[1-\mathbb{e}^{2\,(c+d\,x)}\right]+12\,b\,d^3\,e^2\,f\,x\,\text{Log}\left[1-\mathbb{e}^{2\,(c+d\,x)}\right]-12\,b\,d^3\,e^2\,\mathbb{e}^{2\,c}\,f\,x\,\text{Log}\left[1-\mathbb{e}^{2\,(c+d\,x)}\right]+$$

$$12\,b\,d^3\,e\,f^2\,x^2\,\text{Log}\left[1-\mathbb{e}^{2\,(c+d\,x)}\right]-12\,b\,d^3\,e\,\mathbb{e}^{2\,c}\,f^2\,x^2\,\text{Log}\left[1-\mathbb{e}^{2\,(c+d\,x)}\right]+4\,b\,d^3\,f^3\,x^3\,\text{Log}\left[1-\mathbb{e}^{2\,(c+d\,x)}\right]-4\,b\,d^3\,\mathbb{e}^{2\,c}\,f^3\,x^3\,\text{Log}\left[1-\mathbb{e}^{2\,(c+d\,x)}\right]-$$

$$24\,a\,d\,\left(-1+\mathbb{e}^{2\,c}\right)\,f^2\,\left(e+f\,x\right)\,\text{PolyLog}\left[2,-\mathbb{e}^{c+d\,x}\right]+24\,a\,d\,\left(-1+\mathbb{e}^{2\,c}\right)\,f^2\,\left(e+f\,x\right)\,\text{PolyLog}\left[2,\mathbb{e}^{c+d\,x}\right]+6\,b\,d^2\,e^2\,f\,\text{PolyLog}\left[2,\mathbb{e}^{2\,(c+d\,x)}\right]-$$

$$6\,b\,d^2\,e^2\,\mathbb{e}^{2\,c}\,f\,\text{PolyLog}\left[2,\mathbb{e}^{2\,(c+d\,x)}\right]+12\,b\,d^2\,e\,f^2\,x\,\text{PolyLog}\left[2,\mathbb{e}^{2\,(c+d\,x)}\right]-12\,b\,d^2\,e\,\mathbb{e}^{2\,c}\,f^2\,x\,\text{PolyLog}\left[2,\mathbb{e}^{2\,(c+d\,x)}\right]+$$

$$6\,b\,d^2\,f^3\,x^2\,\text{PolyLog}\left[2,\mathbb{e}^{2\,(c+d\,x)}\right]-6\,b\,d^2\,\mathbb{e}^{2\,c}\,f^3\,x^2\,\text{PolyLog}\left[2,\mathbb{e}^{2\,(c+d\,x)}\right]-24\,a\,f^3\,\text{PolyLog}\left[3,-\mathbb{e}^{c+d\,x}\right]+24\,a\,\mathbb{e}^{2\,c}\,f^3\,\text{PolyLog}\left[3,-\mathbb{e}^{c+d\,x}\right]+$$

$$24\,a\,f^3\,\text{PolyLog}\left[3,\mathbb{e}^{c+d\,x}\right]-24\,a\,\mathbb{e}^{2\,c}\,f^3\,\text{PolyLog}\left[3,\mathbb{e}^{c+d\,x}\right]-6\,b\,d\,e\,f^2\,\text{PolyLog}\left[3,\mathbb{e}^{2\,(c+d\,x)}\right]+6\,b\,d\,e\,\mathbb{e}^{2\,c}\,f^2\,\text{PolyLog}\left[3,\mathbb{e}^{2\,(c+d\,x)}\right]-$$

$$6\,b\,d\,f^3\,x\,\text{PolyLog}\left[3,\mathbb{e}^{2\,(c+d\,x)}\right]+6\,b\,d\,\mathbb{e}^{2\,c}\,f^3\,x\,\text{PolyLog}\left[3,\mathbb{e}^{2\,(c+d\,x)}\right]+3\,b\,f^3\,\text{PolyLog}\left[4,\mathbb{e}^{2\,(c+d\,x)}\right]-3\,b\,\mathbb{e}^{2\,c}\,f^3\,\text{PolyLog}\left[4,\mathbb{e}^{2\,(c+d\,x)}\right]\Big)-$$

$$\frac{1}{2\,a^2\,\left(a^2+b^2\right)\,d^4\,\left(-1+\mathbb{e}^{2\,c}\right)}\,b^3\,\Big(4\,d^4\,e^3\,\mathbb{e}^{2\,c}\,x+6\,d^4\,e^2\,\mathbb{e}^{2\,c}\,f\,x^2+4\,d^4\,e\,\mathbb{e}^{2\,c}\,f^2\,x^3+d^4\,\mathbb{e}^{2\,c}\,f^3\,x^4+2\,d^3\,e^3\,\text{Log}\left[2\,a\,\mathbb{e}^{c+d\,x}+b\,\left(-1+\mathbb{e}^{2\,(c+d\,x)}\right)\right]-$$

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

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

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

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

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

$$6 d^2 \left(-1+e^{2c}\right) f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{2c+dx}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]-12 d e f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+$$

$$12 d e e^{2c} f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]-12 d f^3 x \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+12 d e^{2c} f^3 x$$

$$\text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]-12 d e f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+12 d e e^{2c} f^2 \text{PolyLog}\left[3,-\frac{b e^{2c+dx}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]-$$

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

$$12 e^{2c} f^3 \text{PolyLog}\left[4,-\frac{b e^{2c+dx}}{a e^c-\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]+12 f^3 \text{PolyLog}\left[4,-\frac{b e^{2c+dx}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]-12 e^{2c} f^3 \text{PolyLog}\left[4,-\frac{b e^{2c+dx}}{a e^c+\sqrt{\left(a^2+b^2\right) e^{2c}}}\right]\Bigg)+$$

$$\frac{1}{8 a \left(a^2+b^2\right) d}\Big(-4 a b d e^3 x-6 a b d e^2 f x^2-4 a b d e f^2 x^3-a b d f^3 x^4-4 a^2 e^3 \text{Cosh}[c]-4 b^2 e^3 \text{Cosh}[c]-12 a^2 e^2 f x \text{Cosh}[c]-$$

$$12 b^2 e^2 f x \text{Cosh}[c]-12 a^2 e f^2 x^2 \text{Cosh}[c]-12 b^2 e f^2 x^2 \text{Cosh}[c]-4 a^2 f^3 x^3 \text{Cosh}[c]-4 b^2 f^3 x^3 \text{Cosh}[c]\Big) \text{Csch}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}\right] \text{Sech}[c]+$$

$$\frac{\text{Csch}\left[\frac{c}{2}\right] \text{Csch}\left[\frac{c}{2}+\frac{dx}{2}\right] \left(e^3 \text{Sinh}\left[\frac{dx}{2}\right]+3 e^2 f x \text{Sinh}\left[\frac{dx}{2}\right]+3 e f^2 x^2 \text{Sinh}\left[\frac{dx}{2}\right]+f^3 x^3 \text{Sinh}\left[\frac{dx}{2}\right]\right)}{2 a d}+$$

$$\frac{\text{Sech}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}+\frac{dx}{2}\right] \left(e^3 \text{Sinh}\left[\frac{dx}{2}\right]+3 e^2 f x \text{Sinh}\left[\frac{dx}{2}\right]+3 e f^2 x^2 \text{Sinh}\left[\frac{dx}{2}\right]+f^3 x^3 \text{Sinh}\left[\frac{dx}{2}\right]\right)}{2 a d}$$

Problem 468: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Csch}[c+d x]^2 \text{Sech}[c+d x]}{(e+f x) (a+b \text{Sinh}[c+d x])} \, dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Csch}[c+d x]^2 \text{Sech}[c+d x]}{(e+f x) (a+b \text{Sinh}[c+d x])}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 469: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2 \operatorname{Csch}[c+d x]^2 \operatorname{Sech}[c+d x]^2}{a+b \operatorname{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 914 leaves, 51 steps):

$$-\frac{2 (e+f x)^2}{a d}+\frac{b^2 (e+f x)^2}{a \left(a^2+b^2\right) d}+\frac{4 b f (e+f x) \operatorname{ArcTan}\left[e^{c+d x}\right]}{a^2 d^2}-\frac{4 b^3 f (e+f x) \operatorname{ArcTan}\left[e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^2}+$$
$$\frac{2 b (e+f x)^2 \operatorname{ArcTanh}\left[e^{c+d x}\right]}{a^2 d}-\frac{2 (e+f x)^2 \operatorname{Coth}[2 c+2 d x]}{a d}+\frac{b^4 (e+f x)^2 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^2 \left(a^2+b^2\right)^{3/2} d}-\frac{b^4 (e+f x)^2 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^2 \left(a^2+b^2\right)^{3/2} d}-$$
$$\frac{2 b^2 f (e+f x) \operatorname{Log}\left[1+e^{2 (c+d x)}\right]}{a \left(a^2+b^2\right) d^2}+\frac{2 f (e+f x) \operatorname{Log}\left[1-e^{4 (c+d x)}\right]}{a d^2}+\frac{2 b f (e+f x) \operatorname{PolyLog}\left[2,-e^{c+d x}\right]}{a^2 d^2}-\frac{2 i b f^2 \operatorname{PolyLog}\left[2,-i e^{c+d x}\right]}{a^2 d^3}+$$
$$\frac{2 i b^3 f^2 \operatorname{PolyLog}\left[2,-i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^3}+\frac{2 i b f^2 \operatorname{PolyLog}\left[2,i e^{c+d x}\right]}{a^2 d^3}-\frac{2 i b^3 f^2 \operatorname{PolyLog}\left[2,i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^3}-\frac{2 b f (e+f x) \operatorname{PolyLog}\left[2,e^{c+d x}\right]}{a^2 d^2}+$$
$$\frac{2 b^4 f (e+f x) \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^2 \left(a^2+b^2\right)^{3/2} d^2}-\frac{2 b^4 f (e+f x) \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^2 \left(a^2+b^2\right)^{3/2} d^2}-\frac{b^2 f^2 \operatorname{PolyLog}\left[2,-e^{2 (c+d x)}\right]}{a \left(a^2+b^2\right) d^3}+$$
$$\frac{f^2 \operatorname{PolyLog}\left[2,e^{4 (c+d x)}\right]}{2 a d^3}-\frac{2 b f^2 \operatorname{PolyLog}\left[3,-e^{c+d x}\right]}{a^2 d^3}+\frac{2 b f^2 \operatorname{PolyLog}\left[3,e^{c+d x}\right]}{a^2 d^3}-\frac{2 b^4 f^2 \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^2 \left(a^2+b^2\right)^{3/2} d^3}+$$
$$\frac{2 b^4 f^2 \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^2 \left(a^2+b^2\right)^{3/2} d^3}-\frac{b (e+f x)^2 \operatorname{Sech}[c+d x]}{a^2 d}+\frac{b^3 (e+f x)^2 \operatorname{Sech}[c+d x]}{a^2 \left(a^2+b^2\right) d}+\frac{b^2 (e+f x)^2 \operatorname{Tanh}[c+d x]}{a \left(a^2+b^2\right) d}$$

Result (type 4, 2972 leaves):

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

$$\frac{1}{4 a^2 (a^2+b^2) d^3 (-1+e^{2c})} b \Big(4 a b d^2 e\, e^{2c} f x + 2 a b d^2 e^{2c} f^2 x^2 + 2 a^2 d^2 e^2 \text{ArcTanh}[e^{c+dx}] + 2 b^2 d^2 e^2 \text{ArcTanh}[e^{c+dx}] -$$
$$2 a^2 d^2 e^2 e^{2c} \text{ArcTanh}[e^{c+dx}] - 2 b^2 d^2 e^2 e^{2c} \text{ArcTanh}[e^{c+dx}] - 2 a^2 d^2 e f x \text{Log}[1-e^{c+dx}] - 2 b^2 d^2 e f x \text{Log}[1-e^{c+dx}] +$$
$$2 a^2 d^2 e\, e^{2c} f x \text{Log}[1-e^{c+dx}] + 2 b^2 d^2 e\, e^{2c} f x \text{Log}[1-e^{c+dx}] - a^2 d^2 f^2 x^2 \text{Log}[1-e^{c+dx}] - b^2 d^2 f^2 x^2 \text{Log}[1-e^{c+dx}] +$$
$$a^2 d^2 e^{2c} f^2 x^2 \text{Log}[1-e^{c+dx}] + b^2 d^2 e^{2c} f^2 x^2 \text{Log}[1-e^{c+dx}] + 2 a^2 d^2 e f x \text{Log}[1+e^{c+dx}] + 2 b^2 d^2 e f x \text{Log}[1+e^{c+dx}] -$$
$$2 a^2 d^2 e\, e^{2c} f x \text{Log}[1+e^{c+dx}] - 2 b^2 d^2 e\, e^{2c} f x \text{Log}[1+e^{c+dx}] + a^2 d^2 f^2 x^2 \text{Log}[1+e^{c+dx}] + b^2 d^2 f^2 x^2 \text{Log}[1+e^{c+dx}] -$$
$$a^2 d^2 e^{2c} f^2 x^2 \text{Log}[1+e^{c+dx}] - b^2 d^2 e^{2c} f^2 x^2 \text{Log}[1+e^{c+dx}] + 2 a b d e f \text{Log}[1-e^{2(c+dx)}] - 2 a b d e\, e^{2c} f \text{Log}[1-e^{2(c+dx)}] +$$
$$2 a b d f^2 x \text{Log}[1-e^{2(c+dx)}] - 2 a b d e^{2c} f^2 x \text{Log}[1-e^{2(c+dx)}] - 2 (a^2+b^2) d (-1+e^{2c}) f (e+f x) \text{PolyLog}[2, -e^{c+dx}] +$$
$$2 (a^2+b^2) d (-1+e^{2c}) f (e+f x) \text{PolyLog}[2, e^{c+dx}] + a b f^2 \text{PolyLog}[2, e^{2(c+dx)}] - a b e^{2c} f^2 \text{PolyLog}[2, e^{2(c+dx)}] -$$
$$2 a^2 f^2 \text{PolyLog}[3, -e^{c+dx}] - 2 b^2 f^2 \text{PolyLog}[3, -e^{c+dx}] + 2 a^2 e^{2c} f^2 \text{PolyLog}[3, -e^{c+dx}] + 2 b^2 e^{2c} f^2 \text{PolyLog}[3, -e^{c+dx}] +$$
$$2 a^2 f^2 \text{PolyLog}[3, e^{c+dx}] + 2 b^2 f^2 \text{PolyLog}[3, e^{c+dx}] - 2 a^2 e^{2c} f^2 \text{PolyLog}[3, e^{c+dx}] - 2 b^2 e^{2c} f^2 \text{PolyLog}[3, e^{c+dx}]\Big) +$$

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

$$\frac{a e f \text{Sech}\left[\frac{c}{2}\right] \left(\text{Cosh}\left[\frac{c}{2}\right] \text{Log}\left[\text{Cosh}\left[\frac{c}{2}\right] \text{Cosh}\left[\frac{dx}{2}\right] + \text{Sinh}\left[\frac{c}{2}\right] \text{Sinh}\left[\frac{dx}{2}\right]\right] - \frac{1}{2} d x \text{Sinh}\left[\frac{c}{2}\right]\right)}{2 (a^2+b^2) d^2 \left(\text{Cosh}\left[\frac{c}{2}\right]^2 - \text{Sinh}\left[\frac{c}{2}\right]^2\right)} -$$

$$\left(a f^2 \text{Csch}\left[\frac{c}{2}\right] \left(-\frac{1}{4} d^2 e^{-\text{ArcTanh}\left[\text{Coth}\left[\frac{c}{2}\right]\right]} x^2 + \frac{1}{\sqrt{1-\text{Coth}\left[\frac{c}{2}\right]^2}}\right.\right.$$
$$i \text{Coth}\left[\frac{c}{2}\right] \left(-\frac{1}{2} d x \left(-\pi + 2 i \text{ArcTanh}\left[\text{Coth}\left[\frac{c}{2}\right]\right]\right) - \pi \text{Log}\left[1+e^{dx}\right] - 2 \left(\frac{i d x}{2} + i \text{ArcTanh}\left[\text{Coth}\left[\frac{c}{2}\right]\right]\right) \text{Log}\left[1 - e^{2 i \left(\frac{i d x}{2} + i \text{ArcTanh}\left[\text{Coth}\left[\frac{c}{2}\right]\right]\right)}\right] +\right.$$
$$\left.\left.\pi \text{Log}\left[\text{Cosh}\left[\frac{dx}{2}\right]\right] + 2 i \text{ArcTanh}\left[\text{Coth}\left[\frac{c}{2}\right]\right] \text{Log}\left[i \text{Sinh}\left[\frac{dx}{2} + \text{ArcTanh}\left[\text{Coth}\left[\frac{c}{2}\right]\right]\right]\right] + i \text{PolyLog}\left[2, e^{2 i \left(\frac{i d x}{2} + i \text{ArcTanh}\left[\text{Coth}\left[\frac{c}{2}\right]\right]\right)}\right]\right)\right)$$

$$\left.\operatorname{Sech}\left[\frac{c}{2}\right]\right) \Big/ \left(2\left(a^2+b^2\right) d^3 \sqrt{\operatorname{Csch}\left[\frac{c}{2}\right]^2 \left(-\operatorname{Cosh}\left[\frac{c}{2}\right]^2+\operatorname{Sinh}\left[\frac{c}{2}\right]^2\right)}\right) -$$

$$\frac{e\,f\,x \operatorname{Csch}\left[\frac{c}{2}\right] \operatorname{Sech}\left[\frac{c}{2}\right] \left(a^2 \operatorname{Cosh}[c]-b^2 \operatorname{Cosh}[c]+a^2 \operatorname{Cosh}[2 c]-i\, a^2 \operatorname{Sinh}[c]-i\, b^2 \operatorname{Sinh}[c]\right)}{8 a \left(a^2+b^2\right) d \left(\operatorname{Cosh}\left[\frac{c}{2}\right]-i \operatorname{Sinh}\left[\frac{c}{2}\right]\right) \left(\operatorname{Cosh}\left[\frac{c}{2}\right]+i \operatorname{Sinh}\left[\frac{c}{2}\right]\right) \left(\operatorname{Cosh}[c]+i \operatorname{Sinh}[c]\right)} -$$

$$\frac{f^2 x^2 \operatorname{Csch}\left[\frac{c}{2}\right] \operatorname{Sech}\left[\frac{c}{2}\right] \left(a^2 \operatorname{Cosh}[c]-b^2 \operatorname{Cosh}[c]+a^2 \operatorname{Cosh}[2 c]-i\, a^2 \operatorname{Sinh}[c]-i\, b^2 \operatorname{Sinh}[c]\right)}{16 a \left(a^2+b^2\right) d \left(\operatorname{Cosh}\left[\frac{c}{2}\right]-i \operatorname{Sinh}\left[\frac{c}{2}\right]\right) \left(\operatorname{Cosh}\left[\frac{c}{2}\right]+i \operatorname{Sinh}\left[\frac{c}{2}\right]\right) \left(\operatorname{Cosh}[c]+i \operatorname{Sinh}[c]\right)} +$$

$$\frac{b\,e\,f \operatorname{ArcTan}\left[\frac{\operatorname{Sinh}[c]+\operatorname{Cosh}[c] \operatorname{Tanh}\left[\frac{d x}{2}\right]}{\sqrt{\operatorname{Cosh}[c]^2-\operatorname{Sinh}[c]^2}}\right]}{\left(a^2+b^2\right) d^2 \sqrt{\operatorname{Cosh}[c]^2-\operatorname{Sinh}[c]^2}} +$$

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

$$b f^2 \left(-\frac{1}{\sqrt{1-\operatorname{Coth}[c]^2}} i \operatorname{Csch}[c] \left(i \left(d x+\operatorname{ArcTanh}[\operatorname{Coth}[c]]\right) \left(\operatorname{Log}\left[1-e^{-d x-\operatorname{ArcTanh}[\operatorname{Coth}[c]]}\right]-\operatorname{Log}\left[1+e^{-d x-\operatorname{ArcTanh}[\operatorname{Coth}[c]]}\right]\right)+\right.\right.$$

$$\left.\left. i \left(\operatorname{PolyLog}\left[2,-e^{-d x-\operatorname{ArcTanh}[\operatorname{Coth}[c]]}\right]-\operatorname{PolyLog}\left[2, e^{-d x-\operatorname{ArcTanh}[\operatorname{Coth}[c]]}\right]\right)\right) - \frac{2 \operatorname{ArcTan}\left[\frac{\operatorname{Sinh}[c]+\operatorname{Cosh}[c] \operatorname{Tanh}\left[\frac{d x}{2}\right]}{\sqrt{\operatorname{Cosh}[c]^2-\operatorname{Sinh}[c]^2}}\right] \operatorname{ArcTanh}[\operatorname{Coth}[c]]}{\sqrt{\operatorname{Cosh}[c]^2-\operatorname{Sinh}[c]^2}}\right) +$$

$$\frac{1}{4 a \left(a^2+b^2\right) d} \operatorname{Csch}[2 c] \operatorname{Csch}[2 c+2 d x] \left(a b e^2 \operatorname{Cosh}[c-d x]+2 a b e f x \operatorname{Cosh}[c-d x]+a b f^2 x^2 \operatorname{Cosh}[c-d x]-a b e^2 \operatorname{Cosh}[3 c+d x]-\right.$$

$$2 a b e f x \operatorname{Cosh}[3 c+d x]-a b f^2 x^2 \operatorname{Cosh}[3 c+d x]-b^2 e^2 \operatorname{Sinh}[2 c]-2 b^2 e f x \operatorname{Sinh}[2 c]-b^2 f^2 x^2 \operatorname{Sinh}[2 c]+$$

$$\left.2 a^2 e^2 \operatorname{Sinh}[2 d x]+b^2 e^2 \operatorname{Sinh}[2 d x]+4 a^2 e f x \operatorname{Sinh}[2 d x]+2 b^2 e f x \operatorname{Sinh}[2 d x]+2 a^2 f^2 x^2 \operatorname{Sinh}[2 d x]+b^2 f^2 x^2 \operatorname{Sinh}[2 d x]\right)$$

Problem 470: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)\,\text{Csch}[c+d x]^2\,\text{Sech}[c+d x]^2}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 499 leaves, 30 steps):

$$\frac{b f \text{ArcTan}[\text{Sinh}[c+d x]]}{a^2 d^2}-\frac{b^3 f \text{ArcTan}[\text{Sinh}[c+d x]]}{a^2 (a^2+b^2) d^2}+\frac{2 b f x \text{ArcTanh}[e^{c+d x}]}{a^2 d}-\frac{b f x \text{ArcTanh}[\text{Cosh}[c+d x]]}{a^2 d}+$$

$$\frac{b (e+f x) \text{ArcTanh}[\text{Cosh}[c+d x]]}{a^2 d}-\frac{2 (e+f x) \text{Coth}[2 c+2 d x]}{a d}+\frac{b^4 (e+f x) \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^2 (a^2+b^2)^{3/2} d}-\frac{b^4 (e+f x) \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^2 (a^2+b^2)^{3/2} d}-$$

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

$$\frac{b^4 f \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^2 (a^2+b^2)^{3/2} d^2}-\frac{b (e+f x) \text{Sech}[c+d x]}{a^2 d}+\frac{b^3 (e+f x) \text{Sech}[c+d x]}{a^2 (a^2+b^2) d}+\frac{b^2 (e+f x) \text{Tanh}[c+d x]}{a (a^2+b^2) d}$$

Result (type 4, 1994 leaves):

$$4\left(-\frac{f (c+d x)}{8 (a+i b) d^2}+\frac{i \left((2-i) a^3 d f+3 i a^2 b d f-i a b^2 d f+i b^3 d f+a^2 b c d f+i a b^2 c d f\right) (c+d x)}{8 a (a+i b) (a^2+b^2) d^3}-\right.$$

$$\frac{i b f (c+d x)^2}{16 (a^2+b^2) d^2}+\frac{i f \text{ArcTan}\left[\frac{a \text{Cosh}\left[\frac{1}{2}(c+d x)\right]-b \text{Cosh}\left[\frac{1}{2}(c+d x)\right]+a \text{Sinh}\left[\frac{1}{2}(c+d x)\right]+b \text{Sinh}\left[\frac{1}{2}(c+d x)\right]}{a \text{Cosh}\left[\frac{1}{2}(c+d x)\right]+b \text{Cosh}\left[\frac{1}{2}(c+d x)\right]-a \text{Sinh}\left[\frac{1}{2}(c+d x)\right]+b \text{Sinh}\left[\frac{1}{2}(c+d x)\right]}\right]}{4 (a+i b) d^2}-$$

$$\frac{a f \text{ArcTanh}\left[1-2 i \text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{2 (a^2+b^2) d^2}-\frac{b^2 f \text{ArcTanh}\left[1-2 i \text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{2 a (a^2+b^2) d^2}-\frac{b c f \text{ArcTanh}\left[1-2 i \text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{2 (a^2+b^2) d^2}+$$

$$\frac{\left(-d e \text{Cosh}\left[\frac{1}{2}(c+d x)\right]+c f \text{Cosh}\left[\frac{1}{2}(c+d x)\right]-f (c+d x) \text{Cosh}\left[\frac{1}{2}(c+d x)\right]\right) \text{Csch}\left[\frac{1}{2}(c+d x)\right]}{8 a d^2}+$$

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

$$\frac{a f \left(-i (c+d x)+2 \text{ArcTanh}\left[1-2 i \text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]+\text{Log}[-1+\text{Cosh}[c+d x]+i \text{Sinh}[c+d x]]\right)}{4 (a^2+b^2) d^2}+$$

$$\frac{i\, b\, f \left(-i\, (c+d\,x) + 2\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right] + \text{Log}[-1+\text{Cosh}[c+d\,x]+i\,\text{Sinh}[c+d\,x]]\right)}{8\,(a^2+b^2)\,d^2}+$$

$$\frac{b^2\, f \left(-i\, (c+d\,x) + 2\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right] + \text{Log}[-1+\text{Cosh}[c+d\,x]+i\,\text{Sinh}[c+d\,x]]\right)}{8\,a\,(a^2+b^2)\,d^2}+$$

$$\frac{b\,c\, f \left(-i\, (c+d\,x) + 2\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right] + \text{Log}[-1+\text{Cosh}[c+d\,x]+i\,\text{Sinh}[c+d\,x]]\right)}{8\,(a^2+b^2)\,d^2}-\frac{b\,e\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{4\,(a^2+b^2)\,d}-$$

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

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

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

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

$$b^4\,(a^2+b^2)\,\left(2\,\sqrt{a^2+b^2}\,d\,e\,\text{ArcTan}\left[\frac{a+b\,\text{Cosh}[c+d\,x]+b\,\text{Sinh}[c+d\,x]}{\sqrt{-a^2-b^2}}\right]-2\,\sqrt{a^2+b^2}\,c\,f\,\text{ArcTan}\left[\frac{a+b\,\text{Cosh}[c+d\,x]+b\,\text{Sinh}[c+d\,x]}{\sqrt{-a^2-b^2}}\right]+\right.$$
$$\sqrt{-a^2-b^2}\,f\,(c+d\,x)\,\text{Log}\left[1+\frac{b\,(\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x])}{a-\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\,f\,(c+d\,x)\,\text{Log}\left[1+\frac{b\,(\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x])}{a+\sqrt{a^2+b^2}}\right]+$$
$$\left.\sqrt{-a^2-b^2}\,f\,\text{PolyLog}\left[2,\frac{b\,(\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x])}{-a+\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\,f\,\text{PolyLog}\left[2,-\frac{b\,(\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x])}{a+\sqrt{a^2+b^2}}\right]\right)+$$

$$\frac{\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(-d\,e\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+c\,f\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]-f\,(c+d\,x)\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{8\,a\,d^2}+\frac{1}{4\,(a^2+b^2)\,d^2}$$

$$\text{Sech}[c+d x]\left(-b d e+b c f-b f(c+d x)-a d e\,\text{Sinh}[c+d x]+a c f\,\text{Sinh}[c+d x]-a f(c+d x)\,\text{Sinh}[c+d x]\right)\Bigg)$$

Problem 472: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Csch}[c+d x]^2\,\text{Sech}[c+d x]^2}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])}\,dx$$

Optimal (type 9, 38 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Csch}[c+d x]^2\,\text{Sech}[c+d x]^2}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 475: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Csch}[c+d x]^2\,\text{Sech}[c+d x]^3}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])}\,dx$$

Optimal (type 9, 38 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Csch}[c+d x]^2\,\text{Sech}[c+d x]^3}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 476: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3\,\text{Coth}[c+d x]\,\text{Csch}[c+d x]^2}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 752 leaves, 34 steps):

$$-\frac{3 f (e+f x)^2}{2 a d^2}+\frac{6 b f (e+f x)^2 \text{ArcTanh}[e^{c+d x}]}{a^2 d^2}-\frac{3 f (e+f x)^2 \text{Coth}[c+d x]}{2 a d^2}+\frac{b (e+f x)^3 \text{Csch}[c+d x]}{a^2 d}-\frac{(e+f x)^3 \text{Csch}[c+d x]^2}{2 a d}-$$

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

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

$$\frac{3 b^2 f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 d^2}+\frac{3 f^3 \text{PolyLog}[2,e^{2 (c+d x)}]}{2 a d^4}+\frac{3 b^2 f (e+f x)^2 \text{PolyLog}[2,e^{2 (c+d x)}]}{2 a^3 d^2}-\frac{6 b f^3 \text{PolyLog}[3,-e^{c+d x}]}{a^2 d^4}+$$

$$\frac{6 b f^3 \text{PolyLog}[3,e^{c+d x}]}{a^2 d^4}+\frac{6 b^2 f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 d^3}+\frac{6 b^2 f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 d^3}-$$

$$\frac{3 b^2 f^2 (e+f x) \text{PolyLog}[3,e^{2 (c+d x)}]}{2 a^3 d^3}-\frac{6 b^2 f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 d^4}-\frac{6 b^2 f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 d^4}+\frac{3 b^2 f^3 \text{PolyLog}[4,e^{2 (c+d x)}]}{4 a^3 d^4}$$

Result (type 4, 3115 leaves):

$$\frac{b (e+f x)^3 \text{Csch}[c]}{a^2 d}+\frac{(-e^3-3 e^2 f x-3 e f^2 x^2-f^3 x^3) \text{Csch}\left[\frac{c}{2}+\frac{d x}{2}\right]^2}{8 a d}-$$

$$\frac{1}{4 a^3 d^4 (-1+e^{2 c})}\Big(8 b^2 d^4 e^3 e^{2 c} x+24 a^2 d^2 e e^{2 c} f^2 x+12 b^2 d^4 e^2 e^{2 c} f x^2+12 a^2 d^2 e^{2 c} f^3 x^2+8 b^2 d^4 e e^{2 c} f^2 x^3+2 b^2 d^4 e^{2 c} f^3 x^4+$$
$$24 a b d^2 e^2 f \text{ArcTanh}[e^{c+d x}]-24 a b d^2 e^2 e^{2 c} f \text{ArcTanh}[e^{c+d x}]-24 a b d^2 e f^2 x \text{Log}[1-e^{c+d x}]+24 a b d^2 e e^{2 c} f^2 x \text{Log}[1-e^{c+d x}]-$$
$$12 a b d^2 f^3 x^2 \text{Log}[1-e^{c+d x}]+12 a b d^2 e^{2 c} f^3 x^2 \text{Log}[1-e^{c+d x}]+24 a b d^2 e f^2 x \text{Log}[1+e^{c+d x}]-24 a b d^2 e e^{2 c} f^2 x \text{Log}[1+e^{c+d x}]+$$
$$12 a b d^2 f^3 x^2 \text{Log}[1+e^{c+d x}]-12 a b d^2 e^{2 c} f^3 x^2 \text{Log}[1+e^{c+d x}]+4 b^2 d^3 e^3 \text{Log}[1-e^{2 (c+d x)}]-4 b^2 d^3 e^3 e^{2 c} \text{Log}[1-e^{2 (c+d x)}]+$$
$$12 a^2 d e f^2 \text{Log}[1-e^{2 (c+d x)}]-12 a^2 d e e^{2 c} f^2 \text{Log}[1-e^{2 (c+d x)}]+12 b^2 d^3 e^2 f x \text{Log}[1-e^{2 (c+d x)}]-12 b^2 d^3 e^2 e^{2 c} f x \text{Log}[1-e^{2 (c+d x)}]+$$
$$12 a^2 d f^3 x \text{Log}[1-e^{2 (c+d x)}]-12 a^2 d e^{2 c} f^3 x \text{Log}[1-e^{2 (c+d x)}]+12 b^2 d^3 e f^2 x^2 \text{Log}[1-e^{2 (c+d x)}]-12 b^2 d^3 e e^{2 c} f^2 x^2 \text{Log}[1-e^{2 (c+d x)}]+$$
$$4 b^2 d^3 f^3 x^3 \text{Log}[1-e^{2 (c+d x)}]-4 b^2 d^3 e^{2 c} f^3 x^3 \text{Log}[1-e^{2 (c+d x)}]-24 a b d (-1+e^{2 c}) f^2 (e+f x) \text{PolyLog}[2,-e^{c+d x}]+$$
$$24 a b d (-1+e^{2 c}) f^2 (e+f x) \text{PolyLog}[2,e^{c+d x}]+6 b^2 d^2 e^2 f \text{PolyLog}[2,e^{2 (c+d x)}]-6 b^2 d^2 e^2 e^{2 c} f \text{PolyLog}[2,e^{2 (c+d x)}]+$$
$$6 a^2 f^3 \text{PolyLog}[2,e^{2 (c+d x)}]-6 a^2 e^{2 c} f^3 \text{PolyLog}[2,e^{2 (c+d x)}]+12 b^2 d^2 e f^2 x \text{PolyLog}[2,e^{2 (c+d x)}]-12 b^2 d^2 e e^{2 c} f^2 x \text{PolyLog}[2,e^{2 (c+d x)}]+$$
$$6 b^2 d^2 f^3 x^2 \text{PolyLog}[2,e^{2 (c+d x)}]-6 b^2 d^2 e^{2 c} f^3 x^2 \text{PolyLog}[2,e^{2 (c+d x)}]-24 a b f^3 \text{PolyLog}[3,-e^{c+d x}]+24 a b e^{2 c} f^3 \text{PolyLog}[3,-e^{c+d x}]+$$
$$24 a b f^3 \text{PolyLog}[3,e^{c+d x}]-24 a b e^{2 c} f^3 \text{PolyLog}[3,e^{c+d x}]-6 b^2 d e f^2 \text{PolyLog}[3,e^{2 (c+d x)}]+6 b^2 d e e^{2 c} f^2 \text{PolyLog}[3,e^{2 (c+d x)}]-$$
$$6 b^2 d f^3 x \text{PolyLog}[3,e^{2 (c+d x)}]+6 b^2 d e^{2 c} f^3 x \text{PolyLog}[3,e^{2 (c+d x)}]+3 b^2 f^3 \text{PolyLog}[4,e^{2 (c+d x)}]-3 b^2 e^{2 c} f^3 \text{PolyLog}[4,e^{2 (c+d x)}]\Big)+$$

$$\frac{1}{2 a^3 d^4 (-1+e^{2 c})} b^2 \Big(4 d^4 e^3 e^{2 c} x+6 d^4 e^2 e^{2 c} f x^2+4 d^4 e e^{2 c} f^2 x^3+d^4 e^{2 c} f^3 x^4+2 d^3 e^3 \text{Log}[2 a e^{c+d x}+b (-1+e^{2 (c+d x)})]-$$

$$2 d^3 e^3 \mathrm{e}^{2 c} \mathrm{Log}\left[2 a \mathrm{e}^{c+d x}+b \left(-1+\mathrm{e}^{2 (c+d x)}\right)\right]+6 d^3 e^2 f x \mathrm{Log}\left[1+\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c-\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]-6 d^3 e^2 \mathrm{e}^{2 c} f x \mathrm{Log}\left[1+\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c-\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]+$$

$$6 d^3 e f^2 x^2 \mathrm{Log}\left[1+\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c-\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]-6 d^3 e \mathrm{e}^{2 c} f^2 x^2 \mathrm{Log}\left[1+\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c-\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]+2 d^3 f^3 x^3 \mathrm{Log}\left[1+\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c-\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]-$$

$$2 d^3 \mathrm{e}^{2 c} f^3 x^3 \mathrm{Log}\left[1+\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c-\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]+6 d^3 e^2 f x \mathrm{Log}\left[1+\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c+\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]-6 d^3 e^2 \mathrm{e}^{2 c} f x \mathrm{Log}\left[1+\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c+\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]+$$

$$6 d^3 e f^2 x^2 \mathrm{Log}\left[1+\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c+\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]-6 d^3 e \mathrm{e}^{2 c} f^2 x^2 \mathrm{Log}\left[1+\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c+\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]+2 d^3 f^3 x^3 \mathrm{Log}\left[1+\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c+\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]-$$

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

$$6 d^2 \left(-1+\mathrm{e}^{2 c}\right) f (e+f x)^2 \mathrm{PolyLog}\left[2,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c+\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]-12 d e f^2 \mathrm{PolyLog}\left[3,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c-\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]+$$

$$12 d e \mathrm{e}^{2 c} f^2 \mathrm{PolyLog}\left[3,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c-\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]-12 d f^3 x \mathrm{PolyLog}\left[3,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c-\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]+12 d \mathrm{e}^{2 c} f^3 x$$

$$\mathrm{PolyLog}\left[3,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c-\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]-12 d e f^2 \mathrm{PolyLog}\left[3,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c+\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]+12 d e \mathrm{e}^{2 c} f^2 \mathrm{PolyLog}\left[3,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c+\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]-$$

$$12 d f^3 x \mathrm{PolyLog}\left[3,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c+\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]+12 d \mathrm{e}^{2 c} f^3 x \mathrm{PolyLog}\left[3,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c+\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]+12 f^3 \mathrm{PolyLog}\left[4,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c-\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]-$$

$$\left.12 \mathrm{e}^{2 c} f^3 \mathrm{PolyLog}\left[4,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c-\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]+12 f^3 \mathrm{PolyLog}\left[4,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c+\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]-12 \mathrm{e}^{2 c} f^3 \mathrm{PolyLog}\left[4,-\frac{b \mathrm{e}^{2 c+d x}}{a \mathrm{e}^c+\sqrt{\left(a^2+b^2\right) \mathrm{e}^{2 c}}}\right]\right)+$$

$$\frac{\left(e^3+3 e^2 f x+3 e f^2 x^2+f^3 x^3\right) \mathrm{Sech}\left[\frac{c}{2}+\frac{d x}{2}\right]^2}{8 a d}+\frac{1}{4 a^2 d^2}\mathrm{Sech}\left[\frac{c}{2}\right] \mathrm{Sech}\left[\frac{c}{2}+\frac{d x}{2}\right]$$

$$\left(-2 b d e^3 \mathrm{Sinh}\left[\frac{d x}{2}\right]-3 a e^2 f \mathrm{Sinh}\left[\frac{d x}{2}\right]-6 b d e^2 f x \mathrm{Sinh}\left[\frac{d x}{2}\right]-\right.$$

$$\left.6 a e f^2 x \mathrm{Sinh}\left[\frac{d x}{2}\right]-6 b d e f^2 x^2 \mathrm{Sinh}\left[\frac{d x}{2}\right]-3 a f^3 x^2 \mathrm{Sinh}\left[\frac{d x}{2}\right]-2 b d f^3 x^3 \mathrm{Sinh}\left[\frac{d x}{2}\right]\right)+$$

$$\frac{1}{4 a^2 d^2}\mathrm{Csch}\left[\frac{c}{2}\right] \mathrm{Csch}\left[\frac{c}{2}+\frac{d x}{2}\right] \left(-2 b d e^3 \mathrm{Sinh}\left[\frac{d x}{2}\right]+3 a e^2 f \mathrm{Sinh}\left[\frac{d x}{2}\right]-6 b d e^2 f x \mathrm{Sinh}\left[\frac{d x}{2}\right]+\right.$$

$$\left.6 a e f^2 x \mathrm{Sinh}\left[\frac{d x}{2}\right]-6 b d e f^2 x^2 \mathrm{Sinh}\left[\frac{d x}{2}\right]+3 a f^3 x^2 \mathrm{Sinh}\left[\frac{d x}{2}\right]-2 b d f^3 x^3 \mathrm{Sinh}\left[\frac{d x}{2}\right]\right)$$

Problem 477: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2 \operatorname{Coth}[c+d x] \operatorname{Csch}[c+d x]^2}{a+b \operatorname{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 502 leaves, 26 steps):

$$\frac{4 b f (e+f x) \operatorname{ArcTanh}\left[e^{c+d x}\right]}{a^2 d^2}-\frac{f (e+f x) \operatorname{Coth}[c+d x]}{a d^2}+\frac{b (e+f x)^2 \operatorname{Csch}[c+d x]}{a^2 d}-\frac{(e+f x)^2 \operatorname{Csch}[c+d x]^2}{2 a d}-$$
$$\frac{b^2 (e+f x)^2 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 d}-\frac{b^2 (e+f x)^2 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 d}+\frac{b^2 (e+f x)^2 \operatorname{Log}\left[1-e^{2 (c+d x)}\right]}{a^3 d}+\frac{f^2 \operatorname{Log}[\operatorname{Sinh}[c+d x]]}{a d^3}+$$
$$\frac{2 b f^2 \operatorname{PolyLog}\left[2,-e^{c+d x}\right]}{a^2 d^3}-\frac{2 b f^2 \operatorname{PolyLog}\left[2, e^{c+d x}\right]}{a^2 d^3}-\frac{2 b^2 f (e+f x) \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 d^2}-\frac{2 b^2 f (e+f x) \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 d^2}+$$
$$\frac{b^2 f (e+f x) \operatorname{PolyLog}\left[2, e^{2 (c+d x)}\right]}{a^3 d^2}+\frac{2 b^2 f^2 \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 d^3}+\frac{2 b^2 f^2 \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 d^3}-\frac{b^2 f^2 \operatorname{PolyLog}\left[3, e^{2 (c+d x)}\right]}{2 a^3 d^3}$$

Result (type 4, 1550 leaves):

$$\frac{b\,(e+f\,x)^2\,\text{Csch}[c]}{a^2\,d}+\frac{\left(-e^2-2\,e\,f\,x-f^2\,x^2\right)\,\text{Csch}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^2}{8\,a\,d}-$$

$$\frac{1}{6\,a^3\,d^3\,\left(-1+e^{2\,c}\right)}\left(12\,d\,e^{2\,c}\left(b^2\,d^2\,e^2+a^2\,f^2\right)\,x-12\,d\,\left(-1+e^{2\,c}\right)\,\left(b^2\,d^2\,e^2+a^2\,f^2\right)\,x+12\,b^2\,d^3\,e\,f\,x^2+4\,b^2\,d^3\,f^2\,x^3-\right.$$

$$24\,a\,b\,d\,e\,\left(-1+e^{2\,c}\right)\,f\,\text{ArcTanh}\left[e^{c+d\,x}\right]+6\,b^2\,d^2\,e^2\,\left(-1+e^{2\,c}\right)\,\left(2\,d\,x-\text{Log}\left[1-e^{2\,(c+d\,x)}\right]\right)+6\,a^2\,\left(-1+e^{2\,c}\right)\,f^2\,\left(2\,d\,x-\text{Log}\left[1-e^{2\,(c+d\,x)}\right]\right)+$$

$$12\,a\,b\,\left(-1+e^{2\,c}\right)\,f^2\,\left(d\,x\,\left(\text{Log}\left[1-e^{c+d\,x}\right]-\text{Log}\left[1+e^{c+d\,x}\right]\right)-\text{PolyLog}\left[2,-e^{c+d\,x}\right]+\text{PolyLog}\left[2,e^{c+d\,x}\right]\right)+$$

$$6\,b^2\,d\,e\,\left(-1+e^{2\,c}\right)\,f\,\left(2\,d\,x\,\left(d\,x-\text{Log}\left[1-e^{2\,(c+d\,x)}\right]\right)-\text{PolyLog}\left[2,e^{2\,(c+d\,x)}\right]\right)+$$

$$\left.b^2\,\left(-1+e^{2\,c}\right)\,f^2\,\left(2\,d^2\,x^2\,\left(2\,d\,x-3\,\text{Log}\left[1-e^{2\,(c+d\,x)}\right]\right)-6\,d\,x\,\text{PolyLog}\left[2,e^{2\,(c+d\,x)}\right]+3\,\text{PolyLog}\left[3,e^{2\,(c+d\,x)}\right]\right)\right)+$$

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

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

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

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

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

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

$$\left.6\,e^{2\,c}\,f^2\,\text{PolyLog}\left[3,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\right]\right)+\frac{\left(e^2+2\,e\,f\,x+f^2\,x^2\right)\,\text{Sech}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^2}{8\,a\,d}+\frac{1}{2\,a^2\,d^2}$$

$$\text{Sech}\left[\frac{c}{2}\right]\,\text{Sech}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\,\left(-b\,d\,e^2\,\text{Sinh}\left[\frac{d\,x}{2}\right]-a\,e\,f\,\text{Sinh}\left[\frac{d\,x}{2}\right]-2\,b\,d\,e\,f\,x\,\text{Sinh}\left[\frac{d\,x}{2}\right]-a\,f^2\,x\,\text{Sinh}\left[\frac{d\,x}{2}\right]-b\,d\,f^2\,x^2\,\text{Sinh}\left[\frac{d\,x}{2}\right]\right)+$$

$$\frac{1}{2\,a^2\,d^2}$$

$$\text{Csch}\left[\frac{c}{2}\right]\,\text{Csch}\left[\frac{c}{2}+\frac{d\,x}{2}\right]$$

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

Problem 478: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)\,\text{Coth}[c+d x]\,\text{Csch}[c+d x]^2}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 298 leaves, 19 steps):

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

Result (type 4, 851 leaves):

$$\frac{1}{4a^2d^2}\left(2bde\,\text{Cosh}\left[\frac{1}{2}(c+dx)\right]-af\,\text{Cosh}\left[\frac{1}{2}(c+dx)\right]-2bcf\,\text{Cosh}\left[\frac{1}{2}(c+dx)\right]+2bf(c+dx)\,\text{Cosh}\left[\frac{1}{2}(c+dx)\right]\right)\text{Csch}\left[\frac{1}{2}(c+dx)\right]+$$

$$\frac{(-de+cf-f(c+dx))\,\text{Csch}\left[\frac{1}{2}(c+dx)\right]^2}{8ad^2}+\frac{b^2e\,\text{Log}[\text{Sinh}[c+dx]]}{a^3d}-\frac{b^2cf\,\text{Log}[\text{Sinh}[c+dx]]}{a^3d^2}-\frac{b^2e\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+dx]}{a}\right]}{a^3d}+$$

$$\frac{b^2cf\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+dx]}{a}\right]}{a^3d^2}-\frac{bf\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+dx)\right]\right]}{a^2d^2}-\frac{i b^2f\left(i(c+dx)\,\text{Log}\left[1-e^{-2(c+dx)}\right]-\frac{1}{2}i\left(-(c+dx)^2+\text{PolyLog}\left[2,e^{-2(c+dx)}\right]\right)\right)}{a^3d^2}-$$

$$\frac{1}{a^3d^2}b^3f\left(\frac{(c+dx)\,\text{Log}[a+b\,\text{Sinh}[c+dx]]}{b}-\frac{1}{b}i\left(\frac{1}{2}i\left(\frac{\pi}{2}-i(c+dx)\right)^2-4i\,\text{ArcSin}\left[\frac{\sqrt{\frac{i(a-ib)}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+ib)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-i(c+dx)\right)\right]}{\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left(\frac{\pi}{2}-i(c+dx)+2\,\text{ArcSin}\left[\frac{\sqrt{\frac{i(a-ib)}{b}}}{\sqrt{2}}\right]\right)\text{Log}\left[1+\frac{i\left(a-\sqrt{a^2+b^2}\right)e^{i\left(\frac{\pi}{2}-i(c+dx)\right)}}{b}\right]-$$

$$\left(\frac{\pi}{2}-i(c+dx)-2\,\text{ArcSin}\left[\frac{\sqrt{\frac{i(a-ib)}{b}}}{\sqrt{2}}\right]\right)\text{Log}\left[1+\frac{i\left(a+\sqrt{a^2+b^2}\right)e^{i\left(\frac{\pi}{2}-i(c+dx)\right)}}{b}\right]+\left(\frac{\pi}{2}-i(c+dx)\right)\text{Log}[a+b\,\text{Sinh}[c+dx]]+$$

$$\left.\left.i\left(\text{PolyLog}\left[2,-\frac{i\left(a-\sqrt{a^2+b^2}\right)e^{i\left(\frac{\pi}{2}-i(c+dx)\right)}}{b}\right]+\text{PolyLog}\left[2,-\frac{i\left(a+\sqrt{a^2+b^2}\right)e^{i\left(\frac{\pi}{2}-i(c+dx)\right)}}{b}\right]\right)\right)\right)+$$

$$\frac{(de-cf+f(c+dx))\,\text{Sech}\left[\frac{1}{2}(c+dx)\right]^2}{8ad^2}+\frac{1}{4a^2d^2}\text{Sech}\left[\frac{1}{2}(c+dx)\right]\left(-2bde\,\text{Sinh}\left[\frac{1}{2}(c+dx)\right]-af\,\text{Sinh}\left[\frac{1}{2}(c+dx)\right]+\right.$$

$$\left.2bcf\,\text{Sinh}\left[\frac{1}{2}(c+dx)\right]-2bf(c+dx)\,\text{Sinh}\left[\frac{1}{2}(c+dx)\right]\right)$$

Problem 480: Attempted integration timed out after 120 seconds.

$$\int\frac{\text{Coth}[c+dx]\,\text{Csch}[c+dx]^2}{(e+fx)\,(a+b\,\text{Sinh}[c+dx])}\,dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Coth}[c+d x]\,\text{Csch}[c+d x]^2}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 481: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^3\,\text{Coth}[c+d x]^2\,\text{Csch}[c+d x]}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 1038 leaves, 67 steps):

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

Result (type 4, 2724 leaves) :

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

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

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

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

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

$$b\,e^{-c}\,f^3\,\text{Csch}[c]\left(2\,d^2\,x^2\left(2\,d\,e^{2\,c}\,x-3\left(-1+e^{2\,c}\right)\text{Log}\left[1-e^{2\,(c+d\,x)}\right]\right)-6\,d\left(-1+e^{2\,c}\right)x\,\text{PolyLog}\left[2,e^{2\,(c+d\,x)}\right]+3\left(-1+e^{2\,c}\right)\text{PolyLog}\left[3,e^{2\,(c+d\,x)}\right]\right)-$$

$$\frac{1}{a\,d^3}3\,e\,f^2\left(d^2\,x^2\,\text{ArcTanh}[\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x]]+d\,x\,\text{PolyLog}[2,-\text{Cosh}[c+d\,x]-\text{Sinh}[c+d\,x]]-\right.$$

$$\left.d\,x\,\text{PolyLog}[2,\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x]]-\text{PolyLog}[3,-\text{Cosh}[c+d\,x]-\text{Sinh}[c+d\,x]]+\text{PolyLog}[3,\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x]]\right)-$$

$$\frac{1}{a^3\,d^3}6\,b^2\,e\,f^2\left(d^2\,x^2\,\text{ArcTanh}[\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x]]+d\,x\,\text{PolyLog}[2,-\text{Cosh}[c+d\,x]-\text{Sinh}[c+d\,x]]-\right.$$

$$\left.d\,x\,\text{PolyLog}[2,\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x]]-\text{PolyLog}[3,-\text{Cosh}[c+d\,x]-\text{Sinh}[c+d\,x]]+\text{PolyLog}[3,\text{Cosh}[c+d\,x]+\text{Sinh}[c+d\,x]]\right)+$$

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

$$\left.6\,d\,x\,\text{PolyLog}\left[3,-e^{c+d\,x}\right]-6\,d\,x\,\text{PolyLog}\left[3,e^{c+d\,x}\right]-6\,\text{PolyLog}\left[4,-e^{c+d\,x}\right]+6\,\text{PolyLog}\left[4,e^{c+d\,x}\right]\right)+$$

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

$$\left.6\,d\,x\,\text{PolyLog}\left[3,-e^{c+d\,x}\right]-6\,d\,x\,\text{PolyLog}\left[3,e^{c+d\,x}\right]-6\,\text{PolyLog}\left[4,-e^{c+d\,x}\right]+6\,\text{PolyLog}\left[4,e^{c+d\,x}\right]\right)+$$

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

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

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

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

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

$$6\sqrt{-a^2-b^2}\; d\, e\, e^c f^2 \,\text{PolyLog}\Big[3,-\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\Big]+6\sqrt{-a^2-b^2}\; d\, e^c f^3 x\, \text{PolyLog}\Big[3,-\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\Big]+$$

$$6\sqrt{-a^2-b^2}\; e^c f^3 \,\text{PolyLog}\Big[4,-\frac{b\, e^{2c+dx}}{a\, e^c-\sqrt{(a^2+b^2)\, e^{2c}}}\Big]-6\sqrt{-a^2-b^2}\; e^c f^3 \,\text{PolyLog}\Big[4,-\frac{b\, e^{2c+dx}}{a\, e^c+\sqrt{(a^2+b^2)\, e^{2c}}}\Big]\Bigg)+$$

$$\frac{3\, b\, e^2 f\, \text{Csch}[c]\, (-d\, x\, \text{Cosh}[c]+\text{Log}[\text{Cosh}[d\, x]\, \text{Sinh}[c]+\text{Cosh}[c]\, \text{Sinh}[d\, x]]\, \text{Sinh}[c])}{a^2 d^2\, (-\text{Cosh}[c]^2+\text{Sinh}[c]^2)}+$$

$$\frac{1}{4\, a^2 d^2}\text{Csch}[c]\, \text{Csch}[c+d\, x]^2$$
$$\big(2\, b\, d\, e^3 \text{Cosh}[c]+6\, b\, d\, e^2 f\, x\, \text{Cosh}[c]+6\, b\, d\, e\, f^2 x^2 \text{Cosh}[c]+2\, b\, d\, f^3 x^3 \text{Cosh}[c]+3\, a\, e^2 f\, \text{Cosh}[d\, x]+6\, a\, e\, f^2 x\, \text{Cosh}[d\, x]+3\, a\, f^3 x^2 \text{Cosh}[d\, x]-$$
$$3\, a\, e^2 f\, \text{Cosh}[2\, c+d\, x]-6\, a\, e\, f^2 x\, \text{Cosh}[2\, c+d\, x]-3\, a\, f^3 x^2 \text{Cosh}[2\, c+d\, x]-2\, b\, d\, e^3 \text{Cosh}[c+2\, d\, x]-6\, b\, d\, e^2 f\, x\, \text{Cosh}[c+2\, d\, x]-$$
$$6\, b\, d\, e\, f^2 x^2 \text{Cosh}[c+2\, d\, x]-2\, b\, d\, f^3 x^3 \text{Cosh}[c+2\, d\, x]+a\, d\, e^3 \text{Sinh}[d\, x]+3\, a\, d\, e^2 f\, x\, \text{Sinh}[d\, x]+3\, a\, d\, e\, f^2 x^2 \text{Sinh}[d\, x]+$$
$$a\, d\, f^3 x^3 \text{Sinh}[d\, x]-a\, d\, e^3 \text{Sinh}[2\, c+d\, x]-3\, a\, d\, e^2 f\, x\, \text{Sinh}[2\, c+d\, x]-3\, a\, d\, e\, f^2 x^2 \text{Sinh}[2\, c+d\, x]-a\, d\, f^3 x^3 \text{Sinh}[2\, c+d\, x]\big)-$$

$$\Bigg(3\, b\, e\, f^2 \text{Csch}[c]\, \text{Sech}[c]\, \Bigg(-d^2 e^{-\text{ArcTanh}[\text{Tanh}[c]]} x^2+\frac{1}{\sqrt{1-\text{Tanh}[c]^2}}\, i\, \big(-d\, x\, (-\pi+2\, i\, \text{ArcTanh}[\text{Tanh}[c]])-\pi\, \text{Log}\big[1+e^{2\, d\, x}\big]-$$
$$2\, (i\, d\, x+i\, \text{ArcTanh}[\text{Tanh}[c]])\, \text{Log}\big[1-e^{2\, i\, (i\, d\, x+i\, \text{ArcTanh}[\text{Tanh}[c]])}\big]+\pi\, \text{Log}[\text{Cosh}[d\, x]]+2\, i\, \text{ArcTanh}[\text{Tanh}[c]]$$
$$\text{Log}[i\, \text{Sinh}[d\, x+\text{ArcTanh}[\text{Tanh}[c]]]]+i\, \text{PolyLog}\big[2,e^{2\, i\, (i\, d\, x+i\, \text{ArcTanh}[\text{Tanh}[c]])}\big]\big)\, \text{Tanh}[c]\Bigg)\Bigg)\Bigg/\left(a^2 d^3 \sqrt{\text{Sech}[c]^2\, (\text{Cosh}[c]^2-\text{Sinh}[c]^2)}\right)$$

Problem 482: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f\, x)^2\, \text{Coth}[c+d\, x]^2\, \text{Csch}[c+d\, x]}{a+b\, \text{Sinh}[c+d\, x]}\, dx$$

Optimal (type 4, 714 leaves, 52 steps):

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

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

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

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

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

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

Result (type 4, 1803 leaves) :

$$\frac{1}{2 a^3 d^3 \left(-1+e^{2 c}\right)} \left(8 a b d^2 e e^{2 c} f x + 4 a b d^2 e^{2 c} f^2 x^2 + 2 a^2 d^2 e^2 \text{ArcTanh}\left[e^{c+d x}\right] + 4 b^2 d^2 e^2 \text{ArcTanh}\left[e^{c+d x}\right] - 2 a^2 d^2 e^2 e^{2 c} \text{ArcTanh}\left[e^{c+d x}\right] - 4 b^2 d^2 e^2 e^{2 c} \text{ArcTanh}\left[e^{c+d x}\right] + 4 a^2 f^2 \text{ArcTanh}\left[e^{c+d x}\right] - 4 a^2 e^{2 c} f^2 \text{ArcTanh}\left[e^{c+d x}\right] - 2 a^2 d^2 e f x \text{Log}\left[1-e^{c+d x}\right] - 4 b^2 d^2 e f x \text{Log}\left[1-e^{c+d x}\right] + 2 a^2 d^2 e e^{2 c} f x \text{Log}\left[1-e^{c+d x}\right] + 4 b^2 d^2 e e^{2 c} f x \text{Log}\left[1-e^{c+d x}\right] - a^2 d^2 f^2 x^2 \text{Log}\left[1-e^{c+d x}\right] - 2 b^2 d^2 f^2 x^2 \text{Log}\left[1-e^{c+d x}\right] + a^2 d^2 e^{2 c} f^2 x^2 \text{Log}\left[1-e^{c+d x}\right] + 2 b^2 d^2 e^{2 c} f^2 x^2 \text{Log}\left[1-e^{c+d x}\right] + 2 a^2 d^2 e f x \text{Log}\left[1+e^{c+d x}\right] + 4 b^2 d^2 e f x \text{Log}\left[1+e^{c+d x}\right] - 2 a^2 d^2 e e^{2 c} f x \text{Log}\left[1+e^{c+d x}\right] - 4 b^2 d^2 e e^{2 c} f x \text{Log}\left[1+e^{c+d x}\right] + a^2 d^2 f^2 x^2 \text{Log}\left[1+e^{c+d x}\right] + 2 b^2 d^2 f^2 x^2 \text{Log}\left[1+e^{c+d x}\right] - a^2 d^2 e^{2 c} f^2 x^2 \text{Log}\left[1+e^{c+d x}\right] - 2 b^2 d^2 e^{2 c} f^2 x^2 \text{Log}\left[1+e^{c+d x}\right] + 4 a b d e f \text{Log}\left[1-e^{2 (c+d x)}\right] - 4 a b d e e^{2 c} f \text{Log}\left[1-e^{2 (c+d x)}\right] + 4 a b d f^2 x \text{Log}\left[1-e^{2 (c+d x)}\right] - 4 a b d e^{2 c} f^2 x \text{Log}\left[1-e^{2 (c+d x)}\right] - 2 \left(a^2+2 b^2\right) d \left(-1+e^{2 c}\right) f (e+f x) \text{PolyLog}\left[2,-e^{c+d x}\right] + 2 \left(a^2+2 b^2\right) d \left(-1+e^{2 c}\right) f (e+f x) \text{PolyLog}\left[2,e^{c+d x}\right] + 2 a b f^2 \text{PolyLog}\left[2,e^{2 (c+d x)}\right] - 2 a b e^{2 c} f^2 \text{PolyLog}\left[2,e^{2 (c+d x)}\right] - 2 a^2 f^2 \text{PolyLog}\left[3,-e^{c+d x}\right] - 4 b^2 f^2 \text{PolyLog}\left[3,-e^{c+d x}\right] + 2 a^2 e^{2 c} f^2 \text{PolyLog}\left[3,-e^{c+d x}\right] + 4 b^2 e^{2 c} f^2 \text{PolyLog}\left[3,-e^{c+d x}\right] + 2 a^2 f^2 \text{PolyLog}\left[3,e^{c+d x}\right] + 4 b^2 f^2 \text{PolyLog}\left[3,e^{c+d x}\right] - 2 a^2 e^{2 c} f^2 \text{PolyLog}\left[3,e^{c+d x}\right] - 4 b^2 e^{2 c} f^2 \text{PolyLog}\left[3,e^{c+d x}\right]\right) -$$

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

$$\frac{1}{4 a^2 d^2} \text{Csch}[c] \text{Csch}[c+d x]^2 \left(2 b d e^2 \text{Cosh}[c] + 4 b d e f x \text{Cosh}[c] + 2 b d f^2 x^2 \text{Cosh}[c] + 2 a e f \text{Cosh}[d x] + 2 a f^2 x \text{Cosh}[d x] - 2 a e f \text{Cosh}[2 c+d x] - 2 a f^2 x \text{Cosh}[2 c+d x] - 2 b d e^2 \text{Cosh}[c+2 d x] - 4 b d e f x \text{Cosh}[c+2 d x] - 2 b d f^2 x^2 \text{Cosh}[c+2 d x] + a d e^2 \text{Sinh}[d x] + 2 a d e f x \text{Sinh}[d x] + a d f^2 x^2 \text{Sinh}[d x] - a d e^2 \text{Sinh}[2 c+d x] - 2 a d e f x \text{Sinh}[2 c+d x] - a d f^2 x^2 \text{Sinh}[2 c+d x]\right)$$

Problem 483: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(e+f x) \text{Coth}[c+d x]^2 \text{Csch}[c+d x]}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 413 leaves, 38 steps):

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

Result (type 4, 874 leaves):

$$\frac{1}{4 a^2 d^2}\left(2 b d e\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]-a f\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]-2 b c f\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+2 b f (c+d x)\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]\right)\text{Csch}\left[\frac{1}{2}(c+d x)\right]+\frac{(-d e+c f-f (c+d x))\,\text{Csch}\left[\frac{1}{2}(c+d x)\right]^2}{8 a d^2}-\frac{b f\,\text{Log}[\text{Sinh}[c+d x]]}{a^2 d^2}+\frac{e\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{2 a d}+\frac{b^2 e\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{a^3 d}-\frac{c f\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{2 a d^2}-\frac{b^2 c f\,\text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{a^3 d^2}-\frac{i f\left(i (c+d x)\left(\text{Log}\left[1-e^{-c-d x}\right]-\text{Log}\left[1+e^{-c-d x}\right]\right)+i\left(\text{PolyLog}\left[2,-e^{-c-d x}\right]-\text{PolyLog}\left[2,e^{-c-d x}\right]\right)\right)}{2 a d^2}-\frac{i b^2 f\left(i (c+d x)\left(\text{Log}\left[1-e^{-c-d x}\right]-\text{Log}\left[1+e^{-c-d x}\right]\right)+i\left(\text{PolyLog}\left[2,-e^{-c-d x}\right]-\text{PolyLog}\left[2,e^{-c-d x}\right]\right)\right)}{a^3 d^2}-\frac{1}{a^3 \sqrt{-\left(a^2+b^2\right)^2}\,d^2}\,b\left(a^2+b^2\right)\left(2 \sqrt{a^2+b^2}\,d e\,\text{ArcTan}\left[\frac{a+b\,\text{Cosh}[c+d x]+b\,\text{Sinh}[c+d x]}{\sqrt{-a^2-b^2}}\right]-2 \sqrt{a^2+b^2}\,c f\,\text{ArcTan}\left[\frac{a+b\,\text{Cosh}[c+d x]+b\,\text{Sinh}[c+d x]}{\sqrt{-a^2-b^2}}\right]+\sqrt{-a^2-b^2}\,f (c+d x)\,\text{Log}\left[1+\frac{b (\text{Cosh}[c+d x]+\text{Sinh}[c+d x])}{a-\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\,f (c+d x)\,\text{Log}\left[1+\frac{b (\text{Cosh}[c+d x]+\text{Sinh}[c+d x])}{a+\sqrt{a^2+b^2}}\right]+\sqrt{-a^2-b^2}\,f\,\text{PolyLog}\left[2,\frac{b (\text{Cosh}[c+d x]+\text{Sinh}[c+d x])}{-a+\sqrt{a^2+b^2}}\right]-\sqrt{-a^2-b^2}\,f\,\text{PolyLog}\left[2,-\frac{b (\text{Cosh}[c+d x]+\text{Sinh}[c+d x])}{a+\sqrt{a^2+b^2}}\right]\right)+\frac{(-d e+c f-f (c+d x))\,\text{Sech}\left[\frac{1}{2}(c+d x)\right]^2}{8 a d^2}+\frac{1}{4 a^2 d^2}\text{Sech}\left[\frac{1}{2}(c+d x)\right]\left(2 b d e\,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]+a f\,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]-2 b c f\,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]+2 b f (c+d x)\,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)$$

Problem 485: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Coth}[c+d x]^2 \,\text{Csch}[c+d x]}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])}\,dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Coth}[c+d x]^2\,\text{Csch}[c+d x]}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},\ x\right]$$

Result (type 1, 1 leaves):

???

Problem 486: Attempted integration timed out after 120 seconds.

$$\int \frac{(e+f x)^3\,\text{Coth}[c+d x]^3}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 972 leaves, 62 steps):

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

Result (type 1, 1 leaves):

???

Problem 487: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2 \text{Coth}[c+d x]^3}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 689 leaves, 47 steps):

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

Result (type 4, 2137 leaves):

$$\frac{b (e+f x)^2 \text{Csch}[c]}{a^2 d}+\frac{(-e^2-2 e f x-f^2 x^2) \text{Csch}\left[\frac{c}{2}+\frac{d x}{2}\right]^2}{8 a d}-\frac{1}{6 a^3 d^3 (-1+e^{2 c})}\Big(12 a^2 d^3 e^2 e^{2 c} x+12 b^2 d^3 e^2 e^{2 c} x+12 a^2 d e^{2 c} f^2 x+12 a^2 d^3 e e^{2 c} f x^2+12 b^2 d^3 e e^{2 c} f x^2+4 a^2 d^3 e^{2 c} f^2 x^3+4 b^2 d^3 e^{2 c} f^2 x^3+24 a b d e f \text{ArcTanh}[e^{c+d x}]-24 a b d e e^{2 c} f \text{ArcTanh}[e^{c+d x}]-12 a b d f^2 x \text{Log}[1-e^{c+d x}]+12 a b d e^{2 c} f^2 x \text{Log}[1-e^{c+d x}]+12 a b d f^2 x \text{Log}[1+e^{c+d x}]-12 a b d e^{2 c} f^2 x \text{Log}[1+e^{c+d x}]+6 a^2 d^2 e^2 \text{Log}[1-e^{2 (c+d x)}]+6 b^2 d^2 e^2 \text{Log}[1-e^{2 (c+d x)}]-6 a^2 d^2 e^2 e^{2 c} \text{Log}[1-e^{2 (c+d x)}]-6 b^2 d^2 e^2 e^{2 c} \text{Log}[1-e^{2 (c+d x)}]+6 a^2 f^2 \text{Log}[1-e^{2 (c+d x)}]-6 a^2 e^{2 c} f^2 \text{Log}[1-e^{2 (c+d x)}]+12 a^2 d^2 e f x \text{Log}[1-e^{2 (c+d x)}]+12 b^2 d^2 e f x \text{Log}[1-e^{2 (c+d x)}]-12 a^2 d^2 e e^{2 c} f x \text{Log}[1-e^{2 (c+d x)}]-12 b^2 d^2 e e^{2 c} f x \text{Log}[1-e^{2 (c+d x)}]+6 a^2 d^2 f^2 x^2 \text{Log}[1-e^{2 (c+d x)}]+6 b^2 d^2 f^2 x^2 \text{Log}[1-e^{2 (c+d x)}]-6 a^2 d^2 e^{2 c} f^2 x^2 \text{Log}[1-e^{2 (c+d x)}]-6 b^2 d^2 e^{2 c} f^2 x^2 \text{Log}[1-e^{2 (c+d x)}]-12 a b (-1+e^{2 c}) f^2 \text{PolyLog}[2,-e^{c+d x}]+12 a b (-1+e^{2 c}) f^2 \text{PolyLog}[2,e^{c+d x}]+6 a^2 d e f \text{PolyLog}[2,e^{2 (c+d x)}]+6 b^2 d e f \text{PolyLog}[2,e^{2 (c+d x)}]-6 a^2 d e e^{2 c} f \text{PolyLog}[2,e^{2 (c+d x)}]-6 b^2 d e e^{2 c} f \text{PolyLog}[2,e^{2 (c+d x)}]+6 a^2 d f^2 x \text{PolyLog}[2,e^{2 (c+d x)}]+6 b^2 d f^2 x \text{PolyLog}[2,e^{2 (c+d x)}]-6 a^2 d e^{2 c} f^2 x \text{PolyLog}[2,e^{2 (c+d x)}]-6 b^2 d e^{2 c} f^2 x \text{PolyLog}[2,e^{2 (c+d x)}]-3 a^2 f^2 \text{PolyLog}[3,e^{2 (c+d x)}]-3 b^2 f^2 \text{PolyLog}[3,e^{2 (c+d x)}]+3 a^2 e^{2 c} f^2 \text{PolyLog}[3,e^{2 (c+d x)}]+3 b^2 e^{2 c} f^2 \text{PolyLog}[3,e^{2 (c+d x)}]\Big)+\frac{1}{3 a^3 d^3 (-1+e^{2 c})}(a^2+b^2)\Bigg(6 d^3 e^2 e^{2 c} x+6 d^3 e e^{2 c} f x^2+2 d^3 e^{2 c} f^2 x^3+3 d^2 e^2 \text{Log}[2 a e^{c+d x}+b (-1+e^{2 (c+d x)})]-3 d^2 e^2 e^{2 c} \text{Log}[2 a e^{c+d x}+b (-1+e^{2 (c+d x)})]+6 d^2 e f x \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{(a^2+b^2) e^{2 c}}}\right]-6 d^2 e e^{2 c} f x \text{Log}\left[1+\frac{b e^{2 c+d x}}{a e^c-\sqrt{(a^2+b^2) e^{2 c}}}\right]+$$

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

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

$$6\,d\,\left(-1+e^{2\,c}\right)\,f\,\left(e+f\,x\right)\,\mathrm{PolyLog}\left[2,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\right]-6\,d\,\left(-1+e^{2\,c}\right)\,f\,\left(e+f\,x\right)\,\mathrm{PolyLog}\left[2,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\right]-$$

$$6\,f^2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\right]+6\,e^{2\,c}\,f^2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c-\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\right]-6\,f^2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\right]+$$

$$\left.6\,e^{2\,c}\,f^2\,\mathrm{PolyLog}\left[3,-\frac{b\,e^{2\,c+d\,x}}{a\,e^c+\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\right]\right)+\frac{\left(e^2+2\,e\,f\,x+f^2 x^2\right)\,\mathrm{Sech}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^2}{8\,a\,d}+\frac{1}{2\,a^2\,d^2}$$

$$\mathrm{Sech}\left[\frac{c}{2}\right]\,\mathrm{Sech}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\,\left(-b\,d\,e^2\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]-a\,e\,f\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]-2\,b\,d\,e\,f\,x\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]-a\,f^2\,x\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]-b\,d\,f^2 x^2\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]\right)+$$

$$\frac{1}{2\,a^2\,d^2}$$

$$\mathrm{Csch}\left[\frac{c}{2}\right]\,\mathrm{Csch}\left[\frac{c}{2}+\frac{d\,x}{2}\right]$$

$$\left(-b\,d\,e^2\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]+a\,e\,f\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]-2\,b\,d\,e\,f\,x\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]+a\,f^2\,x\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]-b\,d\,f^2 x^2\,\mathrm{Sinh}\left[\frac{d\,x}{2}\right]\right)$$

Problem 488: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\left(e+f\,x\right)\,\mathrm{Coth}[c+d\,x]^3}{a+b\,\mathrm{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 435 leaves, 36 steps) :

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

Result (type 4, 1420 leaves) :

$$\frac{1}{4 a^2 d^2}\left(2 b d e \text{Cosh}\left[\frac{1}{2}(c+d x)\right]-a f \text{Cosh}\left[\frac{1}{2}(c+d x)\right]-2 b c f \text{Cosh}\left[\frac{1}{2}(c+d x)\right]+2 b f (c+d x)\text{Cosh}\left[\frac{1}{2}(c+d x)\right]\right)\text{Csch}\left[\frac{1}{2}(c+d x)\right]+$$
$$\frac{\left(-d e+c f-f (c+d x)\right)\text{Csch}\left[\frac{1}{2}(c+d x)\right]^2}{8 a d^2}+\frac{e \text{Log}[\text{Sinh}[c+d x]]}{a d}+\frac{b^2 e \text{Log}[\text{Sinh}[c+d x]]}{a^3 d}-\frac{c f \text{Log}[\text{Sinh}[c+d x]]}{a d^2}-$$
$$\frac{b^2 c f \text{Log}[\text{Sinh}[c+d x]]}{a^3 d^2}-\frac{e \text{Log}\left[1+\frac{b \text{Sinh}[c+d x]}{a}\right]}{a d}-\frac{b^2 e \text{Log}\left[1+\frac{b \text{Sinh}[c+d x]}{a}\right]}{a^3 d}+\frac{c f \text{Log}\left[1+\frac{b \text{Sinh}[c+d x]}{a}\right]}{a d^2}+\frac{b^2 c f \text{Log}\left[1+\frac{b \text{Sinh}[c+d x]}{a}\right]}{a^3 d^2}-$$
$$\frac{b f \text{Log}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{a^2 d^2}-\frac{i f \left(i (c+d x)\text{Log}\left[1-e^{-2 (c+d x)}\right]-\frac{1}{2} i \left(-(c+d x)^2+\text{PolyLog}\left[2,e^{-2 (c+d x)}\right]\right)\right)}{a d^2}-$$
$$\frac{i b^2 f \left(i (c+d x)\text{Log}\left[1-e^{-2 (c+d x)}\right]-\frac{1}{2} i \left(-(c+d x)^2+\text{PolyLog}\left[2,e^{-2 (c+d x)}\right]\right)\right)}{a^3 d^2}-$$
$$\frac{1}{a d^2} b f \left(\frac{(c+d x)\text{Log}[a+b \text{Sinh}[c+d x]]}{b}-\frac{1}{b} i \left(\frac{1}{2} i \left(\frac{\pi}{2}-i (c+d x)\right)^2-4 i \text{ArcSin}\left[\frac{\sqrt{\frac{i (a-i b)}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+i b)\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-i (c+d x)\right)\right]}{\sqrt{a^2+b^2}}\right]-\right.\right.$$
$$\left(\frac{\pi}{2}-i (c+d x)+2 \text{ArcSin}\left[\frac{\sqrt{\frac{i (a-i b)}{b}}}{\sqrt{2}}\right]\right)\text{Log}\left[1+\frac{i \left(a-\sqrt{a^2+b^2}\right)e^{i \left(\frac{\pi}{2}-i (c+d x)\right)}}{b}\right]-$$

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

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

$$\frac{1}{a^3\,d^2}\,b^3\,f\,\Bigg(\frac{(c+d\,x)\,\text{Log}[a+b\,\text{Sinh}[c+d\,x]]}{b}-\frac{1}{b}\,i\,\Bigg(\frac{1}{2}\,i\left(\frac{\pi}{2}-i\,(c+d\,x)\right)^2-4\,i\,\text{ArcSin}\left[\frac{\sqrt{\frac{i\,(a-i\,b)}{b}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{(a+i\,b)\,\text{Tan}\left[\frac{1}{2}\left(\frac{\pi}{2}-i\,(c+d\,x)\right)\right]}{\sqrt{a^2+b^2}}\right]-$$

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

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

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

$$\frac{(d\,e-c\,f+f\,(c+d\,x))\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,a\,d^2}+\frac{1}{4\,a^2\,d^2}\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg(-2\,b\,d\,e\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,f\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+$$

$$2\,b\,c\,f\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]-2\,b\,f\,(c+d\,x)\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg)$$

Problem 490: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Coth}[c+d x]^3}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])}\,dx$$

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

$$\text{Unintegrable}\left[\frac{\text{Coth}[c+d x]^3}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},\,x\right]$$

Result (type 1, 1 leaves) :

???

Problem 491: Attempted integration timed out after 120 seconds.

$$\int \frac{(e+f x)^3\,\text{Csch}[c+d x]^3\,\text{Sech}[c+d x]}{a+b\,\text{Sinh}[c+d x]}\,dx$$

Optimal (type 4, 1795 leaves, 87 steps) :

$$
\begin{aligned}
&-\frac{3 f (e+f x)^2}{2 a d^2}+\frac{(e+f x)^3}{2 a d}+\frac{2 b (e+f x)^3 \text{ArcTan}\left[e^{c+d x}\right]}{a^2 d}-\frac{2 b^3 (e+f x)^3 \text{ArcTan}\left[e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d}+\frac{6 b f (e+f x)^2 \text{ArcTanh}\left[e^{c+d x}\right]}{a^2 d^2}+\\
&\frac{2 (e+f x)^3 \text{ArcTanh}\left[e^{2 c+2 d x}\right]}{a d}-\frac{2 b^2 (e+f x)^3 \text{ArcTanh}\left[e^{2 c+2 d x}\right]}{a^3 d}-\frac{3 f (e+f x)^2 \text{Coth}[c+d x]}{2 a d^2}-\frac{(e+f x)^3 \text{Coth}[c+d x]^2}{2 a d}+\\
&\frac{b (e+f x)^3 \text{Csch}[c+d x]}{a^2 d}-\frac{b^4 (e+f x)^3 \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d}-\frac{b^4 (e+f x)^3 \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d}+\frac{3 f^2 (e+f x) \text{Log}\left[1-e^{2 (c+d x)}\right]}{a d^3}+\\
&\frac{b^4 (e+f x)^3 \text{Log}\left[1+e^{2 (c+d x)}\right]}{a^3 \left(a^2+b^2\right) d}+\frac{6 b f^2 (e+f x) \text{PolyLog}\left[2,-e^{c+d x}\right]}{a^2 d^3}-\frac{3 i b f (e+f x)^2 \text{PolyLog}\left[2,-i e^{c+d x}\right]}{a^2 d^2}+\\
&\frac{3 i b^3 f (e+f x)^2 \text{PolyLog}\left[2,-i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^2}+\frac{3 i b f (e+f x)^2 \text{PolyLog}\left[2,i e^{c+d x}\right]}{a^2 d^2}-\frac{3 i b^3 f (e+f x)^2 \text{PolyLog}\left[2,i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^2}-\\
&\frac{6 b f^2 (e+f x) \text{PolyLog}\left[2,e^{c+d x}\right]}{a^2 d^3}-\frac{3 b^4 f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d^2}-\frac{3 b^4 f (e+f x)^2 \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d^2}+\\
&\frac{3 b^4 f (e+f x)^2 \text{PolyLog}\left[2,-e^{2 (c+d x)}\right]}{2 a^3 \left(a^2+b^2\right) d^2}+\frac{3 f^3 \text{PolyLog}\left[2,e^{2 (c+d x)}\right]}{2 a d^4}+\frac{3 f (e+f x)^2 \text{PolyLog}\left[2,-e^{2 c+2 d x}\right]}{2 a d^2}-\frac{3 b^2 f (e+f x)^2 \text{PolyLog}\left[2,-e^{2 c+2 d x}\right]}{2 a^3 d^2}-\\
&\frac{3 f (e+f x)^2 \text{PolyLog}\left[2,e^{2 c+2 d x}\right]}{2 a d^2}+\frac{3 b^2 f (e+f x)^2 \text{PolyLog}\left[2,e^{2 c+2 d x}\right]}{2 a^3 d^2}-\frac{6 b f^3 \text{PolyLog}\left[3,-e^{c+d x}\right]}{a^2 d^4}+\frac{6 i b f^2 (e+f x) \text{PolyLog}\left[3,-i e^{c+d x}\right]}{a^2 d^3}-\\
&\frac{6 i b^3 f^2 (e+f x) \text{PolyLog}\left[3,-i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^3}-\frac{6 i b f^2 (e+f x) \text{PolyLog}\left[3,i e^{c+d x}\right]}{a^2 d^3}+\frac{6 i b^3 f^2 (e+f x) \text{PolyLog}\left[3,i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^3}+\frac{6 b f^3 \text{PolyLog}\left[3,e^{c+d x}\right]}{a^2 d^4}+\\
&\frac{6 b^4 f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d^3}+\frac{6 b^4 f^2 (e+f x) \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d^3}-\frac{3 b^4 f^2 (e+f x) \text{PolyLog}\left[3,-e^{2 (c+d x)}\right]}{2 a^3 \left(a^2+b^2\right) d^3}-\\
&\frac{3 f^2 (e+f x) \text{PolyLog}\left[3,-e^{2 c+2 d x}\right]}{2 a d^3}+\frac{3 b^2 f^2 (e+f x) \text{PolyLog}\left[3,-e^{2 c+2 d x}\right]}{2 a^3 d^3}+\frac{3 f^2 (e+f x) \text{PolyLog}\left[3,e^{2 c+2 d x}\right]}{2 a d^3}-\\
&\frac{3 b^2 f^2 (e+f x) \text{PolyLog}\left[3,e^{2 c+2 d x}\right]}{2 a^3 d^3}-\frac{6 i b f^3 \text{PolyLog}\left[4,-i e^{c+d x}\right]}{a^2 d^4}+\frac{6 i b^3 f^3 \text{PolyLog}\left[4,-i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^4}+\frac{6 i b f^3 \text{PolyLog}\left[4,i e^{c+d x}\right]}{a^2 d^4}-\\
&\frac{6 i b^3 f^3 \text{PolyLog}\left[4,i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^4}-\frac{6 b^4 f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d^4}-\frac{6 b^4 f^3 \text{PolyLog}\left[4,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d^4}+\frac{3 b^4 f^3 \text{PolyLog}\left[4,-e^{2 (c+d x)}\right]}{4 a^3 \left(a^2+b^2\right) d^4}+\\
&\frac{3 f^3 \text{PolyLog}\left[4,-e^{2 c+2 d x}\right]}{4 a d^4}-\frac{3 b^2 f^3 \text{PolyLog}\left[4,-e^{2 c+2 d x}\right]}{4 a^3 d^4}-\frac{3 f^3 \text{PolyLog}\left[4,e^{2 c+2 d x}\right]}{4 a d^4}+\frac{3 b^2 f^3 \text{PolyLog}\left[4,e^{2 c+2 d x}\right]}{4 a^3 d^4}
\end{aligned}
$$

Result (type 1, 1 leaves) :

???

Problem 492: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2 \operatorname{Csch}[c+d x]^3 \operatorname{Sech}[c+d x]}{a+b \operatorname{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 1219 leaves, 71 steps):

$$\frac{e f x}{a d}+\frac{f^2 x^2}{2 a d}+\frac{2 b (e+f x)^2 \operatorname{ArcTan}\left[e^{c+d x}\right]}{a^2 d}-\frac{2 b^3 (e+f x)^2 \operatorname{ArcTan}\left[e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d}+\frac{4 b f (e+f x) \operatorname{ArcTanh}\left[e^{c+d x}\right]}{a^2 d^2}+\frac{2 (e+f x)^2 \operatorname{ArcTanh}\left[e^{2 c+2 d x}\right]}{a d}-$$
$$\frac{2 b^2 (e+f x)^2 \operatorname{ArcTanh}\left[e^{2 c+2 d x}\right]}{a^3 d}-\frac{f (e+f x) \operatorname{Coth}[c+d x]}{a d^2}-\frac{(e+f x)^2 \operatorname{Coth}[c+d x]^2}{2 a d}+\frac{b (e+f x)^2 \operatorname{Csch}[c+d x]}{a^2 d}-\frac{b^4 (e+f x)^2 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d}-$$
$$\frac{b^4 (e+f x)^2 \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d}+\frac{b^4 (e+f x)^2 \operatorname{Log}\left[1+e^{2 (c+d x)}\right]}{a^3 \left(a^2+b^2\right) d}+\frac{f^2 \operatorname{Log}[\operatorname{Sinh}[c+d x]]}{a d^3}+\frac{2 b f^2 \operatorname{PolyLog}\left[2,-e^{c+d x}\right]}{a^2 d^3}-$$
$$\frac{2 i b f (e+f x) \operatorname{PolyLog}\left[2,-i e^{c+d x}\right]}{a^2 d^2}+\frac{2 i b^3 f (e+f x) \operatorname{PolyLog}\left[2,-i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^2}+\frac{2 i b f (e+f x) \operatorname{PolyLog}\left[2,i e^{c+d x}\right]}{a^2 d^2}-$$
$$\frac{2 i b^3 f (e+f x) \operatorname{PolyLog}\left[2,i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^2}-\frac{2 b f^2 \operatorname{PolyLog}\left[2,e^{c+d x}\right]}{a^2 d^3}-\frac{2 b^4 f (e+f x) \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d^2}-\frac{2 b^4 f (e+f x) \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d^2}+$$
$$\frac{b^4 f (e+f x) \operatorname{PolyLog}\left[2,-e^{2 (c+d x)}\right]}{a^3 \left(a^2+b^2\right) d^2}+\frac{f (e+f x) \operatorname{PolyLog}\left[2,-e^{2 c+2 d x}\right]}{a d^2}-\frac{b^2 f (e+f x) \operatorname{PolyLog}\left[2,-e^{2 c+2 d x}\right]}{a^3 d^2}-$$
$$\frac{f (e+f x) \operatorname{PolyLog}\left[2,e^{2 c+2 d x}\right]}{a d^2}+\frac{b^2 f (e+f x) \operatorname{PolyLog}\left[2,e^{2 c+2 d x}\right]}{a^3 d^2}+\frac{2 i b f^2 \operatorname{PolyLog}\left[3,-i e^{c+d x}\right]}{a^2 d^3}-\frac{2 i b^3 f^2 \operatorname{PolyLog}\left[3,-i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^3}-$$
$$\frac{2 i b f^2 \operatorname{PolyLog}\left[3,i e^{c+d x}\right]}{a^2 d^3}+\frac{2 i b^3 f^2 \operatorname{PolyLog}\left[3,i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d^3}+\frac{2 b^4 f^2 \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d^3}+\frac{2 b^4 f^2 \operatorname{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right) d^3}-$$
$$\frac{b^4 f^2 \operatorname{PolyLog}\left[3,-e^{2 (c+d x)}\right]}{2 a^3 \left(a^2+b^2\right) d^3}-\frac{f^2 \operatorname{PolyLog}\left[3,-e^{2 c+2 d x}\right]}{2 a d^3}+\frac{b^2 f^2 \operatorname{PolyLog}\left[3,-e^{2 c+2 d x}\right]}{2 a^3 d^3}+\frac{f^2 \operatorname{PolyLog}\left[3,e^{2 c+2 d x}\right]}{2 a d^3}-\frac{b^2 f^2 \operatorname{PolyLog}\left[3,e^{2 c+2 d x}\right]}{2 a^3 d^3}$$

Result (type 4, 2726 leaves):

$$\frac{\left(-e^2-2 e f x-f^2 x^2\right) \operatorname{Csch}\left[\frac{c}{2}+\frac{d x}{2}\right]^2}{8 a d}+$$

$$\frac{1}{6\left(a^2+b^2\right) d^3 \left(1+\mathbb{e}^{2 c}\right)} \left(-12 a d^3 e^2 \mathbb{e}^{2 c} x+12 a d^3 e^2 \left(1+\mathbb{e}^{2 c}\right) x+12 a d^3 e f x^2+4 a d^3 f^2 x^3+12 b d^2 e^2 \left(1+\mathbb{e}^{2 c}\right) \text{ArcTan}\left[\mathbb{e}^{c+d x}\right]-6 a d^2 e^2 \left(1+\mathbb{e}^{2 c}\right)\right.$$
$$\left(2 d x-\text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]\right)+12 \mathbb{i} b d e \left(1+\mathbb{e}^{2 c}\right) f \left(d x \left(\text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]-\text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]\right)-\text{PolyLog}\left[2,-\mathbb{i} \mathbb{e}^{c+d x}\right]+\text{PolyLog}\left[2,\mathbb{i} \mathbb{e}^{c+d x}\right]\right)-$$
$$6 a d e \left(1+\mathbb{e}^{2 c}\right) f \left(2 d x \left(d x-\text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]\right)-\text{PolyLog}\left[2,-\mathbb{e}^{2 (c+d x)}\right]\right)+6 \mathbb{i} b \left(1+\mathbb{e}^{2 c}\right) f^2 \left(d^2 x^2 \text{Log}\left[1-\mathbb{i} \mathbb{e}^{c+d x}\right]-\right.$$
$$d^2 x^2 \text{Log}\left[1+\mathbb{i} \mathbb{e}^{c+d x}\right]-2 d x \text{PolyLog}\left[2,-\mathbb{i} \mathbb{e}^{c+d x}\right]+2 d x \text{PolyLog}\left[2,\mathbb{i} \mathbb{e}^{c+d x}\right]+2 \text{PolyLog}\left[3,-\mathbb{i} \mathbb{e}^{c+d x}\right]-2 \text{PolyLog}\left[3,\mathbb{i} \mathbb{e}^{c+d x}\right]\Big)-$$
$$\left.a \left(1+\mathbb{e}^{2 c}\right) f^2 \left(2 d^2 x^2 \left(2 d x-3 \text{Log}\left[1+\mathbb{e}^{2 (c+d x)}\right]\right)-6 d x \text{PolyLog}\left[2,-\mathbb{e}^{2 (c+d x)}\right]+3 \text{PolyLog}\left[3,-\mathbb{e}^{2 (c+d x)}\right]\right)\right)-$$

$$\frac{1}{6 a^3 d^3 \left(-1+\mathbb{e}^{2 c}\right)} \left(-12 a^2 d^3 e^2 \mathbb{e}^{2 c} x+12 b^2 d^3 e^2 \mathbb{e}^{2 c} x+12 a^2 d \mathbb{e}^{2 c} f^2 x-12 a^2 d^3 e \mathbb{e}^{2 c} f x^2+12 b^2 d^3 e \mathbb{e}^{2 c} f x^2-4 a^2 d^3 \mathbb{e}^{2 c} f^2 x^3+\right.$$
$$4 b^2 d^3 \mathbb{e}^{2 c} f^2 x^3+24 a b d e f \text{ArcTanh}\left[\mathbb{e}^{c+d x}\right]-24 a b d e \mathbb{e}^{2 c} f \text{ArcTanh}\left[\mathbb{e}^{c+d x}\right]-12 a b d f^2 x \text{Log}\left[1-\mathbb{e}^{c+d x}\right]+$$
$$12 a b d \mathbb{e}^{2 c} f^2 x \text{Log}\left[1-\mathbb{e}^{c+d x}\right]+12 a b d f^2 x \text{Log}\left[1+\mathbb{e}^{c+d x}\right]-12 a b d \mathbb{e}^{2 c} f^2 x \text{Log}\left[1+\mathbb{e}^{c+d x}\right]-6 a^2 d^2 e^2 \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]+$$
$$6 b^2 d^2 e^2 \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]+6 a^2 d^2 e^2 \mathbb{e}^{2 c} \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]-6 b^2 d^2 e^2 \mathbb{e}^{2 c} \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]+6 a^2 f^2 \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]-$$
$$6 a^2 \mathbb{e}^{2 c} f^2 \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]-12 a^2 d^2 e f x \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]+12 b^2 d^2 e f x \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]+12 a^2 d^2 e \mathbb{e}^{2 c} f x \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]-$$
$$12 b^2 d^2 e \mathbb{e}^{2 c} f x \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]-6 a^2 d^2 f^2 x^2 \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]+6 b^2 d^2 f^2 x^2 \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]+6 a^2 d^2 \mathbb{e}^{2 c} f^2 x^2 \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]-$$
$$6 b^2 d^2 \mathbb{e}^{2 c} f^2 x^2 \text{Log}\left[1-\mathbb{e}^{2 (c+d x)}\right]-12 a b \left(-1+\mathbb{e}^{2 c}\right) f^2 \text{PolyLog}\left[2,-\mathbb{e}^{c+d x}\right]+12 a b \left(-1+\mathbb{e}^{2 c}\right) f^2 \text{PolyLog}\left[2,\mathbb{e}^{c+d x}\right]-$$
$$6 a^2 d e f \text{PolyLog}\left[2,\mathbb{e}^{2 (c+d x)}\right]+6 b^2 d e f \text{PolyLog}\left[2,\mathbb{e}^{2 (c+d x)}\right]+6 a^2 d e \mathbb{e}^{2 c} f \text{PolyLog}\left[2,\mathbb{e}^{2 (c+d x)}\right]-6 b^2 d e \mathbb{e}^{2 c} f \text{PolyLog}\left[2,\mathbb{e}^{2 (c+d x)}\right]-$$
$$6 a^2 d f^2 x \text{PolyLog}\left[2,\mathbb{e}^{2 (c+d x)}\right]+6 b^2 d f^2 x \text{PolyLog}\left[2,\mathbb{e}^{2 (c+d x)}\right]+6 a^2 d \mathbb{e}^{2 c} f^2 x \text{PolyLog}\left[2,\mathbb{e}^{2 (c+d x)}\right]-6 b^2 d \mathbb{e}^{2 c} f^2 x \text{PolyLog}\left[2,\mathbb{e}^{2 (c+d x)}\right]+$$
$$\left.3 a^2 f^2 \text{PolyLog}\left[3,\mathbb{e}^{2 (c+d x)}\right]-3 b^2 f^2 \text{PolyLog}\left[3,\mathbb{e}^{2 (c+d x)}\right]-3 a^2 \mathbb{e}^{2 c} f^2 \text{PolyLog}\left[3,\mathbb{e}^{2 (c+d x)}\right]+3 b^2 \mathbb{e}^{2 c} f^2 \text{PolyLog}\left[3,\mathbb{e}^{2 (c+d x)}\right]\right)+$$

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

$$\frac{1}{6 a^2 \left(a^2+b^2\right) d}\left(-3 a^3 d e^2 x-3 a^3 d e f x^2-a^3 d f^2 x^3+3 a^2 b e^2 \text{Cosh}[c]+3 b^3 e^2 \text{Cosh}[c]+6 a^2 b e f x \text{Cosh}[c]+6 b^3 e f x \text{Cosh}[c]+3 a^2 b f^2 x^2 \text{Cosh}[c]+3 b^3 f^2 x^2 \text{Cosh}[c]\right) \text{Csch}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}\right] \text{Sech}[c]+\frac{\left(e^2+2 e f x+f^2 x^2\right) \text{Sech}\left[\frac{c}{2}+\frac{d x}{2}\right]^2}{8 a d}+\frac{1}{2 a^2 d^2}$$

$$\text{Sech}\left[\frac{c}{2}\right] \text{Sech}\left[\frac{c}{2}+\frac{d x}{2}\right] \left(-b d e^2 \text{Sinh}\left[\frac{d x}{2}\right]-a e f \text{Sinh}\left[\frac{d x}{2}\right]-2 b d e f x \text{Sinh}\left[\frac{d x}{2}\right]-a f^2 x \text{Sinh}\left[\frac{d x}{2}\right]-b d f^2 x^2 \text{Sinh}\left[\frac{d x}{2}\right]\right)+$$

$$\frac{1}{2 a^2 d^2}$$

$$\text{Csch}\left[\frac{c}{2}\right] \text{Csch}\left[\frac{c}{2}+\frac{d x}{2}\right]$$

$$\left(-b d e^2 \text{Sinh}\left[\frac{d x}{2}\right]+a e f \text{Sinh}\left[\frac{d x}{2}\right]-2 b d e f x \text{Sinh}\left[\frac{d x}{2}\right]+a f^2 x \text{Sinh}\left[\frac{d x}{2}\right]-b d f^2 x^2 \text{Sinh}\left[\frac{d x}{2}\right]\right)$$

Problem 495: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Csch}[c+d x]^3 \text{Sech}[c+d x]}{(e+f x) (a+b \text{Sinh}[c+d x])} \, dx$$

Optimal (type 9, 36 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Csch}[c+d x]^3 \text{Sech}[c+d x]}{(e+f x) (a+b \text{Sinh}[c+d x])}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 496: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x)^2 \text{Csch}[c+d x]^3 \text{Sech}[c+d x]^2}{a+b \text{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 1245 leaves, 88 steps):

$$\frac{2 b (e+f x)^2}{a^2 d}-\frac{b^3 (e+f x)^2}{a^2 (a^2+b^2) d}+\frac{4 f^2 x \text{ArcTan}[e^{c+d x}]}{a d^2}-\frac{4 b^2 f (e+f x) \text{ArcTan}[e^{c+d x}]}{a^3 d^2}+\frac{4 b^4 f (e+f x) \text{ArcTan}[e^{c+d x}]}{a^3 (a^2+b^2) d^2}+$$
$$\frac{2 e f \text{ArcTan}[\text{Sinh}[c+d x]]}{a d^2}+\frac{3 (e+f x)^2 \text{ArcTanh}[e^{c+d x}]}{a d}-\frac{2 b^2 (e+f x)^2 \text{ArcTanh}[e^{c+d x}]}{a^3 d}-\frac{f^2 \text{ArcTanh}[\text{Cosh}[c+d x]]}{a d^3}+$$
$$\frac{2 b (e+f x)^2 \text{Coth}[2 c+2 d x]}{a^2 d}-\frac{e f \text{Csch}[c+d x]}{a d^2}-\frac{f^2 x \text{Csch}[c+d x]}{a d^2}-\frac{b^5 (e+f x)^2 \text{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 (a^2+b^2)^{3/2} d}+\frac{b^5 (e+f x)^2 \text{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 (a^2+b^2)^{3/2} d}+$$
$$\frac{2 b^3 f (e+f x) \text{Log}[1+e^{2 (c+d x)}]}{a^2 (a^2+b^2) d^2}-\frac{2 b f (e+f x) \text{Log}[1-e^{4 (c+d x)}]}{a^2 d^2}+\frac{3 f (e+f x) \text{PolyLog}[2,-e^{c+d x}]}{a d^2}-\frac{2 b^2 f (e+f x) \text{PolyLog}[2,-e^{c+d x}]}{a^3 d^2}-$$
$$\frac{2 i f^2 \text{PolyLog}[2,-i e^{c+d x}]}{a d^3}+\frac{2 i b^2 f^2 \text{PolyLog}[2,-i e^{c+d x}]}{a^3 d^3}-\frac{2 i b^4 f^2 \text{PolyLog}[2,-i e^{c+d x}]}{a^3 (a^2+b^2) d^3}+\frac{2 i f^2 \text{PolyLog}[2,i e^{c+d x}]}{a d^3}-$$
$$\frac{2 i b^2 f^2 \text{PolyLog}[2,i e^{c+d x}]}{a^3 d^3}+\frac{2 i b^4 f^2 \text{PolyLog}[2,i e^{c+d x}]}{a^3 (a^2+b^2) d^3}-\frac{3 f (e+f x) \text{PolyLog}[2,e^{c+d x}]}{a d^2}+\frac{2 b^2 f (e+f x) \text{PolyLog}[2,e^{c+d x}]}{a^3 d^2}-$$
$$\frac{2 b^5 f (e+f x) \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 (a^2+b^2)^{3/2} d^2}+\frac{2 b^5 f (e+f x) \text{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 (a^2+b^2)^{3/2} d^2}+\frac{b^3 f^2 \text{PolyLog}[2,-e^{2 (c+d x)}]}{a^2 (a^2+b^2) d^3}-$$
$$\frac{b f^2 \text{PolyLog}[2,e^{4 (c+d x)}]}{2 a^2 d^3}-\frac{3 f^2 \text{PolyLog}[3,-e^{c+d x}]}{a d^3}+\frac{2 b^2 f^2 \text{PolyLog}[3,-e^{c+d x}]}{a^3 d^3}+\frac{3 f^2 \text{PolyLog}[3,e^{c+d x}]}{a d^3}-$$
$$\frac{2 b^2 f^2 \text{PolyLog}[3,e^{c+d x}]}{a^3 d^3}+\frac{2 b^5 f^2 \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 (a^2+b^2)^{3/2} d^3}-\frac{2 b^5 f^2 \text{PolyLog}\left[3,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 (a^2+b^2)^{3/2} d^3}-\frac{3 (e+f x)^2 \text{Sech}[c+d x]}{2 a d}+$$
$$\frac{b^2 (e+f x)^2 \text{Sech}[c+d x]}{a^3 d}-\frac{b^4 (e+f x)^2 \text{Sech}[c+d x]}{a^3 (a^2+b^2) d}-\frac{(e+f x)^2 \text{Csch}[c+d x]^2 \text{Sech}[c+d x]}{2 a d}-\frac{b^3 (e+f x)^2 \text{Tanh}[c+d x]}{a^2 (a^2+b^2) d}$$

Result (type 4, 2850 leaves):

$$\frac{1}{2 a^3 d^3 (-1+e^{2 c})} \Big(8 a b d^2 e e^{2 c} f x+4 a b d^2 e^{2 c} f^2 x^2-6 a^2 d^2 e^2 \text{ArcTanh}[e^{c+d x}]+4 b^2 d^2 e^2 \text{ArcTanh}[e^{c+d x}]+6 a^2 d^2 e^2 e^{2 c} \text{ArcTanh}[e^{c+d x}]-$$
$$4 b^2 d^2 e^2 e^{2 c} \text{ArcTanh}[e^{c+d x}]+4 a^2 f^2 \text{ArcTanh}[e^{c+d x}]-4 a^2 e^{2 c} f^2 \text{ArcTanh}[e^{c+d x}]+6 a^2 d^2 e f x \text{Log}[1-e^{c+d x}]-4 b^2 d^2 e f x \text{Log}[1-e^{c+d x}]-$$
$$6 a^2 d^2 e e^{2 c} f x \text{Log}[1-e^{c+d x}]+4 b^2 d^2 e e^{2 c} f x \text{Log}[1-e^{c+d x}]+3 a^2 d^2 f^2 x^2 \text{Log}[1-e^{c+d x}]-2 b^2 d^2 f^2 x^2 \text{Log}[1-e^{c+d x}]-$$
$$3 a^2 d^2 e^{2 c} f^2 x^2 \text{Log}[1-e^{c+d x}]+2 b^2 d^2 e^{2 c} f^2 x^2 \text{Log}[1-e^{c+d x}]-6 a^2 d^2 e f x \text{Log}[1+e^{c+d x}]+4 b^2 d^2 e f x \text{Log}[1+e^{c+d x}]+$$
$$6 a^2 d^2 e e^{2 c} f x \text{Log}[1+e^{c+d x}]-4 b^2 d^2 e e^{2 c} f x \text{Log}[1+e^{c+d x}]-3 a^2 d^2 f^2 x^2 \text{Log}[1+e^{c+d x}]+2 b^2 d^2 f^2 x^2 \text{Log}[1+e^{c+d x}]+$$
$$3 a^2 d^2 e^{2 c} f^2 x^2 \text{Log}[1+e^{c+d x}]-2 b^2 d^2 e^{2 c} f^2 x^2 \text{Log}[1+e^{c+d x}]+4 a b d e f \text{Log}[1-e^{2 (c+d x)}]-4 a b d e e^{2 c} f \text{Log}[1-e^{2 (c+d x)}]+$$
$$4 a b d f^2 x \text{Log}[1-e^{2 (c+d x)}]-4 a b d e^{2 c} f^2 x \text{Log}[1-e^{2 (c+d x)}]+2 (3 a^2-2 b^2) d (-1+e^{2 c}) f (e+f x) \text{PolyLog}[2,-e^{c+d x}]-$$
$$2 (3 a^2-2 b^2) d (-1+e^{2 c}) f (e+f x) \text{PolyLog}[2,e^{c+d x}]+2 a b f^2 \text{PolyLog}[2,e^{2 (c+d x)}]-2 a b e^{2 c} f^2 \text{PolyLog}[2,e^{2 (c+d x)}]+$$
$$6 a^2 f^2 \text{PolyLog}[3,-e^{c+d x}]-4 b^2 f^2 \text{PolyLog}[3,-e^{c+d x}]-6 a^2 e^{2 c} f^2 \text{PolyLog}[3,-e^{c+d x}]+4 b^2 e^{2 c} f^2 \text{PolyLog}[3,-e^{c+d x}]-$$

$$6\,a^2 f^2\,\text{PolyLog}\left[3,\,e^{c+d x}\right]+4\,b^2 f^2\,\text{PolyLog}\left[3,\,e^{c+d x}\right]+6\,a^2 e^{2c} f^2\,\text{PolyLog}\left[3,\,e^{c+d x}\right]-4\,b^2 e^{2c} f^2\,\text{PolyLog}\left[3,\,e^{c+d x}\right]\Big)-$$

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

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

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

$$\frac{2\,b\,e\,f\,\text{Sech}[c]\left(\text{Cosh}[c]\,\text{Log}[\text{Cosh}[c]\,\text{Cosh}[d x]+\text{Sinh}[c]\,\text{Sinh}[d x]]-d\,x\,\text{Sinh}[c]\right)}{\left(a^2+b^2\right)d^2\left(\text{Cosh}[c]^2-\text{Sinh}[c]^2\right)}+$$

$$\frac{4\,a\,e\,f\,\text{ArcTan}\left[\frac{\text{Sinh}[c]+\text{Cosh}[c]\,\text{Tanh}\left[\frac{d x}{2}\right]}{\sqrt{\text{Cosh}[c]^2-\text{Sinh}[c]^2}}\right]}{\left(a^2+b^2\right)d^2\sqrt{\text{Cosh}[c]^2-\text{Sinh}[c]^2}}+$$

$$\left(b\,f^2\,\text{Csch}[c]\left(-d^2\,e^{-\text{ArcTanh}[\text{Coth}[c]]}\,x^2+\frac{1}{\sqrt{1-\text{Coth}[c]^2}}\right.\right.$$

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

$$\left.\left.\pi\,\text{Log}[\text{Cosh}[d x]]+2\,i\,\text{ArcTanh}[\text{Coth}[c]]\,\text{Log}[i\,\text{Sinh}[d x+\text{ArcTanh}[\text{Coth}[c]]]]+i\,\text{PolyLog}\left[2,\,e^{2 i\,(i\,d x+i\,\text{ArcTanh}[\text{Coth}[c]])}\right]\right)\right)$$

$$\left.\text{Sech}[c]\right)\Big/\left(\left(a^2+b^2\right)d^3\sqrt{\text{Csch}[c]^2\left(-\text{Cosh}[c]^2+\text{Sinh}[c]^2\right)}\right)+\frac{1}{\left(a^2+b^2\right)d^3}$$

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

$$\mathrm{i}\left(\text{PolyLog}\left[2,-e^{-d\,x-\text{ArcTanh}[\text{Coth}[c]]}\right]-\text{PolyLog}\left[2,e^{-d\,x-\text{ArcTanh}[\text{Coth}[c]]}\right]\right)\right)-\frac{2\,\text{ArcTan}\left[\frac{\text{Sinh}[c]+\text{Cosh}[c]\,\text{Tanh}\left[\frac{d\,x}{2}\right]}{\sqrt{\text{Cosh}[c]^2-\text{Sinh}[c]^2}}\right]\,\text{ArcTanh}[\text{Coth}[c]]}{\sqrt{\text{Cosh}[c]^2-\text{Sinh}[c]^2}}\right)+$$

$$\frac{1}{16\,a^2\left(a^2+b^2\right)d^2}\text{Csch}[c]\,\text{Csch}[c+d\,x]^2\,\text{Sech}[c]\,\text{Sech}[c+d\,x]\,\left(2\,a^3\,e\,f\,\text{Cosh}[2\,d\,x]+2\,a\,b^2\,e\,f\,\text{Cosh}[2\,d\,x]+2\,a^3\,f^2\,x\,\text{Cosh}[2\,d\,x]+\right.$$
$$2\,a\,b^2\,f^2\,x\,\text{Cosh}[2\,d\,x]+4\,a^2\,b\,d\,e^2\,\text{Cosh}[c-d\,x]+8\,a^2\,b\,d\,e\,f\,x\,\text{Cosh}[c-d\,x]+4\,a^2\,b\,d\,f^2\,x^2\,\text{Cosh}[c-d\,x]+2\,b^3\,d\,e^2\,\text{Cosh}[c+d\,x]+$$
$$4\,b^3\,d\,e\,f\,x\,\text{Cosh}[c+d\,x]+2\,b^3\,d\,f^2\,x^2\,\text{Cosh}[c+d\,x]+2\,b^3\,d\,e^2\,\text{Cosh}[3\,c+d\,x]+4\,b^3\,d\,e\,f\,x\,\text{Cosh}[3\,c+d\,x]+2\,b^3\,d\,f^2\,x^2\,\text{Cosh}[3\,c+d\,x]-$$
$$2\,a^3\,e\,f\,\text{Cosh}[4\,c+2\,d\,x]-2\,a\,b^2\,e\,f\,\text{Cosh}[4\,c+2\,d\,x]-2\,a^3\,f^2\,x\,\text{Cosh}[4\,c+2\,d\,x]-2\,a\,b^2\,f^2\,x\,\text{Cosh}[4\,c+2\,d\,x]-$$
$$4\,a^2\,b\,d\,e^2\,\text{Cosh}[c+3\,d\,x]-2\,b^3\,d\,e^2\,\text{Cosh}[c+3\,d\,x]-8\,a^2\,b\,d\,e\,f\,x\,\text{Cosh}[c+3\,d\,x]-4\,b^3\,d\,e\,f\,x\,\text{Cosh}[c+3\,d\,x]-$$
$$4\,a^2\,b\,d\,f^2\,x^2\,\text{Cosh}[c+3\,d\,x]-2\,b^3\,d\,f^2\,x^2\,\text{Cosh}[c+3\,d\,x]-2\,b^3\,d\,e^2\,\text{Cosh}[3\,c+3\,d\,x]-4\,b^3\,d\,e\,f\,x\,\text{Cosh}[3\,c+3\,d\,x]-$$
$$2\,b^3\,d\,f^2\,x^2\,\text{Cosh}[3\,c+3\,d\,x]+2\,a^3\,d\,e^2\,\text{Sinh}[2\,c]-2\,a\,b^2\,d\,e^2\,\text{Sinh}[2\,c]+4\,a^3\,d\,e\,f\,x\,\text{Sinh}[2\,c]-4\,a\,b^2\,d\,e\,f\,x\,\text{Sinh}[2\,c]+$$
$$2\,a^3\,d\,f^2\,x^2\,\text{Sinh}[2\,c]-2\,a\,b^2\,d\,f^2\,x^2\,\text{Sinh}[2\,c]+3\,a^3\,d\,e^2\,\text{Sinh}[2\,d\,x]+a\,b^2\,d\,e^2\,\text{Sinh}[2\,d\,x]+6\,a^3\,d\,e\,f\,x\,\text{Sinh}[2\,d\,x]+$$
$$2\,a\,b^2\,d\,e\,f\,x\,\text{Sinh}[2\,d\,x]+3\,a^3\,d\,f^2\,x^2\,\text{Sinh}[2\,d\,x]+a\,b^2\,d\,f^2\,x^2\,\text{Sinh}[2\,d\,x]-3\,a^3\,d\,e^2\,\text{Sinh}[4\,c+2\,d\,x]-a\,b^2\,d\,e^2\,\text{Sinh}[4\,c+2\,d\,x]-$$
$$\left.6\,a^3\,d\,e\,f\,x\,\text{Sinh}[4\,c+2\,d\,x]-2\,a\,b^2\,d\,e\,f\,x\,\text{Sinh}[4\,c+2\,d\,x]-3\,a^3\,d\,f^2\,x^2\,\text{Sinh}[4\,c+2\,d\,x]-a\,b^2\,d\,f^2\,x^2\,\text{Sinh}[4\,c+2\,d\,x]\right)$$

Problem 497: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{(e+f\,x)\,\text{Csch}[c+d\,x]^3\,\text{Sech}[c+d\,x]^2}{a+b\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 4, 699 leaves, 44 steps):

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

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

$$\frac{b^2\,\left(e+f\,x\right)\,\text{ArcTanh}[\text{Cosh}[c+d\,x]]}{a^3\,d}+\frac{2\,b\,\left(e+f\,x\right)\,\text{Coth}[2\,c+2\,d\,x]}{a^2\,d}-\frac{f\,\text{Csch}[c+d\,x]}{2\,a\,d^2}-\frac{b^5\,\left(e+f\,x\right)\,\text{Log}\left[1+\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{a^3\,\left(a^2+b^2\right)^{3/2}\,d}+$$

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

$$\frac{3\,f\,\text{PolyLog}\left[2,\,e^{c+d\,x}\right]}{2\,a\,d^2}+\frac{b^2\,f\,\text{PolyLog}\left[2,\,e^{c+d\,x}\right]}{a^3\,d^2}-\frac{b^5\,f\,\text{PolyLog}\left[2,\,-\frac{b\,e^{c+d\,x}}{a-\sqrt{a^2+b^2}}\right]}{a^3\,\left(a^2+b^2\right)^{3/2}\,d^2}+\frac{b^5\,f\,\text{PolyLog}\left[2,\,-\frac{b\,e^{c+d\,x}}{a+\sqrt{a^2+b^2}}\right]}{a^3\,\left(a^2+b^2\right)^{3/2}\,d^2}-\frac{3\,\left(e+f\,x\right)\,\text{Sech}[c+d\,x]}{2\,a\,d}+$$

$$\frac{b^2\,\left(e+f\,x\right)\,\text{Sech}[c+d\,x]}{a^3\,d}-\frac{b^4\,\left(e+f\,x\right)\,\text{Sech}[c+d\,x]}{a^3\,\left(a^2+b^2\right)\,d}-\frac{\left(e+f\,x\right)\,\text{Csch}[c+d\,x]^2\,\text{Sech}[c+d\,x]}{2\,a\,d}-\frac{b^3\,\left(e+f\,x\right)\,\text{Tanh}[c+d\,x]}{a^2\,\left(a^2+b^2\right)\,d}$$

Result (type 4, 1012 leaves) :

$$\frac{f\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{(a-i b)\, d^2}+\frac{f\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right]}{(a+i b)\, d^2}+\frac{1}{4 a^2 d^2}$$

$$\left(2 b d e \,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]-a f\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]-2 b c f\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+2 b f (c+d x)\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]\right)\text{Csch}\left[\frac{1}{2}(c+d x)\right]+$$

$$\frac{(-d e+c f-f(c+d x))\,\text{Csch}\left[\frac{1}{2}(c+d x)\right]^2}{8 a d^2}+\frac{i f\,\text{Log}[\text{Cosh}[c+d x]]}{2 (a-i b)\, d^2}-\frac{i f\,\text{Log}[\text{Cosh}[c+d x]]}{2 (a+i b)\, d^2}-\frac{b f\,\text{Log}[\text{Sinh}[c+d x]]}{a^2 d^2}-$$

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

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

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

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

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

$$\frac{(-d e+c f-f(c+d x))\,\text{Sech}\left[\frac{1}{2}(c+d x)\right]^2}{8 a d^2}+\frac{1}{4 a^2 d^2}\text{Sech}\left[\frac{1}{2}(c+d x)\right]$$

$$\left(2 b d e\,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]+a f\,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]-2 b c f\,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]+2 b f (c+d x)\,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)+$$

$$\frac{1}{\left(a^2+b^2\right) d^2}\text{Sech}[c+d x]\,(-a d e+a c f-a f (c+d x)+b d e\,\text{Sinh}[c+d x]-b c f\,\text{Sinh}[c+d x]+b f (c+d x)\,\text{Sinh}[c+d x])$$

Problem 499: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Csch}[c+d x]^3\,\text{Sech}[c+d x]^2}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])}\,dx$$

Optimal (type 9, 38 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Csch}[c+d x]^3\,\text{Sech}[c+d x]^2}{(e+f x)\,(a+b\,\text{Sinh}[c+d x])},x\right]$$

Result (type 1, 1 leaves):

???

Problem 500: Result more than twice size of optimal antiderivative.

$$\int \frac{(e+f x) \operatorname{Csch}[c+d x]^3 \operatorname{Sech}[c+d x]^3}{a+b \operatorname{Sinh}[c+d x]} \, dx$$

Optimal (type 4, 1122 leaves, 65 steps):

$$\frac{b^2 f x}{2 a^3 d}+\frac{3 b f x \operatorname{ArcTan}\left[e^{c+d x}\right]}{a^2 d}-\frac{2 b^5 (e+f x) \operatorname{ArcTan}\left[e^{c+d x}\right]}{a^2 \left(a^2+b^2\right)^2 d}-\frac{b^3 (e+f x) \operatorname{ArcTan}\left[e^{c+d x}\right]}{a^2 \left(a^2+b^2\right) d}-\frac{3 b f x \operatorname{ArcTan}[\operatorname{Sinh}[c+d x]]}{2 a^2 d}+$$
$$\frac{3 b (e+f x) \operatorname{ArcTan}[\operatorname{Sinh}[c+d x]]}{2 a^2 d}-\frac{2 b^2 f x \operatorname{ArcTanh}\left[e^{2 c+2 d x}\right]}{a^3 d}+\frac{4 (e+f x) \operatorname{ArcTanh}\left[e^{2 c+2 d x}\right]}{a d}+\frac{b f \operatorname{ArcTanh}[\operatorname{Cosh}[c+d x]]}{a^2 d^2}+$$
$$\frac{3 b (e+f x) \operatorname{Csch}[c+d x]}{2 a^2 d}-\frac{f \operatorname{Csch}[2 c+2 d x]}{a d^2}-\frac{2 (e+f x) \operatorname{Coth}[2 c+2 d x] \operatorname{Csch}[2 c+2 d x]}{a d}-\frac{b^6 (e+f x) \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right)^2 d}-$$
$$\frac{b^6 (e+f x) \operatorname{Log}\left[1+\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right)^2 d}+\frac{b^6 (e+f x) \operatorname{Log}\left[1+e^{2 (c+d x)}\right]}{a^3 \left(a^2+b^2\right)^2 d}-\frac{b^2 f x \operatorname{Log}[\operatorname{Tanh}[c+d x]]}{a^3 d}+\frac{b^2 (e+f x) \operatorname{Log}[\operatorname{Tanh}[c+d x]]}{a^3 d}-$$
$$\frac{3 i b f \operatorname{PolyLog}\left[2,-i e^{c+d x}\right]}{2 a^2 d^2}+\frac{i b^5 f \operatorname{PolyLog}\left[2,-i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right)^2 d^2}+\frac{i b^3 f \operatorname{PolyLog}\left[2,-i e^{c+d x}\right]}{2 a^2 \left(a^2+b^2\right) d^2}+\frac{3 i b f \operatorname{PolyLog}\left[2,i e^{c+d x}\right]}{2 a^2 d^2}-$$
$$\frac{i b^5 f \operatorname{PolyLog}\left[2,i e^{c+d x}\right]}{a^2 \left(a^2+b^2\right)^2 d^2}-\frac{i b^3 f \operatorname{PolyLog}\left[2,i e^{c+d x}\right]}{2 a^2 \left(a^2+b^2\right) d^2}-\frac{b^6 f \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a-\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right)^2 d^2}-\frac{b^6 f \operatorname{PolyLog}\left[2,-\frac{b e^{c+d x}}{a+\sqrt{a^2+b^2}}\right]}{a^3 \left(a^2+b^2\right)^2 d^2}+$$
$$\frac{b^6 f \operatorname{PolyLog}\left[2,-e^{2 (c+d x)}\right]}{2 a^3 \left(a^2+b^2\right)^2 d^2}+\frac{f \operatorname{PolyLog}\left[2,-e^{2 c+2 d x}\right]}{a d^2}-\frac{b^2 f \operatorname{PolyLog}\left[2,-e^{2 c+2 d x}\right]}{2 a^3 d^2}-\frac{f \operatorname{PolyLog}\left[2,e^{2 c+2 d x}\right]}{a d^2}+$$
$$\frac{b^2 f \operatorname{PolyLog}\left[2,e^{2 c+2 d x}\right]}{2 a^3 d^2}+\frac{b f \operatorname{Sech}[c+d x]}{2 a^2 d^2}-\frac{b^3 f \operatorname{Sech}[c+d x]}{2 a^2 \left(a^2+b^2\right) d^2}-\frac{b^4 (e+f x) \operatorname{Sech}[c+d x]^2}{2 a^3 \left(a^2+b^2\right) d}-\frac{b (e+f x) \operatorname{Csch}[c+d x] \operatorname{Sech}[c+d x]^2}{2 a^2 d}-$$
$$\frac{b^2 f \operatorname{Tanh}[c+d x]}{2 a^3 d^2}+\frac{b^4 f \operatorname{Tanh}[c+d x]}{2 a^3 \left(a^2+b^2\right) d^2}-\frac{b^3 (e+f x) \operatorname{Sech}[c+d x] \operatorname{Tanh}[c+d x]}{2 a^2 \left(a^2+b^2\right) d}-\frac{b^2 (e+f x) \operatorname{Tanh}[c+d x]^2}{2 a^3 d}$$

Result (type 4, 3282 leaves):

$$8 \left(\frac{i \left(2 a^6+3 a^4 b^2+b^6\right) (d e-c f) (c+d x)}{16 a^3 \left(a^2+b^2\right)^2 d^2}+\frac{i \left(2 a^6+3 a^4 b^2+b^6\right) f (c+d x)^2}{32 a^3 \left(a^2+b^2\right)^2 d^2}+\frac{a^3 e \operatorname{ArcTanh}\left[1-2 i \operatorname{Tanh}\left[\frac{1}{2} (c+d x)\right]\right]}{2 \left(a^2+b^2\right)^2 d}+\right.$$

$$\frac{3\,a\,b^2\,e\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{4\,(a^2+b^2)^2\,d}-\frac{b^6\,e\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{4\,a^3\,(a^2+b^2)^2\,d}-\frac{a^3\,c\,f\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,(a^2+b^2)^2\,d^2}-$$

$$\frac{3\,a\,b^2\,c\,f\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{4\,(a^2+b^2)^2\,d^2}+\frac{b^6\,c\,f\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{4\,a^3\,(a^2+b^2)^2\,d^2}-\frac{e\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{4\,a\,d}+$$

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

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

$$\frac{a^3\,c\,f\left(-\frac{1}{2}\,i\,(c+d\,x)+\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)}{4\,(a^2+b^2)^2\,d^2}-\frac{3\,a\,b^2\,c\,f\left(-\frac{1}{2}\,i\,(c+d\,x)+\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)}{8\,(a^2+b^2)^2\,d^2}-$$

$$\frac{b\,f\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,a^2\,d^2}+\frac{b^6\,e\left(-i\,(c+d\,x)+2\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\text{Log}[-1+\text{Cosh}[c+d\,x]+i\,\text{Sinh}[c+d\,x]]\right)}{16\,a^3\,(a^2+b^2)^2\,d}-$$

$$\frac{b^6\,c\,f\left(-i\,(c+d\,x)+2\,\text{ArcTanh}\left[1-2\,i\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\text{Log}[-1+\text{Cosh}[c+d\,x]+i\,\text{Sinh}[c+d\,x]]\right)}{16\,a^3\,(a^2+b^2)^2\,d^2}-\frac{b^6\,e\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]}{8\,a^3\,(a^2+b^2)^2\,d}+$$

$$\frac{b^6\,c\,f\,\text{Log}\left[1+\frac{b\,\text{Sinh}[c+d\,x]}{a}\right]}{8\,a^3\,(a^2+b^2)^2\,d^2}-\frac{i\,f\left(-\frac{1}{8}\,i\,(c+d\,x)^2-\frac{1}{2}\,i\,(c+d\,x)\,\text{Log}\left[1+e^{-c-d\,x}\right]+\frac{1}{2}\,i\,\text{PolyLog}\left[2,-e^{-c-d\,x}\right]\right)}{2\,a\,d^2}+$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\frac{1}{8\,a^3\,(a^2+b^2)^2\,d^2}\,b^7\,f\left(\frac{(c+d\,x)\,\text{Log}[a+b\,\text{Sinh}[c+d\,x]]}{b}-\frac{1}{b}\,i\left(\frac{1}{2}\,i\left(\frac{\pi}{2}-i\,(c+d\,x)\right)^2-4\,i\,\text{ArcSin}\left[\frac{\sqrt{\frac{i\,(a-i\,b)}{b}}}{\sqrt{2}}\right]\right.\right.$$

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

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

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

$$b \left(3 a^2+5 b^2\right) \left(2 \left(d e-c f+f (c+d x)\right) \text{ArcTan}[\text{Cosh}[c+d x]+\text{Sinh}[c+d x]] - i f \text{PolyLog}\left[2, -i \left(\text{Cosh}[c+d x]+\text{Sinh}[c+d x]\right)\right] + i f \text{PolyLog}\left[2, i \left(\text{Cosh}[c+d x]+\text{Sinh}[c+d x]\right)\right]\right) +$$

$$\frac{1}{128 a^2 \left(a^2+b^2\right) d^2} \text{Csch}[c+d x]^2 \text{Sech}[c+d x]^2 \Big(-4 a b^2 d e+4 a b^2 c f-4 a b^2 f (c+d x)-2 a^2 b f \text{Cosh}[c+d x]-$$
$$8 a^3 d e \text{Cosh}[2 (c+d x)]-4 a b^2 d e \text{Cosh}[2 (c+d x)]+8 a^3 c f \text{Cosh}[2 (c+d x)]+4 a b^2 c f \text{Cosh}[2 (c+d x)]-$$
$$8 a^3 f (c+d x) \text{Cosh}[2 (c+d x)]-4 a b^2 f (c+d x) \text{Cosh}[2 (c+d x)]+2 a^2 b f \text{Cosh}[3 (c+d x)]-2 a^2 b d e \text{Sinh}[c+d x]+$$
$$4 b^3 d e \text{Sinh}[c+d x]+2 a^2 b c f \text{Sinh}[c+d x]-4 b^3 c f \text{Sinh}[c+d x]-2 a^2 b f (c+d x) \text{Sinh}[c+d x]+4 b^3 f (c+d x) \text{Sinh}[c+d x]-$$
$$4 a^3 f \text{Sinh}[2 (c+d x)]-2 a b^2 f \text{Sinh}[2 (c+d x)]+6 a^2 b d e \text{Sinh}[3 (c+d x)]+4 b^3 d e \text{Sinh}[3 (c+d x)]-6 a^2 b c f \text{Sinh}[3 (c+d x)]-$$
$$4 b^3 c f \text{Sinh}[3 (c+d x)]+6 a^2 b f (c+d x) \text{Sinh}[3 (c+d x)]+4 b^3 f (c+d x) \text{Sinh}[3 (c+d x)]-a b^2 f \text{Sinh}[4 (c+d x)]\Big)\Bigg)$$

Problem 502: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Csch}[c+d x]^3 \text{Sech}[c+d x]^3}{(e+f x) (a+b \text{Sinh}[c+d x])} \, dx$$

Optimal (type 9, 38 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Csch}[c+d x]^3 \text{Sech}[c+d x]^3}{(e+f x) (a+b \text{Sinh}[c+d x])}, x\right]$$

Result (type 1, 1 leaves):

???

Test results for the 102 problems in "6.1.3 (e x)^m (a+b sinh(c+d x^n))^p.m"

Problem 3: Result more than twice size of optimal antiderivative.

$$\int x \text{Sinh}\left[a+b x^2\right] dx$$

Optimal (type 3, 15 leaves, 2 steps):

$$\frac{\text{Cosh}\left[a+b x^2\right]}{2 b}$$

Result (type 3, 31 leaves):

$$\frac{\text{Cosh}[a]\,\text{Cosh}\left[b x^2\right]}{2 b}+\frac{\text{Sinh}[a]\,\text{Sinh}\left[b x^2\right]}{2 b}$$

Problem 24: Result more than twice size of optimal antiderivative.

$$\int (e x)^m\,\text{Sinh}\left[a+b x^2\right]^3\,dx$$

Optimal (type 4, 214 leaves, 8 steps):

$$-\frac{3^{-\frac{1}{2}-\frac{m}{2}}\,e^{3 a}\,(e x)^{1+m}\,\left(-b x^2\right)^{\frac{1}{2}(-1-m)}\,\text{Gamma}\left[\frac{1+m}{2},-3 b x^2\right]}{16 e}+\frac{3\,e^{a}\,(e x)^{1+m}\,\left(-b x^2\right)^{\frac{1}{2}(-1-m)}\,\text{Gamma}\left[\frac{1+m}{2},-b x^2\right]}{16 e}-\frac{3\,e^{-a}\,(e x)^{1+m}\,\left(b x^2\right)^{\frac{1}{2}(-1-m)}\,\text{Gamma}\left[\frac{1+m}{2},b x^2\right]}{16 e}+\frac{3^{-\frac{1}{2}-\frac{m}{2}}\,e^{-3 a}\,(e x)^{1+m}\,\left(b x^2\right)^{\frac{1}{2}(-1-m)}\,\text{Gamma}\left[\frac{1+m}{2},3 b x^2\right]}{16 e}$$

Result (type 4, 735 leaves):

$$x^{-m}\,(e x)^m\,\text{Cosh}[a]^3\left(-\frac{3}{8}\left(-\frac{1}{2}x^{1+m}\left(-b x^2\right)^{\frac{1}{2}(-1-m)}\text{Gamma}\left[\frac{1+m}{2},-b x^2\right]+\frac{1}{2}x^{1+m}\left(b x^2\right)^{\frac{1}{2}(-1-m)}\text{Gamma}\left[\frac{1+m}{2},b x^2\right]\right)+\frac{1}{8}\left(-\frac{1}{2}\times 3^{\frac{1}{2}(-1-m)}x^{1+m}\left(-b x^2\right)^{\frac{1}{2}(-1-m)}\text{Gamma}\left[\frac{1+m}{2},-3 b x^2\right]+\frac{1}{2}\times 3^{\frac{1}{2}(-1-m)}x^{1+m}\left(b x^2\right)^{\frac{1}{2}(-1-m)}\text{Gamma}\left[\frac{1+m}{2},3 b x^2\right]\right)\right)+\frac{1}{16}\times 3^{\frac{1}{2}-\frac{m}{2}}x\,(e x)^m\left(-b^2 x^4\right)^{\frac{1}{2}(-1-m)}\text{Cosh}[a]^2\left(-\left(b x^2\right)^{\frac{1+m}{2}}\text{Gamma}\left[\frac{1+m}{2},-3 b x^2\right]+3^{\frac{1+m}{2}}\left(b x^2\right)^{\frac{1+m}{2}}\text{Gamma}\left[\frac{1+m}{2},-b x^2\right]+\left(-b x^2\right)^{\frac{1+m}{2}}\left(3^{\frac{1+m}{2}}\text{Gamma}\left[\frac{1+m}{2},b x^2\right]-\text{Gamma}\left[\frac{1+m}{2},3 b x^2\right]\right)\right)\text{Sinh}[a]-\frac{1}{16}\times 3^{\frac{1}{2}-\frac{m}{2}}x\,(e x)^m\left(-b^2 x^4\right)^{\frac{1}{2}(-1-m)}\text{Cosh}[a]\left(\left(b x^2\right)^{\frac{1+m}{2}}\text{Gamma}\left[\frac{1+m}{2},-3 b x^2\right]+3^{\frac{1+m}{2}}\left(b x^2\right)^{\frac{1+m}{2}}\text{Gamma}\left[\frac{1+m}{2},-b x^2\right]-\left(-b x^2\right)^{\frac{1+m}{2}}\left(3^{\frac{1+m}{2}}\text{Gamma}\left[\frac{1+m}{2},b x^2\right]+\text{Gamma}\left[\frac{1+m}{2},3 b x^2\right]\right)\right)\text{Sinh}[a]^2+x^{-m}\,(e x)^m\left(\frac{3}{8}\left(-\frac{1}{2}x^{1+m}\left(-b x^2\right)^{\frac{1}{2}(-1-m)}\text{Gamma}\left[\frac{1+m}{2},-b x^2\right]-\frac{1}{2}x^{1+m}\left(b x^2\right)^{\frac{1}{2}(-1-m)}\text{Gamma}\left[\frac{1+m}{2},b x^2\right]\right)+\frac{1}{8}\left(-\frac{1}{2}\times 3^{\frac{1}{2}(-1-m)}x^{1+m}\left(-b x^2\right)^{\frac{1}{2}(-1-m)}\text{Gamma}\left[\frac{1+m}{2},-3 b x^2\right]-\frac{1}{2}\times 3^{\frac{1}{2}(-1-m)}x^{1+m}\left(b x^2\right)^{\frac{1}{2}(-1-m)}\text{Gamma}\left[\frac{1+m}{2},3 b x^2\right]\right)\right)\text{Sinh}[a]^3$$

Problem 37: Attempted integration timed out after 120 seconds.

$$\int (e\,x)^m \operatorname{Sinh}\left[a+\frac{b}{x}\right]^3 dx$$

Optimal (type 4, 146 leaves, 9 steps):

$$-\frac{1}{8}\times 3^{1+m}\, b\, e^{3a}\left(-\frac{b}{x}\right)^m (e\,x)^m \operatorname{Gamma}\left[-1-m,-\frac{3b}{x}\right]+\frac{3}{8}\, b\, e^{a}\left(-\frac{b}{x}\right)^m (e\,x)^m \operatorname{Gamma}\left[-1-m,-\frac{b}{x}\right]+\frac{3}{8}\, b\, e^{-a}\left(\frac{b}{x}\right)^m (e\,x)^m \operatorname{Gamma}\left[-1-m,\frac{b}{x}\right]-\frac{1}{8}\times 3^{1+m}\, b\, e^{-3a}\left(\frac{b}{x}\right)^m (e\,x)^m \operatorname{Gamma}\left[-1-m,\frac{3b}{x}\right]$$

Result (type 1, 1 leaves):

???

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

$$\int (e\,x)^m \operatorname{Sinh}\left[a+\frac{b}{x^2}\right]^3 dx$$

Optimal (type 4, 194 leaves, 9 steps):

$$\frac{1}{16}\times 3^{\frac{1+m}{2}}\, e^{3a}\left(-\frac{b}{x^2}\right)^{\frac{1+m}{2}} x\,(e\,x)^m \operatorname{Gamma}\left[\frac{1}{2}(-1-m),-\frac{3b}{x^2}\right]-\frac{3}{16}\, e^{a}\left(-\frac{b}{x^2}\right)^{\frac{1+m}{2}} x\,(e\,x)^m \operatorname{Gamma}\left[\frac{1}{2}(-1-m),-\frac{b}{x^2}\right]+\frac{3}{16}\, e^{-a}\left(\frac{b}{x^2}\right)^{\frac{1+m}{2}} x\,(e\,x)^m \operatorname{Gamma}\left[\frac{1}{2}(-1-m),\frac{b}{x^2}\right]-\frac{1}{16}\times 3^{\frac{1+m}{2}}\, e^{-3a}\left(\frac{b}{x^2}\right)^{\frac{1+m}{2}} x\,(e\,x)^m \operatorname{Gamma}\left[\frac{1}{2}(-1-m),\frac{3b}{x^2}\right]$$

Result (type 4, 1291 leaves):

$$x^{-m}(e\,x)^m \operatorname{Cosh}[a]^3\left(-\frac{3}{8}\left(\frac{1}{2}\left(-\frac{b}{x^2}\right)^{\frac{1+m}{2}} x^{1+m}\operatorname{Gamma}\left[\frac{1}{2}(-1-m),-\frac{b}{x^2}\right]-\frac{1}{2}\left(\frac{b}{x^2}\right)^{\frac{1+m}{2}} x^{1+m}\operatorname{Gamma}\left[\frac{1}{2}(-1-m),\frac{b}{x^2}\right]\right)+\frac{1}{8}\left(\frac{1}{2}\times 3^{\frac{1+m}{2}}\left(-\frac{b}{x^2}\right)^{\frac{1+m}{2}} x^{1+m}\operatorname{Gamma}\left[\frac{1}{2}(-1-m),-\frac{3b}{x^2}\right]-\frac{1}{2}\times 3^{\frac{1+m}{2}}\left(\frac{b}{x^2}\right)^{\frac{1+m}{2}} x^{1+m}\operatorname{Gamma}\left[\frac{1}{2}(-1-m),\frac{3b}{x^2}\right]\right)\right)+$$

$$\frac{1}{16\sqrt{-\frac{b^2}{x^4}}\,x}\,3\,(e\,x)^m \operatorname{Cosh}[a]^2\left(-4\sqrt{-\frac{b^2}{x^4}}\,x^2\operatorname{Cosh}\left[\frac{b}{x^2}\right]+4\sqrt{-\frac{b^2}{x^4}}\,x^2\operatorname{Cosh}\left[\frac{3b}{x^2}\right]+3^{\frac{1+m}{2}}\, b\, m\left(-\frac{b}{x^2}\right)^{m/2}\sqrt{\frac{b}{x^2}}\operatorname{Gamma}\left[\frac{1}{2}(-1-m),-\frac{3b}{x^2}\right]-\right.$$

$$b\,m\left(-\frac{b}{x^2}\right)^{m/2}\sqrt{\frac{b}{x^2}}\operatorname{Gamma}\left[\frac{1}{2}(-1-m),-\frac{b}{x^2}\right]+b\,m\sqrt{-\frac{b}{x^2}}\left(\frac{b}{x^2}\right)^{m/2}\operatorname{Gamma}\left[\frac{1}{2}(-1-m),\frac{b}{x^2}\right]-$$

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

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

$$x^{-m} (e\, x)^m \left(\frac{3}{8}\left(\frac{1}{2}\left(-\frac{b}{x^2}\right)^{\frac{1+m}{2}} x^{1+m}\, \text{Gamma}\left[\frac{1}{2}(-1-m), -\frac{b}{x^2}\right] + \frac{1}{2}\left(\frac{b}{x^2}\right)^{\frac{1+m}{2}} x^{1+m}\, \text{Gamma}\left[\frac{1}{2}(-1-m), \frac{b}{x^2}\right]\right) +\right.$$

$$\left.\frac{1}{8}\left(\frac{1}{2}\times 3^{\frac{1+m}{2}}\left(-\frac{b}{x^2}\right)^{\frac{1+m}{2}} x^{1+m}\, \text{Gamma}\left[\frac{1}{2}(-1-m), -\frac{3 b}{x^2}\right] + \frac{1}{2}\times 3^{\frac{1+m}{2}}\left(\frac{b}{x^2}\right)^{\frac{1+m}{2}} x^{1+m}\, \text{Gamma}\left[\frac{1}{2}(-1-m), \frac{3 b}{x^2}\right]\right)\right) \text{Sinh}[a]^3 +$$

$$3\times 2^{1+m} x^{-m} (e\, x)^m\, \text{Cosh}[a]\, \text{Sinh}[a]^2 \Bigg(2^{-6-2m} x^{1+m} \Bigg(-2^{1+m} m \left(-\frac{b}{x^2}\right)^{\frac{1+m}{2}} \text{Gamma}\left[\frac{1}{2}(-1-m), -\frac{b}{x^2}\right] + 2^{1+m} m \left(\frac{b}{x^2}\right)^{\frac{1+m}{2}} \text{Gamma}\left[\frac{1}{2}(-1-m), \frac{b}{x^2}\right] -$$

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

$$2^{-6-2m} x^{-1+m} \Bigg(2^{1+m}\times 3^{\frac{1+m}{2}} b\, m \left(-\frac{b}{x^2}\right)^{m/2} \sqrt{\frac{b}{x^2}}\, \text{Gamma}\left[\frac{1}{2}(-1-m), -\frac{3 b}{x^2}\right] + 2^{1+m}\times 3^{\frac{1+m}{2}} b\, m \sqrt{-\frac{b}{x^2}} \left(\frac{b}{x^2}\right)^{m/2} \text{Gamma}\left[\frac{1}{2}(-1-m), \frac{3 b}{x^2}\right] +$$

$$2^{2+m}\times 3^{\frac{1+m}{2}} b \left(-\frac{b}{x^2}\right)^{m/2} \sqrt{\frac{b}{x^2}}\, \text{Gamma}\left[\frac{1-m}{2}, -\frac{3 b}{x^2}\right] + 2^{2+m}\times 3^{\frac{1+m}{2}} b \sqrt{-\frac{b}{x^2}} \left(\frac{b}{x^2}\right)^{m/2} \text{Gamma}\left[\frac{1-m}{2}, \frac{3 b}{x^2}\right] + 2^{3+m} \sqrt{-\frac{b^2}{x^4}}\, x^2\, \text{Sinh}\left[\frac{3 b}{x^2}\right]\Bigg)\Bigg)$$

Problem 101: Result is not expressed in closed-form.

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

Optimal (type 4, 232 leaves, 13 steps):

$$\text{CoshIntegral}\left[b\left(c^{1/3}-(c+d\,x)^{1/3}\right)\right]\text{Sinh}\left[a+b\,c^{1/3}\right]+\text{CoshIntegral}\left[b\left((-1)^{1/3}c^{1/3}+(c+d\,x)^{1/3}\right)\right]\text{Sinh}\left[a-(-1)^{1/3}b\,c^{1/3}\right]+$$
$$\text{CoshIntegral}\left[-b\left((-1)^{2/3}c^{1/3}-(c+d\,x)^{1/3}\right)\right]\text{Sinh}\left[a+(-1)^{2/3}b\,c^{1/3}\right]-\text{Cosh}\left[a+b\,c^{1/3}\right]\text{SinhIntegral}\left[b\left(c^{1/3}-(c+d\,x)^{1/3}\right)\right]-$$
$$\text{Cosh}\left[a+(-1)^{2/3}b\,c^{1/3}\right]\text{SinhIntegral}\left[b\left((-1)^{2/3}c^{1/3}-(c+d\,x)^{1/3}\right)\right]+\text{Cosh}\left[a-(-1)^{1/3}b\,c^{1/3}\right]\text{SinhIntegral}\left[b\left((-1)^{1/3}c^{1/3}+(c+d\,x)^{1/3}\right)\right]$$

Result (type 7, 233 leaves):

$$\frac{1}{2}\Big(-\text{RootSum}\Big[c-\#1^3\,\&,\ \text{Cosh}[a+b\,\#1]\,\text{CoshIntegral}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]-\text{CoshIntegral}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]\text{Sinh}[a+b\,\#1]-$$
$$\text{Cosh}[a+b\,\#1]\,\text{SinhIntegral}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]+\text{Sinh}[a+b\,\#1]\,\text{SinhIntegral}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]\,\&\Big]+$$
$$\text{RootSum}\Big[c-\#1^3\,\&,\ \text{Cosh}[a+b\,\#1]\,\text{CoshIntegral}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]+\text{CoshIntegral}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]\text{Sinh}[a+b\,\#1]+$$
$$\text{Cosh}[a+b\,\#1]\,\text{SinhIntegral}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]+\text{Sinh}[a+b\,\#1]\,\text{SinhIntegral}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]\,\&\Big]\Big)$$

Problem 102: Result is not expressed in closed-form.

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

Optimal (type 4, 329 leaves, 14 steps):

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

Result (type 7, 210 leaves):

$$\frac{1}{6\,x}\Bigg(b\,d\,x\,\text{RootSum}\Big[c-\#1^3\,\&,\ \frac{e^{a+b\,\#1}\,\text{ExpIntegralEi}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]}{\#1^2}\,\&\Big]+e^{-a}\Big(3\,e^{-b\,(c+d\,x)^{1/3}}-3\,e^{2\,a+b\,(c+d\,x)^{1/3}}+$$
$$b\,d\,x\,\text{RootSum}\Big[c-\#1^3\,\&,\ \frac{1}{\#1^2}\Big(\text{Cosh}[b\,\#1]\,\text{CoshIntegral}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]-\text{CoshIntegral}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]\text{Sinh}[b\,\#1]-$$
$$\text{Cosh}[b\,\#1]\,\text{SinhIntegral}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]+\text{Sinh}[b\,\#1]\,\text{SinhIntegral}\left[b\left((c+d\,x)^{1/3}-\#1\right)\right]\Big)\,\&\Big]\Big)\Bigg)$$

Test results for the 33 problems in "6.1.4 (d+e x)^m sinh(a+b x+c x^2)^n.m"

Problem 19: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Sinh}\left[a+b\,x+c\,x^2\right]^2}{x}\,dx$$

Optimal (type 9, 32 leaves, 2 steps):

$$-\frac{\text{Log}[x]}{2}+\frac{1}{2}\,\text{Unintegrable}\left[\frac{\text{Cosh}\left[2\,a+2\,b\,x+2\,c\,x^2\right]}{x},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 23: Attempted integration timed out after 120 seconds.

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

Optimal (type 9, 32 leaves, 2 steps):

$$-\frac{\text{Log}[x]}{2}+\frac{1}{2}\,\text{Unintegrable}\left[\frac{\text{Cosh}\left[2\,a+2\,b\,x-2\,c\,x^2\right]}{x},\,x\right]$$

Result (type 1, 1 leaves):

???

Test results for the 369 problems in "6.1.5 Hyperbolic sine functions.m"

Problem 1: Result more than twice size of optimal antiderivative.

$$\int \text{Sinh}[a+b\,x]\,dx$$

Optimal (type 3, 10 leaves, 1 step):

$$\frac{\text{Cosh}[a+b\,x]}{b}$$

Result (type 3, 21 leaves):

$$\frac{\text{Cosh}[a]\ \text{Cosh}[b\ x]}{b}+\frac{\text{Sinh}[a]\ \text{Sinh}[b\ x]}{b}$$

Problem 43: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sinh}[x]}{i+\text{Sinh}[x]}\,dx$$

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

$$x-\frac{\text{Cosh}[x]}{i+\text{Sinh}[x]}$$

Result (type 3, 29 leaves):

$$x-\frac{2\ \text{Sinh}\left[\frac{x}{2}\right]}{\text{Cosh}\left[\frac{x}{2}\right]-i\ \text{Sinh}\left[\frac{x}{2}\right]}$$

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

$$\int \frac{\text{Csch}[x]}{i+\text{Sinh}[x]}\,dx$$

Optimal (type 3, 19 leaves, 3 steps):

$$i\ \text{ArcTanh}[\text{Cosh}[x]]+\frac{\text{Cosh}[x]}{i+\text{Sinh}[x]}$$

Result (type 3, 50 leaves):

$$i\ \text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right]-i\ \text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right]+\frac{2\ \text{Sinh}\left[\frac{x}{2}\right]}{\text{Cosh}\left[\frac{x}{2}\right]-i\ \text{Sinh}\left[\frac{x}{2}\right]}$$

Problem 45: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csch}[x]^2}{i+\text{Sinh}[x]}\,dx$$

Optimal (type 3, 23 leaves, 5 steps):

$$-\text{ArcTanh}[\text{Cosh}[x]]+2\ i\ \text{Coth}[x]+\frac{\text{Coth}[x]}{i+\text{Sinh}[x]}$$

Result (type 3, 70 leaves):

$$\frac{1}{2}\, i\, \text{Coth}\left[\frac{x}{2}\right]-\text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right]+\frac{2\, i\, \text{Sinh}\left[\frac{x}{2}\right]}{\text{Cosh}\left[\frac{x}{2}\right]-i\, \text{Sinh}\left[\frac{x}{2}\right]}+\frac{1}{2}\, i\, \text{Tanh}\left[\frac{x}{2}\right]$$

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

$$\int \frac{\text{Csch}[x]^3}{i+\text{Sinh}[x]}\, dx$$

Optimal (type 3, 37 leaves, 6 steps):

$$-\frac{3}{2}\, i\, \text{ArcTanh}[\text{Cosh}[x]]-2\, \text{Coth}[x]+\frac{3}{2}\, i\, \text{Coth}[x]\, \text{Csch}[x]+\frac{\text{Coth}[x]\, \text{Csch}[x]}{i+\text{Sinh}[x]}$$

Result (type 3, 94 leaves):

$$\frac{1}{8}\left(-4\, \text{Coth}\left[\frac{x}{2}\right]+i\, \text{Csch}\left[\frac{x}{2}\right]^2-12\, i\, \text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right]+12\, i\, \text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right]+i\, \text{Sech}\left[\frac{x}{2}\right]^2-\frac{16\, \text{Sinh}\left[\frac{x}{2}\right]}{\text{Cosh}\left[\frac{x}{2}\right]-i\, \text{Sinh}\left[\frac{x}{2}\right]}-4\, \text{Tanh}\left[\frac{x}{2}\right]\right)$$

Problem 47: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csch}[x]^4}{i+\text{Sinh}[x]}\, dx$$

Optimal (type 3, 47 leaves, 6 steps):

$$\frac{3}{2}\, \text{ArcTanh}[\text{Cosh}[x]]-4\, i\, \text{Coth}[x]+\frac{4}{3}\, i\, \text{Coth}[x]^3-\frac{3}{2}\, \text{Coth}[x]\, \text{Csch}[x]+\frac{\text{Coth}[x]\, \text{Csch}[x]^2}{i+\text{Sinh}[x]}$$

Result (type 3, 124 leaves):

$$\frac{1}{24}\left(-20\, i\, \text{Coth}\left[\frac{x}{2}\right]-3\, \text{Csch}\left[\frac{x}{2}\right]^2+36\, \text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right]-36\, \text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right]-\right.$$

$$\left.3\, \text{Sech}\left[\frac{x}{2}\right]^2-\frac{48\, i\, \text{Sinh}\left[\frac{x}{2}\right]}{\text{Cosh}\left[\frac{x}{2}\right]-i\, \text{Sinh}\left[\frac{x}{2}\right]}-8\, i\, \text{Csch}[x]^3\, \text{Sinh}\left[\frac{x}{2}\right]^4+\frac{1}{2}\, i\, \text{Csch}\left[\frac{x}{2}\right]^4\, \text{Sinh}[x]-20\, i\, \text{Tanh}\left[\frac{x}{2}\right]\right)$$

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

$$\int \frac{\text{Sinh}[x]^2}{(i+\text{Sinh}[x])^2}\, dx$$

Optimal (type 3, 32 leaves, 3 steps):

$$x+\frac{i\,\text{Cosh}[x]}{3\,(i+\text{Sinh}[x])^2}-\frac{5\,\text{Cosh}[x]}{3\,(i+\text{Sinh}[x])}$$

Result (type 3, 74 leaves):

$$\frac{3\,(-4\,i+3\,x)\,\text{Cosh}\left[\frac{x}{2}\right]+(10\,i-3\,x)\,\text{Cosh}\left[\frac{3\,x}{2}\right]-6\,i\,(-3\,i+2\,x+x\,\text{Cosh}[x])\,\text{Sinh}\left[\frac{x}{2}\right]}{6\,\left(\text{Cosh}\left[\frac{x}{2}\right]-i\,\text{Sinh}\left[\frac{x}{2}\right]\right)^3}$$

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

$$\int\frac{\text{Csch}[x]^2}{(i+\text{Sinh}[x])^2}\,dx$$

Optimal (type 3, 42 leaves, 6 steps):

$$2\,i\,\text{ArcTanh}[\text{Cosh}[x]]+\frac{10\,\text{Coth}[x]}{3}+\frac{\text{Coth}[x]}{3\,(i+\text{Sinh}[x])^2}-\frac{2\,i\,\text{Coth}[x]}{i+\text{Sinh}[x]}$$

Result (type 3, 88 leaves):

$$\frac{1}{6}\left(3\,\text{Coth}\left[\frac{x}{2}\right]+12\,i\,\text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right]-12\,i\,\text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right]+\frac{2}{i+\text{Sinh}[x]}-\frac{4\,\text{Sinh}\left[\frac{x}{2}\right]\,(8\,i+7\,\text{Sinh}[x])}{\left(i\,\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]\right)^3}+3\,\text{Tanh}\left[\frac{x}{2}\right]\right)$$

Problem 54: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csch}[x]^3}{(i+\text{Sinh}[x])^2}\,dx$$

Optimal (type 3, 58 leaves, 7 steps):

$$-\frac{7}{2}\,\text{ArcTanh}[\text{Cosh}[x]]+\frac{16}{3}\,i\,\text{Coth}[x]+\frac{7}{2}\,\text{Coth}[x]\,\text{Csch}[x]+\frac{\text{Coth}[x]\,\text{Csch}[x]}{3\,(i+\text{Sinh}[x])^2}-\frac{8\,i\,\text{Coth}[x]\,\text{Csch}[x]}{3\,(i+\text{Sinh}[x])}$$

Result (type 3, 140 leaves):

$$\frac{1}{24}\left(24\,i\,\mathrm{Coth}\left[\frac{x}{2}\right]+3\,\mathrm{Csch}\left[\frac{x}{2}\right]^2-84\,\mathrm{Log}\left[\mathrm{Cosh}\left[\frac{x}{2}\right]\right]+84\,\mathrm{Log}\left[\mathrm{Sinh}\left[\frac{x}{2}\right]\right]+\right.$$
$$\left.3\,\mathrm{Sech}\left[\frac{x}{2}\right]^2+\frac{8}{\left(\mathrm{Cosh}\left[\frac{x}{2}\right]-i\,\mathrm{Sinh}\left[\frac{x}{2}\right]\right)^2}+\frac{160\,i\,\mathrm{Sinh}\left[\frac{x}{2}\right]}{\mathrm{Cosh}\left[\frac{x}{2}\right]-i\,\mathrm{Sinh}\left[\frac{x}{2}\right]}+\frac{16\,\mathrm{Sinh}\left[\frac{x}{2}\right]}{\left(i\,\mathrm{Cosh}\left[\frac{x}{2}\right]+\mathrm{Sinh}\left[\frac{x}{2}\right]\right)^3}+24\,i\,\mathrm{Tanh}\left[\frac{x}{2}\right]\right)$$

Problem 55: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Csch}[x]^4}{(i+\mathrm{Sinh}[x])^2}\,dx$$

Optimal (type 3, 64 leaves, 7 steps):

$$-5\,i\,\mathrm{ArcTanh}[\mathrm{Cosh}[x]]-12\,\mathrm{Coth}[x]+4\,\mathrm{Coth}[x]^3+5\,i\,\mathrm{Coth}[x]\,\mathrm{Csch}[x]+\frac{\mathrm{Coth}[x]\,\mathrm{Csch}[x]^2}{3\,(i+\mathrm{Sinh}[x])^2}-\frac{10\,i\,\mathrm{Coth}[x]\,\mathrm{Csch}[x]^2}{3\,(i+\mathrm{Sinh}[x])}$$

Result (type 3, 143 leaves):

$$\frac{1}{24}\left(-44\,\mathrm{Coth}\left[\frac{x}{2}\right]+6\,i\,\mathrm{Csch}\left[\frac{x}{2}\right]^2+\frac{1}{2}\,\mathrm{Csch}\left[\frac{x}{2}\right]^4\,\mathrm{Sinh}[x]+2\right.$$
$$\left.\left(-60\,i\,\mathrm{Log}\left[\mathrm{Cosh}\left[\frac{x}{2}\right]\right]+60\,i\,\mathrm{Log}\left[\mathrm{Sinh}\left[\frac{x}{2}\right]\right]+3\,i\,\mathrm{Sech}\left[\frac{x}{2}\right]^2-4\,\mathrm{Csch}[x]^3\,\mathrm{Sinh}\left[\frac{x}{2}\right]^4-\frac{4}{i+\mathrm{Sinh}[x]}+\frac{8\,\mathrm{Sinh}\left[\frac{x}{2}\right]\,(14\,i+13\,\mathrm{Sinh}[x])}{\left(i\,\mathrm{Cosh}\left[\frac{x}{2}\right]+\mathrm{Sinh}\left[\frac{x}{2}\right]\right)^3}-22\,\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\right)$$

Problem 68: Result more than twice size of optimal antiderivative.

$$\int\sqrt{a+i\,a\,\mathrm{Sinh}[c+d\,x]}\,dx$$

Optimal (type 3, 31 leaves, 1 step):

$$\frac{2\,i\,a\,\mathrm{Cosh}[c+d\,x]}{d\,\sqrt{a+i\,a\,\mathrm{Sinh}[c+d\,x]}}$$

Result (type 3, 74 leaves):

$$\frac{2\left(i\,\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{a+i\,a\,\mathrm{Sinh}[c+d\,x]}}{d\left(\mathrm{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+i\,\mathrm{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}$$

Problem 92: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{5+3\,i\,\text{Sinh}[c+d\,x]}\,dx$$

Optimal (type 3, 37 leaves, 1 step):

$$\frac{x}{4}-\frac{i\,\text{ArcTan}\left[\frac{\text{Cosh}[c+d\,x]}{3+i\,\text{Sinh}[c+d\,x]}\right]}{2\,d}$$

Result (type 3, 171 leaves):

$$-\frac{i\,\text{ArcTan}\left[\frac{2\,\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]}{\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-2\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]}\right]}{4\,d}+\frac{i\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+2\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]}{2\,\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]}\right]}{4\,d}-\frac{\text{Log}[5\,\text{Cosh}[c+d\,x]-4\,\text{Sinh}[c+d\,x]]}{8\,d}+\frac{\text{Log}[5\,\text{Cosh}[c+d\,x]+4\,\text{Sinh}[c+d\,x]]}{8\,d}$$

Problem 93: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(5+3\,i\,\text{Sinh}[c+d\,x])^2}\,dx$$

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

$$\frac{5\,x}{64}-\frac{5\,i\,\text{ArcTan}\left[\frac{\text{Cosh}[c+d\,x]}{3+i\,\text{Sinh}[c+d\,x]}\right]}{32\,d}-\frac{3\,i\,\text{Cosh}[c+d\,x]}{16\,d\,(5+3\,i\,\text{Sinh}[c+d\,x])}$$

Result (type 3, 183 leaves):

$$\frac{1}{640\,d}\left(24\,i-50\,i\,\text{ArcTan}\left[\frac{2\,\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]}{\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-2\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]}\right]+50\,i\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+2\,\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]}{2\,\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]}\right]-25\,\text{Log}[5\,\text{Cosh}[c+d\,x]-4\,\text{Sinh}[c+d\,x]]+25\,\text{Log}[5\,\text{Cosh}[c+d\,x]+4\,\text{Sinh}[c+d\,x]]-\frac{120\,\text{Cosh}[c+d\,x]}{-5\,i+3\,\text{Sinh}[c+d\,x]}\right)$$

Problem 94: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(5+3\,i\,\text{Sinh}[c+d\,x])^3}\,dx$$

Optimal (type 3, 95 leaves, 4 steps):

$$\frac{59\,x}{2048}-\frac{59\,\mathrm{i}\,\mathrm{ArcTan}\left[\frac{\mathrm{Cosh}[c+d\,x]}{3+\mathrm{i}\,\mathrm{Sinh}[c+d\,x]}\right]}{1024\,d}-\frac{3\,\mathrm{i}\,\mathrm{Cosh}[c+d\,x]}{32\,d\,(5+3\,\mathrm{i}\,\mathrm{Sinh}[c+d\,x])^2}-\frac{45\,\mathrm{i}\,\mathrm{Cosh}[c+d\,x]}{512\,d\,(5+3\,\mathrm{i}\,\mathrm{Sinh}[c+d\,x])}$$

Result (type 3, 277 leaves):

$$\frac{1}{4096\,d}\left(-118\,\mathrm{i}\,\mathrm{ArcTan}\left[\frac{2\,\mathrm{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sinh}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-2\,\mathrm{Sinh}\left[\frac{1}{2}(c+d\,x)\right]}\right]+118\,\mathrm{i}\,\mathrm{ArcTan}\left[\frac{\mathrm{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+2\,\mathrm{Sinh}\left[\frac{1}{2}(c+d\,x)\right]}{2\,\mathrm{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sinh}\left[\frac{1}{2}(c+d\,x)\right]}\right]-\right.$$
$$59\,\mathrm{Log}[5\,\mathrm{Cosh}[c+d\,x]-4\,\mathrm{Sinh}[c+d\,x]]+59\,\mathrm{Log}[5\,\mathrm{Cosh}[c+d\,x]+4\,\mathrm{Sinh}[c+d\,x]]+\frac{48}{\left((1+2\,\mathrm{i})\,\mathrm{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-(2+\mathrm{i})\,\mathrm{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+$$
$$\left.\frac{48}{\left((2+\mathrm{i})\,\mathrm{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+(1+2\,\mathrm{i})\,\mathrm{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{144\,\mathrm{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\left(-3\,\mathrm{i}\,\mathrm{Cosh}\left[\frac{1}{2}(c+d\,x)\right]+5\,\mathrm{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-5\,\mathrm{i}+3\,\mathrm{Sinh}[c+d\,x]}\right)$$

Problem 95: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{(5+3\,\mathrm{i}\,\mathrm{Sinh}[c+d\,x])^4}\,dx$$

Optimal (type 3, 124 leaves, 5 steps):

$$\frac{385\,x}{32768}-\frac{385\,\mathrm{i}\,\mathrm{ArcTan}\left[\frac{\mathrm{Cosh}[c+d\,x]}{3+\mathrm{i}\,\mathrm{Sinh}[c+d\,x]}\right]}{16384\,d}-\frac{\mathrm{i}\,\mathrm{Cosh}[c+d\,x]}{16\,d\,(5+3\,\mathrm{i}\,\mathrm{Sinh}[c+d\,x])^3}-\frac{25\,\mathrm{i}\,\mathrm{Cosh}[c+d\,x]}{512\,d\,(5+3\,\mathrm{i}\,\mathrm{Sinh}[c+d\,x])^2}-\frac{311\,\mathrm{i}\,\mathrm{Cosh}[c+d\,x]}{8192\,d\,(5+3\,\mathrm{i}\,\mathrm{Sinh}[c+d\,x])}$$

Result (type 3, 308 leaves):

$$\frac{1}{327680\, d}\left(-3850\, i\, \text{ArcTan}\left[\frac{2\,\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]}{\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-2\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]}\right]+\right.$$

$$3850\, i\, \text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+2\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]}\right]-1925\,\text{Log}[5\,\text{Cosh}[c+d\,x]-4\,\text{Sinh}[c+d\,x]]+$$

$$1925\,\text{Log}[5\,\text{Cosh}[c+d\,x]+4\,\text{Sinh}[c+d\,x]]+\frac{2656-192\, i}{\left((1+2\, i)\,\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-(2+i)\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+$$

$$\frac{2656+192\, i}{\left((2+i)\,\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]+(1+2\, i)\,\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+\frac{1}{(-5\, i+3\,\text{Sinh}[c+d\,x])^3}2\,(-235150+166615\,\text{Cosh}[c+d\,x]+$$

$$\left.82530\,\text{Cosh}[2\,(c+d\,x)]-13995\,\text{Cosh}[3\,(c+d\,x)]-298563\, i\,\text{Sinh}[c+d\,x]+89364\, i\,\text{Sinh}[2\,(c+d\,x)]+8397\, i\,\text{Sinh}[3\,(c+d\,x)])\right)$$

Problem 119: Result more than twice size of optimal antiderivative.

$$\int \frac{A+B\,\text{Sinh}[x]}{i-\text{Sinh}[x]}\, dx$$

Optimal (type 3, 27 leaves, 2 steps):

$$-B\,x+\frac{(i\,A-B)\,\text{Cosh}[x]}{i-\text{Sinh}[x]}$$

Result (type 3, 59 leaves):

$$\frac{\left(i\,\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]\right)\left(B\,x\,\text{Cosh}\left[\frac{x}{2}\right]+i\,(2\,A+B\,(2\,i+x))\,\text{Sinh}\left[\frac{x}{2}\right]\right)}{-i+\text{Sinh}[x]}$$

Problem 167: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sech}[x]^2}{i+\text{Sinh}[x]}\, dx$$

Optimal (type 3, 25 leaves, 3 steps):

$$-\frac{i\,\text{Sech}[x]}{3\,(i+\text{Sinh}[x])}-\frac{2}{3}\, i\,\text{Tanh}[x]$$

Result (type 3, 65 leaves):

$$\frac{\text{Cosh}[x]-2\,\text{Cosh}[2\,x]-4\,i\,\text{Sinh}[x]-i\,\text{Cosh}[x]\,\text{Sinh}[x]}{6\left(\text{Cosh}\left[\frac{x}{2}\right]-i\,\text{Sinh}\left[\frac{x}{2}\right]\right)^3\left(\text{Cosh}\left[\frac{x}{2}\right]+i\,\text{Sinh}\left[\frac{x}{2}\right]\right)}$$

Problem 169: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sech}[x]^4}{i+\text{Sinh}[x]}\,dx$$

Optimal (type 3, 37 leaves, 3 steps):

$$-\frac{i\,\text{Sech}[x]^3}{5\,(i+\text{Sinh}[x])}-\frac{4}{5}\,i\,\text{Tanh}[x]+\frac{4}{15}\,i\,\text{Tanh}[x]^3$$

Result (type 3, 95 leaves):

$$-\left((-54\,\text{Cosh}[x]+128\,\text{Cosh}[2\,x]-18\,\text{Cosh}[3\,x]+64\,\text{Cosh}[4\,x]+384\,i\,\text{Sinh}[x]+18\,i\,\text{Sinh}[2\,x]+128\,i\,\text{Sinh}[3\,x]+9\,i\,\text{Sinh}[4\,x])\middle/\left(960\left(\text{Cosh}\left[\frac{x}{2}\right]-i\,\text{Sinh}\left[\frac{x}{2}\right]\right)^5\left(\text{Cosh}\left[\frac{x}{2}\right]+i\,\text{Sinh}\left[\frac{x}{2}\right]\right)^3\right)\right)$$

Problem 175: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cosh}[x]^2}{(i+\text{Sinh}[x])^2}\,dx$$

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

$$x-\frac{2\,\text{Cosh}[x]}{i+\text{Sinh}[x]}$$

Result (type 3, 29 leaves):

$$x-\frac{4\,\text{Sinh}\left[\frac{x}{2}\right]}{\text{Cosh}\left[\frac{x}{2}\right]-i\,\text{Sinh}\left[\frac{x}{2}\right]}$$

Problem 178: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sech}[x]^2}{(i+\text{Sinh}[x])^2}\,dx$$

Optimal (type 3, 37 leaves, 4 steps):

$$-\frac{i\,\mathrm{Sech}[x]}{5\,(i+\mathrm{Sinh}[x])^2}-\frac{\mathrm{Sech}[x]}{5\,(i+\mathrm{Sinh}[x])}-\frac{2\,\mathrm{Tanh}[x]}{5}$$

Result (type 3, 81 leaves):

$$\frac{-15\,i\,\mathrm{Cosh}[x]+32\,i\,\mathrm{Cosh}[2\,x]+3\,i\,\mathrm{Cosh}[3\,x]-40\,\mathrm{Sinh}[x]-12\,\mathrm{Sinh}[2\,x]+8\,\mathrm{Sinh}[3\,x]}{80\,\left(\mathrm{Cosh}\left[\frac{x}{2}\right]-i\,\mathrm{Sinh}\left[\frac{x}{2}\right]\right)^5\left(\mathrm{Cosh}\left[\frac{x}{2}\right]+i\,\mathrm{Sinh}\left[\frac{x}{2}\right]\right)}$$

Problem 180: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Sech}[x]^4}{(i+\mathrm{Sinh}[x])^2}\,dx$$

Optimal (type 3, 49 leaves, 4 steps):

$$-\frac{i\,\mathrm{Sech}[x]^3}{7\,(i+\mathrm{Sinh}[x])^2}-\frac{\mathrm{Sech}[x]^3}{7\,(i+\mathrm{Sinh}[x])}-\frac{4\,\mathrm{Tanh}[x]}{7}+\frac{4\,\mathrm{Tanh}[x]^3}{21}$$

Result (type 3, 109 leaves):

$$-\left((210\,i\,\mathrm{Cosh}[x]-512\,i\,\mathrm{Cosh}[2\,x]+45\,i\,\mathrm{Cosh}[3\,x]-256\,i\,\mathrm{Cosh}[4\,x]-15\,i\,\mathrm{Cosh}[5\,x]+896\,\mathrm{Sinh}[x]+\right.$$
$$\left.120\,\mathrm{Sinh}[2\,x]+192\,\mathrm{Sinh}[3\,x]+60\,\mathrm{Sinh}[4\,x]-64\,\mathrm{Sinh}[5\,x])\Big/\left(2688\left(\mathrm{Cosh}\left[\frac{x}{2}\right]-i\,\mathrm{Sinh}\left[\frac{x}{2}\right]\right)^7\left(\mathrm{Cosh}\left[\frac{x}{2}\right]+i\,\mathrm{Sinh}\left[\frac{x}{2}\right]\right)^3\right)\right)$$

Problem 206: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\mathrm{Sech}[x]^3}{(a+b\,\mathrm{Sinh}[x])^2}\,dx$$

Optimal (type 3, 136 leaves, 7 steps):

$$\frac{(a^4+6\,a^2\,b^2-3\,b^4)\,\mathrm{ArcTan}[\mathrm{Sinh}[x]]}{2\,(a^2+b^2)^3}-\frac{4\,a\,b^3\,\mathrm{Log}[\mathrm{Cosh}[x]]}{(a^2+b^2)^3}+\frac{4\,a\,b^3\,\mathrm{Log}[a+b\,\mathrm{Sinh}[x]]}{(a^2+b^2)^3}+\frac{b\,(a^2-3\,b^2)}{2\,(a^2+b^2)^2\,(a+b\,\mathrm{Sinh}[x])}+\frac{\mathrm{Sech}[x]^2\,(b+a\,\mathrm{Sinh}[x])}{2\,(a^2+b^2)\,(a+b\,\mathrm{Sinh}[x])}$$

Result (type 3, 171 leaves):

$$\frac{1}{4}\left(\frac{2\,(a-3\,i\,b)\,\mathrm{ArcTan}\left[\mathrm{Tanh}\left[\frac{x}{2}\right]\right]}{(a-i\,b)^3}+\frac{2\,(a+3\,i\,b)\,\mathrm{ArcTan}\left[\mathrm{Tanh}\left[\frac{x}{2}\right]\right]}{(a+i\,b)^3}+\frac{(a+3\,i\,b)\,\mathrm{Log}[\mathrm{Cosh}[x]]}{(-i\,a+b)^3}+\right.$$
$$\left.\frac{(a-3\,i\,b)\,\mathrm{Log}[\mathrm{Cosh}[x]]}{(i\,a+b)^3}+\frac{16\,a\,b^3\,\mathrm{Log}[a+b\,\mathrm{Sinh}[x]]}{(a^2+b^2)^3}-\frac{4\,b^3}{(a^2+b^2)^2\,(a+b\,\mathrm{Sinh}[x])}+\frac{2\,\mathrm{Sech}[x]^2\,(2\,a\,b+(a^2-b^2)\,\mathrm{Sinh}[x])}{(a^2+b^2)^2}\right)$$

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

$$\int \frac{\text{Tanh}[x]^4}{\text{i} + \text{Sinh}[x]} \, dx$$

Optimal (type 3, 31 leaves, 6 steps):

$$-\text{Sech}[x] + \frac{2\,\text{Sech}[x]^3}{3} - \frac{\text{Sech}[x]^5}{5} - \frac{1}{5}\,\text{i}\,\text{Tanh}[x]^5$$

Result (type 3, 96 leaves):

$$-\left(\left(200 - 534\,\text{Cosh}[x] + 288\,\text{Cosh}[2\,x] - 178\,\text{Cosh}[3\,x] + 24\,\text{Cosh}[4\,x] + 64\,\text{i}\,\text{Sinh}[x] + 178\,\text{i}\,\text{Sinh}[2\,x] - 192\,\text{i}\,\text{Sinh}[3\,x] + 89\,\text{i}\,\text{Sinh}[4\,x]\right) \Big/ \left(960\left(\text{Cosh}\left[\frac{x}{2}\right] - \text{i}\,\text{Sinh}\left[\frac{x}{2}\right]\right)^5 \left(\text{Cosh}\left[\frac{x}{2}\right] + \text{i}\,\text{Sinh}\left[\frac{x}{2}\right]\right)^3\right)\right)$$

Problem 210: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tanh}[x]^2}{\text{i} + \text{Sinh}[x]} \, dx$$

Optimal (type 3, 23 leaves, 5 steps):

$$-\text{Sech}[x] + \frac{\text{Sech}[x]^3}{3} - \frac{1}{3}\,\text{i}\,\text{Tanh}[x]^3$$

Result (type 3, 67 leaves):

$$\frac{-3 - \text{Cosh}[2\,x] + \text{Cosh}[x]\,\left(5 - 5\,\text{i}\,\text{Sinh}[x]\right) + 4\,\text{i}\,\text{Sinh}[x]}{6\left(\text{Cosh}\left[\frac{x}{2}\right] - \text{i}\,\text{Sinh}\left[\frac{x}{2}\right]\right)^3 \left(\text{Cosh}\left[\frac{x}{2}\right] + \text{i}\,\text{Sinh}\left[\frac{x}{2}\right]\right)}$$

Problem 213: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Coth}[x]^2}{\text{i} + \text{Sinh}[x]} \, dx$$

Optimal (type 3, 12 leaves, 4 steps):

$$-\text{ArcTanh}[\text{Cosh}[x]] + \text{i}\,\text{Coth}[x]$$

Result (type 3, 41 leaves):

$$\frac{1}{2}\,\text{i}\,\text{Coth}\left[\frac{x}{2}\right] - \text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right] + \text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right] + \frac{1}{2}\,\text{i}\,\text{Tanh}\left[\frac{x}{2}\right]$$

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

$$\int \frac{\text{Coth}[x]^3}{i + \text{Sinh}[x]} \, dx$$

Optimal (type 3, 15 leaves, 5 steps):

$$-\text{Csch}[x] + \frac{1}{2} i \, \text{Csch}[x]^2$$

Result (type 3, 49 leaves):

$$-\frac{1}{2} \text{Coth}\left[\frac{x}{2}\right] + \frac{1}{8} i \, \text{Csch}\left[\frac{x}{2}\right]^2 - \frac{1}{8} i \, \text{Sech}\left[\frac{x}{2}\right]^2 + \frac{1}{2} \text{Tanh}\left[\frac{x}{2}\right]$$

Problem 215: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Coth}[x]^4}{i + \text{Sinh}[x]} \, dx$$

Optimal (type 3, 26 leaves, 5 steps):

$$-\frac{1}{2} \text{ArcTanh}[\text{Cosh}[x]] + \frac{1}{3} i \, \text{Coth}[x]^3 - \frac{1}{2} \text{Coth}[x] \, \text{Csch}[x]$$

Result (type 3, 111 leaves):

$$\frac{1}{6} i \, \text{Coth}\left[\frac{x}{2}\right] - \frac{1}{8} \text{Csch}\left[\frac{x}{2}\right]^2 + \frac{1}{24} i \, \text{Coth}\left[\frac{x}{2}\right] \text{Csch}\left[\frac{x}{2}\right]^2 - \frac{1}{2} \text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right] + \frac{1}{2} \text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right] - \frac{1}{8} \text{Sech}\left[\frac{x}{2}\right]^2 + \frac{1}{6} i \, \text{Tanh}\left[\frac{x}{2}\right] - \frac{1}{24} i \, \text{Sech}\left[\frac{x}{2}\right]^2 \text{Tanh}\left[\frac{x}{2}\right]$$

Problem 216: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Coth}[x]^5}{i + \text{Sinh}[x]} \, dx$$

Optimal (type 3, 23 leaves, 5 steps):

$$\frac{1}{4} i \, \text{Coth}[x]^4 - \text{Csch}[x] - \frac{\text{Csch}[x]^3}{3}$$

Result (type 3, 113 leaves):

$$-\frac{5}{12} \text{Coth}\left[\frac{x}{2}\right] + \frac{3}{32} i \, \text{Csch}\left[\frac{x}{2}\right]^2 - \frac{1}{24} \text{Coth}\left[\frac{x}{2}\right] \text{Csch}\left[\frac{x}{2}\right]^2 + \frac{1}{64} i \, \text{Csch}\left[\frac{x}{2}\right]^4 - \frac{3}{32} i \, \text{Sech}\left[\frac{x}{2}\right]^2 + \frac{1}{64} i \, \text{Sech}\left[\frac{x}{2}\right]^4 + \frac{5}{12} \text{Tanh}\left[\frac{x}{2}\right] - \frac{1}{24} \text{Sech}\left[\frac{x}{2}\right]^2 \text{Tanh}\left[\frac{x}{2}\right]$$

Problem 217: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Coth}[x]^6}{i + \text{Sinh}[x]} \, dx$$

Optimal (type 3, 36 leaves, 6 steps):

$$-\frac{3}{8} \text{ArcTanh}[\text{Cosh}[x]] + \frac{1}{5} i \text{Coth}[x]^5 - \frac{3}{8} \text{Coth}[x] \text{Csch}[x] - \frac{1}{4} \text{Coth}[x]^3 \text{Csch}[x]$$

Result (type 3, 175 leaves):

$$\frac{1}{10} i \text{Coth}\left[\frac{x}{2}\right] - \frac{5}{32} \text{Csch}\left[\frac{x}{2}\right]^2 + \frac{7}{160} i \text{Coth}\left[\frac{x}{2}\right] \text{Csch}\left[\frac{x}{2}\right]^2 - \frac{1}{64} \text{Csch}\left[\frac{x}{2}\right]^4 + \frac{1}{160} i \text{Coth}\left[\frac{x}{2}\right] \text{Csch}\left[\frac{x}{2}\right]^4 - \frac{3}{8} \text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right] + \frac{3}{8} \text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right] - \frac{5}{32} \text{Sech}\left[\frac{x}{2}\right]^2 + \frac{1}{64} \text{Sech}\left[\frac{x}{2}\right]^4 + \frac{1}{10} i \text{Tanh}\left[\frac{x}{2}\right] - \frac{7}{160} i \text{Sech}\left[\frac{x}{2}\right]^2 \text{Tanh}\left[\frac{x}{2}\right] + \frac{1}{160} i \text{Sech}\left[\frac{x}{2}\right]^4 \text{Tanh}\left[\frac{x}{2}\right]$$

Problem 218: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tanh}[x]^4}{(i + \text{Sinh}[x])^2} \, dx$$

Optimal (type 3, 47 leaves, 10 steps):

$$\frac{2}{3} i \text{Sech}[x]^3 - \frac{4}{5} i \text{Sech}[x]^5 + \frac{2}{7} i \text{Sech}[x]^7 - \frac{\text{Tanh}[x]^5}{5} + \frac{2 \text{Tanh}[x]^7}{7}$$

Result (type 3, 112 leaves):

$$-\left(\left(-672 i + 1442 i \text{Cosh}[x] - 1664 i \text{Cosh}[2 x] + 309 i \text{Cosh}[3 x] + 288 i \text{Cosh}[4 x] - 103 i \text{Cosh}[5 x] + 1232 \text{Sinh}[x] + 824 \text{Sinh}[2 x] - 1896 \text{Sinh}[3 x] + 412 \text{Sinh}[4 x] + 72 \text{Sinh}[5 x]\right) \Big/ \left(13440 \left(\text{Cosh}\left[\frac{x}{2}\right] - i \text{Sinh}\left[\frac{x}{2}\right]\right)^7 \left(\text{Cosh}\left[\frac{x}{2}\right] + i \text{Sinh}\left[\frac{x}{2}\right]\right)^3\right)\right)$$

Problem 220: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tanh}[x]^2}{(i + \text{Sinh}[x])^2} \, dx$$

Optimal (type 3, 37 leaves, 10 steps):

$$\frac{2}{3} i \text{Sech}[x]^3 - \frac{2}{5} i \text{Sech}[x]^5 - \frac{\text{Tanh}[x]^3}{3} + \frac{2 \text{Tanh}[x]^5}{5}$$

Result (type 3, 84 leaves):

$$\frac{80\,i - 55\,i\,\text{Cosh}[x] - 16\,i\,\text{Cosh}[2\,x] + 11\,i\,\text{Cosh}[3\,x] + 140\,\text{Sinh}[x] - 44\,\text{Sinh}[2\,x] - 4\,\text{Sinh}[3\,x]}{240\,\left(\text{Cosh}\left[\frac{x}{2}\right] - i\,\text{Sinh}\left[\frac{x}{2}\right]\right)^5\,\left(\text{Cosh}\left[\frac{x}{2}\right] + i\,\text{Sinh}\left[\frac{x}{2}\right]\right)}$$

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

$$\int \frac{\text{Coth}[x]^2}{(i + \text{Sinh}[x])^2}\,dx$$

Optimal (type 3, 26 leaves, 7 steps):

$$2\,i\,\text{ArcTanh}[\text{Cosh}[x]] + \text{Coth}[x] + \frac{2\,i\,\text{Coth}[x]}{i - \text{Csch}[x]}$$

Result (type 3, 66 leaves):

$$\frac{1}{2}\left(\text{Coth}\left[\frac{x}{2}\right] + 4\,i\,\text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right] - 4\,i\,\text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right] + \frac{8\,\text{Sinh}\left[\frac{x}{2}\right]}{\text{Cosh}\left[\frac{x}{2}\right] - i\,\text{Sinh}\left[\frac{x}{2}\right]} + \text{Tanh}\left[\frac{x}{2}\right]\right)$$

Problem 224: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Coth}[x]^3}{(i + \text{Sinh}[x])^2}\,dx$$

Optimal (type 3, 29 leaves, 3 steps):

$$2\,i\,\text{Csch}[x] + \frac{\text{Csch}[x]^2}{2} + 2\,\text{Log}[\text{Sinh}[x]] - 2\,\text{Log}[i + \text{Sinh}[x]]$$

Result (type 3, 66 leaves):

$$-4\,i\,\text{ArcTan}\left[\text{Coth}\left[\frac{x}{2}\right]\right] + i\,\text{Coth}\left[\frac{x}{2}\right] + \frac{1}{8}\,\text{Csch}\left[\frac{x}{2}\right]^2 - 2\,\text{Log}[\text{Cosh}[x]] + 2\,\text{Log}[\text{Sinh}[x]] - \frac{1}{8}\,\text{Sech}\left[\frac{x}{2}\right]^2 - i\,\text{Tanh}\left[\frac{x}{2}\right]$$

Problem 225: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Coth}[x]^4}{(i + \text{Sinh}[x])^2}\,dx$$

Optimal (type 3, 28 leaves, 9 steps):

$$-i\,\text{ArcTanh}[\text{Cosh}[x]] - 2\,\text{Coth}[x] + \frac{\text{Coth}[x]^3}{3} + i\,\text{Coth}[x]\,\text{Csch}[x]$$

Result (type 3, 107 leaves):

$$-\frac{5}{6}\,\mathrm{Coth}\left[\frac{x}{2}\right]+\frac{1}{4}\,i\,\mathrm{Csch}\left[\frac{x}{2}\right]^2+\frac{1}{24}\,\mathrm{Coth}\left[\frac{x}{2}\right]\,\mathrm{Csch}\left[\frac{x}{2}\right]^2-i\,\mathrm{Log}\left[\mathrm{Cosh}\left[\frac{x}{2}\right]\right]+i\,\mathrm{Log}\left[\mathrm{Sinh}\left[\frac{x}{2}\right]\right]+\frac{1}{4}\,i\,\mathrm{Sech}\left[\frac{x}{2}\right]^2-\frac{5}{6}\,\mathrm{Tanh}\left[\frac{x}{2}\right]-\frac{1}{24}\,\mathrm{Sech}\left[\frac{x}{2}\right]^2\,\mathrm{Tanh}\left[\frac{x}{2}\right]$$

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

$$\int\frac{\mathrm{Coth}[x]^5}{(i+\mathrm{Sinh}[x])^2}\,dx$$

Optimal (type 3, 27 leaves, 3 steps):

$$-\frac{1}{2}\,\mathrm{Csch}[x]^2+\frac{2}{3}\,i\,\mathrm{Csch}[x]^3+\frac{\mathrm{Csch}[x]^4}{4}$$

Result (type 3, 113 leaves):

$$-\frac{1}{6}\,i\,\mathrm{Coth}\left[\frac{x}{2}\right]-\frac{5}{32}\,\mathrm{Csch}\left[\frac{x}{2}\right]^2+\frac{1}{12}\,i\,\mathrm{Coth}\left[\frac{x}{2}\right]\,\mathrm{Csch}\left[\frac{x}{2}\right]^2+\frac{1}{64}\,\mathrm{Csch}\left[\frac{x}{2}\right]^4+\frac{5}{32}\,\mathrm{Sech}\left[\frac{x}{2}\right]^2+\frac{1}{64}\,\mathrm{Sech}\left[\frac{x}{2}\right]^4+\frac{1}{6}\,i\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\frac{1}{12}\,i\,\mathrm{Sech}\left[\frac{x}{2}\right]^2\,\mathrm{Tanh}\left[\frac{x}{2}\right]$$

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

$$\int\frac{\mathrm{Coth}[x]^6}{(i+\mathrm{Sinh}[x])^2}\,dx$$

Optimal (type 3, 48 leaves, 11 steps):

$$-\frac{1}{4}\,i\,\mathrm{ArcTanh}[\mathrm{Cosh}[x]]-\frac{2\,\mathrm{Coth}[x]^3}{3}+\frac{\mathrm{Coth}[x]^5}{5}+\frac{1}{4}\,i\,\mathrm{Coth}[x]\,\mathrm{Csch}[x]+\frac{1}{2}\,i\,\mathrm{Coth}[x]\,\mathrm{Csch}[x]^3$$

Result (type 3, 175 leaves):

$$-\frac{7}{30}\,\mathrm{Coth}\left[\frac{x}{2}\right]+\frac{1}{16}\,i\,\mathrm{Csch}\left[\frac{x}{2}\right]^2-\frac{19}{480}\,\mathrm{Coth}\left[\frac{x}{2}\right]\,\mathrm{Csch}\left[\frac{x}{2}\right]^2+\frac{1}{32}\,i\,\mathrm{Csch}\left[\frac{x}{2}\right]^4+\frac{1}{160}\,\mathrm{Coth}\left[\frac{x}{2}\right]\,\mathrm{Csch}\left[\frac{x}{2}\right]^4-\frac{1}{4}\,i\,\mathrm{Log}\left[\mathrm{Cosh}\left[\frac{x}{2}\right]\right]+$$
$$\frac{1}{4}\,i\,\mathrm{Log}\left[\mathrm{Sinh}\left[\frac{x}{2}\right]\right]+\frac{1}{16}\,i\,\mathrm{Sech}\left[\frac{x}{2}\right]^2-\frac{1}{32}\,i\,\mathrm{Sech}\left[\frac{x}{2}\right]^4-\frac{7}{30}\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\frac{19}{480}\,\mathrm{Sech}\left[\frac{x}{2}\right]^2\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\frac{1}{160}\,\mathrm{Sech}\left[\frac{x}{2}\right]^4\,\mathrm{Tanh}\left[\frac{x}{2}\right]$$

Problem 237: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\mathrm{Tanh}[x]^3}{(a+b\,\mathrm{Sinh}[x])^2}\,dx$$

Optimal (type 3, 135 leaves, 7 steps):

$$\frac{a\,b\,(3\,a^2-b^2)\,\text{ArcTan}[\text{Sinh}[x]]}{(a^2+b^2)^3}+\frac{a^2\,(a^2-3\,b^2)\,\text{Log}[\text{Cosh}[x]]}{(a^2+b^2)^3}-\frac{a^2\,(a^2-3\,b^2)\,\text{Log}[a+b\,\text{Sinh}[x]]}{(a^2+b^2)^3}+\frac{a^3}{(a^2+b^2)^2\,(a+b\,\text{Sinh}[x])}+\frac{\text{Sech}[x]^2\,(a^2-b^2-2\,a\,b\,\text{Sinh}[x])}{2\,(a^2+b^2)^2}$$

Result (type 3, 156 leaves):

$$\frac{1}{2}\left(-\frac{2\,\mathrm{i}\,a\,\text{ArcTan}\left[\text{Tanh}\left[\frac{x}{2}\right]\right]}{(a-\mathrm{i}\,b)^3}+\frac{2\,\mathrm{i}\,a\,\text{ArcTan}\left[\text{Tanh}\left[\frac{x}{2}\right]\right]}{(a+\mathrm{i}\,b)^3}+\frac{a\,\text{Log}[\text{Cosh}[x]]}{(a-\mathrm{i}\,b)^3}+\frac{a\,\text{Log}[\text{Cosh}[x]]}{(a+\mathrm{i}\,b)^3}-\frac{2\,a^2\,(a^2-3\,b^2)\,\text{Log}[a+b\,\text{Sinh}[x]]}{(a^2+b^2)^3}+\frac{2\,a^3}{(a^2+b^2)^2\,(a+b\,\text{Sinh}[x])}+\frac{\text{Sech}[x]^2\,(a^2-b^2-2\,a\,b\,\text{Sinh}[x])}{(a^2+b^2)^2}\right)$$

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

$$\int \text{Coth}[x]\,\sqrt{a+b\,\text{Sinh}[x]}\,dx$$

Optimal (type 3, 37 leaves, 4 steps):

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

Result (type 3, 75 leaves):

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

Problem 245: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Coth}[x]}{\sqrt{a+b\,\text{Sinh}[x]}}\,dx$$

Optimal (type 3, 24 leaves, 3 steps):

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

Result (type 3, 59 leaves):

$$-\frac{2\sqrt{b}\,\text{ArcSinh}\left[\frac{\sqrt{a}\,\sqrt{\text{Csch}[x]}}{\sqrt{b}}\right]\sqrt{1+\frac{a\,\text{Csch}[x]}{b}}}{\sqrt{a}\,\sqrt{\text{Csch}[x]}\,\sqrt{a+b\,\text{Sinh}[x]}}$$

Problem 248: Result more than twice size of optimal antiderivative.

$$\int\frac{A+B\,\text{Cosh}[x]}{i-\text{Sinh}[x]}\,dx$$

Optimal (type 3, 27 leaves, 5 steps):

$$-B\,\text{Log}[i-\text{Sinh}[x]]+\frac{A\,\text{Cosh}[x]}{1+i\,\text{Sinh}[x]}$$

Result (type 3, 81 leaves):

$$-\frac{1}{-i+\text{Sinh}[x]}\left(\text{Cosh}\left[\frac{x}{2}\right]+i\,\text{Sinh}\left[\frac{x}{2}\right]\right)\left(B\,\text{Cosh}\left[\frac{x}{2}\right]\left(2\,\text{ArcTan}\left[\text{Tanh}\left[\frac{x}{2}\right]\right]-i\,\text{Log}[\text{Cosh}[x]]\right)+\left(2\,A+2\,i\,B\,\text{ArcTan}\left[\text{Tanh}\left[\frac{x}{2}\right]\right]+B\,\text{Log}[\text{Cosh}[x]]\right)\text{Sinh}\left[\frac{x}{2}\right]\right)$$

Problem 249: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{A+B\,\text{Tanh}[x]}{a+b\,\text{Sinh}[x]}\,dx$$

Optimal (type 3, 89 leaves, 11 steps):

$$\frac{b\,B\,\text{ArcTan}[\text{Sinh}[x]]}{a^2+b^2}-\frac{2\,A\,\text{ArcTanh}\left[\frac{b-a\,\text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{a^2+b^2}}\right]}{\sqrt{a^2+b^2}}+\frac{a\,B\,\text{Log}[\text{Cosh}[x]]}{a^2+b^2}-\frac{a\,B\,\text{Log}[a+b\,\text{Sinh}[x]]}{a^2+b^2}$$

Result (type 3, 149 leaves):

$$\left(\text{Cosh}[x]\left(2\,b\,\sqrt{-a^2-b^2}\,B\,\text{ArcTan}\left[\text{Tanh}\left[\frac{x}{2}\right]\right]+2\,A\,\left(a^2+b^2\right)\text{ArcTan}\left[\frac{b-a\,\text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{-a^2-b^2}}\right]+a\,\sqrt{-a^2-b^2}\,B\,\left(\text{Log}[\text{Cosh}[x]]-\text{Log}[a+b\,\text{Sinh}[x]]\right)\right)\right.$$
$$\left.(A+B\,\text{Tanh}[x])\right)\Big/\left((a-i\,b)\,(a+i\,b)\,\sqrt{-a^2-b^2}\,(A\,\text{Cosh}[x]+B\,\text{Sinh}[x])\right)$$

Problem 259: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{x}{a+b\,\text{Sinh}[x]^2}\,dx$$

Optimal (type 4, 215 leaves, 9 steps):

$$\frac{x\,\text{Log}\left[1+\frac{b\,e^{2x}}{2a-2\sqrt{a}\,\sqrt{a-b}-b}\right]}{2\sqrt{a}\,\sqrt{a-b}}-\frac{x\,\text{Log}\left[1+\frac{b\,e^{2x}}{2a+2\sqrt{a}\,\sqrt{a-b}-b}\right]}{2\sqrt{a}\,\sqrt{a-b}}+\frac{\text{PolyLog}\left[2,-\frac{b\,e^{2x}}{2a-2\sqrt{a}\,\sqrt{a-b}-b}\right]}{4\sqrt{a}\,\sqrt{a-b}}-\frac{\text{PolyLog}\left[2,-\frac{b\,e^{2x}}{2a+2\sqrt{a}\,\sqrt{a-b}-b}\right]}{4\sqrt{a}\,\sqrt{a-b}}$$

Result (type 4, 576 leaves):

$$-\frac{1}{4\sqrt{a\,(-a+b)}}\Bigg(4\,x\,\text{ArcTan}\left[\frac{a\,\text{Coth}[x]}{\sqrt{-a\,(a-b)}}\right]-2\,i\,\text{ArcCos}\left[1-\frac{2a}{b}\right]\text{ArcTan}\left[\frac{\sqrt{-a^2+a\,b}\,\,\text{Tanh}[x]}{a}\right]+$$

$$\left(\text{ArcCos}\left[1-\frac{2a}{b}\right]+2\left(\text{ArcTan}\left[\frac{a\,\text{Coth}[x]}{\sqrt{-a\,(a-b)}}\right]+\text{ArcTan}\left[\frac{\sqrt{-a^2+a\,b}\,\,\text{Tanh}[x]}{a}\right]\right)\right)\text{Log}\left[\frac{\sqrt{2}\,\sqrt{a\,(-a+b)}\,\,e^{-x}}{\sqrt{b}\,\sqrt{2a-b+b\,\text{Cosh}[2x]}}\right]+$$

$$\left(\text{ArcCos}\left[1-\frac{2a}{b}\right]-2\left(\text{ArcTan}\left[\frac{a\,\text{Coth}[x]}{\sqrt{-a\,(a-b)}}\right]+\text{ArcTan}\left[\frac{\sqrt{-a^2+a\,b}\,\,\text{Tanh}[x]}{a}\right]\right)\right)\text{Log}\left[\frac{\sqrt{2}\,\sqrt{a\,(-a+b)}\,\,e^{x}}{\sqrt{b}\,\sqrt{2a-b+b\,\text{Cosh}[2x]}}\right]-$$

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

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

$$i\left(-\text{PolyLog}\left[2,\frac{\left(-2a+b-2\,i\sqrt{a\,(-a+b)}\right)\left(i\,a+\sqrt{a\,(-a+b)}\,\,\text{Tanh}[x]\right)}{-i\,a\,b+b\sqrt{a\,(-a+b)}\,\,\text{Tanh}[x]}\right]+\right.$$

$$\left.\text{PolyLog}\left[2,\frac{\left(-2a+b+2\,i\sqrt{a\,(-a+b)}\right)\left(i\,a+\sqrt{a\,(-a+b)}\,\,\text{Tanh}[x]\right)}{-i\,a\,b+b\sqrt{a\,(-a+b)}\,\,\text{Tanh}[x]}\right]\right)\Bigg)$$

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

$$\int \frac{\text{Sinh}[a + b\,\text{Log}[c\,x^n]]}{x}\, dx$$

Optimal (type 3, 18 leaves, 2 steps):

$$\frac{\text{Cosh}[a + b\,\text{Log}[c\,x^n]]}{b\,n}$$

Result (type 3, 37 leaves):

$$\frac{\text{Cosh}[a]\,\text{Cosh}[b\,\text{Log}[c\,x^n]]}{b\,n} + \frac{\text{Sinh}[a]\,\text{Sinh}[b\,\text{Log}[c\,x^n]]}{b\,n}$$

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

$$\int \text{Sinh}\left[\frac{a + b\,x}{c + d\,x}\right] dx$$

Optimal (type 4, 101 leaves, 5 steps):

$$\frac{(b\,c - a\,d)\,\text{Cosh}\left[\frac{b}{d}\right]\,\text{CoshIntegral}\left[\frac{b\,c-a\,d}{d\,(c+d\,x)}\right]}{d^2} + \frac{(c + d\,x)\,\text{Sinh}\left[\frac{a+b\,x}{c+d\,x}\right]}{d} - \frac{(b\,c - a\,d)\,\text{Sinh}\left[\frac{b}{d}\right]\,\text{SinhIntegral}\left[\frac{b\,c-a\,d}{d\,(c+d\,x)}\right]}{d^2}$$

Result (type 4, 373 leaves):

$$\frac{1}{2\,d^2}\left((b\,c - a\,d)\,\text{CoshIntegral}\left[\frac{b\,c - a\,d}{c\,d + d^2\,x}\right]\left(\text{Cosh}\left[\frac{b}{d}\right] - \text{Sinh}\left[\frac{b}{d}\right]\right) + (b\,c - a\,d)\,\text{CoshIntegral}\left[\frac{-b\,c + a\,d}{d\,(c + d\,x)}\right]\left(\text{Cosh}\left[\frac{b}{d}\right] + \text{Sinh}\left[\frac{b}{d}\right]\right) + \right.$$
$$2\,c\,d\,\text{Sinh}\left[\frac{a + b\,x}{c + d\,x}\right] + 2\,d^2\,x\,\text{Sinh}\left[\frac{a + b\,x}{c + d\,x}\right] + b\,c\,\text{Cosh}\left[\frac{b}{d}\right]\,\text{SinhIntegral}\left[\frac{-b\,c + a\,d}{d\,(c + d\,x)}\right] - a\,d\,\text{Cosh}\left[\frac{b}{d}\right]\,\text{SinhIntegral}\left[\frac{-b\,c + a\,d}{d\,(c + d\,x)}\right] +$$
$$b\,c\,\text{Sinh}\left[\frac{b}{d}\right]\,\text{SinhIntegral}\left[\frac{-b\,c + a\,d}{d\,(c + d\,x)}\right] - a\,d\,\text{Sinh}\left[\frac{b}{d}\right]\,\text{SinhIntegral}\left[\frac{-b\,c + a\,d}{d\,(c + d\,x)}\right] + b\,c\,\text{Cosh}\left[\frac{b}{d}\right]\,\text{SinhIntegral}\left[\frac{b\,c - a\,d}{c\,d + d^2\,x}\right] -$$
$$\left. a\,d\,\text{Cosh}\left[\frac{b}{d}\right]\,\text{SinhIntegral}\left[\frac{b\,c - a\,d}{c\,d + d^2\,x}\right] - b\,c\,\text{Sinh}\left[\frac{b}{d}\right]\,\text{SinhIntegral}\left[\frac{b\,c - a\,d}{c\,d + d^2\,x}\right] + a\,d\,\text{Sinh}\left[\frac{b}{d}\right]\,\text{SinhIntegral}\left[\frac{b\,c - a\,d}{c\,d + d^2\,x}\right]\right)$$

Problem 297: Result more than twice size of optimal antiderivative.

$$\int \text{Sinh}\left[\frac{a + b\,x}{c + d\,x}\right]^3 dx$$

Optimal (type 4, 194 leaves, 9 steps):

$$-\frac{3\,(b\,c-a\,d)\,\mathrm{Cosh}\left[\frac{b}{d}\right]\,\mathrm{CoshIntegral}\left[\frac{b\,c-a\,d}{d\,(c+d\,x)}\right]}{4\,d^2}+\frac{3\,(b\,c-a\,d)\,\mathrm{Cosh}\left[\frac{3\,b}{d}\right]\,\mathrm{CoshIntegral}\left[\frac{3\,(b\,c-a\,d)}{d\,(c+d\,x)}\right]}{4\,d^2}+\frac{(c+d\,x)\,\mathrm{Sinh}\left[\frac{a+b\,x}{c+d\,x}\right]^3}{d}+\frac{3\,(b\,c-a\,d)\,\mathrm{Sinh}\left[\frac{b}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{b\,c-a\,d}{d\,(c+d\,x)}\right]}{4\,d^2}-\frac{3\,(b\,c-a\,d)\,\mathrm{Sinh}\left[\frac{3\,b}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{3\,(b\,c-a\,d)}{d\,(c+d\,x)}\right]}{4\,d^2}$$

Result (type 4, 599 leaves):

$$\frac{1}{8\,d^2}\left(6\,(b\,c-a\,d)\,\mathrm{Cosh}\left[\frac{3\,b}{d}\right]\,\mathrm{CoshIntegral}\left[\frac{3\,(-b\,c+a\,d)}{d\,(c+d\,x)}\right]-3\,b\,c\,\mathrm{Cosh}\left[\frac{b}{d}\right]\,\mathrm{CoshIntegral}\left[\frac{b\,c-a\,d}{c\,d+d^2\,x}\right]+\right.$$
$$3\,a\,d\,\mathrm{Cosh}\left[\frac{b}{d}\right]\,\mathrm{CoshIntegral}\left[\frac{b\,c-a\,d}{c\,d+d^2\,x}\right]+3\,b\,c\,\mathrm{CoshIntegral}\left[\frac{b\,c-a\,d}{c\,d+d^2\,x}\right]\,\mathrm{Sinh}\left[\frac{b}{d}\right]-3\,a\,d\,\mathrm{CoshIntegral}\left[\frac{b\,c-a\,d}{c\,d+d^2\,x}\right]\,\mathrm{Sinh}\left[\frac{b}{d}\right]-$$
$$3\,(b\,c-a\,d)\,\mathrm{CoshIntegral}\left[\frac{-b\,c+a\,d}{d\,(c+d\,x)}\right]\left(\mathrm{Cosh}\left[\frac{b}{d}\right]+\mathrm{Sinh}\left[\frac{b}{d}\right]\right)-6\,c\,d\,\mathrm{Sinh}\left[\frac{a+b\,x}{c+d\,x}\right]-6\,d^2\,x\,\mathrm{Sinh}\left[\frac{a+b\,x}{c+d\,x}\right]+$$
$$2\,c\,d\,\mathrm{Sinh}\left[\frac{3\,(a+b\,x)}{c+d\,x}\right]+2\,d^2\,x\,\mathrm{Sinh}\left[\frac{3\,(a+b\,x)}{c+d\,x}\right]-3\,b\,c\,\mathrm{Cosh}\left[\frac{b}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{-b\,c+a\,d}{d\,(c+d\,x)}\right]+$$
$$3\,a\,d\,\mathrm{Cosh}\left[\frac{b}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{-b\,c+a\,d}{d\,(c+d\,x)}\right]-3\,b\,c\,\mathrm{Sinh}\left[\frac{b}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{-b\,c+a\,d}{d\,(c+d\,x)}\right]+3\,a\,d\,\mathrm{Sinh}\left[\frac{b}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{-b\,c+a\,d}{d\,(c+d\,x)}\right]+$$
$$6\,b\,c\,\mathrm{Sinh}\left[\frac{3\,b}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{3\,(-b\,c+a\,d)}{d\,(c+d\,x)}\right]-6\,a\,d\,\mathrm{Sinh}\left[\frac{3\,b}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{3\,(-b\,c+a\,d)}{d\,(c+d\,x)}\right]-3\,b\,c\,\mathrm{Cosh}\left[\frac{b}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{b\,c-a\,d}{c\,d+d^2\,x}\right]+$$
$$\left.3\,a\,d\,\mathrm{Cosh}\left[\frac{b}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{b\,c-a\,d}{c\,d+d^2\,x}\right]+3\,b\,c\,\mathrm{Sinh}\left[\frac{b}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{b\,c-a\,d}{c\,d+d^2\,x}\right]-3\,a\,d\,\mathrm{Sinh}\left[\frac{b}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{b\,c-a\,d}{c\,d+d^2\,x}\right]\right)$$

Problem 298: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sinh}\left[e+\frac{f\,(a+b\,x)}{c+d\,x}\right]\,dx$$

Optimal (type 4, 121 leaves, 6 steps):

$$\frac{(b\,c-a\,d)\,f\,\mathrm{Cosh}\left[e+\frac{b\,f}{d}\right]\,\mathrm{CoshIntegral}\left[\frac{(b\,c-a\,d)\,f}{d\,(c+d\,x)}\right]}{d^2}+\frac{(c+d\,x)\,\mathrm{Sinh}\left[\frac{c\,e+a\,f+d\,e\,x+b\,f\,x}{c+d\,x}\right]}{d}-\frac{(b\,c-a\,d)\,f\,\mathrm{Sinh}\left[e+\frac{b\,f}{d}\right]\,\mathrm{SinhIntegral}\left[\frac{(b\,c-a\,d)\,f}{d\,(c+d\,x)}\right]}{d^2}$$

Result (type 4, 449 leaves):

$$\frac{1}{2 d^2} \left((b c - a d) f \, \text{CoshIntegral}\left[\frac{(b c - a d) f}{d (c + d x)}\right] \left(\text{Cosh}\left[e + \frac{b f}{d}\right] - \text{Sinh}\left[e + \frac{b f}{d}\right]\right) + (b c - a d) f \, \text{CoshIntegral}\left[\frac{-b c f + a d f}{d (c + d x)}\right] \left(\text{Cosh}\left[e + \frac{b f}{d}\right] + \text{Sinh}\left[e + \frac{b f}{d}\right]\right) + 2 c d \, \text{Sinh}\left[\frac{c e + a f + d e x + b f x}{c + d x}\right] + 2 d^2 x \, \text{Sinh}\left[\frac{c e + a f + d e x + b f x}{c + d x}\right] + b c f \, \text{Cosh}\left[e + \frac{b f}{d}\right] \text{SinhIntegral}\left[\frac{(b c - a d) f}{d (c + d x)}\right] - a d f \, \text{Cosh}\left[e + \frac{b f}{d}\right] \text{SinhIntegral}\left[\frac{(b c - a d) f}{d (c + d x)}\right] - b c f \, \text{Sinh}\left[e + \frac{b f}{d}\right] \text{SinhIntegral}\left[\frac{(b c - a d) f}{d (c + d x)}\right] + a d f \, \text{Sinh}\left[e + \frac{b f}{d}\right] \text{SinhIntegral}\left[\frac{(b c - a d) f}{d (c + d x)}\right] + b c f \, \text{Cosh}\left[e + \frac{b f}{d}\right] \text{SinhIntegral}\left[\frac{-b c f + a d f}{d (c + d x)}\right] - a d f \, \text{Cosh}\left[e + \frac{b f}{d}\right] \text{SinhIntegral}\left[\frac{-b c f + a d f}{d (c + d x)}\right] + b c f \, \text{Sinh}\left[e + \frac{b f}{d}\right] \text{SinhIntegral}\left[\frac{-b c f + a d f}{d (c + d x)}\right] - a d f \, \text{Sinh}\left[e + \frac{b f}{d}\right] \text{SinhIntegral}\left[\frac{-b c f + a d f}{d (c + d x)}\right] \right)$$

Problem 300: Result more than twice size of optimal antiderivative.

$$\int \text{Sinh}\left[e + \frac{f (a + b x)}{c + d x}\right]^3 \, dx$$

Optimal (type 4, 226 leaves, 10 steps):

$$-\frac{3 (b c - a d) f \, \text{Cosh}\left[e + \frac{b f}{d}\right] \text{CoshIntegral}\left[\frac{(b c - a d) f}{d (c + d x)}\right]}{4 d^2} + \frac{3 (b c - a d) f \, \text{Cosh}\left[3 \left(e + \frac{b f}{d}\right)\right] \text{CoshIntegral}\left[\frac{3 (b c - a d) f}{d (c + d x)}\right]}{4 d^2} + \frac{(c + d x) \, \text{Sinh}\left[\frac{c e + a f + d e x + b f x}{c + d x}\right]^3}{d} + \frac{3 (b c - a d) f \, \text{Sinh}\left[e + \frac{b f}{d}\right] \text{SinhIntegral}\left[\frac{(b c - a d) f}{d (c + d x)}\right]}{4 d^2} - \frac{3 (b c - a d) f \, \text{Sinh}\left[3 \left(e + \frac{b f}{d}\right)\right] \text{SinhIntegral}\left[\frac{3 (b c - a d) f}{d (c + d x)}\right]}{4 d^2}$$

Result (type 4, 671 leaves):

$$\frac{1}{8\,d^2}\left(6\,b\,c\,f\,\text{Cosh}\left[3\left(e+\frac{b\,f}{d}\right)\right]\text{CoshIntegral}\left[\frac{3\,(-b\,c\,f+a\,d\,f)}{d\,(c+d\,x)}\right]-\right.$$
$$6\,a\,d\,f\,\text{Cosh}\left[3\left(e+\frac{b\,f}{d}\right)\right]\text{CoshIntegral}\left[\frac{3\,(-b\,c\,f+a\,d\,f)}{d\,(c+d\,x)}\right]+3\,(b\,c-a\,d)\,f\,\text{CoshIntegral}\left[\frac{(b\,c-a\,d)\,f}{d\,(c+d\,x)}\right]\left(-\text{Cosh}\left[e+\frac{b\,f}{d}\right]+\text{Sinh}\left[e+\frac{b\,f}{d}\right]\right)-$$
$$3\,(b\,c-a\,d)\,f\,\text{CoshIntegral}\left[\frac{-b\,c\,f+a\,d\,f}{d\,(c+d\,x)}\right]\left(\text{Cosh}\left[e+\frac{b\,f}{d}\right]+\text{Sinh}\left[e+\frac{b\,f}{d}\right]\right)-6\,c\,d\,\text{Sinh}\left[\frac{c\,e+a\,f+d\,e\,x+b\,f\,x}{c+d\,x}\right]-$$
$$6\,d^2\,x\,\text{Sinh}\left[\frac{c\,e+a\,f+d\,e\,x+b\,f\,x}{c+d\,x}\right]+2\,c\,d\,\text{Sinh}\left[\frac{3\,(c\,e+a\,f+d\,e\,x+b\,f\,x)}{c+d\,x}\right]+2\,d^2\,x\,\text{Sinh}\left[\frac{3\,(c\,e+a\,f+d\,e\,x+b\,f\,x)}{c+d\,x}\right]-$$
$$3\,b\,c\,f\,\text{Cosh}\left[e+\frac{b\,f}{d}\right]\text{SinhIntegral}\left[\frac{(b\,c-a\,d)\,f}{d\,(c+d\,x)}\right]+3\,a\,d\,f\,\text{Cosh}\left[e+\frac{b\,f}{d}\right]\text{SinhIntegral}\left[\frac{(b\,c-a\,d)\,f}{d\,(c+d\,x)}\right]+$$
$$3\,b\,c\,f\,\text{Sinh}\left[e+\frac{b\,f}{d}\right]\text{SinhIntegral}\left[\frac{(b\,c-a\,d)\,f}{d\,(c+d\,x)}\right]-3\,a\,d\,f\,\text{Sinh}\left[e+\frac{b\,f}{d}\right]\text{SinhIntegral}\left[\frac{(b\,c-a\,d)\,f}{d\,(c+d\,x)}\right]-$$
$$3\,b\,c\,f\,\text{Cosh}\left[e+\frac{b\,f}{d}\right]\text{SinhIntegral}\left[\frac{-b\,c\,f+a\,d\,f}{d\,(c+d\,x)}\right]+3\,a\,d\,f\,\text{Cosh}\left[e+\frac{b\,f}{d}\right]\text{SinhIntegral}\left[\frac{-b\,c\,f+a\,d\,f}{d\,(c+d\,x)}\right]-$$
$$3\,b\,c\,f\,\text{Sinh}\left[e+\frac{b\,f}{d}\right]\text{SinhIntegral}\left[\frac{-b\,c\,f+a\,d\,f}{d\,(c+d\,x)}\right]+3\,a\,d\,f\,\text{Sinh}\left[e+\frac{b\,f}{d}\right]\text{SinhIntegral}\left[\frac{-b\,c\,f+a\,d\,f}{d\,(c+d\,x)}\right]+$$
$$\left.6\,b\,c\,f\,\text{Sinh}\left[3\left(e+\frac{b\,f}{d}\right)\right]\text{SinhIntegral}\left[\frac{3\,(-b\,c\,f+a\,d\,f)}{d\,(c+d\,x)}\right]-6\,a\,d\,f\,\text{Sinh}\left[3\left(e+\frac{b\,f}{d}\right)\right]\text{SinhIntegral}\left[\frac{3\,(-b\,c\,f+a\,d\,f)}{d\,(c+d\,x)}\right]\right)$$

Problem 312: Result more than twice size of optimal antiderivative.

$$\int e^x\,\text{Csch}[2\,x]\,dx$$

Optimal (type 3, 11 leaves, 5 steps):

$$\text{ArcTan}[e^x]-\text{ArcTanh}[e^x]$$

Result (type 3, 27 leaves):

$$\text{ArcTan}[e^x]+\frac{1}{2}\,\text{Log}[1-e^x]-\frac{1}{2}\,\text{Log}[1+e^x]$$

Problem 320: Result is not expressed in closed-form.

$$\int e^x\,\text{Csch}[4\,x]\,dx$$

Optimal (type 3, 113 leaves, 15 steps):

$$-\frac{1}{2}\text{ArcTan}\left[e^x\right]-\frac{\text{ArcTan}\left[1-\sqrt{2}\ e^x\right]}{2\sqrt{2}}+\frac{\text{ArcTan}\left[1+\sqrt{2}\ e^x\right]}{2\sqrt{2}}-\frac{\text{ArcTanh}\left[e^x\right]}{2}-\frac{\text{Log}\left[1-\sqrt{2}\ e^x+e^{2x}\right]}{4\sqrt{2}}+\frac{\text{Log}\left[1+\sqrt{2}\ e^x+e^{2x}\right]}{4\sqrt{2}}$$

Result (type 7, 56 leaves):

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

Problem 321: Result is not expressed in closed-form.

$$\int e^x\,\text{Csch}[4x]^2\,dx$$

Optimal (type 3, 131 leaves, 16 steps):

$$\frac{e^x}{2\left(1-e^{8x}\right)}-\frac{\text{ArcTan}\left[e^x\right]}{8}+\frac{\text{ArcTan}\left[1-\sqrt{2}\ e^x\right]}{8\sqrt{2}}-\frac{\text{ArcTan}\left[1+\sqrt{2}\ e^x\right]}{8\sqrt{2}}-\frac{\text{ArcTanh}\left[e^x\right]}{8}+\frac{\text{Log}\left[1-\sqrt{2}\ e^x+e^{2x}\right]}{16\sqrt{2}}-\frac{\text{Log}\left[1+\sqrt{2}\ e^x+e^{2x}\right]}{16\sqrt{2}}$$

Result (type 7, 68 leaves):

$$\frac{1}{16}\left(-\frac{8\,e^x}{-1+e^{8x}}-2\,\text{ArcTan}\left[e^x\right]+\text{Log}\left[1-e^x\right]-\text{Log}\left[1+e^x\right]+\text{RootSum}\left[1+\#1^4\,\&,\ \frac{x-\text{Log}\left[e^x-\#1\right]}{\#1^3}\,\&\right]\right)$$

Problem 327: Result more than twice size of optimal antiderivative.

$$\int F^{c\,(a+b\,x)}\,\text{Csch}[d+e\,x]^3\,dx$$

Optimal (type 5, 122 leaves, 2 steps):

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

Result (type 5, 416 leaves):

$$-\frac{F^{a c+b c x}\,\text{Csch}\left[\frac{d}{2}+\frac{e x}{2}\right]^2}{8 e}-\frac{b c F^{a c+b c x}\,\text{Csch}[d]\,\text{Log}[F]}{2 e^2}+\frac{F^{c (a+b x)}\,\text{Csch}[d]\left(-e^2+b^2 c^2\,\text{Log}[F]^2\right)}{2 b c e^2\,\text{Log}[F]}-\frac{F^{a c+b c x}\,\text{Sech}\left[\frac{d}{2}+\frac{e x}{2}\right]^2}{8 e}+$$

$$\left(F^{c (a+b x)}\left(e^2-b^2 c^2\,\text{Log}[F]^2\right)\left(1+\text{Hypergeometric2F1}\left[1,\frac{b c\,\text{Log}[F]}{e},1+\frac{b c\,\text{Log}[F]}{e},\text{Cosh}[d+e x]+\text{Sinh}[d+e x]\right]\left(-1+\text{Cosh}[d]+\text{Sinh}[d]\right)\right)\right)\Big/$$
$$\left(2 b c e^2\,\text{Log}[F]\left(-1+\text{Cosh}[d]+\text{Sinh}[d]\right)\right)+$$

$$\left(F^{c (a+b x)}\left(e^2-b^2 c^2\,\text{Log}[F]^2\right)\left(1-\text{Hypergeometric2F1}\left[1,\frac{b c\,\text{Log}[F]}{e},1+\frac{b c\,\text{Log}[F]}{e},-\text{Cosh}[d+e x]-\text{Sinh}[d+e x]\right]\left(1+\text{Cosh}[d]+\text{Sinh}[d]\right)\right)\right)\Big/$$
$$\left(2 b c e^2\,\text{Log}[F]\left(1+\text{Cosh}[d]+\text{Sinh}[d]\right)\right)+$$

$$\frac{b c F^{a c+b c x}\,\text{Csch}\left[\frac{d}{2}\right]\text{Csch}\left[\frac{d}{2}+\frac{e x}{2}\right]\text{Log}[F]\,\text{Sinh}\left[\frac{e x}{2}\right]}{4 e^2}+\frac{b c F^{a c+b c x}\,\text{Log}[F]\,\text{Sech}\left[\frac{d}{2}\right]\text{Sech}\left[\frac{d}{2}+\frac{e x}{2}\right]\text{Sinh}\left[\frac{e x}{2}\right]}{4 e^2}$$

Problem 356: Result more than twice size of optimal antiderivative.

$$\int f^{a+c x^2}\,\text{Sinh}\left[d+e x+f x^2\right]^3\,dx$$

Optimal (type 4, 300 leaves, 14 steps):

$$\frac{3\,\mathrm{e}^{-d+\frac{e^2}{4 f-4 c\,\text{Log}[f]}} f^a\sqrt{\pi}\,\text{Erf}\left[\frac{e+2 x\,(f-c\,\text{Log}[f])}{2\sqrt{f-c\,\text{Log}[f]}}\right]}{16\sqrt{f-c\,\text{Log}[f]}}-\frac{\mathrm{e}^{-3 d+\frac{9 e^2}{12 f-4 c\,\text{Log}[f]}} f^a\sqrt{\pi}\,\text{Erf}\left[\frac{3 e+2 x\,(3 f-c\,\text{Log}[f])}{2\sqrt{3 f-c\,\text{Log}[f]}}\right]}{16\sqrt{3 f-c\,\text{Log}[f]}}-$$

$$\frac{3\,\mathrm{e}^{d-\frac{e^2}{4 (f+c\,\text{Log}[f])}} f^a\sqrt{\pi}\,\text{Erfi}\left[\frac{e+2 x\,(f+c\,\text{Log}[f])}{2\sqrt{f+c\,\text{Log}[f]}}\right]}{16\sqrt{f+c\,\text{Log}[f]}}+\frac{\mathrm{e}^{3 d-\frac{9 e^2}{4 (3 f+c\,\text{Log}[f])}} f^a\sqrt{\pi}\,\text{Erfi}\left[\frac{3 e+2 x\,(3 f+c\,\text{Log}[f])}{2\sqrt{3 f+c\,\text{Log}[f]}}\right]}{16\sqrt{3 f+c\,\text{Log}[f]}}$$

Result (type 4, 2303 leaves):

$$\frac{1}{16\,(f-c\,\text{Log}[f])\,(3 f-c\,\text{Log}[f])\,(f+c\,\text{Log}[f])\,(3 f+c\,\text{Log}[f])}$$

$$f^a\sqrt{\pi}\left(27\,\mathrm{e}^{\frac{e^2}{4 (f-c\,\text{Log}[f])}} f^3\,\text{Cosh}[d]\,\text{Erf}\left[\frac{e+2 f x-2 c x\,\text{Log}[f]}{2\sqrt{f-c\,\text{Log}[f]}}\right]\sqrt{f-c\,\text{Log}[f]}+27 c\,\mathrm{e}^{\frac{e^2}{4 (f-c\,\text{Log}[f])}} f^2\,\text{Cosh}[d]\right.$$

$$\text{Erf}\left[\frac{e+2 f x-2 c x\,\text{Log}[f]}{2\sqrt{f-c\,\text{Log}[f]}}\right]\text{Log}[f]\sqrt{f-c\,\text{Log}[f]}-3 c^2\,\mathrm{e}^{\frac{e^2}{4 (f-c\,\text{Log}[f])}} f\,\text{Cosh}[d]\,\text{Erf}\left[\frac{e+2 f x-2 c x\,\text{Log}[f]}{2\sqrt{f-c\,\text{Log}[f]}}\right]\text{Log}[f]^2\sqrt{f-c\,\text{Log}[f]}-$$

$$3 c^3\,\mathrm{e}^{\frac{e^2}{4 (f-c\,\text{Log}[f])}}\,\text{Cosh}[d]\,\text{Erf}\left[\frac{e+2 f x-2 c x\,\text{Log}[f]}{2\sqrt{f-c\,\text{Log}[f]}}\right]\text{Log}[f]^3\sqrt{f-c\,\text{Log}[f]}-3\,\mathrm{e}^{\frac{9 e^2}{4 (3 f-c\,\text{Log}[f])}} f^3\,\text{Cosh}[3 d]\,\text{Erf}\left[\frac{3 e+6 f x-2 c x\,\text{Log}[f]}{2\sqrt{3 f-c\,\text{Log}[f]}}\right]$$

$$\sqrt{3 f-c\,\text{Log}[f]}-c\,\mathrm{e}^{\frac{9 e^2}{4 (3 f-c\,\text{Log}[f])}} f^2\,\text{Cosh}[3 d]\,\text{Erf}\left[\frac{3 e+6 f x-2 c x\,\text{Log}[f]}{2\sqrt{3 f-c\,\text{Log}[f]}}\right]\text{Log}[f]\sqrt{3 f-c\,\text{Log}[f]}+$$

$$3\,c^2\,e^{\frac{9\,e^2}{4\,(3\,f-c\,\text{Log}[f])}}\,f\,\text{Cosh}[3\,d]\,\text{Erf}\left[\frac{3\,e+6\,f\,x-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{3\,f-c\,\text{Log}[f]}\,+c^3\,e^{\frac{9\,e^2}{4\,(3\,f-c\,\text{Log}[f])}}\,\text{Cosh}[3\,d]$$

$$\text{Erf}\left[\frac{3\,e+6\,f\,x-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{3\,f-c\,\text{Log}[f]}\,-27\,e^{-\frac{e^2}{4\,(f+c\,\text{Log}[f])}}\,f^3\,\text{Cosh}[d]\,\text{Erfi}\left[\frac{e+2\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f+c\,\text{Log}[f]}}\right]\,\sqrt{f+c\,\text{Log}[f]}\,+$$

$$27\,c\,e^{-\frac{e^2}{4\,(f+c\,\text{Log}[f])}}\,f^2\,\text{Cosh}[d]\,\text{Erfi}\left[\frac{e+2\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f+c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{f+c\,\text{Log}[f]}\,+3\,c^2\,e^{-\frac{e^2}{4\,(f+c\,\text{Log}[f])}}\,f\,\text{Cosh}[d]\,\text{Erfi}\left[\frac{e+2\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f+c\,\text{Log}[f]}}\right]$$

$$\text{Log}[f]^2\,\sqrt{f+c\,\text{Log}[f]}\,-3\,c^3\,e^{-\frac{e^2}{4\,(f+c\,\text{Log}[f])}}\,\text{Cosh}[d]\,\text{Erfi}\left[\frac{e+2\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f+c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{f+c\,\text{Log}[f]}\,+$$

$$3\,e^{-\frac{9\,e^2}{4\,(3\,f+c\,\text{Log}[f])}}\,f^3\,\text{Cosh}[3\,d]\,\text{Erfi}\left[\frac{3\,e+6\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f+c\,\text{Log}[f]}}\right]\,\sqrt{3\,f+c\,\text{Log}[f]}\,-c\,e^{-\frac{9\,e^2}{4\,(3\,f+c\,\text{Log}[f])}}\,f^2\,\text{Cosh}[3\,d]\,\text{Erfi}\left[\frac{3\,e+6\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f+c\,\text{Log}[f]}}\right]$$

$$\text{Log}[f]\,\sqrt{3\,f+c\,\text{Log}[f]}\,-3\,c^2\,e^{-\frac{9\,e^2}{4\,(3\,f+c\,\text{Log}[f])}}\,f\,\text{Cosh}[3\,d]\,\text{Erfi}\left[\frac{3\,e+6\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f+c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{3\,f+c\,\text{Log}[f]}\,+$$

$$c^3\,e^{-\frac{9\,e^2}{4\,(3\,f+c\,\text{Log}[f])}}\,\text{Cosh}[3\,d]\,\text{Erfi}\left[\frac{3\,e+6\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f+c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{3\,f+c\,\text{Log}[f]}\,-27\,e^{\frac{e^2}{4\,(f-c\,\text{Log}[f])}}\,f^3\,\text{Erf}\left[\frac{e+2\,f\,x-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f-c\,\text{Log}[f]}}\right]$$

$$\sqrt{f-c\,\text{Log}[f]}\,\text{Sinh}[d]-27\,c\,e^{\frac{e^2}{4\,(f-c\,\text{Log}[f])}}\,f^2\,\text{Erf}\left[\frac{e+2\,f\,x-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{f-c\,\text{Log}[f]}\,\text{Sinh}[d]+$$

$$3\,c^2\,e^{\frac{e^2}{4\,(f-c\,\text{Log}[f])}}\,f\,\text{Erf}\left[\frac{e+2\,f\,x-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{f-c\,\text{Log}[f]}\,\text{Sinh}[d]+3\,c^3\,e^{\frac{e^2}{4\,(f-c\,\text{Log}[f])}}\,\text{Erf}\left[\frac{e+2\,f\,x-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f-c\,\text{Log}[f]}}\right]$$

$$\text{Log}[f]^3\,\sqrt{f-c\,\text{Log}[f]}\,\text{Sinh}[d]-27\,e^{-\frac{e^2}{4\,(f+c\,\text{Log}[f])}}\,f^3\,\text{Erfi}\left[\frac{e+2\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f+c\,\text{Log}[f]}}\right]\,\sqrt{f+c\,\text{Log}[f]}\,\text{Sinh}[d]+$$

$$27\,c\,e^{-\frac{e^2}{4\,(f+c\,\text{Log}[f])}}\,f^2\,\text{Erfi}\left[\frac{e+2\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f+c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{f+c\,\text{Log}[f]}\,\text{Sinh}[d]+3\,c^2\,e^{-\frac{e^2}{4\,(f+c\,\text{Log}[f])}}\,f\,\text{Erfi}\left[\frac{e+2\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f+c\,\text{Log}[f]}}\right]$$

$$\text{Log}[f]^2\,\sqrt{f+c\,\text{Log}[f]}\,\text{Sinh}[d]-3\,c^3\,e^{-\frac{e^2}{4\,(f+c\,\text{Log}[f])}}\,\text{Erfi}\left[\frac{e+2\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f+c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{f+c\,\text{Log}[f]}\,\text{Sinh}[d]+$$

$$3\,e^{\frac{9\,e^2}{4\,(3\,f-c\,\text{Log}[f])}}\,f^3\,\text{Erf}\left[\frac{3\,e+6\,f\,x-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f-c\,\text{Log}[f]}}\right]\,\sqrt{3\,f-c\,\text{Log}[f]}\,\text{Sinh}[3\,d]+c\,e^{\frac{9\,e^2}{4\,(3\,f-c\,\text{Log}[f])}}\,f^2\,\text{Erf}\left[\frac{3\,e+6\,f\,x-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f-c\,\text{Log}[f]}}\right]$$

$$\text{Log}[f]\,\sqrt{3\,f-c\,\text{Log}[f]}\,\text{Sinh}[3\,d]-3\,c^2\,e^{\frac{9\,e^2}{4\,(3\,f-c\,\text{Log}[f])}}\,f\,\text{Erf}\left[\frac{3\,e+6\,f\,x-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{3\,f-c\,\text{Log}[f]}\,\text{Sinh}[3\,d]-$$

$$c^3\,e^{\frac{9\,e^2}{4\,(3\,f-c\,\text{Log}[f])}}\,\text{Erf}\left[\frac{3\,e+6\,f\,x-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{3\,f-c\,\text{Log}[f]}\,\text{Sinh}[3\,d]+3\,e^{-\frac{9\,e^2}{4\,(3\,f+c\,\text{Log}[f])}}\,f^3\,\text{Erfi}\left[\frac{3\,e+6\,f\,x+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f+c\,\text{Log}[f]}}\right]$$

$$\sqrt{3 f+c \operatorname{Log}[f]} \operatorname{Sinh}[3 d]-c\, e^{-\frac{9 e^2}{4 (3 f+c \operatorname{Log}[f])}} f^2 \operatorname{Erfi}\left[\frac{3 e+6 f x+2 c x \operatorname{Log}[f]}{2 \sqrt{3 f+c \operatorname{Log}[f]}}\right] \operatorname{Log}[f] \sqrt{3 f+c \operatorname{Log}[f]} \operatorname{Sinh}[3 d]-$$
$$3 c^2 e^{-\frac{9 e^2}{4 (3 f+c \operatorname{Log}[f])}} f \operatorname{Erfi}\left[\frac{3 e+6 f x+2 c x \operatorname{Log}[f]}{2 \sqrt{3 f+c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^2 \sqrt{3 f+c \operatorname{Log}[f]} \operatorname{Sinh}[3 d]+$$
$$\left.c^3 e^{-\frac{9 e^2}{4 (3 f+c \operatorname{Log}[f])}} \operatorname{Erfi}\left[\frac{3 e+6 f x+2 c x \operatorname{Log}[f]}{2 \sqrt{3 f+c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^3 \sqrt{3 f+c \operatorname{Log}[f]} \operatorname{Sinh}[3 d]\right)$$

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

$$\int f^{a+b x+c x^2} \operatorname{Sinh}\left[d+f x^2\right]^3 dx$$

Optimal (type 4, 323 leaves, 14 steps):

$$-\frac{3 e^{-d+\frac{b^2 \operatorname{Log}[f]^2}{4 f-4 c \operatorname{Log}[f]}} f^a \sqrt{\pi} \operatorname{Erf}\left[\frac{b \operatorname{Log}[f]-2 x (f-c \operatorname{Log}[f])}{2 \sqrt{f-c \operatorname{Log}[f]}}\right]}{16 \sqrt{f-c \operatorname{Log}[f]}}+\frac{e^{-3 d+\frac{b^2 \operatorname{Log}[f]^2}{12 f-4 c \operatorname{Log}[f]}} f^a \sqrt{\pi} \operatorname{Erf}\left[\frac{b \operatorname{Log}[f]-2 x (3 f-c \operatorname{Log}[f])}{2 \sqrt{3 f-c \operatorname{Log}[f]}}\right]}{16 \sqrt{3 f-c \operatorname{Log}[f]}}-$$
$$\frac{3 e^{d-\frac{b^2 \operatorname{Log}[f]^2}{4 (f+c \operatorname{Log}[f])}} f^a \sqrt{\pi} \operatorname{Erfi}\left[\frac{b \operatorname{Log}[f]+2 x (f+c \operatorname{Log}[f])}{2 \sqrt{f+c \operatorname{Log}[f]}}\right]}{16 \sqrt{f+c \operatorname{Log}[f]}}+\frac{e^{3 d-\frac{b^2 \operatorname{Log}[f]^2}{4 (3 f+c \operatorname{Log}[f])}} f^a \sqrt{\pi} \operatorname{Erfi}\left[\frac{b \operatorname{Log}[f]+2 x (3 f+c \operatorname{Log}[f])}{2 \sqrt{3 f+c \operatorname{Log}[f]}}\right]}{16 \sqrt{3 f+c \operatorname{Log}[f]}}$$

Result (type 4, 2511 leaves):

$$\frac{1}{16 (f-c \operatorname{Log}[f]) (3 f-c \operatorname{Log}[f]) (f+c \operatorname{Log}[f]) (3 f+c \operatorname{Log}[f])}$$
$$f^a \sqrt{\pi} \left(27 e^{\frac{b^2 \operatorname{Log}[f]^2}{4 (f-c \operatorname{Log}[f])}} f^3 \operatorname{Cosh}[d] \operatorname{Erf}\left[\frac{2 f x-b \operatorname{Log}[f]-2 c x \operatorname{Log}[f]}{2 \sqrt{f-c \operatorname{Log}[f]}}\right] \sqrt{f-c \operatorname{Log}[f]}+27 c\, e^{\frac{b^2 \operatorname{Log}[f]^2}{4 (f-c \operatorname{Log}[f])}} f^2 \operatorname{Cosh}[d] \operatorname{Erf}\left[\frac{2 f x-b \operatorname{Log}[f]-2 c x \operatorname{Log}[f]}{2 \sqrt{f-c \operatorname{Log}[f]}}\right]\right.$$
$$\operatorname{Log}[f] \sqrt{f-c \operatorname{Log}[f]}-3 c^2 e^{\frac{b^2 \operatorname{Log}[f]^2}{4 (f-c \operatorname{Log}[f])}} f \operatorname{Cosh}[d] \operatorname{Erf}\left[\frac{2 f x-b \operatorname{Log}[f]-2 c x \operatorname{Log}[f]}{2 \sqrt{f-c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^2 \sqrt{f-c \operatorname{Log}[f]}-$$
$$3 c^3 e^{\frac{b^2 \operatorname{Log}[f]^2}{4 (f-c \operatorname{Log}[f])}} \operatorname{Cosh}[d] \operatorname{Erf}\left[\frac{2 f x-b \operatorname{Log}[f]-2 c x \operatorname{Log}[f]}{2 \sqrt{f-c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^3 \sqrt{f-c \operatorname{Log}[f]}-3 e^{\frac{b^2 \operatorname{Log}[f]^2}{4 (3 f-c \operatorname{Log}[f])}} f^3 \operatorname{Cosh}[3 d]$$
$$\operatorname{Erf}\left[\frac{6 f x-b \operatorname{Log}[f]-2 c x \operatorname{Log}[f]}{2 \sqrt{3 f-c \operatorname{Log}[f]}}\right] \sqrt{3 f-c \operatorname{Log}[f]}-c\, e^{\frac{b^2 \operatorname{Log}[f]^2}{4 (3 f-c \operatorname{Log}[f])}} f^2 \operatorname{Cosh}[3 d] \operatorname{Erf}\left[\frac{6 f x-b \operatorname{Log}[f]-2 c x \operatorname{Log}[f]}{2 \sqrt{3 f-c \operatorname{Log}[f]}}\right] \operatorname{Log}[f] \sqrt{3 f-c \operatorname{Log}[f]}+$$
$$3 c^2 e^{\frac{b^2 \operatorname{Log}[f]^2}{4 (3 f-c \operatorname{Log}[f])}} f \operatorname{Cosh}[3 d] \operatorname{Erf}\left[\frac{6 f x-b \operatorname{Log}[f]-2 c x \operatorname{Log}[f]}{2 \sqrt{3 f-c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^2 \sqrt{3 f-c \operatorname{Log}[f]}+$$

$$c^3\, e^{\frac{b^2 \text{Log}[f]^2}{4 (3 f-c \text{Log}[f])}} \text{Cosh}[3 d]\, \text{Erf}\left[\frac{6 f x-b \text{Log}[f]-2 c x \text{Log}[f]}{2 \sqrt{3 f-c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{3 f-c \text{Log}[f]}\; -$$

$$27\, e^{-\frac{b^2 \text{Log}[f]^2}{4 (f+c \text{Log}[f])}} f^3 \text{Cosh}[d]\, \text{Erfi}\left[\frac{2 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{f+c \text{Log}[f]}}\right] \sqrt{f+c \text{Log}[f]}+27 c\, e^{-\frac{b^2 \text{Log}[f]^2}{4 (f+c \text{Log}[f])}} f^2 \text{Cosh}[d]\, \text{Erfi}\left[\frac{2 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{f+c \text{Log}[f]}}\right]$$

$$\text{Log}[f] \sqrt{f+c \text{Log}[f]}+3 c^2 e^{-\frac{b^2 \text{Log}[f]^2}{4 (f+c \text{Log}[f])}} f\, \text{Cosh}[d]\, \text{Erfi}\left[\frac{2 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{f+c \text{Log}[f]}}\right] \text{Log}[f]^2 \sqrt{f+c \text{Log}[f]}\; -$$

$$3 c^3 e^{-\frac{b^2 \text{Log}[f]^2}{4 (f+c \text{Log}[f])}} \text{Cosh}[d]\, \text{Erfi}\left[\frac{2 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{f+c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{f+c \text{Log}[f]}\; +$$

$$3\, e^{-\frac{b^2 \text{Log}[f]^2}{4 (3 f+c \text{Log}[f])}} f^3 \text{Cosh}[3 d]\, \text{Erfi}\left[\frac{6 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{3 f+c \text{Log}[f]}}\right] \sqrt{3 f+c \text{Log}[f]}\; -$$

$$c\, e^{-\frac{b^2 \text{Log}[f]^2}{4 (3 f+c \text{Log}[f])}} f^2 \text{Cosh}[3 d]\, \text{Erfi}\left[\frac{6 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{3 f+c \text{Log}[f]}}\right] \text{Log}[f] \sqrt{3 f+c \text{Log}[f]}\; -$$

$$3 c^2 e^{-\frac{b^2 \text{Log}[f]^2}{4 (3 f+c \text{Log}[f])}} f\, \text{Cosh}[3 d]\, \text{Erfi}\left[\frac{6 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{3 f+c \text{Log}[f]}}\right] \text{Log}[f]^2 \sqrt{3 f+c \text{Log}[f]}\; +$$

$$c^3 e^{-\frac{b^2 \text{Log}[f]^2}{4 (3 f+c \text{Log}[f])}} \text{Cosh}[3 d]\, \text{Erfi}\left[\frac{6 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{3 f+c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{3 f+c \text{Log}[f]}\; -$$

$$27\, e^{\frac{b^2 \text{Log}[f]^2}{4 (f-c \text{Log}[f])}} f^3 \text{Erf}\left[\frac{2 f x-b \text{Log}[f]-2 c x \text{Log}[f]}{2 \sqrt{f-c \text{Log}[f]}}\right] \sqrt{f-c \text{Log}[f]}\, \text{Sinh}[d]\; -$$

$$27 c\, e^{\frac{b^2 \text{Log}[f]^2}{4 (f-c \text{Log}[f])}} f^2 \text{Erf}\left[\frac{2 f x-b \text{Log}[f]-2 c x \text{Log}[f]}{2 \sqrt{f-c \text{Log}[f]}}\right] \text{Log}[f] \sqrt{f-c \text{Log}[f]}\, \text{Sinh}[d]\; +$$

$$3 c^2 e^{\frac{b^2 \text{Log}[f]^2}{4 (f-c \text{Log}[f])}} f\, \text{Erf}\left[\frac{2 f x-b \text{Log}[f]-2 c x \text{Log}[f]}{2 \sqrt{f-c \text{Log}[f]}}\right] \text{Log}[f]^2 \sqrt{f-c \text{Log}[f]}\, \text{Sinh}[d]\; +$$

$$3 c^3 e^{\frac{b^2 \text{Log}[f]^2}{4 (f-c \text{Log}[f])}} \text{Erf}\left[\frac{2 f x-b \text{Log}[f]-2 c x \text{Log}[f]}{2 \sqrt{f-c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{f-c \text{Log}[f]}\, \text{Sinh}[d]\; -$$

$$27\, e^{-\frac{b^2 \text{Log}[f]^2}{4 (f+c \text{Log}[f])}} f^3 \text{Erfi}\left[\frac{2 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{f+c \text{Log}[f]}}\right] \sqrt{f+c \text{Log}[f]}\, \text{Sinh}[d]\; +$$

$$27 c\, e^{-\frac{b^2 \text{Log}[f]^2}{4 (f+c \text{Log}[f])}} f^2 \text{Erfi}\left[\frac{2 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{f+c \text{Log}[f]}}\right] \text{Log}[f] \sqrt{f+c \text{Log}[f]}\, \text{Sinh}[d]\; +$$

$$3 c^2 e^{-\frac{b^2 \text{Log}[f]^2}{4 (f+c \text{Log}[f])}} f\, \text{Erfi}\left[\frac{2 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{f+c \text{Log}[f]}}\right] \text{Log}[f]^2 \sqrt{f+c \text{Log}[f]}\, \text{Sinh}[d]\; -$$

$$3 c^3 e^{-\frac{b^2 \text{Log}[f]^2}{4 (f+c \text{Log}[f])}} \text{Erfi}\left[\frac{2 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{f+c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{f+c \text{Log}[f]} \text{Sinh}[d]+$$

$$3 e^{\frac{b^2 \text{Log}[f]^2}{4 (3 f-c \text{Log}[f])}} f^3 \text{Erf}\left[\frac{6 f x-b \text{Log}[f]-2 c x \text{Log}[f]}{2 \sqrt{3 f-c \text{Log}[f]}}\right] \sqrt{3 f-c \text{Log}[f]} \text{Sinh}[3 d]+$$

$$c e^{\frac{b^2 \text{Log}[f]^2}{4 (3 f-c \text{Log}[f])}} f^2 \text{Erf}\left[\frac{6 f x-b \text{Log}[f]-2 c x \text{Log}[f]}{2 \sqrt{3 f-c \text{Log}[f]}}\right] \text{Log}[f] \sqrt{3 f-c \text{Log}[f]} \text{Sinh}[3 d]-$$

$$3 c^2 e^{\frac{b^2 \text{Log}[f]^2}{4 (3 f-c \text{Log}[f])}} f \text{Erf}\left[\frac{6 f x-b \text{Log}[f]-2 c x \text{Log}[f]}{2 \sqrt{3 f-c \text{Log}[f]}}\right] \text{Log}[f]^2 \sqrt{3 f-c \text{Log}[f]} \text{Sinh}[3 d]-$$

$$c^3 e^{\frac{b^2 \text{Log}[f]^2}{4 (3 f-c \text{Log}[f])}} \text{Erf}\left[\frac{6 f x-b \text{Log}[f]-2 c x \text{Log}[f]}{2 \sqrt{3 f-c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{3 f-c \text{Log}[f]} \text{Sinh}[3 d]+$$

$$3 e^{-\frac{b^2 \text{Log}[f]^2}{4 (3 f+c \text{Log}[f])}} f^3 \text{Erfi}\left[\frac{6 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{3 f+c \text{Log}[f]}}\right] \sqrt{3 f+c \text{Log}[f]} \text{Sinh}[3 d]-$$

$$c e^{-\frac{b^2 \text{Log}[f]^2}{4 (3 f+c \text{Log}[f])}} f^2 \text{Erfi}\left[\frac{6 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{3 f+c \text{Log}[f]}}\right] \text{Log}[f] \sqrt{3 f+c \text{Log}[f]} \text{Sinh}[3 d]-$$

$$3 c^2 e^{-\frac{b^2 \text{Log}[f]^2}{4 (3 f+c \text{Log}[f])}} f \text{Erfi}\left[\frac{6 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{3 f+c \text{Log}[f]}}\right] \text{Log}[f]^2 \sqrt{3 f+c \text{Log}[f]} \text{Sinh}[3 d]+$$

$$c^3 e^{-\frac{b^2 \text{Log}[f]^2}{4 (3 f+c \text{Log}[f])}} \text{Erfi}\left[\frac{6 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{3 f+c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{3 f+c \text{Log}[f]} \text{Sinh}[3 d]\Bigg)$$

Problem 364: Result more than twice size of optimal antiderivative.

$$\int f^{a+b x+c x^2} \text{Sinh}\left[d+e x+f x^2\right]^2 dx$$

Optimal (type 4, 239 leaves, 10 steps):

$$-\frac{f^{a-\frac{b^2}{4 c}} \sqrt{\pi} \text{Erfi}\left[\frac{(b+2 c x) \sqrt{\text{Log}[f]}}{2 \sqrt{c}}\right]}{4 \sqrt{c} \sqrt{\text{Log}[f]}}+\frac{e^{-2 d+\frac{(2 e-b \text{Log}[f])^2}{8 f-4 c \text{Log}[f]}} f^a \sqrt{\pi} \text{Erf}\left[\frac{2 e-b \text{Log}[f]+2 x (2 f-c \text{Log}[f])}{2 \sqrt{2 f-c \text{Log}[f]}}\right]}{8 \sqrt{2 f-c \text{Log}[f]}}+\frac{e^{2 d-\frac{(2 e+b \text{Log}[f])^2}{8 f+4 c \text{Log}[f]}} f^a \sqrt{\pi} \text{Erfi}\left[\frac{2 e+b \text{Log}[f]+2 x (2 f+c \text{Log}[f])}{2 \sqrt{2 f+c \text{Log}[f]}}\right]}{8 \sqrt{2 f+c \text{Log}[f]}}$$

Result (type 4, 912 leaves):

$$\frac{1}{8\,c\,\text{Log}[f]\,\left(2\,f-c\,\text{Log}[f]\right)\,\left(2\,f+c\,\text{Log}[f]\right)}$$

$$f^a\,\sqrt{\pi}\,\left(-8\,\sqrt{c}\,f^{2-\frac{b^2}{4c}}\,\text{Erfi}\left[\frac{(b+2\,c\,x)\,\sqrt{\text{Log}[f]}}{2\,\sqrt{c}}\right]\,\sqrt{\text{Log}[f]}+2\,c^{5/2}\,f^{-\frac{b^2}{4c}}\,\text{Erfi}\left[\frac{(b+2\,c\,x)\,\sqrt{\text{Log}[f]}}{2\,\sqrt{c}}\right]\,\text{Log}[f]^{5/2}+\right.$$

$$2\,c\,e^{-\frac{-4\,e^2+4\,b\,e\,\text{Log}[f]-b^2\,\text{Log}[f]^2}{4\,(2\,f-c\,\text{Log}[f])}}\,f\,\text{Cosh}[2\,d]\,\text{Erf}\left[\frac{2\,e+4\,f\,x-b\,\text{Log}[f]-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{2\,f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{2\,f-c\,\text{Log}[f]}+$$

$$c^2\,e^{-\frac{-4\,e^2+4\,b\,e\,\text{Log}[f]-b^2\,\text{Log}[f]^2}{4\,(2\,f-c\,\text{Log}[f])}}\,\text{Cosh}[2\,d]\,\text{Erf}\left[\frac{2\,e+4\,f\,x-b\,\text{Log}[f]-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{2\,f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{2\,f-c\,\text{Log}[f]}+$$

$$2\,c\,e^{-\frac{4\,e^2+4\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2}{4\,(2\,f+c\,\text{Log}[f])}}\,f\,\text{Cosh}[2\,d]\,\text{Erfi}\left[\frac{2\,e+4\,f\,x+b\,\text{Log}[f]+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{2\,f+c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{2\,f+c\,\text{Log}[f]}-$$

$$c^2\,e^{-\frac{4\,e^2+4\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2}{4\,(2\,f+c\,\text{Log}[f])}}\,\text{Cosh}[2\,d]\,\text{Erfi}\left[\frac{2\,e+4\,f\,x+b\,\text{Log}[f]+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{2\,f+c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{2\,f+c\,\text{Log}[f]}-$$

$$2\,c\,e^{-\frac{-4\,e^2+4\,b\,e\,\text{Log}[f]-b^2\,\text{Log}[f]^2}{4\,(2\,f-c\,\text{Log}[f])}}\,f\,\text{Erf}\left[\frac{2\,e+4\,f\,x-b\,\text{Log}[f]-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{2\,f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{2\,f-c\,\text{Log}[f]}\,\text{Sinh}[2\,d]-$$

$$c^2\,e^{-\frac{-4\,e^2+4\,b\,e\,\text{Log}[f]-b^2\,\text{Log}[f]^2}{4\,(2\,f-c\,\text{Log}[f])}}\,\text{Erf}\left[\frac{2\,e+4\,f\,x-b\,\text{Log}[f]-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{2\,f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{2\,f-c\,\text{Log}[f]}\,\text{Sinh}[2\,d]+$$

$$2\,c\,e^{-\frac{4\,e^2+4\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2}{4\,(2\,f+c\,\text{Log}[f])}}\,f\,\text{Erfi}\left[\frac{2\,e+4\,f\,x+b\,\text{Log}[f]+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{2\,f+c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{2\,f+c\,\text{Log}[f]}\,\text{Sinh}[2\,d]-$$

$$\left.c^2\,e^{-\frac{4\,e^2+4\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2}{4\,(2\,f+c\,\text{Log}[f])}}\,\text{Erfi}\left[\frac{2\,e+4\,f\,x+b\,\text{Log}[f]+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{2\,f+c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{2\,f+c\,\text{Log}[f]}\,\text{Sinh}[2\,d]\right)$$

Problem 365: Result more than twice size of optimal antiderivative.

$$\int f^{a+b\,x+c\,x^2}\,\text{Sinh}\left[d+e\,x+f\,x^2\right]^3\,dx$$

Optimal (type 4, 344 leaves, 14 steps):

$$\frac{3\,e^{-d+\frac{(e-b\,\text{Log}[f])^2}{4\,(f-c\,\text{Log}[f])}}\,f^a\,\sqrt{\pi}\,\text{Erf}\left[\frac{e-b\,\text{Log}[f]+2\,x\,(f-c\,\text{Log}[f])}{2\,\sqrt{f-c\,\text{Log}[f]}}\right]}{16\,\sqrt{f-c\,\text{Log}[f]}}-\frac{e^{-3\,d+\frac{(3\,e-b\,\text{Log}[f])^2}{12\,f-4\,c\,\text{Log}[f]}}\,f^a\,\sqrt{\pi}\,\text{Erf}\left[\frac{3\,e-b\,\text{Log}[f]+2\,x\,(3\,f-c\,\text{Log}[f])}{2\,\sqrt{3\,f-c\,\text{Log}[f]}}\right]}{16\,\sqrt{3\,f-c\,\text{Log}[f]}}-$$

$$\frac{3\,e^{d-\frac{(e+b\,\text{Log}[f])^2}{4\,(f+c\,\text{Log}[f])}}\,f^a\,\sqrt{\pi}\,\text{Erfi}\left[\frac{e+b\,\text{Log}[f]+2\,x\,(f+c\,\text{Log}[f])}{2\,\sqrt{f+c\,\text{Log}[f]}}\right]}{16\,\sqrt{f+c\,\text{Log}[f]}}+\frac{e^{3\,d-\frac{(3\,e+b\,\text{Log}[f])^2}{4\,(3\,f+c\,\text{Log}[f])}}\,f^a\,\sqrt{\pi}\,\text{Erfi}\left[\frac{3\,e+b\,\text{Log}[f]+2\,x\,(3\,f+c\,\text{Log}[f])}{2\,\sqrt{3\,f+c\,\text{Log}[f]}}\right]}{16\,\sqrt{3\,f+c\,\text{Log}[f]}}$$

Result (type 4, 2991 leaves):

$$\frac{1}{16\,(f-c\,\text{Log}[f])\,(3\,f-c\,\text{Log}[f])\,(f+c\,\text{Log}[f])\,(3\,f+c\,\text{Log}[f])}$$

$$f^a\,\sqrt{\pi}\,\Bigg(27\,e^{-\frac{-e^2+2\,b\,e\,\text{Log}[f]-b^2\,\text{Log}[f]^2}{4\,(f-c\,\text{Log}[f])}}\,f^3\,\text{Cosh}[d]\,\text{Erf}\left[\frac{e+2\,f\,x-b\,\text{Log}[f]-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f-c\,\text{Log}[f]}}\right]\,\sqrt{f-c\,\text{Log}[f]}\,+$$

$$27\,c\,e^{-\frac{-e^2+2\,b\,e\,\text{Log}[f]-b^2\,\text{Log}[f]^2}{4\,(f-c\,\text{Log}[f])}}\,f^2\,\text{Cosh}[d]\,\text{Erf}\left[\frac{e+2\,f\,x-b\,\text{Log}[f]-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{f-c\,\text{Log}[f]}\,-$$

$$3\,c^2\,e^{-\frac{-e^2+2\,b\,e\,\text{Log}[f]-b^2\,\text{Log}[f]^2}{4\,(f-c\,\text{Log}[f])}}\,f\,\text{Cosh}[d]\,\text{Erf}\left[\frac{e+2\,f\,x-b\,\text{Log}[f]-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{f-c\,\text{Log}[f]}\,-$$

$$3\,c^3\,e^{-\frac{-e^2+2\,b\,e\,\text{Log}[f]-b^2\,\text{Log}[f]^2}{4\,(f-c\,\text{Log}[f])}}\,\text{Cosh}[d]\,\text{Erf}\left[\frac{e+2\,f\,x-b\,\text{Log}[f]-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{f-c\,\text{Log}[f]}\,-$$

$$3\,e^{-\frac{-9\,e^2+6\,b\,e\,\text{Log}[f]-b^2\,\text{Log}[f]^2}{4\,(3\,f-c\,\text{Log}[f])}}\,f^3\,\text{Cosh}[3\,d]\,\text{Erf}\left[\frac{3\,e+6\,f\,x-b\,\text{Log}[f]-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f-c\,\text{Log}[f]}}\right]\,\sqrt{3\,f-c\,\text{Log}[f]}\,-$$

$$c\,e^{-\frac{-9\,e^2+6\,b\,e\,\text{Log}[f]-b^2\,\text{Log}[f]^2}{4\,(3\,f-c\,\text{Log}[f])}}\,f^2\,\text{Cosh}[3\,d]\,\text{Erf}\left[\frac{3\,e+6\,f\,x-b\,\text{Log}[f]-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{3\,f-c\,\text{Log}[f]}\,+$$

$$3\,c^2\,e^{-\frac{-9\,e^2+6\,b\,e\,\text{Log}[f]-b^2\,\text{Log}[f]^2}{4\,(3\,f-c\,\text{Log}[f])}}\,f\,\text{Cosh}[3\,d]\,\text{Erf}\left[\frac{3\,e+6\,f\,x-b\,\text{Log}[f]-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{3\,f-c\,\text{Log}[f]}\,+$$

$$c^3\,e^{-\frac{-9\,e^2+6\,b\,e\,\text{Log}[f]-b^2\,\text{Log}[f]^2}{4\,(3\,f-c\,\text{Log}[f])}}\,\text{Cosh}[3\,d]\,\text{Erf}\left[\frac{3\,e+6\,f\,x-b\,\text{Log}[f]-2\,c\,x\,\text{Log}[f]}{2\,\sqrt{3\,f-c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{3\,f-c\,\text{Log}[f]}\,-$$

$$27\,e^{-\frac{e^2+2\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2}{4\,(f+c\,\text{Log}[f])}}\,f^3\,\text{Cosh}[d]\,\text{Erfi}\left[\frac{e+2\,f\,x+b\,\text{Log}[f]+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f+c\,\text{Log}[f]}}\right]\,\sqrt{f+c\,\text{Log}[f]}\,+$$

$$27\,c\,e^{-\frac{e^2+2\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2}{4\,(f+c\,\text{Log}[f])}}\,f^2\,\text{Cosh}[d]\,\text{Erfi}\left[\frac{e+2\,f\,x+b\,\text{Log}[f]+2\,c\,x\,\text{Log}[f]}{2\,\sqrt{f+c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{f+c\,\text{Log}[f]}\,+$$

$$3\,c^2\,e^{-\frac{e^2+2\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2}{4\,(f+c\,\mathrm{Log}[f])}}\,f\,\mathrm{Cosh}[d]\,\mathrm{Erfi}\left[\frac{e+2\,f\,x+b\,\mathrm{Log}[f]+2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{f+c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^2\,\sqrt{f+c\,\mathrm{Log}[f]}\;-$$

$$3\,c^3\,e^{-\frac{e^2+2\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2}{4\,(f+c\,\mathrm{Log}[f])}}\,\mathrm{Cosh}[d]\,\mathrm{Erfi}\left[\frac{e+2\,f\,x+b\,\mathrm{Log}[f]+2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{f+c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^3\,\sqrt{f+c\,\mathrm{Log}[f]}\;+$$

$$3\,e^{-\frac{9\,e^2+6\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2}{4\,(3\,f+c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Cosh}[3\,d]\,\mathrm{Erfi}\left[\frac{3\,e+6\,f\,x+b\,\mathrm{Log}[f]+2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{3\,f+c\,\mathrm{Log}[f]}}\right]\,\sqrt{3\,f+c\,\mathrm{Log}[f]}\;-$$

$$c\,e^{-\frac{9\,e^2+6\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2}{4\,(3\,f+c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Cosh}[3\,d]\,\mathrm{Erfi}\left[\frac{3\,e+6\,f\,x+b\,\mathrm{Log}[f]+2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{3\,f+c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]\,\sqrt{3\,f+c\,\mathrm{Log}[f]}\;-$$

$$3\,c^2\,e^{-\frac{9\,e^2+6\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2}{4\,(3\,f+c\,\mathrm{Log}[f])}}\,f\,\mathrm{Cosh}[3\,d]\,\mathrm{Erfi}\left[\frac{3\,e+6\,f\,x+b\,\mathrm{Log}[f]+2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{3\,f+c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^2\,\sqrt{3\,f+c\,\mathrm{Log}[f]}\;+$$

$$c^3\,e^{-\frac{9\,e^2+6\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2}{4\,(3\,f+c\,\mathrm{Log}[f])}}\,\mathrm{Cosh}[3\,d]\,\mathrm{Erfi}\left[\frac{3\,e+6\,f\,x+b\,\mathrm{Log}[f]+2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{3\,f+c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^3\,\sqrt{3\,f+c\,\mathrm{Log}[f]}\;-$$

$$27\,e^{-\frac{-e^2+2\,b\,e\,\mathrm{Log}[f]-b^2\,\mathrm{Log}[f]^2}{4\,(f-c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Erf}\left[\frac{e+2\,f\,x-b\,\mathrm{Log}[f]-2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{f-c\,\mathrm{Log}[f]}}\right]\,\sqrt{f-c\,\mathrm{Log}[f]}\,\mathrm{Sinh}[d]\;-$$

$$27\,c\,e^{-\frac{-e^2+2\,b\,e\,\mathrm{Log}[f]-b^2\,\mathrm{Log}[f]^2}{4\,(f-c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Erf}\left[\frac{e+2\,f\,x-b\,\mathrm{Log}[f]-2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{f-c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]\,\sqrt{f-c\,\mathrm{Log}[f]}\,\mathrm{Sinh}[d]\;+$$

$$3\,c^2\,e^{-\frac{-e^2+2\,b\,e\,\mathrm{Log}[f]-b^2\,\mathrm{Log}[f]^2}{4\,(f-c\,\mathrm{Log}[f])}}\,f\,\mathrm{Erf}\left[\frac{e+2\,f\,x-b\,\mathrm{Log}[f]-2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{f-c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^2\,\sqrt{f-c\,\mathrm{Log}[f]}\,\mathrm{Sinh}[d]\;+$$

$$3\,c^3\,e^{-\frac{-e^2+2\,b\,e\,\mathrm{Log}[f]-b^2\,\mathrm{Log}[f]^2}{4\,(f-c\,\mathrm{Log}[f])}}\,\mathrm{Erf}\left[\frac{e+2\,f\,x-b\,\mathrm{Log}[f]-2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{f-c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^3\,\sqrt{f-c\,\mathrm{Log}[f]}\,\mathrm{Sinh}[d]\;-$$

$$27\,e^{-\frac{e^2+2\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2}{4\,(f+c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Erfi}\left[\frac{e+2\,f\,x+b\,\mathrm{Log}[f]+2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{f+c\,\mathrm{Log}[f]}}\right]\,\sqrt{f+c\,\mathrm{Log}[f]}\,\mathrm{Sinh}[d]\;+$$

$$27\,c\,e^{-\frac{e^2+2\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2}{4\,(f+c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Erfi}\left[\frac{e+2\,f\,x+b\,\mathrm{Log}[f]+2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{f+c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]\,\sqrt{f+c\,\mathrm{Log}[f]}\,\mathrm{Sinh}[d]\;+$$

$$3\,c^2\,e^{-\frac{e^2+2\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2}{4\,(f+c\,\mathrm{Log}[f])}}\,f\,\mathrm{Erfi}\left[\frac{e+2\,f\,x+b\,\mathrm{Log}[f]+2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{f+c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^2\,\sqrt{f+c\,\mathrm{Log}[f]}\,\mathrm{Sinh}[d]\;-$$

$$3\,c^3\,e^{-\frac{e^2+2\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2}{4\,(f+c\,\mathrm{Log}[f])}}\,\mathrm{Erfi}\left[\frac{e+2\,f\,x+b\,\mathrm{Log}[f]+2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{f+c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^3\,\sqrt{f+c\,\mathrm{Log}[f]}\,\mathrm{Sinh}[d]\;+$$

$$3\,e^{-\frac{-9\,e^2+6\,b\,e\,\mathrm{Log}[f]-b^2\,\mathrm{Log}[f]^2}{4\,(3\,f-c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Erf}\left[\frac{3\,e+6\,f\,x-b\,\mathrm{Log}[f]-2\,c\,x\,\mathrm{Log}[f]}{2\,\sqrt{3\,f-c\,\mathrm{Log}[f]}}\right]\,\sqrt{3\,f-c\,\mathrm{Log}[f]}\,\mathrm{Sinh}[3\,d]\;+$$

$$c\, e^{-\frac{-9 e^2+6 b e \text{Log}[f]-b^2 \text{Log}[f]^2}{4 (3 f-c \text{Log}[f])}} f^2 \text{Erf}\left[\frac{3 e+6 f x-b \text{Log}[f]-2 c x \text{Log}[f]}{2 \sqrt{3 f-c \text{Log}[f]}}\right] \text{Log}[f] \sqrt{3 f-c \text{Log}[f]}\, \text{Sinh}[3 d]-$$

$$3 c^2 e^{-\frac{-9 e^2+6 b e \text{Log}[f]-b^2 \text{Log}[f]^2}{4 (3 f-c \text{Log}[f])}} f\, \text{Erf}\left[\frac{3 e+6 f x-b \text{Log}[f]-2 c x \text{Log}[f]}{2 \sqrt{3 f-c \text{Log}[f]}}\right] \text{Log}[f]^2 \sqrt{3 f-c \text{Log}[f]}\, \text{Sinh}[3 d]-$$

$$c^3 e^{-\frac{-9 e^2+6 b e \text{Log}[f]-b^2 \text{Log}[f]^2}{4 (3 f-c \text{Log}[f])}} \text{Erf}\left[\frac{3 e+6 f x-b \text{Log}[f]-2 c x \text{Log}[f]}{2 \sqrt{3 f-c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{3 f-c \text{Log}[f]}\, \text{Sinh}[3 d]+$$

$$3\, e^{-\frac{9 e^2+6 b e \text{Log}[f]+b^2 \text{Log}[f]^2}{4 (3 f+c \text{Log}[f])}} f^3 \text{Erfi}\left[\frac{3 e+6 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{3 f+c \text{Log}[f]}}\right] \sqrt{3 f+c \text{Log}[f]}\, \text{Sinh}[3 d]-$$

$$c\, e^{-\frac{9 e^2+6 b e \text{Log}[f]+b^2 \text{Log}[f]^2}{4 (3 f+c \text{Log}[f])}} f^2 \text{Erfi}\left[\frac{3 e+6 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{3 f+c \text{Log}[f]}}\right] \text{Log}[f] \sqrt{3 f+c \text{Log}[f]}\, \text{Sinh}[3 d]-$$

$$3 c^2 e^{-\frac{9 e^2+6 b e \text{Log}[f]+b^2 \text{Log}[f]^2}{4 (3 f+c \text{Log}[f])}} f\, \text{Erfi}\left[\frac{3 e+6 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{3 f+c \text{Log}[f]}}\right] \text{Log}[f]^2 \sqrt{3 f+c \text{Log}[f]}\, \text{Sinh}[3 d]+$$

$$c^3 e^{-\frac{9 e^2+6 b e \text{Log}[f]+b^2 \text{Log}[f]^2}{4 (3 f+c \text{Log}[f])}} \text{Erfi}\left[\frac{3 e+6 f x+b \text{Log}[f]+2 c x \text{Log}[f]}{2 \sqrt{3 f+c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{3 f+c \text{Log}[f]}\, \text{Sinh}[3 d]\Bigg)$$

Problem 368: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sinh}[a+b x]}{c+d x^2}\, dx$$

Optimal (type 4, 213 leaves, 8 steps):

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

Result (type 4, 180 leaves):

$$\frac{1}{2 \sqrt{c}\, \sqrt{d}} i \left(\text{CosIntegral}\left[-\frac{b \sqrt{c}}{\sqrt{d}}+i b x\right] \text{Sinh}\left[a-\frac{i b \sqrt{c}}{\sqrt{d}}\right]-\text{CosIntegral}\left[\frac{b \sqrt{c}}{\sqrt{d}}+i b x\right] \text{Sinh}\left[a+\frac{i b \sqrt{c}}{\sqrt{d}}\right]+\right.$$
$$\left. i \left(\text{Cosh}\left[a-\frac{i b \sqrt{c}}{\sqrt{d}}\right] \text{SinIntegral}\left[\frac{b \sqrt{c}}{\sqrt{d}}-i b x\right]+\text{Cosh}\left[a+\frac{i b \sqrt{c}}{\sqrt{d}}\right] \text{SinIntegral}\left[\frac{b \sqrt{c}}{\sqrt{d}}+i b x\right]\right)\right)$$

Problem 369: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sinh}[a+b x]}{c+d x+e x^2} \, dx$$

Optimal (type 4, 271 leaves, 8 steps):

$$\frac{\text{CoshIntegral}\left[\frac{b\left(d-\sqrt{d^2-4 c e}\right)}{2 e}+b x\right] \text{Sinh}\left[a-\frac{b\left(d-\sqrt{d^2-4 c e}\right)}{2 e}\right]}{\sqrt{d^2-4 c e}}-\frac{\text{CoshIntegral}\left[\frac{b\left(d+\sqrt{d^2-4 c e}\right)}{2 e}+b x\right] \text{Sinh}\left[a-\frac{b\left(d+\sqrt{d^2-4 c e}\right)}{2 e}\right]}{\sqrt{d^2-4 c e}}+$$
$$\frac{\text{Cosh}\left[a-\frac{b\left(d-\sqrt{d^2-4 c e}\right)}{2 e}\right] \text{SinhIntegral}\left[\frac{b\left(d-\sqrt{d^2-4 c e}\right)}{2 e}+b x\right]}{\sqrt{d^2-4 c e}}-\frac{\text{Cosh}\left[a-\frac{b\left(d+\sqrt{d^2-4 c e}\right)}{2 e}\right] \text{SinhIntegral}\left[\frac{b\left(d+\sqrt{d^2-4 c e}\right)}{2 e}+b x\right]}{\sqrt{d^2-4 c e}}$$

Result (type 4, 248 leaves):

$$\frac{1}{\sqrt{d^2-4 c e}}\left(\text{CosIntegral}\left[\frac{i b\left(d-\sqrt{d^2-4 c e}+2 e x\right)}{2 e}\right] \text{Sinh}\left[a+\frac{b\left(-d+\sqrt{d^2-4 c e}\right)}{2 e}\right]-\right.$$
$$\text{CosIntegral}\left[\frac{i b\left(d+\sqrt{d^2-4 c e}+2 e x\right)}{2 e}\right] \text{Sinh}\left[a-\frac{b\left(d+\sqrt{d^2-4 c e}\right)}{2 e}\right]-$$
$$\text{Cosh}\left[a-\frac{b\left(d+\sqrt{d^2-4 c e}\right)}{2 e}\right] \text{SinhIntegral}\left[\frac{b\left(d+\sqrt{d^2-4 c e}+2 e x\right)}{2 e}\right]+$$
$$\left.i \text{Cosh}\left[a+\frac{b\left(-d+\sqrt{d^2-4 c e}\right)}{2 e}\right] \text{SinIntegral}\left[\frac{i b\left(-d+\sqrt{d^2-4 c e}\right)}{2 e}-i b x\right]\right)$$

Test results for the 525 problems in "6.1.7 hyper^m (a+b sinh^n)^p.m"

Problem 6: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 25 leaves, 2 steps):

$$-\frac{a \text{ArcTanh}[\text{Cosh}[c+d x]]}{d}+\frac{b \text{Cosh}[c+d x]}{d}$$

Result (type 3, 62 leaves):

$$\frac{b\,\text{Cosh}[c]\,\text{Cosh}[d\,x]}{d}-\frac{a\,\text{Log}\left[\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}+\frac{a\,\text{Log}\left[\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}+\frac{b\,\text{Sinh}[c]\,\text{Sinh}[d\,x]}{d}$$

Problem 8: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 40 leaves, 2 steps):

$$\frac{(a-2\,b)\,\text{ArcTanh}[\text{Cosh}[c+d\,x]]}{2\,d}-\frac{a\,\text{Coth}[c+d\,x]\,\text{Csch}[c+d\,x]}{2\,d}$$

Result (type 3, 118 leaves):

$$-\frac{a\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,d}-\frac{b\,\text{Log}\left[\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}+\frac{a\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,d}+\frac{b\,\text{Log}\left[\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}-\frac{a\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,d}-\frac{a\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,d}$$

Problem 17: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 56 leaves, 5 steps):

$$\frac{a\,(a-4\,b)\,\text{ArcTanh}[\text{Cosh}[c+d\,x]]}{2\,d}+\frac{b^2\,\text{Cosh}[c+d\,x]}{d}-\frac{a^2\,\text{Coth}[c+d\,x]\,\text{Csch}[c+d\,x]}{2\,d}$$

Result (type 3, 155 leaves):

$$\frac{b^2\,\text{Cosh}[c]\,\text{Cosh}[d\,x]}{d}-\frac{a^2\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,d}-\frac{2\,a\,b\,\text{Log}\left[\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}+\frac{a^2\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,d}+$$
$$\frac{2\,a\,b\,\text{Log}\left[\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}-\frac{a^2\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,d}-\frac{a^2\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,d}+\frac{b^2\,\text{Sinh}[c]\,\text{Sinh}[d\,x]}{d}$$

Problem 18: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 40 leaves, 4 steps):

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

Result (type 3, 85 leaves):

$$\frac{4\left(b+a\,\text{Csch}[c+d\,x]^2\right)^2\left(3\,b^2\,(c+d\,x)-a\,\text{Coth}[c+d\,x]\left(-2\,a+6\,b+a\,\text{Csch}[c+d\,x]^2\right)\right)\text{Sinh}[c+d\,x]^4}{3\,d\,(2\,a-b+b\,\text{Cosh}[2\,(c+d\,x)])^2}$$

Problem 26: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 83 leaves, 5 steps):

$$\frac{a^2\,(a-6\,b)\,\text{ArcTanh}[\text{Cosh}[c+d\,x]]}{2\,d}+\frac{(3\,a-b)\,b^2\,\text{Cosh}[c+d\,x]}{d}+\frac{b^3\,\text{Cosh}[c+d\,x]^3}{3\,d}-\frac{a^3\,\text{Coth}[c+d\,x]\,\text{Csch}[c+d\,x]}{2\,d}$$

Result (type 3, 561 leaves):

$$\frac{6\,(4\,a-b)\,b^2\,\text{Cosh}[c]\,\text{Cosh}[d\,x]\,\text{Sinh}[c+d\,x]^3\,(a\,\text{Csch}[c+d\,x]+b\,\text{Sinh}[c+d\,x])^3}{d\,(2\,a-b+b\,\text{Cosh}[2\,c+2\,d\,x])^3}+$$

$$\frac{2\,b^3\,\text{Cosh}[3\,c]\,\text{Cosh}[3\,d\,x]\,\text{Sinh}[c+d\,x]^3\,(a\,\text{Csch}[c+d\,x]+b\,\text{Sinh}[c+d\,x])^3}{3\,d\,(2\,a-b+b\,\text{Cosh}[2\,c+2\,d\,x])^3}-\frac{a^3\,\text{Csch}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^2\,\text{Sinh}[c+d\,x]^3\,(a\,\text{Csch}[c+d\,x]+b\,\text{Sinh}[c+d\,x])^3}{d\,(2\,a-b+b\,\text{Cosh}[2\,c+2\,d\,x])^3}+$$

$$\frac{4\,(a^3-6\,a^2\,b)\,\text{Log}\left[\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sinh}[c+d\,x]^3\,(a\,\text{Csch}[c+d\,x]+b\,\text{Sinh}[c+d\,x])^3}{d\,(2\,a-b+b\,\text{Cosh}[2\,c+2\,d\,x])^3}-$$

$$\frac{4\,(a^3-6\,a^2\,b)\,\text{Log}\left[\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sinh}[c+d\,x]^3\,(a\,\text{Csch}[c+d\,x]+b\,\text{Sinh}[c+d\,x])^3}{d\,(2\,a-b+b\,\text{Cosh}[2\,c+2\,d\,x])^3}-$$

$$\frac{a^3\,\text{Sech}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^2\,\text{Sinh}[c+d\,x]^3\,(a\,\text{Csch}[c+d\,x]+b\,\text{Sinh}[c+d\,x])^3}{d\,(2\,a-b+b\,\text{Cosh}[2\,c+2\,d\,x])^3}+$$

$$\frac{6\,(4\,a-b)\,b^2\,\text{Sinh}[c]\,\text{Sinh}[d\,x]\,\text{Sinh}[c+d\,x]^3\,(a\,\text{Csch}[c+d\,x]+b\,\text{Sinh}[c+d\,x])^3}{d\,(2\,a-b+b\,\text{Cosh}[2\,c+2\,d\,x])^3}+$$

$$\frac{2\,b^3\,\text{Sinh}[3\,c]\,\text{Sinh}[3\,d\,x]\,\text{Sinh}[c+d\,x]^3\,(a\,\text{Csch}[c+d\,x]+b\,\text{Sinh}[c+d\,x])^3}{3\,d\,(2\,a-b+b\,\text{Cosh}[2\,c+2\,d\,x])^3}$$

Problem 28: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sinh}[c+d\,x]^7}{a+b\,\text{Sinh}[c+d\,x]^2}\,dx$$

Optimal (type 3, 109 leaves, 4 steps):

$$-\frac{a^3 \text{ArcTan}\left[\frac{\sqrt{b}\,\text{Cosh}[c+d\,x]}{\sqrt{a-b}}\right]}{\sqrt{a-b}\,b^{7/2}\,d}+\frac{\left(a^2+a\,b+b^2\right)\text{Cosh}[c+d\,x]}{b^3\,d}-\frac{(a+2\,b)\,\text{Cosh}[c+d\,x]^3}{3\,b^2\,d}+\frac{\text{Cosh}[c+d\,x]^5}{5\,b\,d}$$

Result (type 3, 165 leaves):

$$\frac{1}{240\,b^{7/2}\,d}\left(-\frac{240\,a^3\left(\text{ArcTan}\left[\frac{\sqrt{b}-i\sqrt{a}\,\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a-b}}\right]+\text{ArcTan}\left[\frac{\sqrt{b}+i\sqrt{a}\,\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a-b}}\right]\right)}{\sqrt{a-b}}+\right.$$

$$\left.30\sqrt{b}\left(8\,a^2+6\,a\,b+5\,b^2\right)\text{Cosh}[c+d\,x]-5\,b^{3/2}\,(4\,a+5\,b)\,\text{Cosh}[3\,(c+d\,x)]+3\,b^{5/2}\,\text{Cosh}[5\,(c+d\,x)]\right)$$

Problem 30: Result unnecessarily involves imaginary or complex numbers.

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

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

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

Result (type 3, 134 leaves):

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

Problem 32: Result unnecessarily involves imaginary or complex numbers.

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

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

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

Result (type 3, 107 leaves):

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

Problem 34: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\text{Sinh}[c+d\,x]}{a+b\,\text{Sinh}[c+d\,x]^2}\,dx$$

Optimal (type 3, 40 leaves, 2 steps):

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

Result (type 3, 91 leaves):

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

Problem 36: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\text{Csch}[c+d\,x]}{a+b\,\text{Sinh}[c+d\,x]^2}\,dx$$

Optimal (type 3, 60 leaves, 4 steps):

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

Result (type 3, 135 leaves):

$$-\frac{1}{a\,d}\left(\frac{\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}-i\sqrt{a}\,\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a-b}}\right]}{\sqrt{a-b}}+\frac{\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}+i\sqrt{a}\,\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a-b}}\right]}{\sqrt{a-b}}+\text{Log}\left[\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\right]-\text{Log}\left[\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)$$

Problem 38: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Csch}[c+d\,x]^3}{a+b\,\text{Sinh}[c+d\,x]^2}\,dx$$

Optimal (type 3, 88 leaves, 5 steps):

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

Result (type 3, 220 leaves):

$$\left((2\,a-b+b\,\text{Cosh}[2\,(c+d\,x)])\,\text{Csch}[c+d\,x]^2\left(\frac{8\,b^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{b}-i\,\sqrt{a}\,\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a-b}}\right]}{\sqrt{a-b}}+\frac{8\,b^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{b}+i\,\sqrt{a}\,\text{Tanh}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a-b}}\right]}{\sqrt{a-b}}-a\,\text{Csch}\left[\frac{1}{2}(c+d\,x)\right]^2+\right.\right.$$

$$\left.\left.4\,(a+2\,b)\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\right]-4\,(a+2\,b)\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right]-a\,\text{Sech}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\Big/\left(16\,a^2\,d\,\left(b+a\,\text{Csch}[c+d\,x]^2\right)\right)$$

Problem 40: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Csch}[c+d\,x]^5}{a+b\,\text{Sinh}[c+d\,x]^2}\,dx$$

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

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

Result (type 3, 649 leaves):

$$-\left(\left(b^{5/2}\,\text{ArcTan}\left[\frac{\text{Sech}\left[\frac{1}{2}(c+d x)\right]\left(\sqrt{b}\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]-i\sqrt{a}\,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)}{\sqrt{a-b}}\right]\left(2 a-b+b\,\text{Cosh}[2(c+d x)]\right)\text{Csch}[c+d x]^2\right)\Big/\left(2 a^3\sqrt{a-b}\,d\left(b+a\,\text{Csch}[c+d x]^2\right)\right)\right)-$$

$$\frac{b^{5/2}\,\text{ArcTan}\left[\frac{\text{Sech}\left[\frac{1}{2}(c+d x)\right]\left(\sqrt{b}\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+i\sqrt{a}\,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)}{\sqrt{a-b}}\right]\left(2 a-b+b\,\text{Cosh}[2(c+d x)]\right)\text{Csch}[c+d x]^2}{2 a^3\sqrt{a-b}\,d\left(b+a\,\text{Csch}[c+d x]^2\right)}+$$

$$\frac{(3 a+4 b)\left(2 a-b+b\,\text{Cosh}[2(c+d x)]\right)\text{Csch}\left[\frac{1}{2}(c+d x)\right]^2\text{Csch}[c+d x]^2}{64 a^2 d\left(b+a\,\text{Csch}[c+d x]^2\right)}-$$

$$\frac{\left(2 a-b+b\,\text{Cosh}[2(c+d x)]\right)\text{Csch}\left[\frac{1}{2}(c+d x)\right]^4\text{Csch}[c+d x]^2}{128 a d\left(b+a\,\text{Csch}[c+d x]^2\right)}+$$

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

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

$$\frac{(3 a+4 b)\left(2 a-b+b\,\text{Cosh}[2(c+d x)]\right)\text{Csch}[c+d x]^2\,\text{Sech}\left[\frac{1}{2}(c+d x)\right]^2}{64 a^2 d\left(b+a\,\text{Csch}[c+d x]^2\right)}+\frac{\left(2 a-b+b\,\text{Cosh}[2(c+d x)]\right)\text{Csch}[c+d x]^2\,\text{Sech}\left[\frac{1}{2}(c+d x)\right]^4}{128 a d\left(b+a\,\text{Csch}[c+d x]^2\right)}$$

Problem 43: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 90 leaves, 3 steps):

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

Result (type 3, 141 leaves):

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

Problem 45: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 81 leaves, 3 steps):

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

Result (type 3, 130 leaves):

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

Problem 47: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 110 leaves, 5 steps):

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

Result (type 3, 189 leaves):

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

$$\left.\frac{2 a b \text{Cosh}[c+d x]}{(a-b) (2 a-b+b \text{Cosh}[2 (c+d x)])}-2 \text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]\right]+2 \text{Log}\left[\text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right]\right)$$

Problem 49: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 161 leaves, 6 steps):

$$\frac{(5 a-4 b) b^{3/2} \text{ArcTan}\left[\frac{\sqrt{b} \text{Cosh}[c+d x]}{\sqrt{a-b}}\right]}{2 a^3 (a-b)^{3/2} d}+\frac{(a+4 b) \text{ArcTanh}[\text{Cosh}[c+d x]]}{2 a^3 d}-\frac{(a-2 b) b \text{Cosh}[c+d x]}{2 a^2 (a-b) d \left(a-b+b \text{Cosh}[c+d x]^2\right)}-\frac{\text{Coth}[c+d x] \text{Csch}[c+d x]}{2 a d \left(a-b+b \text{Cosh}[c+d x]^2\right)}$$

Result (type 3, 391 leaves):

$$\frac{1}{32 a^3 d \left(b+a \text{Csch}[c+d x]^2\right)^2} (2 a-b+b \text{Cosh}[2 (c+d x)]) \text{Csch}[c+d x]^3$$
$$\left(\frac{8 a b^2 \text{Coth}[c+d x]}{a-b}+\frac{4 (5 a-4 b) b^{3/2} \text{ArcTan}\left[\frac{\sqrt{b}-i \sqrt{a} \text{Tanh}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a-b}}\right] (2 a-b+b \text{Cosh}[2 (c+d x)]) \text{Csch}[c+d x]}{(a-b)^{3/2}}+\right.$$
$$\frac{4 (5 a-4 b) b^{3/2} \text{ArcTan}\left[\frac{\sqrt{b}+i \sqrt{a} \text{Tanh}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a-b}}\right] (2 a-b+b \text{Cosh}[2 (c+d x)]) \text{Csch}[c+d x]}{(a-b)^{3/2}}-a (2 a-b+b \text{Cosh}[2 (c+d x)])$$
$$\text{Csch}\left[\frac{1}{2} (c+d x)\right]^2 \text{Csch}[c+d x]+4 (a+4 b) (2 a-b+b \text{Cosh}[2 (c+d x)]) \text{Csch}[c+d x] \text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]\right]-$$
$$\left.4 (a+4 b) (2 a-b+b \text{Cosh}[2 (c+d x)]) \text{Csch}[c+d x] \text{Log}\left[\text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right]-a (2 a-b+b \text{Cosh}[2 (c+d x)]) \text{Csch}[c+d x] \text{Sech}\left[\frac{1}{2} (c+d x)\right]^2\right)$$

Problem 52: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 135 leaves, 4 steps):

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

Result (type 3, 170 leaves):

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

Problem 54: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 118 leaves, 4 steps):

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

Result (type 3, 149 leaves):

$$\frac{\frac{3\left(\text{ArcTan}\left[\frac{\sqrt{b}-i\,\sqrt{a}\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a-b}}\right]+\text{ArcTan}\left[\frac{\sqrt{b}+i\,\sqrt{a}\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a-b}}\right]\right)}{(a-b)^{5/2}\,\sqrt{b}}+\frac{2\,\text{Cosh}[c+d\,x]\,\left(10\,a-7\,b+3\,b\,\text{Cosh}[2\,(c+d\,x)]\right)}{(a-b)^2\,\left(2\,a-b+b\,\text{Cosh}[2\,(c+d\,x)]\right)^2}}{8\,d}$$

Problem 56: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 166 leaves, 6 steps):

$$-\frac{\sqrt{b}\,\left(15\,a^2-20\,a\,b+8\,b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\text{Cosh}[c+d\,x]}{\sqrt{a-b}}\right]}{8\,a^3\,(a-b)^{5/2}\,d}-\frac{\text{ArcTanh}[\text{Cosh}[c+d\,x]]}{a^3\,d}-\frac{b\,\text{Cosh}[c+d\,x]}{4\,a\,(a-b)\,d\,\left(a-b+b\,\text{Cosh}[c+d\,x]^2\right)^2}-\frac{(7\,a-4\,b)\,b\,\text{Cosh}[c+d\,x]}{8\,a^2\,(a-b)^2\,d\,\left(a-b+b\,\text{Cosh}[c+d\,x]^2\right)}$$

Result (type 3, 329 leaves):

$$-\frac{\sqrt{b}\,\left(15 a^2-20 a b+8 b^2\right) \text{ArcTan}\left[\frac{\text{Sech}\left[\frac{1}{2}(c+d x)\right]\left(\sqrt{b}\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]-i\sqrt{a}\,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)}{\sqrt{a-b}}\right]}{8 a^3 (a-b)^{5/2} d}-$$

$$\frac{\sqrt{b}\,\left(15 a^2-20 a b+8 b^2\right) \text{ArcTan}\left[\frac{\text{Sech}\left[\frac{1}{2}(c+d x)\right]\left(\sqrt{b}\,\text{Cosh}\left[\frac{1}{2}(c+d x)\right]+i\sqrt{a}\,\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right)}{\sqrt{a-b}}\right]}{8 a^3 (a-b)^{5/2} d}-\frac{b\,\text{Cosh}[c+d x]}{a (a-b) d\,(2 a-b+b\,\text{Cosh}[2 (c+d x)])^2}+$$

$$\frac{-7 a b\,\text{Cosh}[c+d x]+4 b^2\,\text{Cosh}[c+d x]}{4 a^2 (a-b)^2 d\,(2 a-b+b\,\text{Cosh}[2 (c+d x)])}-\frac{\text{Log}\left[\text{Cosh}\left[\frac{1}{2}(c+d x)\right]\right]}{a^3 d}+\frac{\text{Log}\left[\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right]}{a^3 d}$$

Problem 58: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 224 leaves, 7 steps) :

$$\frac{b^{3/2}\left(35 a^2-56 a b+24 b^2\right) \text{ArcTan}\left[\frac{\sqrt{b}\,\text{Cosh}[c+d x]}{\sqrt{a-b}}\right]}{8 a^4 (a-b)^{5/2} d}+\frac{(a+6 b)\,\text{ArcTanh}[\text{Cosh}[c+d x]]}{2 a^4 d}-$$

$$\frac{(2 a-3 b)\,b\,\text{Cosh}[c+d x]}{4 a^2 (a-b) d\left(a-b+b\,\text{Cosh}[c+d x]^2\right)^2}-\frac{(a-4 b)\,(4 a-3 b)\,b\,\text{Cosh}[c+d x]}{8 a^3 (a-b)^2 d\left(a-b+b\,\text{Cosh}[c+d x]^2\right)}-\frac{\text{Coth}[c+d x]\,\text{Csch}[c+d x]}{2 a d\left(a-b+b\,\text{Cosh}[c+d x]^2\right)^2}$$

Result (type 3, 462 leaves) :

$$\frac{1}{64 a^4 d \left(b + a \operatorname{Csch}[c+d x]^2\right)^3}$$

$$\left(2 a - b + b \operatorname{Cosh}[2 (c+d x)]\right) \operatorname{Csch}[c+d x]^5 \left(\frac{8 a^2 b^2 \operatorname{Coth}[c+d x]}{a-b} + \frac{2 a (11 a - 8 b) b^2 \left(2 a - b + b \operatorname{Cosh}[2 (c+d x)]\right) \operatorname{Coth}[c+d x]}{(a-b)^2} + \right.$$

$$\frac{1}{(a-b)^{5/2}} b^{3/2} \left(35 a^2 - 56 a b + 24 b^2\right) \operatorname{ArcTan}\left[\frac{\sqrt{b} - i \sqrt{a} \operatorname{Tanh}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a-b}}\right] \left(2 a - b + b \operatorname{Cosh}[2 (c+d x)]\right)^2 \operatorname{Csch}[c+d x] +$$

$$\frac{1}{(a-b)^{5/2}} b^{3/2} \left(35 a^2 - 56 a b + 24 b^2\right) \operatorname{ArcTan}\left[\frac{\sqrt{b} + i \sqrt{a} \operatorname{Tanh}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a-b}}\right] \left(2 a - b + b \operatorname{Cosh}[2 (c+d x)]\right)^2 \operatorname{Csch}[c+d x] -$$

$$a \left(2 a - b + b \operatorname{Cosh}[2 (c+d x)]\right)^2 \operatorname{Csch}\left[\frac{1}{2} (c+d x)\right]^2 \operatorname{Csch}[c+d x] +$$

$$4 (a + 6 b) \left(2 a - b + b \operatorname{Cosh}[2 (c+d x)]\right)^2 \operatorname{Csch}[c+d x] \operatorname{Log}\left[\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right]\right] - 4 (a + 6 b) \left(2 a - b + b \operatorname{Cosh}[2 (c+d x)]\right)^2$$

$$\left.\operatorname{Csch}[c+d x] \operatorname{Log}\left[\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right]\right] - a \left(2 a - b + b \operatorname{Cosh}[2 (c+d x)]\right)^2 \operatorname{Csch}[c+d x] \operatorname{Sech}\left[\frac{1}{2} (c+d x)\right]^2\right)$$

Problem 71: Result unnecessarily involves imaginary or complex numbers.

$$\int \operatorname{Sinh}[e+f x]^4 \sqrt{a + b \operatorname{Sinh}[e+f x]^2} \, dx$$

Optimal (type 4, 300 leaves, 7 steps):

$$\frac{(a - 4 b) \operatorname{Cosh}[e+f x] \operatorname{Sinh}[e+f x] \sqrt{a + b \operatorname{Sinh}[e+f x]^2}}{15 b f} + \frac{\operatorname{Cosh}[e+f x] \operatorname{Sinh}[e+f x]^3 \sqrt{a + b \operatorname{Sinh}[e+f x]^2}}{5 f} +$$

$$\frac{\left(2 a^2 + 3 a b - 8 b^2\right) \operatorname{EllipticE}\left[\operatorname{ArcTan}[\operatorname{Sinh}[e+f x]], 1 - \frac{b}{a}\right] \operatorname{Sech}[e+f x] \sqrt{a + b \operatorname{Sinh}[e+f x]^2}}{15 b^2 f \sqrt{\frac{\operatorname{Sech}[e+f x]^2 \left(a + b \operatorname{Sinh}[e+f x]^2\right)}{a}}} -$$

$$\frac{(a - 4 b) \operatorname{EllipticF}\left[\operatorname{ArcTan}[\operatorname{Sinh}[e+f x]], 1 - \frac{b}{a}\right] \operatorname{Sech}[e+f x] \sqrt{a + b \operatorname{Sinh}[e+f x]^2}}{15 b f \sqrt{\frac{\operatorname{Sech}[e+f x]^2 \left(a + b \operatorname{Sinh}[e+f x]^2\right)}{a}}} - \frac{\left(2 a^2 + 3 a b - 8 b^2\right) \sqrt{a + b \operatorname{Sinh}[e+f x]^2} \operatorname{Tanh}[e+f x]}{15 b^2 f}$$

Result (type 4, 210 leaves):

$$\left(16\,i\,a\left(2a^2+3ab-8b^2\right)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\,\text{EllipticE}\left[i(e+fx),\frac{b}{a}\right]-\right.$$

$$32\,i\,a\left(a^2+ab-2b^2\right)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\,\text{EllipticF}\left[i(e+fx),\frac{b}{a}\right]+$$

$$\left.\sqrt{2}\,b\left(8a^2-48ab+25b^2+4(4a-7b)\,b\,\text{Cosh}[2(e+fx)]+3b^2\,\text{Cosh}[4(e+fx)]\right)\text{Sinh}[2(e+fx)]\right)\Big/\left(240\,b^2 f\sqrt{2a-b+b\,\text{Cosh}[2(e+fx)]}\right)$$

Problem 74: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Csch}[e+fx]^2\sqrt{a+b\,\text{Sinh}[e+fx]^2}\,dx$$

Optimal (type 4, 199 leaves, 7 steps):

$$-\frac{\text{Coth}[e+fx]\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{f}-\frac{\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\text{Sech}[e+fx]\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{f\sqrt{\frac{\text{Sech}[e+fx]^2\left(a+b\,\text{Sinh}[e+fx]^2\right)}{a}}}+$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\text{Sech}[e+fx]\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{a\,f\sqrt{\frac{\text{Sech}[e+fx]^2\left(a+b\,\text{Sinh}[e+fx]^2\right)}{a}}}+\frac{\sqrt{a+b\,\text{Sinh}[e+fx]^2}\,\text{Tanh}[e+fx]}{f}$$

Result (type 4, 151 leaves):

$$\left(\sqrt{2}\left(-2a+b-b\,\text{Cosh}[2(e+fx)]\right)\text{Coth}[e+fx]-2\,i\,a\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\,\text{EllipticE}\left[i(e+fx),\frac{b}{a}\right]+\right.$$

$$\left.2\,i\,(a-b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\,\text{EllipticF}\left[i(e+fx),\frac{b}{a}\right]\right)\Big/\left(2f\sqrt{2a-b+b\,\text{Cosh}[2(e+fx)]}\right)$$

Problem 75: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Csch}[e+f x]^4 \sqrt{a+b \,\text{Sinh}[e+f x]^2}\, dx$$

Optimal (type 4, 276 leaves, 7 steps):

$$\frac{(2 a-b)\, \text{Coth}[e+f x] \sqrt{a+b \,\text{Sinh}[e+f x]^2}}{3 a f}-\frac{\text{Coth}[e+f x]\, \text{Csch}[e+f x]^2 \sqrt{a+b \,\text{Sinh}[e+f x]^2}}{3 f}+\frac{(2 a-b)\, \text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right] \text{Sech}[e+f x] \sqrt{a+b \,\text{Sinh}[e+f x]^2}}{3 a f \sqrt{\frac{\text{Sech}[e+f x]^2 \left(a+b \,\text{Sinh}[e+f x]^2\right)}{a}}}-\frac{b\, \text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right] \text{Sech}[e+f x] \sqrt{a+b \,\text{Sinh}[e+f x]^2}}{3 a f \sqrt{\frac{\text{Sech}[e+f x]^2 \left(a+b \,\text{Sinh}[e+f x]^2\right)}{a}}}-\frac{(2 a-b) \sqrt{a+b \,\text{Sinh}[e+f x]^2}\, \text{Tanh}[e+f x]}{3 a f}$$

Result (type 4, 342 leaves):

$$\frac{\sqrt{2 a-b+b \,\text{Cosh}[2 (e+f x)]} \left(\frac{\left(2 \sqrt{2}\, a \,\text{Cosh}[e+f x]-\sqrt{2}\, b \,\text{Cosh}[e+f x]\right) \text{Csch}[e+f x]}{6 a}-\frac{\text{Coth}[e+f x]\, \text{Csch}[e+f x]^2}{3 \sqrt{2}}\right)}{f}+\frac{1}{3 a f} b \left(\frac{i\, b \sqrt{\frac{2 a-b+b \,\text{Cosh}[2 (e+f x)]}{a}}\, \text{EllipticF}\left[i (e+f x),\frac{b}{a}\right]}{2 \sqrt{2 a-b+b \,\text{Cosh}[2 (e+f x)]}}-\frac{1}{2 b} i \left(-\sqrt{2}\, a+\frac{b}{\sqrt{2}}\right) \left(\frac{2 \sqrt{2}\, a \sqrt{\frac{2 a-b+b \,\text{Cosh}[2 (e+f x)]}{a}}\, \text{EllipticE}\left[i (e+f x),\frac{b}{a}\right]}{\sqrt{2 a-b+b \,\text{Cosh}[2 (e+f x)]}}-\frac{\sqrt{2}\, (2 a-b) \sqrt{\frac{2 a-b+b \,\text{Cosh}[2 (e+f x)]}{a}}\, \text{EllipticF}\left[i (e+f x),\frac{b}{a}\right]}{\sqrt{2 a-b+b \,\text{Cosh}[2 (e+f x)]}}\right)\right)$$

Problem 82: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sinh}[e+f x]^4 \left(a+b \,\text{Sinh}[e+f x]^2\right)^{3/2} dx$$

Optimal (type 4, 367 leaves, 8 steps):

$$\frac{\left(a^2-11\,a\,b+8\,b^2\right)\,\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{35\,b\,f}+$$

$$\frac{2\,(4\,a-3\,b)\,\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]^3\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{35\,f}+\frac{b\,\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]^5\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{7\,f}+$$

$$\left(2\,(a-2\,b)\,\left(a^2+4\,a\,b-4\,b^2\right)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\right)\Big/$$

$$\left(35\,b^2\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}\right)-$$

$$\frac{\left(a^2-11\,a\,b+8\,b^2\right)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{35\,b\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}-$$

$$\frac{2\,(a-2\,b)\,\left(a^2+4\,a\,b-4\,b^2\right)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{35\,b^2\,f}$$

Result (type 4, 262 leaves):

$$\frac{1}{2240\,b^2\,f\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}\left(128\,i\,a\,\left(a^3+2\,a^2\,b-12\,a\,b^2+8\,b^3\right)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\,\frac{b}{a}\right]-\right.$$

$$64\,i\,a\,\left(2\,a^3+3\,a^2\,b-13\,a\,b^2+8\,b^3\right)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\,\frac{b}{a}\right]+\sqrt{2}\,b\,\left(32\,a^3-496\,a^2\,b+684\,a\,b^2-250\,b^3+\right.$$

$$\left.\left.b\,\left(144\,a^2-480\,a\,b+299\,b^2\right)\,\text{Cosh}[2\,(e+f\,x)]+2\,(26\,a-27\,b)\,b^2\,\text{Cosh}[4\,(e+f\,x)]+5\,b^3\,\text{Cosh}[6\,(e+f\,x)]\right)\,\text{Sinh}[2\,(e+f\,x)]\right)$$

Problem 85: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Csch}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 4, 204 leaves, 6 steps):

$$-\frac{a\,\text{Coth}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{f}-\frac{(a+b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{f\sqrt{\frac{\text{Sech}[e+f x]^2\,(a+b\,\text{Sinh}[e+f x]^2)}{a}}}+$$

$$\frac{2\,b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{f\sqrt{\frac{\text{Sech}[e+f x]^2\,(a+b\,\text{Sinh}[e+f x]^2)}{a}}}+\frac{(a+b)\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{f}$$

Result (type 4, 155 leaves):

$$-\left(\left(a\left(\sqrt{2}\,(2a-b+b\,\text{Cosh}[2(e+f x)])\right)\text{Coth}[e+f x]+2\,i\,(a+b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+f x)]}{a}}\,\text{EllipticE}\left[i\,(e+f x),\frac{b}{a}\right]-\right.\right.$$

$$\left.\left.2\,i\,(a-b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+f x)]}{a}}\,\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]\right)\right)\Big/\left(2\,f\sqrt{2a-b+b\,\text{Cosh}[2(e+f x)]}\right)$$

Problem 86: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Csch}[e+f x]^4\,\left(a+b\,\text{Sinh}[e+f x]^2\right)^{3/2}\,dx$$

Optimal (type 4, 267 leaves, 7 steps):

$$\frac{2\,(a-2b)\,\text{Coth}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3f}-\frac{a\,\text{Coth}[e+f x]\,\text{Csch}[e+f x]^2\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3f}+$$

$$\frac{2\,(a-2b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3f\sqrt{\frac{\text{Sech}[e+f x]^2\,(a+b\,\text{Sinh}[e+f x]^2)}{a}}}-$$

$$\frac{(a-3b)\,b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3af\sqrt{\frac{\text{Sech}[e+f x]^2\,(a+b\,\text{Sinh}[e+f x]^2)}{a}}}-\frac{2\,(a-2b)\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{3f}$$

Result (type 4, 335 leaves):

$$\frac{1}{f}\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\,\left(\frac{1}{3}\left(\sqrt{2}\,a\,\text{Cosh}[e+f\,x]-2\,\sqrt{2}\,b\,\text{Cosh}[e+f\,x]\right)\text{Csch}[e+f\,x]-\frac{a\,\text{Coth}[e+f\,x]\,\text{Csch}[e+f\,x]^2}{3\,\sqrt{2}}\right)+$$

$$\frac{1}{3\,f}\sqrt{2}\,b\left(-\frac{i\,b\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]}{\sqrt{2}\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}-\frac{1}{2\,b}\right.$$

$$\left.i\,(-a+2\,b)\left(\frac{2\,\sqrt{2}\,a\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]}{\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}-\frac{\sqrt{2}\,(2\,a-b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]}{\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}\right)\right)$$

Problem 102: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sinh}[e+f\,x]^4}{\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}\,dx$$

Optimal (type 4, 229 leaves, 6 steps):

$$\frac{\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,b\,f}+\frac{2\,(a+b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,b^2\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}-$$

$$\frac{\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,b\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}-\frac{2\,(a+b)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{3\,b^2\,f}$$

Result (type 4, 168 leaves):

$$\left(4\,i\,\sqrt{2}\,a\,(a+b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]-2\,i\,\sqrt{2}\,a\,(2\,a+b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\right.$$

$$\left.\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]+b\,(2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)])\,\text{Sinh}[2\,(e+f\,x)]\right)\Big/\left(6\,b^2\,f\,\sqrt{4\,a-2\,b+2\,b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 105: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Csch}[e+f x]^2}{\sqrt{a+b\,\text{Sinh}[e+f x]^2}}\,dx$$

Optimal (type 4, 134 leaves, 5 steps):

$$-\frac{\text{Coth}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{a f}-\frac{\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{a f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+\frac{\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{a f}$$

Result (type 4, 150 leaves):

$$\left(\sqrt{2}\left(-2 a+b-b\,\text{Cosh}[2(e+f x)]\right)\text{Coth}[e+f x]-2\,i\,a\sqrt{\frac{2 a-b+b\,\text{Cosh}[2(e+f x)]}{a}}\,\text{EllipticE}\left[i(e+f x),\frac{b}{a}\right]+2\,i\,a\sqrt{\frac{2 a-b+b\,\text{Cosh}[2(e+f x)]}{a}}\,\text{EllipticF}\left[i(e+f x),\frac{b}{a}\right]\right)\Bigg/\left(2 a f\sqrt{2 a-b+b\,\text{Cosh}[2(e+f x)]}\right)$$

Problem 106: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Csch}[e+f x]^4}{\sqrt{a+b\,\text{Sinh}[e+f x]^2}}\,dx$$

Optimal (type 4, 267 leaves, 7 steps):

$$\frac{2\,(a+b)\,\text{Coth}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a^2\,f}-\frac{\text{Coth}[e+f\,x]\,\text{Csch}[e+f\,x]^2\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a\,f}+$$

$$\frac{2\,(a+b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a^2\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}-$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a^2\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}-\frac{2\,(a+b)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{3\,a^2\,f}$$

Result (type 4, 338 leaves):

$$\frac{\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\,\left(\frac{\left(\sqrt{2}\,a\,\text{Cosh}[e+f\,x]+\sqrt{2}\,b\,\text{Cosh}[e+f\,x]\right)\,\text{Csch}[e+f\,x]}{3\,a^2}-\frac{\text{Coth}[e+f\,x]\,\text{Csch}[e+f\,x]^2}{3\,\sqrt{2}\,a}\right)}{f}-$$

$$\frac{1}{3\,a^2\,f}\sqrt{2}\,b\,\left(\frac{i\,b\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\,\frac{b}{a}\right]}{\sqrt{2}\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}-\frac{1}{2\,b}\right.$$

$$\left.i\,(a+b)\,\left(\frac{2\,\sqrt{2}\,a\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\,\frac{b}{a}\right]}{\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}-\frac{\sqrt{2}\,(2\,a-b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\,\frac{b}{a}\right]}{\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}\right)\right)$$

Problem 111: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sinh}[e+f\,x]^6}{\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 4, 341 leaves, 7 steps):

$$-\frac{a\,\text{Cosh}[e+f x]\,\text{Sinh}[e+f x]^3}{(a-b)\,b\,f\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}+\frac{(4 a-b)\,\text{Cosh}[e+f x]\,\text{Sinh}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3\,(a-b)\,b^2 f}+$$

$$\frac{(8 a^2-3 a b-2 b^2)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3\,(a-b)\,b^3 f\,\sqrt{\frac{\text{Sech}[e+f x]^2\,(a+b\,\text{Sinh}[e+f x]^2)}{a}}}-$$

$$\frac{(4 a-b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3\,(a-b)\,b^2 f\,\sqrt{\frac{\text{Sech}[e+f x]^2\,(a+b\,\text{Sinh}[e+f x]^2)}{a}}}-\frac{(8 a^2-3 a b-2 b^2)\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{3\,(a-b)\,b^3 f}$$

Result (type 4, 211 leaves):

$$\left(2\,i\,\sqrt{2}\,a\,(8 a^2-3 a b-2 b^2)\,\sqrt{\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticE}\left[i\,(e+f x),\frac{b}{a}\right]-\right.$$

$$2\,i\,\sqrt{2}\,a\,(8 a^2-7 a b-b^2)\,\sqrt{\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]-$$

$$\left.b\,\left(-8 a^2+3 a b-b^2+b\,(-a+b)\,\text{Cosh}[2\,(e+f x)]\right)\,\text{Sinh}[2\,(e+f x)]\right)\Big/\left(6\,(a-b)\,b^3 f\,\sqrt{4 a-2 b+2 b\,\text{Cosh}[2\,(e+f x)]}\right)$$

Problem 112: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sinh}[e+f x]^4}{\left(a+b\,\text{Sinh}[e+f x]^2\right)^{3/2}}\,dx$$

Optimal (type 4, 256 leaves, 6 steps):

$$-\frac{a\,\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]}{(a-b)\,b\,f\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}-\frac{(2\,a-b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{(a-b)\,b^2\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}+$$

$$\frac{\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{(a-b)\,b\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}+\frac{(2\,a-b)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{(a-b)\,b^2\,f}$$

Result (type 4, 156 leaves):

$$\left(a\left(-2\,i\,(2\,a-b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]+4\,i\,(a-b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]-\sqrt{2}\,b\,\text{Sinh}[2\,(e+f\,x)]\right)\right)\Big/\left(2\,(a-b)\,b^2\,f\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 115: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Csch}[e+f\,x]^2}{\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 4, 290 leaves, 7 steps):

$$-\frac{b\,\text{Coth}[e+f\,x]}{a\,(a-b)\,f\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}-\frac{(a-2\,b)\,\text{Coth}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{a^2\,(a-b)\,f}-$$

$$\frac{(a-2\,b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{a^2\,(a-b)\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}-$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{a^2\,(a-b)\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}+\frac{(a-2\,b)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{a^2\,(a-b)\,f}$$

Result (type 4, 185 leaves):

$$\left(-\left(2 a^2-3 a b+2 b^2+(a-2 b) b \operatorname{Cosh}[2(e+f x)]\right) \operatorname{Coth}[e+f x]-i \sqrt{2} a (a-2 b) \sqrt{\frac{2 a-b+b \operatorname{Cosh}[2(e+f x)]}{a}} \operatorname{EllipticE}\left[i (e+f x), \frac{b}{a}\right]+\right.$$

$$\left.i \sqrt{2} a (a-b) \sqrt{\frac{2 a-b+b \operatorname{Cosh}[2(e+f x)]}{a}} \operatorname{EllipticF}\left[i (e+f x), \frac{b}{a}\right]\right) \Big/ \left(a^2 (a-b) f \sqrt{4 a-2 b+2 b \operatorname{Cosh}[2(e+f x)]}\right)$$

Problem 120: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\operatorname{Sinh}[e+f x]^6}{\left(a+b \operatorname{Sinh}[e+f x]^2\right)^{5/2}} \, dx$$

Optimal (type 4, 344 leaves, 7 steps):

$$-\frac{a \operatorname{Cosh}[e+f x] \operatorname{Sinh}[e+f x]^3}{3 (a-b) b f \left(a+b \operatorname{Sinh}[e+f x]^2\right)^{3/2}}-\frac{2 a (2 a-3 b) \operatorname{Cosh}[e+f x] \operatorname{Sinh}[e+f x]}{3 (a-b)^2 b^2 f \sqrt{a+b \operatorname{Sinh}[e+f x]^2}}-$$

$$\frac{\left(8 a^2-13 a b+3 b^2\right) \operatorname{EllipticE}\left[\operatorname{ArcTan}[\operatorname{Sinh}[e+f x]], 1-\frac{b}{a}\right] \operatorname{Sech}[e+f x] \sqrt{a+b \operatorname{Sinh}[e+f x]^2}}{3 (a-b)^2 b^3 f \sqrt{\frac{\operatorname{Sech}[e+f x]^2 \left(a+b \operatorname{Sinh}[e+f x]^2\right)}{a}}}+$$

$$\frac{2 (2 a-3 b) \operatorname{EllipticF}\left[\operatorname{ArcTan}[\operatorname{Sinh}[e+f x]], 1-\frac{b}{a}\right] \operatorname{Sech}[e+f x] \sqrt{a+b \operatorname{Sinh}[e+f x]^2}}{3 (a-b)^2 b^2 f \sqrt{\frac{\operatorname{Sech}[e+f x]^2 \left(a+b \operatorname{Sinh}[e+f x]^2\right)}{a}}}+\frac{\left(8 a^2-13 a b+3 b^2\right) \sqrt{a+b \operatorname{Sinh}[e+f x]^2} \operatorname{Tanh}[e+f x]}{3 (a-b)^2 b^3 f}$$

Result (type 4, 207 leaves):

$$\left(a \left(-2 i a \left(8 a^2-13 a b+3 b^2\right) \left(\frac{2 a-b+b \operatorname{Cosh}[2(e+f x)]}{a}\right)^{3/2} \operatorname{EllipticE}\left[i (e+f x), \frac{b}{a}\right]+\right.\right.$$

$$2 i a \left(8 a^2-17 a b+9 b^2\right) \left(\frac{2 a-b+b \operatorname{Cosh}[2(e+f x)]}{a}\right)^{3/2} \operatorname{EllipticF}\left[i (e+f x), \frac{b}{a}\right]+$$

$$\left.\left.\sqrt{2} b \left(-8 a^2+17 a b-7 b^2+b (-5 a+7 b) \operatorname{Cosh}[2(e+f x)]\right) \operatorname{Sinh}[2(e+f x)]\right)\right) \Big/ \left(6 (a-b)^2 b^3 f (2 a-b+b \operatorname{Cosh}[2(e+f x)])^{3/2}\right)$$

Problem 121: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sinh}[e+f x]^4}{\left(a+b\,\text{Sinh}[e+f x]^2\right)^{5/2}}\,dx$$

Optimal (type 4, 244 leaves, 5 steps):

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

$$\frac{(a-3 b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3\,a\,(a-b)^2\,b\,f\,\sqrt{\frac{\text{Sech}[e+f x]^2\,\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}$$

Result (type 4, 198 leaves):

$$\left(2\,i\,a^2\,(a-2 b)\left(\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}\right)^{3/2}\text{EllipticE}\left[i\,(e+f x),\frac{b}{a}\right]-\right.$$

$$i\,a\,\left(2 a^2-5 a b+3 b^2\right)\left(\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}\right)^{3/2}\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]-$$

$$\left.\sqrt{2}\,b\,\left(-a^2+4 a b-2 b^2-(a-2 b)\,b\,\text{Cosh}[2\,(e+f x)]\right)\,\text{Sinh}[2\,(e+f x)]\right)\Big/\left(3\,(a-b)^2\,b^2\,f\,\left(2 a-b+b\,\text{Cosh}[2\,(e+f x)]\right)^{3/2}\right)$$

Problem 124: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Csch}[e+f x]^2}{\left(a+b\,\text{Sinh}[e+f x]^2\right)^{5/2}}\,dx$$

Optimal (type 4, 385 leaves, 8 steps):

$$-\frac{b\,\text{Coth}[e+f x]}{3 a (a-b) f \left(a+b\,\text{Sinh}[e+f x]^2\right)^{3/2}}-\frac{2 (3 a-2 b)\, b\,\text{Coth}[e+f x]}{3 a^2 (a-b)^2 f \sqrt{a+b\,\text{Sinh}[e+f x]^2}}-\frac{\left(3 a^2-13 a b+8 b^2\right) \text{Coth}[e+f x] \sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 a^3 (a-b)^2 f}-$$

$$\frac{\left(3 a^2-13 a b+8 b^2\right) \text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right] \text{Sech}[e+f x] \sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 a^3 (a-b)^2 f \sqrt{\frac{\text{Sech}[e+f x]^2 \left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}-$$

$$\frac{2 (3 a-2 b)\, b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right] \text{Sech}[e+f x] \sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 a^3 (a-b)^2 f \sqrt{\frac{\text{Sech}[e+f x]^2 \left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+$$

$$\frac{\left(3 a^2-13 a b+8 b^2\right) \sqrt{a+b\,\text{Sinh}[e+f x]^2}\ \text{Tanh}[e+f x]}{3 a^3 (a-b)^2 f}$$

Result (type 4, 234 leaves) :

$$\frac{1}{12 a^3 (a-b)^2 f \left(2 a-b+b\,\text{Cosh}[2 (e+f x)]\right)^{3/2}}$$
$$i \Bigg(4 a^2 \left(\frac{2 a-b+b\,\text{Cosh}[2 (e+f x)]}{a}\right)^{3/2} \left(\left(-3 a^2+13 a b-8 b^2\right) \text{EllipticE}\left[i (e+f x),\frac{b}{a}\right]+\left(3 a^2-7 a b+4 b^2\right) \text{EllipticF}\left[i (e+f x),\frac{b}{a}\right]\right)+$$
$$2 i \sqrt{2} \left(3 (a-b)^2 \left(2 a-b+b\,\text{Cosh}[2 (e+f x)]\right)^2 \text{Coth}[e+f x]-\right.$$
$$\left.2 a (a-b) b^2\,\text{Sinh}[2 (e+f x)]-(7 a-5 b) b^2 \left(2 a-b+b\,\text{Cosh}[2 (e+f x)]\right) \text{Sinh}[2 (e+f x)]\right)\Bigg)$$

Problem 130: Unable to integrate problem.

$$\int (d\,\text{Sinh}[e+f x])^m \left(a+b\,\text{Sinh}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 128 leaves, 3 steps) :

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

Result (type 8, 27 leaves) :

$$\int (d\,\text{Sinh}[e+f\,x])^m\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^p\,dx$$

Problem 131: Unable to integrate problem.

$$\int \text{Sinh}[e+f\,x]^5\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 5, 226 leaves, 5 steps):

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

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

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

Result (type 8, 25 leaves):

$$\int \text{Sinh}[e+f\,x]^5\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^p\,dx$$

Problem 132: Unable to integrate problem.

$$\int \text{Sinh}[e+f\,x]^3\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 5, 137 leaves, 4 steps):

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

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

Result (type 8, 25 leaves):

$$\int \text{Sinh}[e+f\,x]^3\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^p\,dx$$

Problem 134: Unable to integrate problem.

$$\int \text{Csch}[e+f\,x]\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 6, 88 leaves, 3 steps):

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

Result (type 8, 23 leaves):

$$\int \text{Csch}[e+f x] \left(a+b\,\text{Sinh}[e+f x]^2\right)^p \, dx$$

Problem 135: Unable to integrate problem.

$$\int \text{Csch}[e+f x]^3 \left(a+b\,\text{Sinh}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 87 leaves, 3 steps):

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

Result (type 8, 25 leaves):

$$\int \text{Csch}[e+f x]^3 \left(a+b\,\text{Sinh}[e+f x]^2\right)^p \, dx$$

Problem 136: Unable to integrate problem.

$$\int \text{Csch}[e+f x]^5 \left(a+b\,\text{Sinh}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 88 leaves, 3 steps):

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

Result (type 8, 25 leaves):

$$\int \text{Csch}[e+f x]^5 \left(a+b\,\text{Sinh}[e+f x]^2\right)^p \, dx$$

Problem 137: Unable to integrate problem.

$$\int \text{Sinh}[e+f x]^4 \left(a+b\,\text{Sinh}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 103 leaves, 3 steps):

$$\frac{1}{5 f}\text{AppellF1}\left[\frac{5}{2},\frac{1}{2},-p,\frac{7}{2},-\text{Sinh}[e+f x]^2,-\frac{b\,\text{Sinh}[e+f x]^2}{a}\right]$$
$$\sqrt{\text{Cosh}[e+f x]^2}\ \text{Sinh}[e+f x]^4\left(a+b\,\text{Sinh}[e+f x]^2\right)^p\left(1+\frac{b\,\text{Sinh}[e+f x]^2}{a}\right)^{-p}\text{Tanh}[e+f x]$$

Result (type 8, 25 leaves):

$$\int \text{Sinh}[e+f x]^4\left(a+b\,\text{Sinh}[e+f x]^2\right)^p dx$$

Problem 138: Result more than twice size of optimal antiderivative.

$$\int \text{Sinh}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)^p dx$$

Optimal (type 6, 101 leaves, 3 steps):

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

Result (type 6, 250 leaves):

$$\frac{1}{b^2 f\,(1+p)\,(2+p)}2^{-2-p}\sqrt{\frac{b\,\text{Cosh}[e+f x]^2}{-a+b}}\left(2 a-b+b\,\text{Cosh}[2\,(e+f x)]\right)^{1+p}$$
$$\left(-2 a\,(2+p)\,\text{AppellF1}\left[1+p,\frac{1}{2},\frac{1}{2},2+p,\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{2 a},\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{2\,(a-b)}\right]+\right.$$
$$\left.(1+p)\,\text{AppellF1}\left[2+p,\frac{1}{2},\frac{1}{2},3+p,\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{2 a},\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{2\,(a-b)}\right]\left(2 a-b+b\,\text{Cosh}[2\,(e+f x)]\right)\right)$$
$$\text{Csch}[2\,(e+f x)]\sqrt{-\frac{b\,\text{Sinh}[e+f x]^2}{a}}$$

Problem 139: Unable to integrate problem.

$$\int \text{Csch}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)^p dx$$

Optimal (type 6, 99 leaves, 3 steps):

$$-\frac{1}{f}\text{AppellF1}\left[-\frac{1}{2},\frac{1}{2},-p,\frac{1}{2},-\text{Sinh}[e+f x]^2,-\frac{b\,\text{Sinh}[e+f x]^2}{a}\right]\sqrt{\text{Cosh}[e+f x]^2}\,\text{Csch}[e+f x]\,\text{Sech}[e+f x]\,\left(a+b\,\text{Sinh}[e+f x]^2\right)^p\left(1+\frac{b\,\text{Sinh}[e+f x]^2}{a}\right)^{-p}$$

Result (type 8, 25 leaves):

$$\int \text{Csch}[e+f x]^2\,\left(a+b\,\text{Sinh}[e+f x]^2\right)^p\,dx$$

Problem 140: Unable to integrate problem.

$$\int \text{Csch}[e+f x]^4\,\left(a+b\,\text{Sinh}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 103 leaves, 3 steps):

$$-\frac{1}{3 f}\text{AppellF1}\left[-\frac{3}{2},\frac{1}{2},-p,-\frac{1}{2},-\text{Sinh}[e+f x]^2,-\frac{b\,\text{Sinh}[e+f x]^2}{a}\right]\sqrt{\text{Cosh}[e+f x]^2}\,\text{Csch}[e+f x]^3\,\text{Sech}[e+f x]\,\left(a+b\,\text{Sinh}[e+f x]^2\right)^p\left(1+\frac{b\,\text{Sinh}[e+f x]^2}{a}\right)^{-p}$$

Result (type 8, 25 leaves):

$$\int \text{Csch}[e+f x]^4\,\left(a+b\,\text{Sinh}[e+f x]^2\right)^p\,dx$$

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

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

Optimal (type 3, 39 leaves, 4 steps):

$$b x+\frac{a\,\text{ArcTanh}[\text{Cosh}[c+d x]]}{2 d}-\frac{a\,\text{Coth}[c+d x]\,\text{Csch}[c+d x]}{2 d}$$

Result (type 3, 82 leaves):

$$b x-\frac{a\,\text{Csch}\left[\frac{1}{2}(c+d x)\right]^2}{8 d}+\frac{a\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}(c+d x)\right]\right]}{2 d}-\frac{a\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\right]}{2 d}-\frac{a\,\text{Sech}\left[\frac{1}{2}(c+d x)\right]^2}{8 d}$$

Problem 159: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Csch}[c+d x]^6 \left(a+b \operatorname{Sinh}[c+d x]^3\right)^2 dx$$

Optimal (type 3, 88 leaves, 6 steps):

$$b^2 x+\frac{a b \operatorname{ArcTanh}[\operatorname{Cosh}[c+d x]]}{d}-\frac{a^2 \operatorname{Coth}[c+d x]}{d}+\frac{2 a^2 \operatorname{Coth}[c+d x]^3}{3 d}-\frac{a^2 \operatorname{Coth}[c+d x]^5}{5 d}-\frac{a b \operatorname{Coth}[c+d x] \operatorname{Csch}[c+d x]}{d}$$

Result (type 3, 216 leaves):

$$\frac{1}{480 d}\left(-128 a^2 \operatorname{Coth}\left[\frac{1}{2}(c+d x)\right]-120 a b \operatorname{Csch}\left[\frac{1}{2}(c+d x)\right]^2+\frac{19}{2} a^2 \operatorname{Csch}\left[\frac{1}{2}(c+d x)\right]^4 \operatorname{Sinh}[c+d x]-\frac{3}{2} a^2 \operatorname{Csch}\left[\frac{1}{2}(c+d x)\right]^6 \operatorname{Sinh}[c+d x]+8\left(60 b^2 c+60 b^2 d x+60 a b \operatorname{Log}\left[\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]\right]-60 a b \operatorname{Log}\left[\operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]\right]-15 a b \operatorname{Sech}\left[\frac{1}{2}(c+d x)\right]^2-19 a^2 \operatorname{Csch}[c+d x]^3 \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]^4-12 a^2 \operatorname{Csch}[c+d x]^5 \operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]^6-16 a^2 \operatorname{Tanh}\left[\frac{1}{2}(c+d x)\right]\right)\right)$$

Problem 171: Result is not expressed in closed-form.

$$\int \frac{\operatorname{Sinh}[c+d x]^6}{a+b \operatorname{Sinh}[c+d x]^3} dx$$

Optimal (type 3, 328 leaves, 15 steps):

$$-\frac{a x}{b^2}-\frac{2(-1)^{2/3} a^{4/3} \operatorname{ArcTan}\left[\frac{(-1)^{1/6}\left((-1)^{1/6} b^{1/3}+i a^{1/3} \operatorname{Tanh}\left[\frac{1}{2}(c+d x)\right]\right)}{\sqrt{(-1)^{1/3} a^{2/3}-(-1)^{2/3} b^{2/3}}}\right]}{3 \sqrt{(-1)^{1/3} a^{2/3}-(-1)^{2/3} b^{2/3}}\, b^2 d}-\frac{2(-1)^{2/3} a^{4/3} \operatorname{ArcTan}\left[\frac{(-1)^{1/6}\left((-1)^{5/6} b^{1/3}+i a^{1/3} \operatorname{Tanh}\left[\frac{1}{2}(c+d x)\right]\right)}{\sqrt{(-1)^{1/3} a^{2/3}-b^{2/3}}}\right]}{3 \sqrt{(-1)^{1/3} a^{2/3}-b^{2/3}}\, b^2 d}-\frac{2 a^{4/3} \operatorname{ArcTanh}\left[\frac{b^{1/3}-a^{1/3} \operatorname{Tanh}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^{2/3}+b^{2/3}}}\right]}{3 \sqrt{a^{2/3}+b^{2/3}}\, b^2 d}-\frac{\operatorname{Cosh}[c+d x]}{b d}+\frac{\operatorname{Cosh}[c+d x]^3}{3 b d}$$

Result (type 7, 168 leaves):

$$\frac{1}{12 b^2 d}\left(-12 a c-12 a d x-9 b \operatorname{Cosh}[c+d x]+b \operatorname{Cosh}[3(c+d x)]+8 a^2 \operatorname{RootSum}\left[-b+3 b \#1^2+8 a \#1^3-3 b \#1^4+b \#1^6 \&, \left(c \#1+d x \#1+2 \operatorname{Log}\left[-\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Cosh}\left[\frac{1}{2}(c+d x)\right] \#1-\operatorname{Sinh}\left[\frac{1}{2}(c+d x)\right] \#1\right] \#1\right) \Big/ \left(b+4 a \#1-2 b \#1^2+b \#1^4\right) \&\right]\right)$$

Problem 172: Result is not expressed in closed-form.

$$\int \frac{\text{Sinh}[c+d x]^5}{a+b\,\text{Sinh}[c+d x]^3}\,dx$$

Optimal (type 3, 295 leaves, 15 steps):

$$-\frac{x}{2 b}+\frac{2 a\,\text{ArcTan}\left[\frac{(-1)^{5/6}\left((-1)^{1/6} b^{1/3}+i\, a^{1/3}\,\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right)}{\sqrt{-(-1)^{2/3} a^{2/3}-b^{2/3}}}\right]}{3 \sqrt{-(-1)^{2/3} a^{2/3}-b^{2/3}}\; b^{5/3} d}+$$
$$\frac{2 a\,\text{ArcTan}\left[\frac{(-1)^{1/6}\left((-1)^{5/6} b^{1/3}+i\, a^{1/3}\,\text{Tanh}\left[\frac{1}{2}(c+d x)\right]\right)}{\sqrt{(-1)^{1/3} a^{2/3}-b^{2/3}}}\right]}{3 \sqrt{(-1)^{1/3} a^{2/3}-b^{2/3}}\; b^{5/3} d}+\frac{2 a\,\text{ArcTanh}\left[\frac{b^{1/3}-a^{1/3}\,\text{Tanh}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^{2/3}+b^{2/3}}}\right]}{3 \sqrt{a^{2/3}+b^{2/3}}\; b^{5/3} d}+\frac{\text{Cosh}[c+d x]\,\text{Sinh}[c+d x]}{2 b d}$$

Result (type 7, 299 leaves):

$$\frac{1}{12 b d}\left(-6 (c+d x)-2 a\,\text{RootSum}\left[-b+3 b \#1^2+8 a \#1^3-3 b \#1^4+b \#1^6\,\&,\right.\right.$$
$$\frac{1}{b \#1+4 a \#1^2-2 b \#1^3+b \#1^5}\left(c+d x+2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}(c+d x)\right]-\text{Sinh}\left[\frac{1}{2}(c+d x)\right]+\text{Cosh}\left[\frac{1}{2}(c+d x)\right]\#1-\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\#1\right]-\right.$$
$$2 c \#1^2-2 d x \#1^2-4\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}(c+d x)\right]-\text{Sinh}\left[\frac{1}{2}(c+d x)\right]+\text{Cosh}\left[\frac{1}{2}(c+d x)\right]\#1-\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\#1\right]\#1^2+c \#1^4+$$
$$\left.\left.\left.d x \#1^4+2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}(c+d x)\right]-\text{Sinh}\left[\frac{1}{2}(c+d x)\right]+\text{Cosh}\left[\frac{1}{2}(c+d x)\right]\#1-\text{Sinh}\left[\frac{1}{2}(c+d x)\right]\#1\right]\#1^4\right)\&\right]+3\,\text{Sinh}[2 (c+d x)]\right)$$

Problem 173: Result is not expressed in closed-form.

$$\int \frac{\text{Sinh}[c+d x]^4}{a+b\,\text{Sinh}[c+d x]^3}\,dx$$

Optimal (type 3, 303 leaves, 14 steps):

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

Result (type 7, 214 leaves):

$$\frac{1}{3\,b\,d}\Big(3\,\mathrm{Cosh}[c+d\,x]-a\,\mathrm{RootSum}\Big[-b+3\,b\,\#1^2+8\,a\,\#1^3-3\,b\,\#1^4+b\,\#1^6\,\&,\Big(-c-d\,x-2\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]+c\,\#1^2+d\,x\,\#1^2+2\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2\Big)\Big/\left(b+4\,a\,\#1-2\,b\,\#1^2+b\,\#1^4\right)\,\&\Big]\Big)$$

Problem 174: Result is not expressed in closed-form.

$$\int \frac{\mathrm{Sinh}[c+d\,x]^3}{a+b\,\mathrm{Sinh}[c+d\,x]^3}\,dx$$

Optimal (type 3, 294 leaves, 13 steps):

$$\frac{x}{b}+\frac{2\,(-1)^{2/3}\,a^{1/3}\,\mathrm{ArcTan}\Big[\frac{(-1)^{1/6}\left((-1)^{1/6}\,b^{1/3}+i\,a^{1/3}\,\mathrm{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\sqrt{(-1)^{1/3}\,a^{2/3}-(-1)^{2/3}\,b^{2/3}}}\Big]}{3\,\sqrt{(-1)^{1/3}\,a^{2/3}-(-1)^{2/3}\,b^{2/3}}\,b\,d}+\frac{2\,(-1)^{2/3}\,a^{1/3}\,\mathrm{ArcTan}\Big[\frac{(-1)^{1/6}\left((-1)^{5/6}\,b^{1/3}+i\,a^{1/3}\,\mathrm{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\sqrt{(-1)^{1/3}\,a^{2/3}-b^{2/3}}}\Big]}{3\,\sqrt{(-1)^{1/3}\,a^{2/3}-b^{2/3}}\,b\,d}+\frac{2\,a^{1/3}\,\mathrm{ArcTanh}\Big[\frac{b^{1/3}-a^{1/3}\,\mathrm{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^{2/3}+b^{2/3}}}\Big]}{3\,\sqrt{a^{2/3}+b^{2/3}}\,b\,d}$$

Result (type 7, 145 leaves):

$$\frac{1}{3\,b\,d}\Big(3\,c+3\,d\,x-2\,a\,\mathrm{RootSum}\Big[-b+3\,b\,\#1^2+8\,a\,\#1^3-3\,b\,\#1^4+b\,\#1^6\,\&,\Big(c\,\#1+d\,x\,\#1+2\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1\Big)\Big/\left(b+4\,a\,\#1-2\,b\,\#1^2+b\,\#1^4\right)\,\&\Big]\Big)$$

Problem 175: Result is not expressed in closed-form.

$$\int \frac{\mathrm{Sinh}[c+d\,x]^2}{a+b\,\mathrm{Sinh}[c+d\,x]^3}\,dx$$

Optimal (type 3, 262 leaves, 11 steps):

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

Result (type 7, 275 leaves):

$$\frac{1}{6\,d}\text{RootSum}\Big[-b+3\,b\,\#1^2+8\,a\,\#1^3-3\,b\,\#1^4+b\,\#1^6\,\&,$$
$$\Big(c+d\,x+2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]\#1-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]\#1\Big]-2\,c\,\#1^2-2\,d\,x\,\#1^2-$$
$$4\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]\#1-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]\#1\Big]\#1^2+c\,\#1^4+d\,x\,\#1^4+$$
$$2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]\#1-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]\#1\Big]\#1^4\Big)\Big/\left(b\,\#1+4\,a\,\#1^2-2\,b\,\#1^3+b\,\#1^5\right)\,\&\Big]$$

Problem 176: Result is not expressed in closed-form.

$$\int\frac{\text{Sinh}[c+d\,x]}{a+b\,\text{Sinh}[c+d\,x]^3}\,dx$$

Optimal (type 3, 290 leaves, 11 steps):

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

Result (type 7, 199 leaves):

$$\frac{1}{3\,d}\text{RootSum}\Big[-b+3\,b\,\#1^2+8\,a\,\#1^3-3\,b\,\#1^4+b\,\#1^6\,\&,$$
$$\frac{1}{b+4\,a\,\#1-2\,b\,\#1^2+b\,\#1^4}\Big(-c-d\,x-2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]\#1-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]\#1\Big]+$$
$$c\,\#1^2+d\,x\,\#1^2+2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]\#1-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]\#1\Big]\#1^2\Big)\,\&\Big]$$

Problem 177: Result is not expressed in closed-form.

$$\int\frac{1}{a+b\,\text{Sinh}[c+d\,x]^3}\,dx$$

Optimal (type 3, 280 leaves, 11 steps):

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

Result (type 7, 131 leaves):

$$\frac{1}{3\,d}2\,\text{RootSum}\Big[-b+3\,b\,\#1^2+8\,a\,\#1^3-3\,b\,\#1^4+b\,\#1^6\,\&,$$
$$\frac{1}{b+4\,a\,\#1-2\,b\,\#1^2+b\,\#1^4}\left(c\,\#1+d\,x\,\#1+2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1\right)\,\&\Big]$$

Problem 178: Result is not expressed in closed-form.

$$\int\frac{\text{Csch}[c+d\,x]}{a+b\,\text{Sinh}[c+d\,x]^3}\,dx$$

Optimal (type 3, 286 leaves, 14 steps):

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

Result (type 7, 307 leaves):

$$-\frac{1}{6\,a\,d}\Big(6\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-6\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+b\,\text{RootSum}\Big[-b+3\,b\,\#1^2+8\,a\,\#1^3-3\,b\,\#1^4+b\,\#1^6\,\&,$$
$$\frac{1}{b\,\#1+4\,a\,\#1^2-2\,b\,\#1^3+b\,\#1^5}\Big(c+d\,x+2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]-$$
$$2\,c\,\#1^2-2\,d\,x\,\#1^2-4\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1^2+$$
$$c\,\#1^4+d\,x\,\#1^4+2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1^4\Big)\,\&\Big]\Big)$$

Problem 179: Result is not expressed in closed-form.

$$\int\frac{\text{Csch}[c+d\,x]^2}{a+b\,\text{Sinh}[c+d\,x]^3}\,dx$$

Optimal (type 3, 304 leaves, 15 steps):

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

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

Result (type 7, 230 leaves):

$$-\frac{1}{6\,a\,d}\Bigg(3\,\text{Coth}\left[\frac{1}{2}\,(c+d\,x)\right]+2\,b\,\text{RootSum}\Big[-b+3\,b\,\#1^2+8\,a\,\#1^3-3\,b\,\#1^4+b\,\#1^6\,\&,$$

$$\Big(-c-d\,x-2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]+c\,\#1^2+$$

$$d\,x\,\#1^2+2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1^2\Big)\Big/$$

$$\left(b+4\,a\,\#1-2\,b\,\#1^2+b\,\#1^4\right)\,\&\Big]+3\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg)$$

Problem 180: Result is not expressed in closed-form.

$$\int\frac{\text{Csch}[c+d\,x]^3}{a+b\,\text{Sinh}[c+d\,x]^3}\,dx$$

Optimal (type 3, 322 leaves, 15 steps):

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

$$\frac{\text{ArcTanh}[\text{Cosh}[c+d\,x]]}{2\,a\,d}+\frac{2\, b\, \text{ArcTanh}\left[\frac{b^{1/3}-a^{1/3}\, \text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^{2/3}+b^{2/3}}}\right]}{3\, a^{5/3}\, \sqrt{a^{2/3}+b^{2/3}}\;d}-\frac{\text{Coth}[c+d\,x]\,\text{Csch}[c+d\,x]}{2\,a\,d}$$

Result (type 7, 191 leaves):

$$-\frac{1}{24\,a\,d}\Bigg(16\,b\,\text{RootSum}\Big[-b+3\,b\,\#1^2+8\,a\,\#1^3-3\,b\,\#1^4+b\,\#1^6\,\&,\ \Big(c\,\#1+d\,x\,\#1+2\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1\Big)\Big/\left(b+4\,a\,\#1-2\,b\,\#1^2+b\,\#1^4\right)\,\&\Big]+3\left(\text{Csch}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]^2-4\,\text{Log}\Big[\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]+4\,\text{Log}\Big[\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]+\text{Sech}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]^2\right)\Bigg)$$

Problem 181: Result is not expressed in closed-form.

$$\int\frac{\text{Csch}[c+d\,x]^4}{a+b\,\text{Sinh}[c+d\,x]^3}\,dx$$

Optimal (type 3, 317 leaves, 16 steps):

$$-\frac{2\,b^{4/3}\,\text{ArcTan}\Big[\frac{(-1)^{5/6}\left((-1)^{1/6}\,b^{1/3}+i\,a^{1/3}\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\sqrt{-(-1)^{2/3}\,a^{2/3}-b^{2/3}}}\Big]}{3\,a^2\,\sqrt{-(-1)^{2/3}\,a^{2/3}-b^{2/3}}\,d}-\frac{2\,b^{4/3}\,\text{ArcTan}\Big[\frac{(-1)^{1/6}\left((-1)^{5/6}\,b^{1/3}+i\,a^{1/3}\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\sqrt{(-1)^{1/3}\,a^{2/3}-b^{2/3}}}\Big]}{3\,a^2\,\sqrt{(-1)^{1/3}\,a^{2/3}-b^{2/3}}\,d}+\frac{b\,\text{ArcTanh}[\text{Cosh}[c+d\,x]]}{a^2\,d}-\frac{2\,b^{4/3}\,\text{ArcTanh}\Big[\frac{b^{1/3}-a^{1/3}\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^{2/3}+b^{2/3}}}\Big]}{3\,a^2\,\sqrt{a^{2/3}+b^{2/3}}\,d}+\frac{\text{Coth}[c+d\,x]}{a\,d}-\frac{\text{Coth}[c+d\,x]^3}{3\,a\,d}$$

Result (type 7, 450 leaves):

$$\frac{\text{Coth}\left[\frac{1}{2}\,(c+d\,x)\right]}{3\,a\,d}-\frac{\text{Coth}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{24\,a\,d}+\frac{b\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{a^2\,d}-\frac{b\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{a^2\,d}+\frac{1}{6\,a^2\,d}\text{RootSum}\Big[-b+3\,b\,\#1^2+8\,a\,\#1^3-3\,b\,\#1^4+b\,\#1^6\,\&,\ \Big(b^2\,c+b^2\,d\,x+2\,b^2\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]-2\,b^2\,c\,\#1^2-2\,b^2\,d\,x\,\#1^2-4\,b^2\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2+b^2\,c\,\#1^4+b^2\,d\,x\,\#1^4+2\,b^2\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4\Big)\Big/\left(b\,\#1+4\,a\,\#1^2-2\,b\,\#1^3+b\,\#1^5\right)\,\&\Big]+\frac{\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]}{3\,a\,d}+\frac{\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]}{24\,a\,d}$$

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

$$\int \text{Csch}[c+d x]^3 \left(a+b \,\text{Sinh}[c+d x]^4\right) dx$$

Optimal (type 3, 47 leaves, 4 steps):

$$\frac{a \,\text{ArcTanh}[\text{Cosh}[c+d x]]}{2 d}+\frac{b \,\text{Cosh}[c+d x]}{d}-\frac{a \,\text{Coth}[c+d x] \,\text{Csch}[c+d x]}{2 d}$$

Result (type 3, 101 leaves):

$$\frac{b \,\text{Cosh}[c] \,\text{Cosh}[d x]}{d}-\frac{a \,\text{Csch}\left[\frac{1}{2} (c+d x)\right]^2}{8 d}+\frac{a \,\text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]\right]}{2 d}-\frac{a \,\text{Log}\left[\text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right]}{2 d}-\frac{a \,\text{Sech}\left[\frac{1}{2} (c+d x)\right]^2}{8 d}+\frac{b \,\text{Sinh}[c] \,\text{Sinh}[d x]}{d}$$

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

$$\int \text{Csch}[c+d x]^5 \left(a+b \,\text{Sinh}[c+d x]^4\right) dx$$

Optimal (type 3, 64 leaves, 4 steps):

$$-\frac{(3 a+8 b) \,\text{ArcTanh}[\text{Cosh}[c+d x]]}{8 d}+\frac{3 a \,\text{Coth}[c+d x] \,\text{Csch}[c+d x]}{8 d}-\frac{a \,\text{Coth}[c+d x] \,\text{Csch}[c+d x]^3}{4 d}$$

Result (type 3, 158 leaves):

$$\frac{3 a \,\text{Csch}\left[\frac{1}{2} (c+d x)\right]^2}{32 d}-\frac{a \,\text{Csch}\left[\frac{1}{2} (c+d x)\right]^4}{64 d}-\frac{b \,\text{Log}\left[\text{Cosh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]}{d}-\frac{3 a \,\text{Log}\left[\text{Cosh}\left[\frac{1}{2} (c+d x)\right]\right]}{8 d}+$$
$$\frac{b \,\text{Log}\left[\text{Sinh}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]}{d}+\frac{3 a \,\text{Log}\left[\text{Sinh}\left[\frac{1}{2} (c+d x)\right]\right]}{8 d}+\frac{3 a \,\text{Sech}\left[\frac{1}{2} (c+d x)\right]^2}{32 d}+\frac{a \,\text{Sech}\left[\frac{1}{2} (c+d x)\right]^4}{64 d}$$

Problem 195: Result more than twice size of optimal antiderivative.

$$\int \text{Csch}[c+d x]^7 \left(a+b \,\text{Sinh}[c+d x]^4\right) dx$$

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

$$\frac{(5 a+8 b) \,\text{ArcTanh}[\text{Cosh}[c+d x]]}{16 d}-\frac{(5 a+8 b) \,\text{Coth}[c+d x] \,\text{Csch}[c+d x]}{16 d}+\frac{5 a \,\text{Coth}[c+d x] \,\text{Csch}[c+d x]^3}{24 d}-\frac{a \,\text{Coth}[c+d x] \,\text{Csch}[c+d x]^5}{6 d}$$

Result (type 3, 237 leaves):

$$-\frac{5\,a\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{64\,d}-\frac{b\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,d}+\frac{a\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,d}-\frac{a\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{384\,d}+\frac{5\,a\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{16\,d}+\frac{b\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,d}-\frac{5\,a\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{16\,d}-\frac{b\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,d}-\frac{5\,a\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{64\,d}-\frac{b\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,d}-\frac{a\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,d}-\frac{a\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{384\,d}$$

Problem 204: Result more than twice size of optimal antiderivative.

$$\int \text{Csch}[c+d\,x]^5\,\left(a+b\,\text{Sinh}[c+d\,x]^4\right)^2\,dx$$

Optimal (type 3, 101 leaves, 6 steps):

$$-\frac{a\,(3\,a+16\,b)\,\text{ArcTanh}[\text{Cosh}[c+d\,x]]}{8\,d}-\frac{b^2\,\text{Cosh}[c+d\,x]}{d}+\frac{b^2\,\text{Cosh}[c+d\,x]^3}{3\,d}+\frac{3\,a^2\,\text{Coth}[c+d\,x]\,\text{Csch}[c+d\,x]}{8\,d}-\frac{a^2\,\text{Coth}[c+d\,x]\,\text{Csch}[c+d\,x]^3}{4\,d}$$

Result (type 3, 207 leaves):

$$-\frac{3\,b^2\,\text{Cosh}[c+d\,x]}{4\,d}+\frac{b^2\,\text{Cosh}[3\,(c+d\,x)]}{12\,d}+\frac{3\,a^2\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{32\,d}-\frac{a^2\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,d}-\frac{2\,a\,b\,\text{Log}\left[\text{Cosh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}-\frac{3\,a^2\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{2\,a\,b\,\text{Log}\left[\text{Sinh}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}+\frac{3\,a^2\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{3\,a^2\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{32\,d}+\frac{a^2\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,d}$$

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

$$\int \text{Csch}[c+d\,x]^7\,\left(a+b\,\text{Sinh}[c+d\,x]^4\right)^2\,dx$$

Optimal (type 3, 111 leaves, 6 steps):

$$\frac{a\,(5\,a+16\,b)\,\text{ArcTanh}[\text{Cosh}[c+d\,x]]}{16\,d}+\frac{b^2\,\text{Cosh}[c+d\,x]}{d}-\frac{a\,(5\,a+16\,b)\,\text{Coth}[c+d\,x]\,\text{Csch}[c+d\,x]}{16\,d}+\frac{5\,a^2\,\text{Coth}[c+d\,x]\,\text{Csch}[c+d\,x]^3}{24\,d}-\frac{a^2\,\text{Coth}[c+d\,x]\,\text{Csch}[c+d\,x]^5}{6\,d}$$

Result (type 3, 278 leaves):

$$\frac{b^2\,\text{Cosh}[c]\,\text{Cosh}[d\,x]}{d}-\frac{5\,a^2\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{64\,d}-\frac{a\,b\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,d}+\frac{a^2\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,d}-\frac{a^2\,\text{Csch}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{384\,d}+$$
$$\frac{5\,a^2\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{16\,d}+\frac{a\,b\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{d}-\frac{5\,a^2\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{16\,d}-\frac{a\,b\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{d}-$$
$$\frac{5\,a^2\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{64\,d}-\frac{a\,b\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,d}-\frac{a^2\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,d}-\frac{a^2\,\text{Sech}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{384\,d}+\frac{b^2\,\text{Sinh}[c]\,\text{Sinh}[d\,x]}{d}$$

Problem 225: Result more than twice size of optimal antiderivative.

$$\int \text{Csch}[c+d\,x]^{14}\,\left(a+b\,\text{Sinh}[c+d\,x]^4\right)^3\,dx$$

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

$$-\frac{(a+b)^3\,\text{Coth}[c+d\,x]}{d}+\frac{2\,a\,(a+b)^2\,\text{Coth}[c+d\,x]^3}{d}-\frac{3\,a\,(a+b)\,(5\,a+b)\,\text{Coth}[c+d\,x]^5}{5\,d}+$$
$$\frac{4\,a^2\,(5\,a+3\,b)\,\text{Coth}[c+d\,x]^7}{7\,d}-\frac{a^2\,(5\,a+b)\,\text{Coth}[c+d\,x]^9}{3\,d}+\frac{6\,a^3\,\text{Coth}[c+d\,x]^{11}}{11\,d}-\frac{a^3\,\text{Coth}[c+d\,x]^{13}}{13\,d}$$

Result (type 3, 386 leaves):

$$\frac{1}{61\,501\,440\,d}$$
$$\left(-8\,785\,920\,a^3\,\text{Cosh}[c+d\,x]-9\,884\,160\,a^2\,b\,\text{Cosh}[c+d\,x]-7\,207\,200\,a\,b^2\,\text{Cosh}[c+d\,x]-1\,981\,980\,b^3\,\text{Cosh}[c+d\,x]+6\,589\,440\,a^3\,\text{Cosh}[3\,(c+d\,x)]+\right.$$
$$18\,944\,640\,a^2\,b\,\text{Cosh}[3\,(c+d\,x)]+15\,495\,480\,a\,b^2\,\text{Cosh}[3\,(c+d\,x)]+4\,459\,455\,b^3\,\text{Cosh}[3\,(c+d\,x)]-3\,660\,800\,a^3\,\text{Cosh}[5\,(c+d\,x)]-$$
$$13\,087\,360\,a^2\,b\,\text{Cosh}[5\,(c+d\,x)]-13\,093\,080\,a\,b^2\,\text{Cosh}[5\,(c+d\,x)]-4\,129\,125\,b^3\,\text{Cosh}[5\,(c+d\,x)]+1\,464\,320\,a^3\,\text{Cosh}[7\,(c+d\,x)]+$$
$$5\,234\,944\,a^2\,b\,\text{Cosh}[7\,(c+d\,x)]+6\,390\,384\,a\,b^2\,\text{Cosh}[7\,(c+d\,x)]+2\,312\,310\,b^3\,\text{Cosh}[7\,(c+d\,x)]-399\,360\,a^3\,\text{Cosh}[9\,(c+d\,x)]-$$
$$1\,427\,712\,a^2\,b\,\text{Cosh}[9\,(c+d\,x)]-1\,873\,872\,a\,b^2\,\text{Cosh}[9\,(c+d\,x)]-810\,810\,b^3\,\text{Cosh}[9\,(c+d\,x)]+66\,560\,a^3\,\text{Cosh}[11\,(c+d\,x)]+$$
$$237\,952\,a^2\,b\,\text{Cosh}[11\,(c+d\,x)]+312\,312\,a\,b^2\,\text{Cosh}[11\,(c+d\,x)]+165\,165\,b^3\,\text{Cosh}[11\,(c+d\,x)]-5120\,a^3\,\text{Cosh}[13\,(c+d\,x)]-$$
$$\left.18\,304\,a^2\,b\,\text{Cosh}[13\,(c+d\,x)]-24\,024\,a\,b^2\,\text{Cosh}[13\,(c+d\,x)]-15\,015\,b^3\,\text{Cosh}[13\,(c+d\,x)]\right)\,\text{Csch}[c+d\,x]^{13}$$

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

$$\int \text{Csch}[c+d\,x]^{16}\,\left(a+b\,\text{Sinh}[c+d\,x]^4\right)^3\,dx$$

Optimal (type 3, 182 leaves, 3 steps):

$$\frac{(a+b)^3 \operatorname{Coth}[c+d x]}{d}-\frac{(a+b)^2 (7 a+b) \operatorname{Coth}[c+d x]^3}{3 d}+\frac{3 a (a+b) (7 a+3 b) \operatorname{Coth}[c+d x]^5}{5 d}-\frac{a \left(35 a^2+30 a b+3 b^2\right) \operatorname{Coth}[c+d x]^7}{7 d}+\frac{5 a^2 (7 a+3 b) \operatorname{Coth}[c+d x]^9}{9 d}-\frac{3 a^2 (7 a+b) \operatorname{Coth}[c+d x]^{11}}{11 d}+\frac{7 a^3 \operatorname{Coth}[c+d x]^{13}}{13 d}-\frac{a^3 \operatorname{Coth}[c+d x]^{15}}{15 d}$$

Result (type 3, 440 leaves) :

$$\frac{1}{369008640 d}\left(-46126080 a^3 \operatorname{Cosh}[c+d x]-51891840 a^2 b \operatorname{Cosh}[c+d x]-37837800 a b^2 \operatorname{Cosh}[c+d x]-10405395 b^3 \operatorname{Cosh}[c+d x]+35875840 a^3 \operatorname{Cosh}[3 (c+d x)]+101861760 a^2 b \operatorname{Cosh}[3 (c+d x)]+83243160 a b^2 \operatorname{Cosh}[3 (c+d x)]+23948925 b^3 \operatorname{Cosh}[3 (c+d x)]-21525504 a^3 \operatorname{Cosh}[5 (c+d x)]-74954880 a^2 b \operatorname{Cosh}[5 (c+d x)]-74162088 a b^2 \operatorname{Cosh}[5 (c+d x)]-23288265 b^3 \operatorname{Cosh}[5 (c+d x)]+9784320 a^3 \operatorname{Cosh}[7 (c+d x)]+34070400 a^2 b \operatorname{Cosh}[7 (c+d x)]+39999960 a b^2 \operatorname{Cosh}[7 (c+d x)]+14189175 b^3 \operatorname{Cosh}[7 (c+d x)]-3261440 a^3 \operatorname{Cosh}[9 (c+d x)]-11356800 a^2 b \operatorname{Cosh}[9 (c+d x)]-14054040 a b^2 \operatorname{Cosh}[9 (c+d x)]-5720715 b^3 \operatorname{Cosh}[9 (c+d x)]+752640 a^3 \operatorname{Cosh}[11 (c+d x)]+2620800 a^2 b \operatorname{Cosh}[11 (c+d x)]+3243240 a b^2 \operatorname{Cosh}[11 (c+d x)]+1486485 b^3 \operatorname{Cosh}[11 (c+d x)]-107520 a^3 \operatorname{Cosh}[13 (c+d x)]-374400 a^2 b \operatorname{Cosh}[13 (c+d x)]-463320 a b^2 \operatorname{Cosh}[13 (c+d x)]-225225 b^3 \operatorname{Cosh}[13 (c+d x)]+7168 a^3 \operatorname{Cosh}[15 (c+d x)]+24960 a^2 b \operatorname{Cosh}[15 (c+d x)]+30888 a b^2 \operatorname{Cosh}[15 (c+d x)]+15015 b^3 \operatorname{Cosh}[15 (c+d x)]\right) \operatorname{Csch}[c+d x]^{15}$$

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

$$\int \operatorname{Csch}[c+d x]^{18} \left(a+b \operatorname{Sinh}[c+d x]^4\right)^3 dx$$

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

$$-\frac{(a+b)^3 \operatorname{Coth}[c+d x]}{d}+\frac{2 (a+b)^2 (4 a+b) \operatorname{Coth}[c+d x]^3}{3 d}-\frac{(a+b) \left(28 a^2+17 a b+b^2\right) \operatorname{Coth}[c+d x]^5}{5 d}+\frac{4 a \left(14 a^2+15 a b+3 b^2\right) \operatorname{Coth}[c+d x]^7}{7 d}-\frac{a \left(70 a^2+45 a b+3 b^2\right) \operatorname{Coth}[c+d x]^9}{9 d}+\frac{2 a^2 (28 a+9 b) \operatorname{Coth}[c+d x]^{11}}{11 d}-\frac{a^2 (28 a+3 b) \operatorname{Coth}[c+d x]^{13}}{13 d}+\frac{8 a^3 \operatorname{Coth}[c+d x]^{15}}{15 d}-\frac{a^3 \operatorname{Coth}[c+d x]^{17}}{17 d}$$

Result (type 3, 494 leaves) :

$$\frac{1}{6273146880 d}\left(-697016320 a^3 \operatorname{Cosh}[c+d x]-784143360 a^2 b \operatorname{Cosh}[c+d x]-571771200 a b^2 \operatorname{Cosh}[c+d x]-157237080 b^3 \operatorname{Cosh}[c+d x]+557613056 a^3 \operatorname{Cosh}[3 (c+d x)]+1568286720 a^2 b \operatorname{Cosh}[3 (c+d x)]+1280767488 a b^2 \operatorname{Cosh}[3 (c+d x)]+368384016 b^3 \operatorname{Cosh}[3 (c+d x)]-354844672 a^3 \operatorname{Cosh}[5 (c+d x)]-1211857920 a^2 b \operatorname{Cosh}[5 (c+d x)]-1189284096 a b^2 \operatorname{Cosh}[5 (c+d x)]-372263892 b^3 \operatorname{Cosh}[5 (c+d x)]+177422336 a^3 \operatorname{Cosh}[7 (c+d x)]+605928960 a^2 b \operatorname{Cosh}[7 (c+d x)]+692659968 a b^2 \operatorname{Cosh}[7 (c+d x)]+242288046 b^3 \operatorname{Cosh}[7 (c+d x)]-68239360 a^3 \operatorname{Cosh}[9 (c+d x)]-233049600 a^2 b \operatorname{Cosh}[9 (c+d x)]-277717440 a b^2 \operatorname{Cosh}[9 (c+d x)]-108738630 b^3 \operatorname{Cosh}[9 (c+d x)]+19496960 a^3 \operatorname{Cosh}[11 (c+d x)]+66585600 a^2 b \operatorname{Cosh}[11 (c+d x)]+79347840 a b^2 \operatorname{Cosh}[11 (c+d x)]+33693660 b^3 \operatorname{Cosh}[11 (c+d x)]-3899392 a^3 \operatorname{Cosh}[13 (c+d x)]-13317120 a^2 b \operatorname{Cosh}[13 (c+d x)]-15869568 a b^2 \operatorname{Cosh}[13 (c+d x)]-6942936 b^3 \operatorname{Cosh}[13 (c+d x)]+487424 a^3 \operatorname{Cosh}[15 (c+d x)]+1664640 a^2 b \operatorname{Cosh}[15 (c+d x)]+1983696 a b^2 \operatorname{Cosh}[15 (c+d x)]+867867 b^3 \operatorname{Cosh}[15 (c+d x)]-28672 a^3 \operatorname{Cosh}[17 (c+d x)]-97920 a^2 b \operatorname{Cosh}[17 (c+d x)]-116688 a b^2 \operatorname{Cosh}[17 (c+d x)]-51051 b^3 \operatorname{Cosh}[17 (c+d x)]\right) \operatorname{Csch}[c+d x]^{17}$$

Problem 228: Result more than twice size of optimal antiderivative.

$$\int \text{Csch}[c+d x]^{20}\left(a+b\,\text{Sinh}[c+d x]^4\right)^3\,dx$$

Optimal (type 3, 248 leaves, 3 steps):

$$\frac{(a+b)^3\,\text{Coth}[c+d x]}{d}-\frac{(a+b)^2\,(3 a+b)\,\text{Coth}[c+d x]^3}{d}+\frac{3\,(a+b)\,\left(12 a^2+9 a b+b^2\right)\,\text{Coth}[c+d x]^5}{5 d}-\frac{\left(84 a^3+105 a^2 b+30 a b^2+b^3\right)\,\text{Coth}[c+d x]^7}{7 d}+\frac{a\,\left(42 a^2+35 a b+5 b^2\right)\,\text{Coth}[c+d x]^9}{3 d}-\frac{3 a\,\left(42 a^2+21 a b+b^2\right)\,\text{Coth}[c+d x]^{11}}{11 d}+\frac{21 a^2\,(4 a+b)\,\text{Coth}[c+d x]^{13}}{13 d}-\frac{a^2\,(12 a+b)\,\text{Coth}[c+d x]^{15}}{5 d}+\frac{9 a^3\,\text{Coth}[c+d x]^{17}}{17 d}-\frac{a^3\,\text{Coth}[c+d x]^{19}}{19 d}$$

Result (type 3, 548 leaves):

$$\frac{1}{79\,459\,860\,480\,d}\Big(-7\,945\,986\,048\,a^3\,\text{Cosh}[c+d x]-8\,939\,234\,304\,a^2 b\,\text{Cosh}[c+d x]-6\,518\,191\,680\,a b^2\,\text{Cosh}[c+d x]-1\,792\,502\,712\,b^3\,\text{Cosh}[c+d x]+$$
$$6\,501\,261\,312\,a^3\,\text{Cosh}[3\,(c+d x)]+18\,149\,354\,496\,a^2 b\,\text{Cosh}[3\,(c+d x)]+14\,814\,072\,000\,a b^2\,\text{Cosh}[3\,(c+d x)]+4\,260\,103\,848\,b^3\,\text{Cosh}[3\,(c+d x)]-$$
$$4\,334\,174\,208\,a^3\,\text{Cosh}[5\,(c+d x)]-14\,582\,690\,304\,a^2 b\,\text{Cosh}[5\,(c+d x)]-14\,221\,509\,120\,a b^2\,\text{Cosh}[5\,(c+d x)]-4\,440\,518\,082\,b^3\,\text{Cosh}[5\,(c+d x)]+$$
$$2\,333\,786\,112\,a^3\,\text{Cosh}[7\,(c+d x)]+7\,852\,217\,856\,a^2 b\,\text{Cosh}[7\,(c+d x)]+8\,803\,791\,360\,a b^2\,\text{Cosh}[7\,(c+d x)]+3\,047\,642\,598\,b^3\,\text{Cosh}[7\,(c+d x)]-$$
$$1\,000\,194\,048\,a^3\,\text{Cosh}[9\,(c+d x)]-3\,365\,236\,224\,a^2 b\,\text{Cosh}[9\,(c+d x)]-3\,906\,077\,760\,a b^2\,\text{Cosh}[9\,(c+d x)]-1\,489\,040\,982\,b^3\,\text{Cosh}[9\,(c+d x)]+$$
$$333\,398\,016\,a^3\,\text{Cosh}[11\,(c+d x)]+1\,121\,745\,408\,a^2 b\,\text{Cosh}[11\,(c+d x)]+1\,302\,025\,920\,a b^2\,\text{Cosh}[11\,(c+d x)]+527\,386\,002\,b^3\,\text{Cosh}[11\,(c+d x)]-$$
$$83\,349\,504\,a^3\,\text{Cosh}[13\,(c+d x)]-280\,436\,352\,a^2 b\,\text{Cosh}[13\,(c+d x)]-325\,506\,480\,a b^2\,\text{Cosh}[13\,(c+d x)]-134\,271\,423\,b^3\,\text{Cosh}[13\,(c+d x)]+$$
$$14\,708\,736\,a^3\,\text{Cosh}[15\,(c+d x)]+49\,488\,768\,a^2 b\,\text{Cosh}[15\,(c+d x)]+57\,442\,320\,a b^2\,\text{Cosh}[15\,(c+d x)]+23\,694\,957\,b^3\,\text{Cosh}[15\,(c+d x)]-$$
$$1\,634\,304\,a^3\,\text{Cosh}[17\,(c+d x)]-5\,498\,752\,a^2 b\,\text{Cosh}[17\,(c+d x)]-6\,382\,480\,a b^2\,\text{Cosh}[17\,(c+d x)]-2\,632\,773\,b^3\,\text{Cosh}[17\,(c+d x)]+$$
$$86\,016\,a^3\,\text{Cosh}[19\,(c+d x)]+289\,408\,a^2 b\,\text{Cosh}[19\,(c+d x)]+335\,920\,a b^2\,\text{Cosh}[19\,(c+d x)]+138\,567\,b^3\,\text{Cosh}[19\,(c+d x)]\Big)\,\text{Csch}[c+d x]^{19}$$

Problem 229: Result is not expressed in closed-form.

$$\int \frac{\text{Sinh}[c+d x]^7}{a-b\,\text{Sinh}[c+d x]^4}\,dx$$

Optimal (type 3, 148 leaves, 6 steps):

$$-\frac{a\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Cosh}[c+d x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\right]}{2\sqrt{\sqrt{a}-\sqrt{b}}\;b^{7/4}\,d}+\frac{a\,\text{ArcTanh}\left[\frac{b^{1/4}\,\text{Cosh}[c+d x]}{\sqrt{\sqrt{a}+\sqrt{b}}}\right]}{2\sqrt{\sqrt{a}+\sqrt{b}}\;b^{7/4}\,d}+\frac{\text{Cosh}[c+d x]}{b d}-\frac{\text{Cosh}[c+d x]^3}{3 b d}$$

Result (type 7, 390 leaves):

$$\frac{1}{24\,b\,d}\left(18\,\text{Cosh}[c+d\,x]-2\,\text{Cosh}[3\,(c+d\,x)]-3\,a\,\text{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\ \frac{1}{-b\,\#1-8\,a\,\#1^3+3\,b\,\#1^3-3\,b\,\#1^5+b\,\#1^7}\right.$$

$$\Big(-c-d\,x-2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]\,\#1\Big]+3\,c\,\#1^2+$$

$$3\,d\,x\,\#1^2+6\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]\,\#1\Big]\,\#1^2-3\,c\,\#1^4-$$

$$3\,d\,x\,\#1^4-6\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]\,\#1\Big]\,\#1^4+c\,\#1^6+$$

$$\left.d\,x\,\#1^6+2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]\,\#1\Big]\,\#1^6\Big)\,\&\Big]\right)$$

Problem 230: Result is not expressed in closed-form.

$$\int\frac{\text{Sinh}[c+d\,x]^5}{a-b\,\text{Sinh}[c+d\,x]^4}\,dx$$

Optimal (type 3, 139 leaves, 6 steps):

$$\frac{\sqrt{a}\,\text{ArcTan}\Big[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\Big]}{2\sqrt{\sqrt{a}-\sqrt{b}}\,b^{5/4}\,d}+\frac{\sqrt{a}\,\text{ArcTanh}\Big[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}+\sqrt{b}}}\Big]}{2\sqrt{\sqrt{a}+\sqrt{b}}\,b^{5/4}\,d}-\frac{\text{Cosh}[c+d\,x]}{b\,d}$$

Result (type 7, 235 leaves):

$$-\frac{1}{2\,b\,d}\left(2\,\text{Cosh}[c+d\,x]+a\,\text{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\right.$$

$$\Big(-c\,\#1-d\,x\,\#1-2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]\,\#1\Big]\,\#1+c\,\#1^3+d\,x\,\#1^3+2\,\text{Log}\Big[$$

$$\left.-\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}(c+d\,x)\Big]\,\#1\Big]\,\#1^3\Big)\Big/\left(-b-8\,a\,\#1^2+3\,b\,\#1^2-3\,b\,\#1^4+b\,\#1^6\right)\,\&\Big]\right)$$

Problem 231: Result is not expressed in closed-form.

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

Optimal (type 3, 115 leaves, 4 steps):

$$-\frac{\text{ArcTan}\Big[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\Big]}{2\sqrt{\sqrt{a}-\sqrt{b}}\,b^{3/4}\,d}+\frac{\text{ArcTanh}\Big[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}+\sqrt{b}}}\Big]}{2\sqrt{\sqrt{a}+\sqrt{b}}\,b^{3/4}\,d}$$

Result (type 7, 365 leaves):

$$-\frac{1}{8\,d}\,\text{RootSum}\Big[b-4\,b\,\sharp1^2-16\,a\,\sharp1^4+6\,b\,\sharp1^4-4\,b\,\sharp1^6+b\,\sharp1^8\,\&,\ \frac{1}{-b\,\sharp1-8\,a\,\sharp1^3+3\,b\,\sharp1^3-3\,b\,\sharp1^5+b\,\sharp1^7}\Big(-c-d\,x-2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\sharp1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\sharp1\Big]+3\,c\,\sharp1^2+3\,d\,x\,\sharp1^2+6\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\sharp1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\sharp1\Big]\,\sharp1^2-3\,c\,\sharp1^4-3\,d\,x\,\sharp1^4-6\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\sharp1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\sharp1\Big]\,\sharp1^4+c\,\sharp1^6+d\,x\,\sharp1^6+2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\sharp1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\sharp1\Big]\,\sharp1^6\Big)\,\&\Big]$$

Problem 232: Result is not expressed in closed-form.

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

Optimal (type 3, 125 leaves, 4 steps):

$$\frac{\text{ArcTan}\Big[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\Big]}{2\,\sqrt{a}\,\sqrt{\sqrt{a}-\sqrt{b}}\,b^{1/4}\,d}+\frac{\text{ArcTanh}\Big[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}+\sqrt{b}}}\Big]}{2\,\sqrt{a}\,\sqrt{\sqrt{a}+\sqrt{b}}\,b^{1/4}\,d}$$

Result (type 7, 221 leaves):

$$-\frac{1}{2\,d}\text{RootSum}\Big[b-4\,b\,\sharp1^2-16\,a\,\sharp1^4+6\,b\,\sharp1^4-4\,b\,\sharp1^6+b\,\sharp1^8\,\&,\ \Big(-c\,\sharp1-d\,x\,\sharp1-2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\sharp1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\sharp1\Big]\,\sharp1+c\,\sharp1^3+d\,x\,\sharp1^3+2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\sharp1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\sharp1\Big]\,\sharp1^3\Big)\Big/\left(-b-8\,a\,\sharp1^2+3\,b\,\sharp1^2-3\,b\,\sharp1^4+b\,\sharp1^6\right)\,\&\Big]$$

Problem 233: Result is not expressed in closed-form.

$$\int \frac{\text{Csch}[c+d\,x]}{a-b\,\text{Sinh}[c+d\,x]^4}\,dx$$

Optimal (type 3, 136 leaves, 7 steps):

$$-\frac{b^{1/4}\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\right]}{2\,a\,\sqrt{\sqrt{a}-\sqrt{b}}\,d}-\frac{\text{ArcTanh}[\text{Cosh}[c+d\,x]]}{a\,d}+\frac{b^{1/4}\,\text{ArcTanh}\left[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}+\sqrt{b}}}\right]}{2\,a\,\sqrt{\sqrt{a}+\sqrt{b}}\,d}$$

Result (type 7, 397 leaves):

$$-\frac{1}{8\,a\,d}\left(8\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\right]-8\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right]+\right.$$
$$b\,\text{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\ \frac{1}{-b\,\#1-8\,a\,\#1^3+3\,b\,\#1^3-3\,b\,\#1^5+b\,\#1^7}$$
$$\Big(-c-d\,x-2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\#1\right]+3\,c\,\#1^2+$$
$$3\,d\,x\,\#1^2+6\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\#1\right]\#1^2-3\,c\,\#1^4-$$
$$3\,d\,x\,\#1^4-6\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\#1\right]\#1^4+c\,\#1^6+$$
$$\left.d\,x\,\#1^6+2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\#1\right]\#1^6\Big)\,\&\Big]\right)$$

Problem 234: Result is not expressed in closed-form.

$$\int\frac{\text{Csch}[c+d\,x]^3}{a-b\,\text{Sinh}[c+d\,x]^4}\,dx$$

Optimal (type 3, 184 leaves, 7 steps):

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

Result (type 7, 278 leaves):

$$-\frac{1}{8\,a\,d}\left(\text{Csch}\left[\frac{1}{2}(c+d\,x)\right]^2-4\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\right]+4\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\right]+4\,b\,\text{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\right.$$
$$\Big(-c\,\#1-d\,x\,\#1-2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\#1\right]\#1+$$
$$c\,\#1^3+d\,x\,\#1^3+2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}(c+d\,x)\right]\#1\right]\#1^3\Big)\Big/$$
$$\left.\left(-b-8\,a\,\#1^2+3\,b\,\#1^2-3\,b\,\#1^4+b\,\#1^6\right)\,\&\Big]+\text{Sech}\left[\frac{1}{2}(c+d\,x)\right]^2\right)$$

Problem 241: Result is not expressed in closed-form.

$$\int \frac{\text{Sinh}[c+d x]^9}{\left(a-b\,\text{Sinh}[c+d x]^4\right)^2}\,dx$$

Optimal (type 3, 235 leaves, 7 steps):

$$-\frac{\sqrt{a}\left(5\sqrt{a}-6\sqrt{b}\right)\text{ArcTan}\left[\frac{b^{1/4}\,\text{Cosh}[c+d x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\right]}{8\left(\sqrt{a}-\sqrt{b}\right)^{3/2} b^{9/4} d}-\frac{\sqrt{a}\left(5\sqrt{a}+6\sqrt{b}\right)\text{ArcTanh}\left[\frac{b^{1/4}\,\text{Cosh}[c+d x]}{\sqrt{\sqrt{a}+\sqrt{b}}}\right]}{8\left(\sqrt{a}+\sqrt{b}\right)^{3/2} b^{9/4} d}+$$
$$\frac{\text{Cosh}[c+d x]}{b^2 d}+\frac{a\,\text{Cosh}[c+d x]\left(a+b-b\,\text{Cosh}[c+d x]^2\right)}{4\,(a-b)\,b^2 d\left(a-b+2\,b\,\text{Cosh}[c+d x]^2-b\,\text{Cosh}[c+d x]^4\right)}$$

Result (type 7, 615 leaves):

$$\frac{1}{32\,b^2 d}\left(32\,\text{Cosh}[c+d x]+\frac{32\,a\,\text{Cosh}[c+d x]\,(2\,a+b-b\,\text{Cosh}[2\,(c+d x)])}{(a-b)\,(8\,a-3\,b+4\,b\,\text{Cosh}[2\,(c+d x)]-b\,\text{Cosh}[4\,(c+d x)])}+\right.$$
$$\frac{1}{a-b}\,a\,\text{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\ \frac{1}{-b\,\#1-8\,a\,\#1^3+3\,b\,\#1^3-3\,b\,\#1^5+b\,\#1^7}$$
$$\Big(-b\,c-b\,d\,x-2\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d x)\Big]\,\#1\Big]-20\,a\,c\,\#1^2+27\,b\,c\,\#1^2-$$
$$20\,a\,d\,x\,\#1^2+27\,b\,d\,x\,\#1^2-40\,a\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d x)\Big]\,\#1\Big]\,\#1^2+$$
$$54\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d x)\Big]\,\#1\Big]\,\#1^2+20\,a\,c\,\#1^4-27\,b\,c\,\#1^4+$$
$$20\,a\,d\,x\,\#1^4-27\,b\,d\,x\,\#1^4+40\,a\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d x)\Big]\,\#1\Big]\,\#1^4-$$
$$54\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d x)\Big]\,\#1\Big]\,\#1^4+b\,c\,\#1^6+$$
$$\left.b\,d\,x\,\#1^6+2\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d x)\Big]\,\#1\Big]\,\#1^6\Big)\,\&\Big]\right)$$

Problem 242: Result is not expressed in closed-form.

$$\int \frac{\text{Sinh}[c+d x]^7}{\left(a-b\,\text{Sinh}[c+d x]^4\right)^2}\,dx$$

Optimal (type 3, 210 leaves, 5 steps):

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

Result (type 7, 737 leaves):

$$-\frac{1}{32(a-b)\,b\,d}\left(-\frac{16a\left(-5\,\text{Cosh}[c+d x]+\text{Cosh}[3(c+d x)]\right)}{8a-3b+4b\,\text{Cosh}[2(c+d x)]-b\,\text{Cosh}[4(c+d x)]}+\right.$$
$$\text{RootSum}\Big[b-4b\,\#1^2-16a\,\#1^4+6b\,\#1^4-4b\,\#1^6+b\,\#1^8\,\&,\ \frac{1}{-b\,\#1-8a\,\#1^3+3b\,\#1^3-3b\,\#1^5+b\,\#1^7}$$
$$\Big(3ac-4bc+3adx-4bdx+6a\,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]\#1\right]-$$
$$8b\,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]\#1\right]-5ac\,\#1^2+12bc\,\#1^2-$$
$$5adx\,\#1^2+12bdx\,\#1^2-10a\,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]\#1\right]\#1^2+$$
$$24b\,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]\#1\right]\#1^2+5ac\,\#1^4-12bc\,\#1^4+$$
$$5adx\,\#1^4-12bdx\,\#1^4+10a\,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]\#1\right]\#1^4-$$
$$24b\,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]\#1\right]\#1^4-3ac\,\#1^6+4bc\,\#1^6-$$
$$3adx\,\#1^6+4bdx\,\#1^6-6a\,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]\#1\right]\#1^6+$$
$$\left.8b\,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+dx)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+dx)\right]\#1\right]\#1^6\Big)\,\&\Big]\right)$$

Problem 243: Result is not expressed in closed-form.

$$\int \frac{\text{Sinh}[c+d x]^5}{\left(a-b\,\text{Sinh}[c+d x]^4\right)^2}\,dx$$

Optimal (type 3, 217 leaves, 5 steps):

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

Result (type 7, 597 leaves):

$$\frac{1}{32\,(a-b)\,b\,d}\left(\frac{32\,\text{Cosh}[c+d\,x]\,\left(2\,a+b-b\,\text{Cosh}[2\,(c+d\,x)]\right)}{8\,a-3\,b+4\,b\,\text{Cosh}[2\,(c+d\,x)]-b\,\text{Cosh}[4\,(c+d\,x)]}+\right.$$

$$\text{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\;\frac{1}{-b\,\#1-8\,a\,\#1^3+3\,b\,\#1^3-3\,b\,\#1^5+b\,\#1^7}$$

$$\Big(-b\,c-b\,d\,x-2\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]-4\,a\,c\,\#1^2+11\,b\,c\,\#1^2-$$

$$4\,a\,d\,x\,\#1^2+11\,b\,d\,x\,\#1^2-8\,a\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2+$$

$$22\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2+4\,a\,c\,\#1^4-11\,b\,c\,\#1^4+$$

$$4\,a\,d\,x\,\#1^4-11\,b\,d\,x\,\#1^4+8\,a\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4-$$

$$22\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4+b\,c\,\#1^6+$$

$$\left.b\,d\,x\,\#1^6+2\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^6\Big)\,\&\Big]\right)$$

Problem 244: Result is not expressed in closed-form.

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

Optimal (type 3, 186 leaves, 5 steps):

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

Result (type 7, 422 leaves):

$$-\frac{1}{32\,(a-b)\,d}\left(\frac{16\,(-5\,\text{Cosh}[c+d\,x]+\text{Cosh}[3\,(c+d\,x)])}{-8\,a+3\,b-4\,b\,\text{Cosh}[2\,(c+d\,x)]+b\,\text{Cosh}[4\,(c+d\,x)]}+\right.$$

$$\text{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\ \frac{1}{-b\,\#1-8\,a\,\#1^3+3\,b\,\#1^3-3\,b\,\#1^5+b\,\#1^7}$$

$$\Big(-c-d\,x-2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]+7\,c\,\#1^2+$$

$$7\,d\,x\,\#1^2+14\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2-7\,c\,\#1^4-$$

$$7\,d\,x\,\#1^4-14\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4+c\,\#1^6+$$

$$\left.d\,x\,\#1^6+2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^6\Big)\,\&\Big]\right)$$

Problem 245: Result is not expressed in closed-form.

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

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

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

Result (type 7, 597 leaves):

$$\frac{1}{32\,a\,(a-b)\,d}\left(\frac{32\,\text{Cosh}[c+d\,x]\,(2\,a+b-b\,\text{Cosh}[2\,(c+d\,x)])}{8\,a-3\,b+4\,b\,\text{Cosh}[2\,(c+d\,x)]-b\,\text{Cosh}[4\,(c+d\,x)]}+\right.$$

$$\text{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\ \frac{1}{-b\,\#1-8\,a\,\#1^3+3\,b\,\#1^3-3\,b\,\#1^5+b\,\#1^7}$$

$$\Big(-b\,c-b\,d\,x-2\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]+12\,a\,c\,\#1^2-5\,b\,c\,\#1^2+$$

$$12\,a\,d\,x\,\#1^2-5\,b\,d\,x\,\#1^2+24\,a\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2-$$

$$10\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2-12\,a\,c\,\#1^4+5\,b\,c\,\#1^4-$$

$$12\,a\,d\,x\,\#1^4+5\,b\,d\,x\,\#1^4-24\,a\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4+$$

$$10\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4+b\,c\,\#1^6+$$

$$\left.b\,d\,x\,\#1^6+2\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^6\Big)\,\&\Big]\right)$$

Problem 246: Result is not expressed in closed-form.

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

Optimal (type 3, 325 leaves, 11 steps):

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

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

Result (type 7, 774 leaves):

$$\frac{1}{32 a^2 d}\left(\frac{16 a b (-5 \operatorname{Cosh}[c+d x]+\operatorname{Cosh}[3 (c+d x)])}{(a-b) (8 a-3 b+4 b \operatorname{Cosh}[2 (c+d x)]-b \operatorname{Cosh}[4 (c+d x)])}-32 \operatorname{Log}\left[\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right]\right]+\right.$$

$$32 \operatorname{Log}\left[\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right]\right]-\frac{1}{a-b} b \operatorname{RootSum}\left[b-4 b \sharp 1^2-16 a \sharp 1^4+6 b \sharp 1^4-4 b \sharp 1^6+b \sharp 1^8 \&, \frac{1}{-b \sharp 1-8 a \sharp 1^3+3 b \sharp 1^3-3 b \sharp 1^5+b \sharp 1^7}\right.$$

$$\left(-5 a c+4 b c-5 a d x+4 b d x-10 a \operatorname{Log}\left[-\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right] \sharp 1-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right] \sharp 1\right]+\right.$$

$$8 b \operatorname{Log}\left[-\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right] \sharp 1-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right] \sharp 1\right]+19 a c \sharp 1^2-12 b c \sharp 1^2+$$

$$19 a d x \sharp 1^2-12 b d x \sharp 1^2+38 a \operatorname{Log}\left[-\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right] \sharp 1-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right] \sharp 1\right] \sharp 1^2-$$

$$24 b \operatorname{Log}\left[-\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right] \sharp 1-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right] \sharp 1\right] \sharp 1^2-19 a c \sharp 1^4+12 b c \sharp 1^4-$$

$$19 a d x \sharp 1^4+12 b d x \sharp 1^4-38 a \operatorname{Log}\left[-\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right] \sharp 1-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right] \sharp 1\right] \sharp 1^4+$$

$$24 b \operatorname{Log}\left[-\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right] \sharp 1-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right] \sharp 1\right] \sharp 1^4+5 a c \sharp 1^6-4 b c \sharp 1^6+$$

$$5 a d x \sharp 1^6-4 b d x \sharp 1^6+10 a \operatorname{Log}\left[-\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right] \sharp 1-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right] \sharp 1\right] \sharp 1^6-$$

$$\left.\left.\left.8 b \operatorname{Log}\left[-\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Cosh}\left[\frac{1}{2} (c+d x)\right] \sharp 1-\operatorname{Sinh}\left[\frac{1}{2} (c+d x)\right] \sharp 1\right] \sharp 1^6\right) \&\right]\right)$$

Problem 253: Result is not expressed in closed-form.

$$\int \frac{\operatorname{Sinh}[c+d x]^9}{\left(a-b \operatorname{Sinh}[c+d x]^4\right)^3} \, dx$$

Optimal (type 3, 315 leaves, 6 steps):

$$\frac{\left(5 a-14 \sqrt{a} \sqrt{b}+12 b\right) \operatorname{ArcTan}\left[\frac{b^{1/4} \operatorname{Cosh}[c+d x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\right]}{64 \sqrt{a} \left(\sqrt{a}-\sqrt{b}\right)^{5/2} b^{9/4} d}+\frac{\left(5 a+14 \sqrt{a} \sqrt{b}+12 b\right) \operatorname{ArcTanh}\left[\frac{b^{1/4} \operatorname{Cosh}[c+d x]}{\sqrt{\sqrt{a}+\sqrt{b}}}\right]}{64 \sqrt{a} \left(\sqrt{a}+\sqrt{b}\right)^{5/2} b^{9/4} d}+$$

$$\frac{a \operatorname{Cosh}[c+d x] \left(a+b-b \operatorname{Cosh}[c+d x]^2\right)}{8 (a-b) b^2 d \left(a-b+2 b \operatorname{Cosh}[c+d x]^2-b \operatorname{Cosh}[c+d x]^4\right)^2}-\frac{\operatorname{Cosh}[c+d x] \left(9 a^2-11 a b-10 b^2-2 (2 a-5 b) b \operatorname{Cosh}[c+d x]^2\right)}{32 (a-b)^2 b^2 d \left(a-b+2 b \operatorname{Cosh}[c+d x]^2-b \operatorname{Cosh}[c+d x]^4\right)}$$

Result (type 7, 1021 leaves):

$$\frac{1}{128\,(a-b)^2\,b^2\,d}\left(\frac{32\,\text{Cosh}[c+d\,x]\,\left(-9\,a^2+13\,a\,b+5\,b^2+(2\,a-5\,b)\,b\,\text{Cosh}[2\,(c+d\,x)]\right)}{8\,a-3\,b+4\,b\,\text{Cosh}[2\,(c+d\,x)]-b\,\text{Cosh}[4\,(c+d\,x)]}+\frac{512\,a\,(a-b)\,\text{Cosh}[c+d\,x]\,\left(2\,a+b-b\,\text{Cosh}[2\,(c+d\,x)]\right)}{\left(-8\,a+3\,b-4\,b\,\text{Cosh}[2\,(c+d\,x)]+b\,\text{Cosh}[4\,(c+d\,x)]\right)^2}-\right.$$

$$\text{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\ \frac{1}{-b\,\#1-8\,a\,\#1^3+3\,b\,\#1^3-3\,b\,\#1^5+b\,\#1^7}$$

$$\Big(-2\,a\,b\,c+5\,b^2\,c-2\,a\,b\,d\,x+5\,b^2\,d\,x-4\,a\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]+$$

$$10\,b^2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]-10\,a^2\,c\,\#1^2+28\,a\,b\,c\,\#1^2-39\,b^2\,c\,\#1^2-$$

$$10\,a^2\,d\,x\,\#1^2+28\,a\,b\,d\,x\,\#1^2-39\,b^2\,d\,x\,\#1^2-20\,a^2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]$$

$$\#1^2+56\,a\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2-$$

$$78\,b^2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2+10\,a^2\,c\,\#1^4-28\,a\,b\,c\,\#1^4+39\,b^2\,c\,\#1^4+$$

$$10\,a^2\,d\,x\,\#1^4-28\,a\,b\,d\,x\,\#1^4+39\,b^2\,d\,x\,\#1^4+20\,a^2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]$$

$$\#1^4-56\,a\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4+$$

$$78\,b^2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4+2\,a\,b\,c\,\#1^6-5\,b^2\,c\,\#1^6+$$

$$2\,a\,b\,d\,x\,\#1^6-5\,b^2\,d\,x\,\#1^6+4\,a\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^6-$$

$$\left.10\,b^2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^6\Big)\,\&\Big]\right)$$

Problem 254: Result is not expressed in closed-form.

$$\int \frac{\text{Sinh}[c+d\,x]^7}{\left(a-b\,\text{Sinh}[c+d\,x]^4\right)^3}\,dx$$

Optimal (type 3, 290 leaves, 6 steps):

$$\frac{3\,\left(\sqrt{a}-2\,\sqrt{b}\right)\,\text{ArcTan}\Big[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\Big]}{64\,\sqrt{a}\,\left(\sqrt{a}-\sqrt{b}\right)^{5/2}\,b^{7/4}\,d}-\frac{3\,\left(\sqrt{a}+2\,\sqrt{b}\right)\,\text{ArcTanh}\Big[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}+\sqrt{b}}}\Big]}{64\,\sqrt{a}\,\left(\sqrt{a}+\sqrt{b}\right)^{5/2}\,b^{7/4}\,d}-$$

$$\frac{a\,\text{Cosh}[c+d\,x]\,\left(2-\text{Cosh}[c+d\,x]^2\right)}{8\,(a-b)\,b\,d\,\left(a-b+2\,b\,\text{Cosh}[c+d\,x]^2-b\,\text{Cosh}[c+d\,x]^4\right)^2}+\frac{\text{Cosh}[c+d\,x]\,\left(5\,a-17\,b-3\,(a-3\,b)\,\text{Cosh}[c+d\,x]^2\right)}{32\,(a-b)^2\,b\,d\,\left(a-b+2\,b\,\text{Cosh}[c+d\,x]^2-b\,\text{Cosh}[c+d\,x]^4\right)}$$

Result (type 7, 802 leaves):

$$\frac{1}{256\,(a-b)^2\,b\,d}\left(-\frac{32\,\text{Cosh}[c+d\,x]\,\left(-7\,a+25\,b+3\,(a-3\,b)\,\text{Cosh}[2\,(c+d\,x)]\right)}{8\,a-3\,b+4\,b\,\text{Cosh}[2\,(c+d\,x)]-b\,\text{Cosh}[4\,(c+d\,x)]}+\frac{512\,a\,(a-b)\,\left(-5\,\text{Cosh}[c+d\,x]+\text{Cosh}[3\,(c+d\,x)]\right)}{\left(-8\,a+3\,b-4\,b\,\text{Cosh}[2\,(c+d\,x)]+b\,\text{Cosh}[4\,(c+d\,x)]\right)^2}-\right.$$
$$3\,\text{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\,\frac{1}{-b\,\#1-8\,a\,\#1^3+3\,b\,\#1^3-3\,b\,\#1^5+b\,\#1^7}$$
$$\Big(a\,c-3\,b\,c+a\,d\,x-3\,b\,d\,x+2\,a\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]-$$
$$6\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]-3\,a\,c\,\#1^2+17\,b\,c\,\#1^2-$$
$$3\,a\,d\,x\,\#1^2+17\,b\,d\,x\,\#1^2-6\,a\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2+$$
$$34\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2+3\,a\,c\,\#1^4-17\,b\,c\,\#1^4+$$
$$3\,a\,d\,x\,\#1^4-17\,b\,d\,x\,\#1^4+6\,a\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4-$$
$$34\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4-a\,c\,\#1^6+3\,b\,c\,\#1^6-$$
$$a\,d\,x\,\#1^6+3\,b\,d\,x\,\#1^6-2\,a\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^6+$$
$$\left.6\,b\,\text{Log}\Big[-\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^6\Big)\,\&\Big]\right)$$

Problem 255: Result is not expressed in closed-form.

$$\int\frac{\text{Sinh}[c+d\,x]^5}{\left(a-b\,\text{Sinh}[c+d\,x]^4\right)^3}\,dx$$

Optimal (type 3, 313 leaves, 6 steps):

$$-\frac{\left(3\,a-10\,\sqrt{a}\,\sqrt{b}+4\,b\right)\,\text{ArcTan}\Big[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\Big]}{64\,a^{3/2}\,\left(\sqrt{a}-\sqrt{b}\right)^{5/2}\,b^{5/4}\,d}-\frac{\left(3\,a+10\,\sqrt{a}\,\sqrt{b}+4\,b\right)\,\text{ArcTanh}\Big[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}+\sqrt{b}}}\Big]}{64\,a^{3/2}\,\left(\sqrt{a}+\sqrt{b}\right)^{5/2}\,b^{5/4}\,d}+$$
$$\frac{\text{Cosh}[c+d\,x]\,\left(a+b-b\,\text{Cosh}[c+d\,x]^2\right)}{8\,(a-b)\,b\,d\,\left(a-b+2\,b\,\text{Cosh}[c+d\,x]^2-b\,\text{Cosh}[c+d\,x]^4\right)^2}-\frac{\text{Cosh}[c+d\,x]\,\left(a^2-11\,a\,b-2\,b^2+2\,b\,(2\,a+b)\,\text{Cosh}[c+d\,x]^2\right)}{32\,a\,(a-b)^2\,b\,d\,\left(a-b+2\,b\,\text{Cosh}[c+d\,x]^2-b\,\text{Cosh}[c+d\,x]^4\right)}$$

Result (type 7, 1019 leaves):

$$-\frac{1}{128\,(a-b)^2\,b\,d}\left(\frac{32\,\text{Cosh}[c+d\,x]\,\left(a^2-9\,a\,b-b^2+b\,(2\,a+b)\,\text{Cosh}[2\,(c+d\,x)]\right)}{a\,(8\,a-3\,b+4\,b\,\text{Cosh}[2\,(c+d\,x)]-b\,\text{Cosh}[4\,(c+d\,x)])}-\frac{512\,(a-b)\,\text{Cosh}[c+d\,x]\,(2\,a+b-b\,\text{Cosh}[2\,(c+d\,x)])}{(-8\,a+3\,b-4\,b\,\text{Cosh}[2\,(c+d\,x)]+b\,\text{Cosh}[4\,(c+d\,x)])^2}+\right.$$

$$\frac{1}{a}\,\text{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\;\frac{1}{-b\,\#1-8\,a\,\#1^3+3\,b\,\#1^3-3\,b\,\#1^5+b\,\#1^7}$$

$$\Big(2\,a\,b\,c+b^2\,c+2\,a\,b\,d\,x+b^2\,d\,x+4\,a\,b\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]+$$

$$2\,b^2\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]+6\,a^2\,c\,\#1^2-32\,a\,b\,c\,\#1^2+5\,b^2\,c\,\#1^2+$$

$$6\,a^2\,d\,x\,\#1^2-32\,a\,b\,d\,x\,\#1^2+5\,b^2\,d\,x\,\#1^2+12\,a^2\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]$$

$$\#1^2-64\,a\,b\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2+$$

$$10\,b^2\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2-6\,a^2\,c\,\#1^4+32\,a\,b\,c\,\#1^4-5\,b^2\,c\,\#1^4-$$

$$6\,a^2\,d\,x\,\#1^4+32\,a\,b\,d\,x\,\#1^4-5\,b^2\,d\,x\,\#1^4-12\,a^2\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]$$

$$\#1^4+64\,a\,b\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4-$$

$$10\,b^2\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4-2\,a\,b\,c\,\#1^6-b^2\,c\,\#1^6-$$

$$2\,a\,b\,d\,x\,\#1^6-b^2\,d\,x\,\#1^6-4\,a\,b\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^6-$$

$$\left.2\,b^2\,\text{Log}\Big[-\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\text{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\text{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^6\Big)\,\&\Big]\right)$$

Problem 256: Result is not expressed in closed-form.

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

Optimal (type 3, 288 leaves, 6 steps):

$$-\frac{\left(5\,\sqrt{a}-2\,\sqrt{b}\right)\,\text{ArcTan}\Big[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\Big]}{64\,a^{3/2}\,\left(\sqrt{a}-\sqrt{b}\right)^{5/2}\,b^{3/4}\,d}+\frac{\left(5\,\sqrt{a}+2\,\sqrt{b}\right)\,\text{ArcTanh}\Big[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}+\sqrt{b}}}\Big]}{64\,a^{3/2}\,\left(\sqrt{a}+\sqrt{b}\right)^{5/2}\,b^{3/4}\,d}-$$

$$\frac{\text{Cosh}[c+d\,x]\,\left(2-\text{Cosh}[c+d\,x]^2\right)}{8\,(a-b)\,d\,\left(a-b+2\,b\,\text{Cosh}[c+d\,x]^2-b\,\text{Cosh}[c+d\,x]^4\right)^2}-\frac{\text{Cosh}[c+d\,x]\,\left(11\,a+b-(5\,a+b)\,\text{Cosh}[c+d\,x]^2\right)}{32\,a\,(a-b)^2\,d\,\left(a-b+2\,b\,\text{Cosh}[c+d\,x]^2-b\,\text{Cosh}[c+d\,x]^4\right)}$$

Result (type 7, 802 leaves):

$$\frac{1}{256 (a-b)^2 d}\left(\frac{32 \,\text{Cosh}[c+d x] \left(-17 a-b+(5 a+b) \,\text{Cosh}[2 (c+d x)]\right)}{a \left(8 a-3 b+4 b \,\text{Cosh}[2 (c+d x)]-b \,\text{Cosh}[4 (c+d x)]\right)}+\frac{512 (a-b) \left(-5 \,\text{Cosh}[c+d x]+\text{Cosh}[3 (c+d x)]\right)}{\left(-8 a+3 b-4 b \,\text{Cosh}[2 (c+d x)]+b \,\text{Cosh}[4 (c+d x)]\right)^2}+\right.$$

$$\frac{1}{a}\text{RootSum}\Big[b-4 b \#1^2-16 a \#1^4+6 b \#1^4-4 b \#1^6+b \#1^8\&,\ \frac{1}{-b \#1-8 a \#1^3+3 b \#1^3-3 b \#1^5+b \#1^7}$$

$$\Big(5 a c+b c+5 a d x+b d x+10 a \,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]\#1\right]+$$

$$2 b \,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]\#1\right]-47 a c \#1^2+5 b c \#1^2-$$

$$47 a d x \#1^2+5 b d x \#1^2-94 a \,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]\#1\right]\#1^2+$$

$$10 b \,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]\#1\right]\#1^2+47 a c \#1^4-5 b c \#1^4+$$

$$47 a d x \#1^4-5 b d x \#1^4+94 a \,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]\#1\right]\#1^4-$$

$$10 b \,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]\#1\right]\#1^4-5 a c \#1^6-b c \#1^6-$$

$$5 a d x \#1^6-b d x \#1^6-10 a \,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]\#1\right]\#1^6-$$

$$\left.2 b \,\text{Log}\left[-\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]+\text{Cosh}\left[\tfrac{1}{2}(c+d x)\right]\#1-\text{Sinh}\left[\tfrac{1}{2}(c+d x)\right]\#1\right]\#1^6\Big)\&\Big]\right)$$

Problem 257: Result is not expressed in closed-form.

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

Optimal (type 3, 313 leaves, 6 steps):

$$\frac{3 \left(7 a-10 \sqrt{a} \sqrt{b}+4 b\right) \text{ArcTan}\left[\frac{b^{1/4} \text{Cosh}[c+d x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\right]}{64 a^{5/2} \left(\sqrt{a}-\sqrt{b}\right)^{5/2} b^{1/4} d}+\frac{3 \left(7 a+10 \sqrt{a} \sqrt{b}+4 b\right) \text{ArcTanh}\left[\frac{b^{1/4} \text{Cosh}[c+d x]}{\sqrt{\sqrt{a}+\sqrt{b}}}\right]}{64 a^{5/2} \left(\sqrt{a}+\sqrt{b}\right)^{5/2} b^{1/4} d}+$$

$$\frac{\text{Cosh}[c+d x] \left(a+b-b \,\text{Cosh}[c+d x]^2\right)}{8 a (a-b) d \left(a-b+2 b \,\text{Cosh}[c+d x]^2-b \,\text{Cosh}[c+d x]^4\right)^2}+\frac{\text{Cosh}[c+d x] \left((7 a-3 b) (a+2 b)-6 (2 a-b) b \,\text{Cosh}[c+d x]^2\right)}{32 a^2 (a-b)^2 d \left(a-b+2 b \,\text{Cosh}[c+d x]^2-b \,\text{Cosh}[c+d x]^4\right)}$$

Result (type 7, 1018 leaves):

$$\frac{1}{128\,a^2\,(a-b)^2\,d}\left(\frac{32\,\mathrm{Cosh}[c+d\,x]\,\left(7\,a^2+5\,a\,b-3\,b^2+3\,b\,(-2\,a+b)\,\mathrm{Cosh}[2\,(c+d\,x)]\right)}{8\,a-3\,b+4\,b\,\mathrm{Cosh}[2\,(c+d\,x)]-b\,\mathrm{Cosh}[4\,(c+d\,x)]}+\frac{512\,a\,(a-b)\,\mathrm{Cosh}[c+d\,x]\,\left(2\,a+b-b\,\mathrm{Cosh}[2\,(c+d\,x)]\right)}{\left(-8\,a+3\,b-4\,b\,\mathrm{Cosh}[2\,(c+d\,x)]+b\,\mathrm{Cosh}[4\,(c+d\,x)]\right)^2}+\right.$$

$$3\,\mathrm{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\ \frac{1}{-b\,\#1-8\,a\,\#1^3+3\,b\,\#1^3-3\,b\,\#1^5+b\,\#1^7}$$

$$\Big(-2\,a\,b\,c+b^2\,c-2\,a\,b\,d\,x+b^2\,d\,x-4\,a\,b\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]+$$

$$2\,b^2\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]+14\,a^2\,c\,\#1^2-12\,a\,b\,c\,\#1^2+5\,b^2\,c\,\#1^2+$$

$$14\,a^2\,d\,x\,\#1^2-12\,a\,b\,d\,x\,\#1^2+5\,b^2\,d\,x\,\#1^2+28\,a^2\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]$$

$$\#1^2-24\,a\,b\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2+$$

$$10\,b^2\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^2-14\,a^2\,c\,\#1^4+12\,a\,b\,c\,\#1^4-5\,b^2\,c\,\#1^4-$$

$$14\,a^2\,d\,x\,\#1^4+12\,a\,b\,d\,x\,\#1^4-5\,b^2\,d\,x\,\#1^4-28\,a^2\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]$$

$$\#1^4+24\,a\,b\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4-$$

$$10\,b^2\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^4+2\,a\,b\,c\,\#1^6-b^2\,c\,\#1^6+$$

$$2\,a\,b\,d\,x\,\#1^6-b^2\,d\,x\,\#1^6+4\,a\,b\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^6-$$

$$\left.2\,b^2\,\mathrm{Log}\Big[-\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\mathrm{Cosh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1-\mathrm{Sinh}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\,\#1\Big]\,\#1^6\Big)\,\&\Big]\right)$$

Problem 258: Result is not expressed in closed-form.

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

Optimal (type 3, 617 leaves, 16 steps):

$$-\frac{\left(5\sqrt{a}-2\sqrt{b}\right)b^{1/4}\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\right]}{64\,a^{5/2}\left(\sqrt{a}-\sqrt{b}\right)^{5/2}d}-\frac{b^{1/4}\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}-\sqrt{b}}}\right]}{8\,a^{5/2}\left(\sqrt{a}-\sqrt{b}\right)^{3/2}d}-$$

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

$$\frac{\left(5\sqrt{a}+2\sqrt{b}\right)b^{1/4}\,\text{ArcTanh}\left[\frac{b^{1/4}\,\text{Cosh}[c+d\,x]}{\sqrt{\sqrt{a}+\sqrt{b}}}\right]}{64\,a^{5/2}\left(\sqrt{a}+\sqrt{b}\right)^{5/2}d}-\frac{b\,\text{Cosh}[c+d\,x]\left(2-\text{Cosh}[c+d\,x]^{2}\right)}{8\,a\,(a-b)\,d\left(a-b+2\,b\,\text{Cosh}[c+d\,x]^{2}-b\,\text{Cosh}[c+d\,x]^{4}\right)^{2}}-$$

$$\frac{b\,\text{Cosh}[c+d\,x]\left(2-\text{Cosh}[c+d\,x]^{2}\right)}{4\,a^{2}\,(a-b)\,d\left(a-b+2\,b\,\text{Cosh}[c+d\,x]^{2}-b\,\text{Cosh}[c+d\,x]^{4}\right)}-\frac{b\,\text{Cosh}[c+d\,x]\left(11\,a+b-(5\,a+b)\,\text{Cosh}[c+d\,x]^{2}\right)}{32\,a^{2}\,(a-b)^{2}\,d\left(a-b+2\,b\,\text{Cosh}[c+d\,x]^{2}-b\,\text{Cosh}[c+d\,x]^{4}\right)}$$

Result (type 7, 1274 leaves) :

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

$$\frac{69\,a\,b\,\text{Cosh}[c+d\,x]-39\,b^2\,\text{Cosh}[c+d\,x]-13\,a\,b\,\text{Cosh}[3\,(c+d\,x)]+7\,b^2\,\text{Cosh}[3\,(c+d\,x)]}{16\,a^2\,(a-b)^2\,d\,\left(-8\,a+3\,b-4\,b\,\text{Cosh}[2\,(c+d\,x)]+b\,\text{Cosh}[4\,(c+d\,x)]\right)}-$$

$$\frac{\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{a^3\,d}+\frac{\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{a^3\,d}+\frac{1}{256\,a^3\,(a-b)^2\,d}$$

$$\text{RootSum}\Big[b-4\,b\,\#1^2-16\,a\,\#1^4+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8\,\&,\ \frac{1}{-b\,\#1-8\,a\,\#1^3+3\,b\,\#1^3-3\,b\,\#1^5+b\,\#1^7}\,\Big(45\,a^2\,b\,c-71\,a\,b^2\,c+32\,b^3\,c+45\,a^2\,b\,d\,x-$$

$$71\,a\,b^2\,d\,x+32\,b^3\,d\,x+90\,a^2\,b\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]-$$

$$142\,a\,b^2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]+$$

$$64\,b^3\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]-$$

$$199\,a^2\,b\,c\,\#1^2+253\,a\,b^2\,c\,\#1^2-96\,b^3\,c\,\#1^2-199\,a^2\,b\,d\,x\,\#1^2+253\,a\,b^2\,d\,x\,\#1^2-96\,b^3\,d\,x\,\#1^2-$$

$$398\,a^2\,b\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1^2+$$

$$506\,a\,b^2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1^2-$$

$$192\,b^3\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1^2+$$

$$199\,a^2\,b\,c\,\#1^4-253\,a\,b^2\,c\,\#1^4+96\,b^3\,c\,\#1^4+199\,a^2\,b\,d\,x\,\#1^4-253\,a\,b^2\,d\,x\,\#1^4+96\,b^3\,d\,x\,\#1^4+$$

$$398\,a^2\,b\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1^4-$$

$$506\,a\,b^2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1^4+$$

$$192\,b^3\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1^4-$$

$$45\,a^2\,b\,c\,\#1^6+71\,a\,b^2\,c\,\#1^6-32\,b^3\,c\,\#1^6-45\,a^2\,b\,d\,x\,\#1^6+71\,a\,b^2\,d\,x\,\#1^6-32\,b^3\,d\,x\,\#1^6-$$

$$90\,a^2\,b\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1^6+$$

$$142\,a\,b^2\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1^6-$$

$$64\,b^3\,\text{Log}\left[-\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cosh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1-\text{Sinh}\left[\frac{1}{2}\,(c+d\,x)\right]\#1\right]\#1^6\Big)\,\&\Big]$$

Problem 266: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{1+\text{Sinh}[x]^4}\,dx$$

Optimal (type 3, 176 leaves, 10 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{1+\sqrt{2}}-2\,\text{Tanh}[x]}{\sqrt{-1+\sqrt{2}}}\right]}{4\sqrt{1+\sqrt{2}}}+\frac{\text{ArcTan}\left[\frac{\sqrt{1+\sqrt{2}}+2\,\text{Tanh}[x]}{\sqrt{-1+\sqrt{2}}}\right]}{4\sqrt{1+\sqrt{2}}}-$$
$$\frac{1}{8}\sqrt{1+\sqrt{2}}\,\text{Log}\left[\sqrt{2}-2\sqrt{1+\sqrt{2}}\,\text{Tanh}[x]+2\,\text{Tanh}[x]^2\right]+\frac{1}{8}\sqrt{1+\sqrt{2}}\,\text{Log}\left[1+\sqrt{2\left(1+\sqrt{2}\right)}\,\text{Tanh}[x]+\sqrt{2}\,\text{Tanh}[x]^2\right]$$

Result (type 3, 45 leaves):

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

Problem 267: Result is not expressed in closed-form.

$$\int \frac{1}{a+b\,\text{Sinh}[x]^5}\,dx$$

Optimal (type 3, 435 leaves, 17 steps):

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

Result (type 7, 141 leaves):

$$\frac{8}{5}\,\text{RootSum}\left[-b+5\,b\,\#1^2-10\,b\,\#1^4+32\,a\,\#1^5+10\,b\,\#1^6-5\,b\,\#1^8+b\,\#1^{10}\,\&,\ \frac{x\,\#1^3+2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^3}{b-4\,b\,\#1^2+16\,a\,\#1^3+6\,b\,\#1^4-4\,b\,\#1^6+b\,\#1^8}\,\&\right]$$

Problem 268: Result is not expressed in closed-form.

$$\int \frac{1}{a+b\,\mathrm{Sinh}[x]^6}\,dx$$

Optimal (type 3, 175 leaves, 7 steps):

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

Result (type 7, 134 leaves):

$$\frac{16}{3}\,\mathrm{RootSum}\Big[b-6\,b\,\#1+15\,b\,\#1^2+64\,a\,\#1^3-20\,b\,\#1^3+15\,b\,\#1^4-6\,b\,\#1^5+b\,\#1^6\,\&,\ \frac{x\,\#1^2+\mathrm{Log}[-\mathrm{Cosh}[x]-\mathrm{Sinh}[x]+\mathrm{Cosh}[x]\,\#1-\mathrm{Sinh}[x]\,\#1]\,\#1^2}{-b+5\,b\,\#1+32\,a\,\#1^2-10\,b\,\#1^2+10\,b\,\#1^3-5\,b\,\#1^4+b\,\#1^5}\,\&\Big]$$

Problem 269: Result is not expressed in closed-form.

$$\int \frac{1}{a+b\,\mathrm{Sinh}[x]^8}\,dx$$

Optimal (type 3, 245 leaves, 9 steps):

$$-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{(-a)^{1/4}-b^{1/4}}\,\mathrm{Tanh}[x]}{(-a)^{1/8}}\right]}{4\,(-a)^{7/8}\sqrt{(-a)^{1/4}-b^{1/4}}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{(-a)^{1/4}-i\,b^{1/4}}\,\mathrm{Tanh}[x]}{(-a)^{1/8}}\right]}{4\,(-a)^{7/8}\sqrt{(-a)^{1/4}-i\,b^{1/4}}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{(-a)^{1/4}+i\,b^{1/4}}\,\mathrm{Tanh}[x]}{(-a)^{1/8}}\right]}{4\,(-a)^{7/8}\sqrt{(-a)^{1/4}+i\,b^{1/4}}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{(-a)^{1/4}+b^{1/4}}\,\mathrm{Tanh}[x]}{(-a)^{1/8}}\right]}{4\,(-a)^{7/8}\sqrt{(-a)^{1/4}+b^{1/4}}}$$

Result (type 7, 160 leaves):

$$16\,\mathrm{RootSum}\Big[b-8\,b\,\#1+28\,b\,\#1^2-56\,b\,\#1^3+256\,a\,\#1^4+70\,b\,\#1^4-56\,b\,\#1^5+28\,b\,\#1^6-8\,b\,\#1^7+b\,\#1^8\,\&,$$
$$\frac{x\,\#1^3+\mathrm{Log}[-\mathrm{Cosh}[x]-\mathrm{Sinh}[x]+\mathrm{Cosh}[x]\,\#1-\mathrm{Sinh}[x]\,\#1]\,\#1^3}{-b+7\,b\,\#1-21\,b\,\#1^2+128\,a\,\#1^3+35\,b\,\#1^3-35\,b\,\#1^4+21\,b\,\#1^5-7\,b\,\#1^6+b\,\#1^7}\,\&\Big]$$

Problem 270: Result is not expressed in closed-form.

$$\int \frac{1}{1+\mathrm{Sinh}[x]^5}\,dx$$

Optimal (type 3, 242 leaves, 17 steps):

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

$$\frac{1}{5}\sqrt{2}\,\text{ArcTanh}\left[\frac{1-\text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{2}}\right]+\frac{2\,(-1)^{9/10}\,\text{ArcTanh}\left[\frac{(-1)^{7/10}\left(1+(-1)^{1/5}\,\text{Tanh}\left[\frac{x}{2}\right]\right)}{\sqrt{-(-1)^{2/5}\left(1+(-1)^{2/5}\right)}}\right]}{5\,\sqrt{-(-1)^{2/5}\left(1+(-1)^{2/5}\right)}}-\frac{2\,(-1)^{4/5}\,\text{ArcTanh}\left[\frac{1-(-1)^{4/5}\,\text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{1-(-1)^{3/5}}}\right]}{5\,\sqrt{1-(-1)^{3/5}}}$$

Result (type 7, 439 leaves):

$$\frac{1}{10}\left(2\sqrt{2}\,\text{ArcTanh}\left[\frac{-1+\text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{2}}\right]-\text{RootSum}\left[1+2\,\#1+2\,\#1^3+14\,\#1^4-2\,\#1^5-2\,\#1^7+\#1^8\,\&,\ \frac{1}{1+3\,\#1^2+28\,\#1^3-5\,\#1^4-7\,\#1^6+4\,\#1^7}\right.\right.$$
$$\left(-x-2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]-4\,x\,\#1-8\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1-9\,x\,\#1^2-\right.$$
$$18\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^2-24\,x\,\#1^3-48\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^3+$$
$$9\,x\,\#1^4+18\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^4-4\,x\,\#1^5-$$
$$\left.\left.\left.8\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^5+x\,\#1^6+2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^6\right)\&\right]\right)$$

Problem 272: Result is not expressed in closed-form.

$$\int\frac{1}{1+\text{Sinh}[x]^8}\,dx$$

Optimal (type 3, 129 leaves, 9 steps):

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

Result (type 7, 127 leaves):

$$16\,\text{RootSum}\left[1-8\,\#1+28\,\#1^2-56\,\#1^3+326\,\#1^4-56\,\#1^5+28\,\#1^6-8\,\#1^7+\#1^8\,\&,\ \frac{x\,\#1^3+\text{Log}\left[-\text{Cosh}[x]-\text{Sinh}[x]+\text{Cosh}[x]\,\#1-\text{Sinh}[x]\,\#1\right]\#1^3}{-1+7\,\#1-21\,\#1^2+163\,\#1^3-35\,\#1^4+21\,\#1^5-7\,\#1^6+\#1^7}\,\&\right]$$

Problem 273: Result is not expressed in closed-form.

$$\int \frac{1}{1 - \text{Sinh}[x]^5} \, dx$$

Optimal (type 3, 228 leaves, 17 steps):

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

Result (type 7, 437 leaves):

$$\frac{1}{10} \left(2 \sqrt{2} \, \text{ArcTanh}\left[\frac{1 + \text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{2}}\right] + \text{RootSum}\left[1 - 2 \#1 - 2 \#1^3 + 14 \#1^4 + 2 \#1^5 + 2 \#1^7 + \#1^8 \&, \frac{1}{-1 - 3 \#1^2 + 28 \#1^3 + 5 \#1^4 + 7 \#1^6 + 4 \#1^7} \left(-x - 2 \text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right] - \text{Sinh}\left[\frac{x}{2}\right] + \text{Cosh}\left[\frac{x}{2}\right] \#1 - \text{Sinh}\left[\frac{x}{2}\right] \#1\right] + 4 x \#1 + 8 \text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right] - \text{Sinh}\left[\frac{x}{2}\right] + \text{Cosh}\left[\frac{x}{2}\right] \#1 - \text{Sinh}\left[\frac{x}{2}\right] \#1\right] \#1 - 9 x \#1^2 - 18 \text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right] - \text{Sinh}\left[\frac{x}{2}\right] + \text{Cosh}\left[\frac{x}{2}\right] \#1 - \text{Sinh}\left[\frac{x}{2}\right] \#1\right] \#1^2 + 24 x \#1^3 + 48 \text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right] - \text{Sinh}\left[\frac{x}{2}\right] + \text{Cosh}\left[\frac{x}{2}\right] \#1 - \text{Sinh}\left[\frac{x}{2}\right] \#1\right] \#1^3 + 9 x \#1^4 + 18 \text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right] - \text{Sinh}\left[\frac{x}{2}\right] + \text{Cosh}\left[\frac{x}{2}\right] \#1 - \text{Sinh}\left[\frac{x}{2}\right] \#1\right] \#1^4 + 4 x \#1^5 + 8 \text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right] - \text{Sinh}\left[\frac{x}{2}\right] + \text{Cosh}\left[\frac{x}{2}\right] \#1 - \text{Sinh}\left[\frac{x}{2}\right] \#1\right] \#1^5 + x \#1^6 + 2 \text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right] - \text{Sinh}\left[\frac{x}{2}\right] + \text{Cosh}\left[\frac{x}{2}\right] \#1 - \text{Sinh}\left[\frac{x}{2}\right] \#1\right] \#1^6\right) \&\right]\right)$$

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

$$\int \text{Sech}[c + d x]^6 \left(a + b \, \text{Sinh}[c + d x]^2\right) dx$$

Optimal (type 3, 54 leaves, 3 steps):

$$\frac{a \, \text{Tanh}[c + d x]}{d} - \frac{(2 a - b) \, \text{Tanh}[c + d x]^3}{3 d} + \frac{(a - b) \, \text{Tanh}[c + d x]^5}{5 d}$$

Result (type 3, 117 leaves):

$$\frac{8\,a\,\mathrm{Tanh}[c+d\,x]}{15\,d}+\frac{2\,b\,\mathrm{Tanh}[c+d\,x]}{15\,d}+\frac{4\,a\,\mathrm{Sech}[c+d\,x]^2\,\mathrm{Tanh}[c+d\,x]}{15\,d}+\frac{b\,\mathrm{Sech}[c+d\,x]^2\,\mathrm{Tanh}[c+d\,x]}{15\,d}+\frac{a\,\mathrm{Sech}[c+d\,x]^4\,\mathrm{Tanh}[c+d\,x]}{5\,d}-\frac{b\,\mathrm{Sech}[c+d\,x]^4\,\mathrm{Tanh}[c+d\,x]}{5\,d}$$

Problem 315: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sech}[c+d\,x]^8\,\left(a+b\,\mathrm{Sinh}[c+d\,x]^2\right)^3\,dx$$

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

$$\frac{a^3\,\mathrm{Tanh}[c+d\,x]}{d}-\frac{a^2\,(a-b)\,\mathrm{Tanh}[c+d\,x]^3}{d}+\frac{3\,a\,(a-b)^2\,\mathrm{Tanh}[c+d\,x]^5}{5\,d}-\frac{(a-b)^3\,\mathrm{Tanh}[c+d\,x]^7}{7\,d}$$

Result (type 3, 163 leaves):

$$\frac{1}{1120\,d}\left(512\,a^3-304\,a^2\,b+192\,a\,b^2-50\,b^3+\left(464\,a^3+232\,a^2\,b-246\,a\,b^2+75\,b^3\right)\,\mathrm{Cosh}[2\,(c+d\,x)]+2\,\left(64\,a^3+32\,a^2\,b+24\,a\,b^2-15\,b^3\right)\,\mathrm{Cosh}[4\,(c+d\,x)]+16\,a^3\,\mathrm{Cosh}[6\,(c+d\,x)]+8\,a^2\,b\,\mathrm{Cosh}[6\,(c+d\,x)]+6\,a\,b^2\,\mathrm{Cosh}[6\,(c+d\,x)]+5\,b^3\,\mathrm{Cosh}[6\,(c+d\,x)]\right)\,\mathrm{Sech}[c+d\,x]^6\,\mathrm{Tanh}[c+d\,x]$$

Problem 345: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Sech}[c+d\,x]}{\left(a+b\,\mathrm{Sinh}[c+d\,x]^2\right)^3}\,dx$$

Optimal (type 3, 159 leaves, 6 steps):

$$\frac{\mathrm{ArcTan}[\mathrm{Sinh}[c+d\,x]]}{(a-b)^3\,d}-\frac{\sqrt{b}\,\left(15\,a^2-10\,a\,b+3\,b^2\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\mathrm{Sinh}[c+d\,x]}{\sqrt{a}}\right]}{8\,a^{5/2}\,(a-b)^3\,d}-\frac{b\,\mathrm{Sinh}[c+d\,x]}{4\,a\,(a-b)\,d\,\left(a+b\,\mathrm{Sinh}[c+d\,x]^2\right)^2}-\frac{(7\,a-3\,b)\,b\,\mathrm{Sinh}[c+d\,x]}{8\,a^2\,(a-b)^2\,d\,\left(a+b\,\mathrm{Sinh}[c+d\,x]^2\right)}$$

Result (type 3, 321 leaves):

$$\frac{1}{8\,a^{5/2}\,(a-b)^3\,d\,\left(2\,a-b+b\,\text{Cosh}[2\,(c+d\,x)]\right)^2}$$
$$\left((-2\,a+b)^2\left(\sqrt{b}\,(15\,a^2-10\,a\,b+3\,b^2)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Csch}[c+d\,x]}{\sqrt{b}}\right]+16\,a^{5/2}\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)+\right.$$
$$\left(b^{5/2}\,(15\,a^2-10\,a\,b+3\,b^2)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Csch}[c+d\,x]}{\sqrt{b}}\right]+16\,a^{5/2}\,b^2\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\text{Cosh}[2\,(c+d\,x)]^2-$$
$$2\,\sqrt{a}\,b\,(18\,a^3-35\,a^2\,b+20\,a\,b^2-3\,b^3)\,\text{Sinh}[c+d\,x]-2\,b\,\text{Cosh}[2\,(c+d\,x)]\left(-(2\,a-b)\right.$$
$$\left.\left.\left(\sqrt{b}\,(15\,a^2-10\,a\,b+3\,b^2)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Csch}[c+d\,x]}{\sqrt{b}}\right]+16\,a^{5/2}\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)+\sqrt{a}\,b\,(7\,a^2-10\,a\,b+3\,b^2)\,\text{Sinh}[c+d\,x]\right)\right)$$

Problem 350: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cosh}[x]^3}{1-\text{Sinh}[x]^2}\,dx$$

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

$$2\,\text{ArcTanh}[\text{Sinh}[x]]-\text{Sinh}[x]$$

Result (type 3, 29 leaves):

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

Problem 357: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cosh}[e+f\,x]^4\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,dx$$

Optimal (type 4, 301 leaves, 7 steps):

$$-\frac{2\,(a-3\,b)\,\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{15\,b\,f}+\frac{\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}}{5\,b\,f}+$$

$$\frac{\left(2\,a^2-7\,a\,b-3\,b^2\right)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{15\,b^2\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}-$$

$$\frac{(a-9\,b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{15\,b\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}-\frac{\left(2\,a^2-7\,a\,b-3\,b^2\right)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{15\,b^2\,f}$$

Result (type 4, 211 leaves):

$$\left(16\,\text{i}\,a\,\left(2\,a^2-7\,a\,b-3\,b^2\right)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[\text{i}\,(e+f\,x),\,\frac{b}{a}\right]-\right.$$

$$32\,\text{i}\,a\,\left(a^2-4\,a\,b+3\,b^2\right)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[\text{i}\,(e+f\,x),\,\frac{b}{a}\right]+$$

$$\left.\sqrt{2}\,b\,\left(8\,a^2+32\,a\,b-15\,b^2+4\,b\,(4\,a+3\,b)\,\text{Cosh}[2\,(e+f\,x)]+3\,b^2\,\text{Cosh}[4\,(e+f\,x)]\right)\,\text{Sinh}[2\,(e+f\,x)]\right)\Big/\left(240\,b^2\,f\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 358: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cosh}[e+f\,x]^2\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,dx$$

Optimal (type 4, 223 leaves, 6 steps):

$$\frac{\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,f}-\frac{(a+b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,b\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}+$$

$$\frac{2\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}+\frac{(a+b)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{3\,b\,f}$$

Result (type 4, 168 leaves):

$$\left(-2\,i\,\sqrt{2}\,a\,(a+b)\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]+2\,i\,\sqrt{2}\,a\,(a-b)\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]+b\,(2a-b+b\,\text{Cosh}[2\,(e+f\,x)])\,\text{Sinh}[2\,(e+f\,x)]\right)\Big/\left(6\,b\,f\,\sqrt{4a-2b+2b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 360: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sech}[e+f\,x]^2\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,dx$$

Optimal (type 4, 70 leaves, 2 steps):

$$\frac{\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}$$

Result (type 4, 148 leaves):

$$\left(2\,i\,a\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]-2\,i\,a\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]+\sqrt{2}\,(2a-b+b\,\text{Cosh}[2\,(e+f\,x)])\,\text{Tanh}[e+f\,x]\right)\Big/\left(2\,f\,\sqrt{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 361: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sech}[e+f\,x]^4\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,dx$$

Optimal (type 4, 206 leaves, 5 steps):

$$\frac{(2a-b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\text{Sech}[e+fx]\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{3(a-b)f\sqrt{\frac{\text{Sech}[e+fx]^2\left(a+b\,\text{Sinh}[e+fx]^2\right)}{a}}}-$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\text{Sech}[e+fx]\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{3(a-b)f\sqrt{\frac{\text{Sech}[e+fx]^2\left(a+b\,\text{Sinh}[e+fx]^2\right)}{a}}}+\frac{\text{Sech}[e+fx]^2\sqrt{a+b\,\text{Sinh}[e+fx]^2}\,\text{Tanh}[e+fx]}{3f}$$

Result (type 4, 204 leaves) :

$$\left(8\,i\,a(2a-b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\,\text{EllipticE}\left[i(e+fx),\frac{b}{a}\right]-16\,i\,a(a-b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\,\text{EllipticF}\left[i(e+fx),\frac{b}{a}\right]+\right.$$

$$\left.\sqrt{2}\left(\left(8a^2-4b^2\right)\text{Cosh}[2(e+fx)]+(2a-b)(8a-5b+b\,\text{Cosh}[4(e+fx)])\right)\text{Sech}[e+fx]^2\,\text{Tanh}[e+fx]\right)\Big/$$

$$\left(24(a-b)f\sqrt{2a-b+b\,\text{Cosh}[2(e+fx)]}\right)$$

Problem 368: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cosh}[e+fx]^4\left(a+b\,\text{Sinh}[e+fx]^2\right)^{3/2}dx$$

Optimal (type 4, 357 leaves, 8 steps) :

$$\frac{\left(a^2+9\,a\,b-2\,b^2\right)\,\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{35\,b\,f}+$$

$$\frac{2\,(4\,a-b)\,\text{Cosh}[e+f\,x]^3\,\text{Sinh}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{35\,f}+\frac{b\,\text{Cosh}[e+f\,x]^5\,\text{Sinh}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{7\,f}+$$

$$\frac{2\,(a+b)\,\left(a^2-6\,a\,b+b^2\right)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{35\,b^2\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}-$$

$$\frac{\left(a^2-18\,a\,b+b^2\right)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{35\,b\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}-$$

$$\frac{2\,(a+b)\,\left(a^2-6\,a\,b+b^2\right)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{35\,b^2\,f}$$

Result (type 4, 256 leaves):

$$\frac{1}{2240\,b^2\,f\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}\left(128\,i\,a\,\left(a^3-5\,a^2\,b-5\,a\,b^2+b^3\right)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\,\frac{b}{a}\right]-\right.$$

$$64\,i\,a\,\left(2\,a^3-11\,a^2\,b+8\,a\,b^2+b^3\right)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\,\frac{b}{a}\right]+$$

$$\sqrt{2}\,b\,\left(32\,a^3+400\,a^2\,b-212\,a\,b^2+30\,b^3+b\,\left(144\,a^2+192\,a\,b-37\,b^2\right)\,\text{Cosh}[2\,(e+f\,x)]+2\,b^2\,(26\,a+b)\,\text{Cosh}[4\,(e+f\,x)]+5\,b^3\,\text{Cosh}[6\,(e+f\,x)]\right)$$

$$\left.\text{Sinh}[2\,(e+f\,x)]\right)$$

Problem 369: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cosh}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 4, 299 leaves, 7 steps):

$$\frac{2\,(3\,a-b)\,\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{15\,f}+\frac{b\,\text{Cosh}[e+f\,x]^3\,\text{Sinh}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{5\,f}-$$

$$\frac{\left(3\,a^2+7\,a\,b-2\,b^2\right)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{15\,b\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}+$$

$$\frac{(9\,a-b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{15\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}+\frac{\left(3\,a^2+7\,a\,b-2\,b^2\right)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{15\,b\,f}$$

Result (type 4, 213 leaves) :

$$\left(-16\,i\,a\,\left(3\,a^2+7\,a\,b-2\,b^2\right)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\,\frac{b}{a}\right]+\right.$$

$$16\,i\,a\,\left(3\,a^2-2\,a\,b-b^2\right)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\,\frac{b}{a}\right]+$$

$$\left.\sqrt{2}\,b\,\left(48\,a^2-28\,a\,b+5\,b^2+4\,(9\,a-2\,b)\,b\,\text{Cosh}[2\,(e+f\,x)]+3\,b^2\,\text{Cosh}[4\,(e+f\,x)]\right)\,\text{Sinh}[2\,(e+f\,x)]\right)\Big/\left(240\,b\,f\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 371: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 4, 210 leaves, 6 steps) :

$$\frac{(a-2b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}-$$

$$\frac{(a-2b)\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{f}+\frac{(a-b)\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{f}$$

Result (type 4, 160 leaves):

$$\left(2\,i\,a\,(a-2b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+f x)]}{a}}\,\text{EllipticE}\left[i\,(e+f x),\frac{b}{a}\right]+\right.$$

$$\left.(a-b)\left(-2\,i\,a\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+f x)]}{a}}\,\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]+\sqrt{2}\,(2a-b+b\,\text{Cosh}[2(e+f x)])\,\text{Tanh}[e+f x]\right)\right)\Big/\left(2\right.$$

$$\left.f\sqrt{2a-b+b\,\text{Cosh}[2(e+f x)]}\right)$$

Problem 372: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sech}[e+f x]^4\left(a+b\,\text{Sinh}[e+f x]^2\right)^{3/2}dx$$

Optimal (type 4, 193 leaves, 5 steps):

$$\frac{2(a+b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}-$$

$$\frac{b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+\frac{(a-b)\,\text{Sech}[e+f x]^2\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{3f}$$

Result (type 4, 197 leaves):

$$\left(4\,i\,a\,(a+b)\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\;\text{EllipticE}\left[i\,(e+f\,x),\,\frac{b}{a}\right]-2\,i\,a\,(2\,a+b)\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\;\text{EllipticF}\left[i\,(e+f\,x),\,\frac{b}{a}\right]+\right.$$

$$\left.\frac{1}{\sqrt{2}}\left(8\,a^2-3\,a\,b+b^2+\left(4\,a^2+6\,a\,b-2\,b^2\right)\text{Cosh}[2\,(e+f\,x)]+b\,(a+b)\,\text{Cosh}[4\,(e+f\,x)]\right)\text{Sech}[e+f\,x]^2\,\text{Tanh}[e+f\,x]\right)\Big/\left(6\right.$$

$$\left.f\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 377: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cosh}[e+f\,x]^4}{\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}\,dx$$

Optimal (type 4, 241 leaves, 6 steps):

$$\frac{\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,b\,f}+\frac{2\,(a-2\,b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,b^2\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}-$$

$$\frac{(a-3\,b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a\,b\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}-\frac{2\,(a-2\,b)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{3\,b^2\,f}$$

Result (type 4, 179 leaves):

$$\left(4\,i\,\sqrt{2}\,a\,(a-2\,b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\;\text{EllipticE}\left[i\,(e+f\,x),\,\frac{b}{a}\right]-\right.$$

$$2\,i\,\sqrt{2}\,\left(2\,a^2-5\,a\,b+3\,b^2\right)\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\;\text{EllipticF}\left[i\,(e+f\,x),\,\frac{b}{a}\right]+$$

$$\left.b\,(2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)])\,\text{Sinh}[2\,(e+f\,x)]\right)\Big/\left(6\,b^2\,f\,\sqrt{4\,a-2\,b+2\,b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 378: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cosh}[e+f x]^2}{\sqrt{a+b\,\text{Sinh}[e+f x]^2}}\,dx$$

Optimal (type 4, 177 leaves, 5 steps):

$$-\frac{\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{b f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+\frac{\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{a f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+\frac{\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{b f}$$

Result (type 4, 95 leaves):

$$-\frac{i\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+f x)]}{a}}\left(a\,\text{EllipticE}\left[i(e+f x),\frac{b}{a}\right]+(-a+b)\,\text{EllipticF}\left[i(e+f x),\frac{b}{a}\right]\right)}{b f\sqrt{2a-b+b\,\text{Cosh}[2(e+f x)]}}$$

Problem 380: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sech}[e+f x]^2}{\sqrt{a+b\,\text{Sinh}[e+f x]^2}}\,dx$$

Optimal (type 4, 160 leaves, 7 steps):

$$\frac{\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{(a-b) f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}-\frac{b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{a(a-b) f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}$$

Result (type 4, 159 leaves):

$$\left(2\,i\,a\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\;\text{EllipticE}\left[i(e+fx),\frac{b}{a}\right]-2\,i\,(a-b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\;\text{EllipticF}\left[i(e+fx),\frac{b}{a}\right]+\right.$$

$$\left.\sqrt{2}\,(2a-b+b\,\text{Cosh}[2(e+fx)])\,\text{Tanh}[e+fx]\right)\Big/\left(2(a-b)\,f\sqrt{2a-b+b\,\text{Cosh}[2(e+fx)]}\right)$$

Problem 381: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sech}[e+fx]^4}{\sqrt{a+b\,\text{Sinh}[e+fx]^2}}\,dx$$

Optimal (type 4, 219 leaves, 5 steps):

$$\frac{2(a-2b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\text{Sech}[e+fx]\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{3(a-b)^2 f\sqrt{\frac{\text{Sech}[e+fx]^2(a+b\,\text{Sinh}[e+fx]^2)}{a}}}-$$

$$\frac{(a-3b)\,b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\text{Sech}[e+fx]\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{3a(a-b)^2 f\sqrt{\frac{\text{Sech}[e+fx]^2(a+b\,\text{Sinh}[e+fx]^2)}{a}}}+\frac{\text{Sech}[e+fx]^2\sqrt{a+b\,\text{Sinh}[e+fx]^2}\,\text{Tanh}[e+fx]}{3(a-b)f}$$

Result (type 4, 219 leaves):

$$\left(4\,i\,a\,(a-2b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\;\text{EllipticE}\left[i(e+fx),\frac{b}{a}\right]-\right.$$

$$2\,i\,(2a^2-5ab+3b^2)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\;\text{EllipticF}\left[i(e+fx),\frac{b}{a}\right]+\frac{1}{\sqrt{2}}$$

$$\left.(8a^2-15ab+4b^2+(4a^2-6ab-2b^2)\,\text{Cosh}[2(e+fx)]+(a-2b)\,b\,\text{Cosh}[4(e+fx)])\,\text{Sech}[e+fx]^2\,\text{Tanh}[e+fx]\right)\Big/$$

$$\left(6(a-b)^2 f\sqrt{2a-b+b\,\text{Cosh}[2(e+fx)]}\right)$$

Problem 386: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cosh}[e+f x]^6}{\left(a+b\,\text{Sinh}[e+f x]^2\right)^{3/2}}\,dx$$

Optimal (type 4, 325 leaves, 7 steps):

$$-\frac{(a-b)\,\text{Cosh}[e+f x]^3\,\text{Sinh}[e+f x]}{a\,b\,f\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}+\frac{(4 a-3 b)\,\text{Cosh}[e+f x]\,\text{Sinh}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3\,a\,b^2\,f}+$$
$$\frac{\left(8 a^2-13 a b+3 b^2\right)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3\,a\,b^3\,f\,\sqrt{\frac{\text{Sech}[e+f x]^2\,\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}-$$
$$\frac{2\,(2 a-3 b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3\,a\,b^2\,f\,\sqrt{\frac{\text{Sech}[e+f x]^2\,\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}-\frac{\left(8 a^2-13 a b+3 b^2\right)\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{3\,a\,b^3\,f}$$

Result (type 4, 196 leaves):

$$\left(4\,i\,a\,\left(8 a^2-13 a b+3 b^2\right)\,\sqrt{\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticE}\left[i\,(e+f x),\frac{b}{a}\right]-\right.$$
$$4\,i\,a\,\left(8 a^2-17 a b+9 b^2\right)\,\sqrt{\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]+$$
$$\left.\sqrt{2}\,b\,\left(8 a^2-13 a b+6 b^2+a\,b\,\text{Cosh}[2\,(e+f x)]\right)\,\text{Sinh}[2\,(e+f x)]\right)\Big/\left(12\,a\,b^3\,f\,\sqrt{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}\right)$$

Problem 387: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cosh}[e+f x]^4}{\left(a+b\,\text{Sinh}[e+f x]^2\right)^{3/2}}\,dx$$

Optimal (type 4, 244 leaves, 6 steps):

$$-\frac{(a-b)\,\text{Cosh}[e+f x]\,\text{Sinh}[e+f x]}{a b f \sqrt{a+b\,\text{Sinh}[e+f x]^2}}-\frac{(2 a-b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{a b^2 f \sqrt{\frac{\text{Sech}[e+f x]^2\,(a+b\,\text{Sinh}[e+f x]^2)}{a}}}+$$

$$\frac{\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{a b f \sqrt{\frac{\text{Sech}[e+f x]^2\,(a+b\,\text{Sinh}[e+f x]^2)}{a}}}+\frac{(2 a-b)\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{a b^2 f}$$

Result (type 4, 155 leaves):

$$\left(-2\,i\,a\,(2 a-b)\sqrt{\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticE}\left[i\,(e+f x),\frac{b}{a}\right]+\right.$$
$$\left.(a-b)\left(4\,i\,a\sqrt{\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]-\sqrt{2}\,b\,\text{Sinh}[2\,(e+f x)]\right)\right)\Big/\left(2 a b^2 f\sqrt{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}\right)$$

Problem 388: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cosh}[e+f x]^2}{\left(a+b\,\text{Sinh}[e+f x]^2\right)^{3/2}}\,dx$$

Optimal (type 4, 91 leaves, 2 steps):

$$\frac{\text{Cosh}[e+f x]\,\text{EllipticE}\left[\text{ArcTan}\left[\frac{\sqrt{b}\,\text{Sinh}[e+f x]}{\sqrt{a}}\right],1-\frac{a}{b}\right]}{\sqrt{a}\,\sqrt{b}\,f\sqrt{\frac{a\,\text{Cosh}[e+f x]^2}{a+b\,\text{Sinh}[e+f x]^2}}\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}$$

Result (type 4, 143 leaves):

$$\left(i\sqrt{2}\,a\sqrt{\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticE}\left[i\,(e+f x),\frac{b}{a}\right]-\right.$$
$$\left.i\sqrt{2}\,a\sqrt{\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]+b\,\text{Sinh}[2\,(e+f x)]\right)\Big/\left(a b f\sqrt{4 a-2 b+2 b\,\text{Cosh}[2\,(e+f x)]}\right)$$

Problem 390: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sech}[e+f x]^2}{\left(a+b \text{Sinh}[e+f x]^2\right)^{3/2}}\,dx$$

Optimal (type 4, 217 leaves, 5 steps):

$$\frac{\sqrt{b}\,(a+b)\,\text{Cosh}[e+f x]\,\text{EllipticE}\left[\text{ArcTan}\left[\frac{\sqrt{b}\,\text{Sinh}[e+f x]}{\sqrt{a}}\right],1-\frac{a}{b}\right]}{\sqrt{a}\,(a-b)^2 f \sqrt{\frac{a\,\text{Cosh}[e+f x]^2}{a+b\,\text{Sinh}[e+f x]^2}}\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}-$$

$$\frac{2 b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{a\,(a-b)^2 f \sqrt{\frac{\text{Sech}[e+f x]^2\,(a+b\,\text{Sinh}[e+f x]^2)}{a}}}+\frac{\text{Tanh}[e+f x]}{(a-b) f \sqrt{a+b\,\text{Sinh}[e+f x]^2}}$$

Result (type 4, 178 leaves):

$$\left(i\sqrt{2}\,a\,(a+b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticE}\left[i\,(e+f x),\frac{b}{a}\right]-\right.$$

$$i\sqrt{2}\,a\,(a-b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]+$$

$$\left.\left(2a^2-a b+b^2+b\,(a+b)\,\text{Cosh}[2\,(e+f x)]\right)\text{Tanh}[e+f x]\right)\Big/\left(a\,(a-b)^2 f\sqrt{4a-2b+2b\,\text{Cosh}[2\,(e+f x)]}\right)$$

Problem 395: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cosh}[e+f x]^6}{\left(a+b\,\text{Sinh}[e+f x]^2\right)^{5/2}}\,dx$$

Optimal (type 4, 330 leaves, 7 steps):

$$-\frac{(a-b)\,\text{Cosh}[e+f x]^3\,\text{Sinh}[e+f x]}{3 a b f\,\left(a+b\,\text{Sinh}[e+f x]^2\right)^{3/2}}-\frac{2\,(a-b)\,(2 a+b)\,\text{Cosh}[e+f x]\,\text{Sinh}[e+f x]}{3 a^2 b^2 f\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}-$$

$$\frac{\left(8 a^2-3 a b-2 b^2\right)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 a^2 b^3 f\,\sqrt{\frac{\text{Sech}[e+f x]^2\,\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+$$

$$\frac{(4 a-b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 a^2 b^2 f\,\sqrt{\frac{\text{Sech}[e+f x]^2\,\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+\frac{\left(8 a^2-3 a b-2 b^2\right)\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{3 a^2 b^3 f}$$

Result (type 4, 206 leaves):

$$\left(-2\,i\,a^2\,\left(8 a^2-3 a b-2 b^2\right)\,\left(\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}\right)^{3/2}\,\text{EllipticE}\left[i\,(e+f x),\,\frac{b}{a}\right]+\right.$$

$$\frac{1}{2}\,(a-b)\,\left(4\,i\,a^2\,(8 a+b)\,\left(\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}\right)^{3/2}\,\text{EllipticF}\left[i\,(e+f x),\,\frac{b}{a}\right]-\right.$$

$$\left.\left.2\,\sqrt{2}\,b\,\left(8 a^2+a b-2 b^2+b\,(5 a+2 b)\,\text{Cosh}[2\,(e+f x)]\right)\,\text{Sinh}[2\,(e+f x)]\right)\right)\Big/\left(6 a^2 b^3 f\,\left(2 a-b+b\,\text{Cosh}[2\,(e+f x)]\right)^{3/2}\right)$$

Problem 396: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cosh}[e+f x]^4}{\left(a+b\,\text{Sinh}[e+f x]^2\right)^{5/2}}\,dx$$

Optimal (type 4, 223 leaves, 5 steps):

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

$$\frac{\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 a^2 b f\,\sqrt{\frac{\text{Sech}[e+f x]^2\,\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}$$

Result (type 4, 178 leaves):

$$\left(2\,i\,a^2\,(a+b)\left(\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}\right)^{3/2}\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]-\right.$$
$$i\,a^2\,(2a+b)\left(\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}\right)^{3/2}\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]+$$
$$\left.\sqrt{2}\,b\,\left(a^2+2\,a\,b-b^2+b\,(a+b)\,\text{Cosh}[2\,(e+f\,x)]\right)\text{Sinh}[2\,(e+f\,x)]\right)\Big/\left(3\,a^2\,b^2\,f\,(2a-b+b\,\text{Cosh}[2\,(e+f\,x)])^{3/2}\right)$$

Problem 397: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cosh}[e+f\,x]^2}{\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 4, 228 leaves, 5 steps):

$$\frac{\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]}{3\,a\,f\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}}+\frac{(a-2b)\,\text{Cosh}[e+f\,x]\,\text{EllipticE}\left[\text{ArcTan}\left[\frac{\sqrt{b}\,\text{Sinh}[e+f\,x]}{\sqrt{a}}\right],1-\frac{a}{b}\right]}{3\,a^{3/2}\,(a-b)\,\sqrt{b}\,f\,\sqrt{\frac{a\,\text{Cosh}[e+f\,x]^2}{a+b\,\text{Sinh}[e+f\,x]^2}}\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}+$$
$$\frac{\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a^2\,(a-b)\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}$$

Result (type 4, 193 leaves):

$$\left(2\,i\,a^2\,(a-2b)\left(\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}\right)^{3/2}\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]-\right.$$
$$2\,i\,a^2\,(a-b)\left(\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}\right)^{3/2}\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]-$$
$$\left.\sqrt{2}\,b\,\left(-4\,a^2+7\,a\,b-2\,b^2-(a-2b)\,b\,\text{Cosh}[2\,(e+f\,x)]\right)\text{Sinh}[2\,(e+f\,x)]\right)\Big/\left(6\,a^2\,(a-b)\,b\,f\,(2a-b+b\,\text{Cosh}[2\,(e+f\,x)])^{3/2}\right)$$

Problem 399: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sech}[e+f\,x]^2}{\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 4, 292 leaves, 6 steps):

$$\frac{b\,(3a+b)\,\text{Cosh}[e+fx]\,\text{Sinh}[e+fx]}{3a\,(a-b)^2 f\,\left(a+b\,\text{Sinh}[e+fx]^2\right)^{3/2}}+\frac{\sqrt{b}\,\left(3a^2+7ab-2b^2\right)\text{Cosh}[e+fx]\,\text{EllipticE}\left[\text{ArcTan}\left[\frac{\sqrt{b}\,\text{Sinh}[e+fx]}{\sqrt{a}}\right],1-\frac{a}{b}\right]}{3a^{3/2}\,(a-b)^3 f\,\sqrt{\frac{a\,\text{Cosh}[e+fx]^2}{a+b\,\text{Sinh}[e+fx]^2}}\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}}-$$

$$\frac{(9a-b)\,b\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\text{Sech}[e+fx]\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{3a^2\,(a-b)^3 f\,\sqrt{\frac{\text{Sech}[e+fx]^2\,\left(a+b\,\text{Sinh}[e+fx]^2\right)}{a}}}+\frac{\text{Tanh}[e+fx]}{(a-b)\,f\,\left(a+b\,\text{Sinh}[e+fx]^2\right)^{3/2}}$$

Result (type 4, 468 leaves):

$$-\frac{1}{3a^2\,(a-b)^3 f}b\left(-\frac{i\left(\frac{15a^2}{\sqrt{2}}-\frac{9ab}{\sqrt{2}}+\sqrt{2}\,b^2\right)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\,\text{EllipticF}\left[i\,(e+fx),\frac{b}{a}\right]}{\sqrt{2}\,\sqrt{2a-b+b\,\text{Cosh}[2\,(e+fx)]}}-\frac{1}{2b}i\left(\frac{3a^2}{\sqrt{2}}+\frac{7ab}{\sqrt{2}}-\sqrt{2}\,b^2\right)\right.$$

$$\left.\left(\frac{2\sqrt{2}\,a\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\,\text{EllipticE}\left[i\,(e+fx),\frac{b}{a}\right]}{\sqrt{2a-b+b\,\text{Cosh}[2\,(e+fx)]}}-\frac{\sqrt{2}\,(2a-b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\,\text{EllipticF}\left[i\,(e+fx),\frac{b}{a}\right]}{\sqrt{2a-b+b\,\text{Cosh}[2\,(e+fx)]}}\right)\right)+$$

$$\frac{1}{f}\sqrt{2a-b+b\,\text{Cosh}[2\,(e+fx)]}\left(\frac{\sqrt{2}\,b^2\,\text{Sinh}[2\,(e+fx)]}{3a\,(a-b)^2\,(2a-b+b\,\text{Cosh}[2\,(e+fx)])^2}+\right.$$

$$\left.\frac{7\sqrt{2}\,a\,b^2\,\text{Sinh}[2\,(e+fx)]-2\sqrt{2}\,b^3\,\text{Sinh}[2\,(e+fx)]}{6a^2\,(a-b)^3\,(2a-b+b\,\text{Cosh}[2\,(e+fx)])}+\frac{\text{Tanh}[e+fx]}{\sqrt{2}\,(a-b)^3}\right)$$

Problem 400: Unable to integrate problem.

$$\int (d\,\text{Cosh}[e+fx])^m\,\left(a+b\,\text{Sinh}[e+fx]^2\right)^p\,dx$$

Optimal (type 6, 117 leaves, 3 steps):

$$\frac{1}{f}d\,\text{AppellF1}\left[\frac{1}{2},\frac{1-m}{2},-p,\frac{3}{2},-\text{Sinh}[e+fx]^2,-\frac{b\,\text{Sinh}[e+fx]^2}{a}\right]$$

$$(d\,\text{Cosh}[e+fx])^{-1+m}\,\left(\text{Cosh}[e+fx]^2\right)^{\frac{1-m}{2}}\,\text{Sinh}[e+fx]\,\left(a+b\,\text{Sinh}[e+fx]^2\right)^p\left(1+\frac{b\,\text{Sinh}[e+fx]^2}{a}\right)^{-p}$$

Result (type 8, 27 leaves):

$$\int (d \operatorname{Cosh}[e + f x])^m \left(a + b \operatorname{Sinh}[e + f x]^2\right)^p \, dx$$

Problem 401: Unable to integrate problem.

$$\int \operatorname{Cosh}[e + f x]^5 \left(a + b \operatorname{Sinh}[e + f x]^2\right)^p \, dx$$

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

$$-\frac{(3 a - b (7 + 2 p)) \operatorname{Sinh}[e + f x] \left(a + b \operatorname{Sinh}[e + f x]^2\right)^{1+p}}{b^2 f (3 + 2 p) (5 + 2 p)} + \frac{\operatorname{Cosh}[e + f x]^2 \operatorname{Sinh}[e + f x] \left(a + b \operatorname{Sinh}[e + f x]^2\right)^{1+p}}{b f (5 + 2 p)} + \frac{1}{b^2 f (3 + 2 p) (5 + 2 p)} \left(3 a^2 - 2 a b (5 + 2 p) + b^2 \left(15 + 16 p + 4 p^2\right)\right) \text{Hypergeometric2F1}\left[\frac{1}{2}, -p, \frac{3}{2}, -\frac{b \operatorname{Sinh}[e + f x]^2}{a}\right] \operatorname{Sinh}[e + f x] \left(a + b \operatorname{Sinh}[e + f x]^2\right)^p \left(1 + \frac{b \operatorname{Sinh}[e + f x]^2}{a}\right)^{-p}$$

Result (type 8, 25 leaves):

$$\int \operatorname{Cosh}[e + f x]^5 \left(a + b \operatorname{Sinh}[e + f x]^2\right)^p \, dx$$

Problem 402: Unable to integrate problem.

$$\int \operatorname{Cosh}[e + f x]^3 \left(a + b \operatorname{Sinh}[e + f x]^2\right)^p \, dx$$

Optimal (type 5, 125 leaves, 4 steps):

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

Result (type 8, 25 leaves):

$$\int \operatorname{Cosh}[e + f x]^3 \left(a + b \operatorname{Sinh}[e + f x]^2\right)^p \, dx$$

Problem 404: Unable to integrate problem.

$$\int \text{Sech}[e+f x] \left(a+b \text{Sinh}[e+f x]^2\right)^p dx$$

Optimal (type 6, 78 leaves, 3 steps):

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

Result (type 8, 23 leaves):

$$\int \text{Sech}[e+f x] \left(a+b \text{Sinh}[e+f x]^2\right)^p dx$$

Problem 405: Unable to integrate problem.

$$\int \text{Sech}[e+f x]^3 \left(a+b \text{Sinh}[e+f x]^2\right)^p dx$$

Optimal (type 6, 78 leaves, 3 steps):

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

Result (type 8, 25 leaves):

$$\int \text{Sech}[e+f x]^3 \left(a+b \text{Sinh}[e+f x]^2\right)^p dx$$

Problem 406: Unable to integrate problem.

$$\int \text{Cosh}[e+f x]^4 \left(a+b \text{Sinh}[e+f x]^2\right)^p dx$$

Optimal (type 6, 92 leaves, 3 steps):

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

Result (type 8, 25 leaves):

$$\int \text{Cosh}[e+f x]^4 \left(a+b \text{Sinh}[e+f x]^2\right)^p dx$$

Problem 407: Unable to integrate problem.

$$\int \operatorname{Cosh}[e+f x]^2 \left(a+b \operatorname{Sinh}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 92 leaves, 3 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},-p,\frac{3}{2},-\operatorname{Sinh}[e+f x]^2,-\frac{b \operatorname{Sinh}[e+f x]^2}{a}\right] \sqrt{\operatorname{Cosh}[e+f x]^2} \left(a+b \operatorname{Sinh}[e+f x]^2\right)^p \left(1+\frac{b \operatorname{Sinh}[e+f x]^2}{a}\right)^{-p} \operatorname{Tanh}[e+f x]$$

Result (type 8, 25 leaves):

$$\int \operatorname{Cosh}[e+f x]^2 \left(a+b \operatorname{Sinh}[e+f x]^2\right)^p \, dx$$

Problem 408: Unable to integrate problem.

$$\int \left(a+b \operatorname{Sinh}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 92 leaves, 3 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},-p,\frac{3}{2},-\operatorname{Sinh}[e+f x]^2,-\frac{b \operatorname{Sinh}[e+f x]^2}{a}\right] \sqrt{\operatorname{Cosh}[e+f x]^2} \left(a+b \operatorname{Sinh}[e+f x]^2\right)^p \left(1+\frac{b \operatorname{Sinh}[e+f x]^2}{a}\right)^{-p} \operatorname{Tanh}[e+f x]$$

Result (type 8, 16 leaves):

$$\int \left(a+b \operatorname{Sinh}[e+f x]^2\right)^p \, dx$$

Problem 409: Unable to integrate problem.

$$\int \operatorname{Sech}[e+f x]^2 \left(a+b \operatorname{Sinh}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 92 leaves, 3 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\frac{3}{2},-p,\frac{3}{2},-\operatorname{Sinh}[e+f x]^2,-\frac{b \operatorname{Sinh}[e+f x]^2}{a}\right] \sqrt{\operatorname{Cosh}[e+f x]^2} \left(a+b \operatorname{Sinh}[e+f x]^2\right)^p \left(1+\frac{b \operatorname{Sinh}[e+f x]^2}{a}\right)^{-p} \operatorname{Tanh}[e+f x]$$

Result (type 8, 25 leaves):

$$\int \operatorname{Sech}[e+f x]^2 \left(a+b \operatorname{Sinh}[e+f x]^2\right)^p \, dx$$

Problem 410: Unable to integrate problem.

$$\int \text{Sech}[e+f x]^4 \left(a+b\,\text{Sinh}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 92 leaves, 3 steps):

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

Result (type 8, 25 leaves):

$$\int \text{Sech}[e+f x]^4 \left(a+b\,\text{Sinh}[e+f x]^2\right)^p \, dx$$

Problem 412: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cosh}[c+d x]^3}{a+b\sqrt{\text{Sinh}[c+d x]}} \, dx$$

Optimal (type 3, 136 leaves, 4 steps):

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

Result (type 3, 311 leaves):

$$-\frac{a\,\text{Cosh}\left[2\left(c+d x\right)\right]}{4 b^2 d}+\frac{\left(-a^5-a b^4\right)\text{Log}\left[a^2-b^2\,\text{Sinh}[c+d x]\right]}{b^6 d}-\frac{a^3\,\text{Sinh}[c+d x]}{b^4 d}+$$
$$\frac{\sqrt{\text{Sinh}[c+d x]}\left(\frac{\text{Cosh}[2(c+d x)]}{5 b}+\frac{2 a^2\,\text{Sinh}[c+d x]}{3 b^3}\right)}{d}-\frac{1}{20 b^3 d}\left(-\frac{4 a b\,\text{ArcTanh}\left[\frac{b\sqrt{\text{Sinh}[c+d x]}}{a}\right]\text{Cosh}[c+d x]^2\left(-a^2+b^2\,\text{Sinh}[c+d x]\right)}{\left(a^2-b^2\,\text{Sinh}[c+d x]\right)\left(1+\text{Sinh}[c+d x]^2\right)}-\right.$$
$$\left(2\left(10 a^4+9 b^4\right)\text{Coth}[c+d x]\left(\frac{a\,\text{ArcTanh}\left[\frac{b\sqrt{\text{Sinh}[c+d x]}}{a}\right]}{b^3}-\frac{\sqrt{\text{Sinh}[c+d x]}}{b^2}\right)\left(-a^2+b^2\,\text{Sinh}[c+d x]\right)\text{Sinh}\left[2\left(c+d x\right)\right]\right)\Big/$$
$$\left.\left(\left(a^2-b^2\,\text{Sinh}[c+d x]\right)\left(1+\text{Sinh}[c+d x]^2\right)\right)\right)$$

Problem 418: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 384 leaves, 19 steps):

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

Result (type 3, 708 leaves):

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

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

$$\frac{2\,\left(a^2-\mathbb{i}\,b^2\right)\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{\left(a^2+\mathbb{i}\,b^2\right)^2}+\frac{2\,\left(a^2+\mathbb{i}\,b^2\right)\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{\left(a^2-\mathbb{i}\,b^2\right)^2}-\frac{10\,a^4\,b^2\,\text{ArcTanh}\left[\frac{b\sqrt{\text{Sinh}[c+d\,x]}}{a}\right]}{\left(a^4+b^4\right)^2}+$$

$$\frac{6\,b^6\,\text{ArcTanh}\left[\frac{b\sqrt{\text{Sinh}[c+d\,x]}}{a}\right]}{\left(a^4+b^4\right)^2}-\frac{2\,b^2\,\text{ArcTanh}\left[\frac{b\sqrt{\text{Sinh}[c+d\,x]}}{a}\right]}{a^4+b^4}+\frac{\left(-\mathbb{i}\,a^2+b^2\right)\,\text{Log}[\text{Cosh}[c+d\,x]]}{\left(a^2-\mathbb{i}\,b^2\right)^2}+\frac{\left(\mathbb{i}\,a^2+b^2\right)\,\text{Log}[\text{Cosh}[c+d\,x]]}{\left(a^2+\mathbb{i}\,b^2\right)^2}-$$

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

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

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

Problem 419: Unable to integrate problem.

$$\int\frac{\text{Cosh}[c+d\,x]^5}{a+b\,\text{Sinh}[c+d\,x]^n}\,\mathrm{d}x$$

Optimal (type 5, 130 leaves, 6 steps):

$$\frac{\text{Hypergeometric2F1}\left[1,\frac{1}{n},1+\frac{1}{n},-\frac{b\,\text{Sinh}[c+d\,x]^n}{a}\right]\,\text{Sinh}[c+d\,x]}{a\,d}+$$

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

Result (type 8, 25 leaves):

$$\int\frac{\text{Cosh}[c+d\,x]^5}{a+b\,\text{Sinh}[c+d\,x]^n}\,\mathrm{d}x$$

Problem 420: Unable to integrate problem.

$$\int \frac{\text{Cosh}[c+d x]^3}{a+b\,\text{Sinh}[c+d x]^n}\,dx$$

Optimal (type 5, 84 leaves, 5 steps):

$$\frac{\text{Hypergeometric2F1}\left[1,\frac{1}{n},1+\frac{1}{n},-\frac{b\,\text{Sinh}[c+d x]^n}{a}\right]\text{Sinh}[c+d x]}{a\,d}+\frac{\text{Hypergeometric2F1}\left[1,\frac{3}{n},\frac{3+n}{n},-\frac{b\,\text{Sinh}[c+d x]^n}{a}\right]\text{Sinh}[c+d x]^3}{3\,a\,d}$$

Result (type 8, 25 leaves):

$$\int \frac{\text{Cosh}[c+d x]^3}{a+b\,\text{Sinh}[c+d x]^n}\,dx$$

Problem 422: Attempted integration timed out after 120 seconds.

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

Optimal (type 5, 130 leaves, 6 steps):

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

Result (type 1, 1 leaves):

???

Problem 423: Attempted integration timed out after 120 seconds.

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

Optimal (type 5, 84 leaves, 5 steps):

$$\frac{\text{Hypergeometric2F1}\left[2,\frac{1}{n},1+\frac{1}{n},-\frac{b\,\text{Sinh}[c+d x]^n}{a}\right]\text{Sinh}[c+d x]}{a^2\,d}+\frac{\text{Hypergeometric2F1}\left[2,\frac{3}{n},\frac{3+n}{n},-\frac{b\,\text{Sinh}[c+d x]^n}{a}\right]\text{Sinh}[c+d x]^3}{3\,a^2\,d}$$

Result (type 1, 1 leaves):

???

Problem 457: Result more than twice size of optimal antiderivative.

$$\int \sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\;\text{Tanh}[e+f\,x]^5\,dx$$

Optimal (type 3, 187 leaves, 6 steps):

$$-\frac{\left(8\,a^2-24\,a\,b+15\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{8\,(a-b)^{3/2}\,f}+\frac{\left(8\,a^2-24\,a\,b+15\,b^2\right)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{8\,(a-b)^2\,f}+\frac{(8\,a-7\,b)\,\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}}{8\,(a-b)^2\,f}-\frac{\text{Sech}[e+f\,x]^4\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}}{4\,(a-b)\,f}$$

Result (type 3, 631 leaves):

$$\frac{\sqrt{2a-b+b\operatorname{Cosh}[2(e+fx)]}\left(\frac{(8a-9b)\operatorname{Sech}[e+fx]^2}{8\sqrt{2}(a-b)}-\frac{\operatorname{Sech}[e+fx]^4}{4\sqrt{2}}\right)}{f}+$$

$$\frac{1}{4(a-b)f}\left(-\frac{\left(4\sqrt{2}a^2-\frac{ab}{\sqrt{2}}-11\sqrt{2}ab+7\sqrt{2}b^2\right)\operatorname{ArcTanh}\left[\frac{\sqrt{2a-b+b\operatorname{Cosh}[2(e+fx)]}}{\sqrt{2a-2b}}\right]}{\sqrt{2a-2b}}+\left(4\sqrt{2}\left(\frac{3ab}{\sqrt{2}}-\frac{3b^2}{\sqrt{2}}\right)(1+\operatorname{Cosh}[e+fx])\right.\right.$$

$$\sqrt{\frac{2a-b+b\operatorname{Cosh}[2(e+fx)]}{(1+\operatorname{Cosh}[e+fx])^2}}\sqrt{a-2a\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2+4b\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2+a\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^4}\Bigg)\Bigg/$$

$$\left(\sqrt{2a-b+b\operatorname{Cosh}[2(e+fx)]}\left(4b-4b\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)+\frac{1}{\sqrt{2}\sqrt{a-b}\,b\sqrt{2a-b+b\operatorname{Cosh}[2(e+fx)]}\left(-1+\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right)}$$

$$\left(\frac{ab}{\sqrt{2}}-\frac{b^2}{\sqrt{2}}\right)(1+\operatorname{Cosh}[e+fx])\sqrt{\frac{2a-b+b\operatorname{Cosh}[2(e+fx)]}{(1+\operatorname{Cosh}[e+fx])^2}}\left(b\operatorname{Log}\left[a-b-a\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2+\right.\right.$$

$$\left.b\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a-b}\sqrt{4b\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right]\left(-1+\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$

$$\left.\left.\operatorname{Log}\left[1+\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right]\left(b-b\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right)-2\sqrt{a-b}\sqrt{4b\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\operatorname{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)\right)$$

Problem 458: Result more than twice size of optimal antiderivative.

$$\int\sqrt{a+b\operatorname{Sinh}[e+fx]^2}\operatorname{Tanh}[e+fx]^3\,dx$$

Optimal (type 3, 126 leaves, 5 steps):

$$-\frac{(2a-3b)\operatorname{ArcTanh}\left[\frac{\sqrt{a+b\operatorname{Sinh}[e+fx]^2}}{\sqrt{a-b}}\right]}{2\sqrt{a-b}\,f}+\frac{(2a-3b)\sqrt{a+b\operatorname{Sinh}[e+fx]^2}}{2(a-b)f}+\frac{\operatorname{Sech}[e+fx]^2\left(a+b\operatorname{Sinh}[e+fx]^2\right)^{3/2}}{2(a-b)f}$$

Result (type 3, 523 leaves):

$$\frac{\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\,\,\text{Sech}[e+f\,x]^2}{2\,\sqrt{2}\,f}+\frac{1}{2\,f}\left(-\frac{\left(2\,\sqrt{2}\,a-\frac{11\,b}{2\,\sqrt{2}}\right)\text{ArcTanh}\left[\frac{\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}{\sqrt{2\,a-2\,b}}\right]}{\sqrt{2\,a-2\,b}}+\right.$$

$$\left(6\,b\,(1+\text{Cosh}[e+f\,x])\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{(1+\text{Cosh}[e+f\,x])^2}}\,\sqrt{a-2\,a\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+4\,b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^4}\right)\Big/$$

$$\left(\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\,\left(4\,b-4\,b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+$$

$$\frac{1}{4\,\sqrt{a-b}\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\,\left(-1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)}\,(1+\text{Cosh}[e+f\,x])\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{(1+\text{Cosh}[e+f\,x])^2}}$$

$$\left(b\,\text{Log}\left[a-b-a\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right.$$

$$\left(-1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\text{Log}\left[1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\left(b-b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)-$$

$$\left.\left.2\,\sqrt{a-b}\,\sqrt{4\,b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right)\right)$$

Problem 463: Result unnecessarily involves imaginary or complex numbers.

$$\int\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\,\text{Tanh}[e+f\,x]^4\,dx$$

Optimal (type 4, 292 leaves, 7 steps):

$$-\frac{(7a-8b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\text{Sech}[e+fx]\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{3(a-b)f\sqrt{\frac{\text{Sech}[e+fx]^2\left(a+b\,\text{Sinh}[e+fx]^2\right)}{a}}}+$$

$$\frac{(3a-4b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\text{Sech}[e+fx]\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{3(a-b)f\sqrt{\frac{\text{Sech}[e+fx]^2\left(a+b\,\text{Sinh}[e+fx]^2\right)}{a}}}+$$

$$\frac{(7a-8b)\sqrt{a+b\,\text{Sinh}[e+fx]^2}\,\text{Tanh}[e+fx]}{3(a-b)f}-\frac{(3a-4b)\sqrt{a+b\,\text{Sinh}[e+fx]^2}\,\text{Tanh}[e+fx]}{3(a-b)f}-\frac{\sqrt{a+b\,\text{Sinh}[e+fx]^2}\,\text{Tanh}[e+fx]^3}{3f}$$

Result (type 4, 214 leaves):

$$\left(-2\,i\,a\,(7a-8b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\,\text{EllipticE}\left[i\,(e+fx),\frac{b}{a}\right]+\right.$$

$$8\,i\,a\,(a-b)\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{a}}\,\text{EllipticF}\left[i\,(e+fx),\frac{b}{a}\right]-\frac{1}{2\sqrt{2}}$$

$$\left.\left(8a^2-12ab+b^2+4\left(4a^2-6ab+b^2\right)\text{Cosh}[2(e+fx)]+(4a-5b)\,b\,\text{Cosh}[4(e+fx)]\right)\text{Sech}[e+fx]^2\,\text{Tanh}[e+fx]\right)\Big/$$

$$\left(6(a-b)f\sqrt{2a-b+b\,\text{Cosh}[2(e+fx)]}\right)$$

Problem 464: Result unnecessarily involves imaginary or complex numbers.

$$\int\sqrt{a+b\,\text{Sinh}[e+fx]^2}\,\text{Tanh}[e+fx]^2\,dx$$

Optimal (type 4, 168 leaves, 6 steps):

$$-\frac{2\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+$$

$$\frac{\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+\frac{\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{f}$$

Result (type 4, 150 leaves):

$$\left(-2\,i\sqrt{2}\,a\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+f x)]}{a}}\,\text{EllipticE}\left[i(e+f x),\frac{b}{a}\right]+i\sqrt{2}\,a\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+f x)]}{a}}\,\text{EllipticF}\left[i(e+f x),\frac{b}{a}\right]+\right.$$

$$\left.(-2a+b-b\,\text{Cosh}[2(e+f x)])\,\text{Tanh}[e+f x]\right)\Big/\left(f\sqrt{4a-2b+2b\,\text{Cosh}[2(e+f x)]}\right)$$

Problem 466: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Coth}[e+f x]^2\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,dx$$

Optimal (type 4, 202 leaves, 6 steps):

$$-\frac{\text{Coth}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{f}-\frac{2\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+$$

$$\frac{(a+b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{a f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+\frac{2\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{f}$$

Result (type 4, 154 leaves):

$$\left(\left(-2\,a+b-b\,\text{Cosh}\left[2\,(e+f\,x)\right]\right)\text{Coth}[e+f\,x]-2\,i\,\sqrt{2}\,a\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}\left[2\,(e+f\,x)\right]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]+\right.$$

$$\left.i\,\sqrt{2}\,(a-b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}\left[2\,(e+f\,x)\right]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]\right)\Big/\left(f\,\sqrt{4\,a-2\,b+2\,b\,\text{Cosh}\left[2\,(e+f\,x)\right]}\right)$$

Problem 467: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Coth}[e+f\,x]^4\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,dx$$

Optimal (type 4, 270 leaves, 7 steps):

$$-\frac{(3\,a+b)\,\text{Coth}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a\,f}-\frac{\text{Coth}[e+f\,x]^3\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,f}-$$

$$\frac{(7\,a+b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}+$$

$$\frac{(3\,a+5\,b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}+\frac{(7\,a+b)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{3\,a\,f}$$

Result (type 4, 376 leaves):

$$\frac{\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\left(\frac{\left(-4\sqrt{2}\,a\,\text{Cosh}[e+f\,x]-\sqrt{2}\,b\,\text{Cosh}[e+f\,x]\right)\text{Csch}[e+f\,x]}{6\,a}-\frac{\text{Coth}[e+f\,x]\,\text{Csch}[e+f\,x]^2}{3\sqrt{2}}\right)}{f}+$$

$$\frac{1}{3\,a\,f}\left(-\frac{\mathbb{i}\left(3\sqrt{2}\,a^2+\frac{3\,a\,b}{\sqrt{2}}-\frac{b^2}{\sqrt{2}}\right)\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\;\text{EllipticF}\left[\mathbb{i}\,(e+f\,x),\frac{b}{a}\right]}{\sqrt{2}\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}-\frac{1}{2\,b}\right.$$

$$\left.\mathbb{i}\left(\frac{7\,a\,b}{\sqrt{2}}+\frac{b^2}{\sqrt{2}}\right)\left(\frac{2\sqrt{2}\,a\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\;\text{EllipticE}\left[\mathbb{i}\,(e+f\,x),\frac{b}{a}\right]}{\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}-\frac{\sqrt{2}\,(2\,a-b)\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\;\text{EllipticF}\left[\mathbb{i}\,(e+f\,x),\frac{b}{a}\right]}{\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}\right)\right)$$

Problem 468: Result more than twice size of optimal antiderivative.

$$\int\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}\text{Tanh}[e+f\,x]^5\,dx$$

Optimal (type 3, 232 leaves, 7 steps):

$$-\frac{\left(8\,a^2-40\,a\,b+35\,b^2\right)\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{8\sqrt{a-b}\;f}+\frac{\left(8\,a^2-40\,a\,b+35\,b^2\right)\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{8\,(a-b)\,f}+$$

$$\frac{\left(8\,a^2-40\,a\,b+35\,b^2\right)\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}}{24\,(a-b)^2\,f}+\frac{(8\,a-9\,b)\,\text{Sech}[e+f\,x]^2\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{5/2}}{8\,(a-b)^2\,f}-\frac{\text{Sech}[e+f\,x]^4\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{5/2}}{4\,(a-b)\,f}$$

Result (type 3, 648 leaves):

$$\frac{\sqrt{2\,a-b+b\,\text{Cosh}\left[2\,(e+f\,x)\right]}\,\left(\frac{b\,\text{Cosh}[2\,(e+f\,x)]}{6\,\sqrt{2}}+\frac{(8\,a-13\,b)\,\text{Sech}[e+f\,x]^2}{8\,\sqrt{2}}-\frac{(a-b)\,\text{Sech}[e+f\,x]^4}{4\,\sqrt{2}}\right)}{f}+$$

$$\frac{1}{12\,f}\left(-\frac{\left(12\,\sqrt{2}\,a^2-58\,\sqrt{2}\,a\,b+\frac{19\,b^2}{2\,\sqrt{2}}+43\,\sqrt{2}\,b^2\right)\text{ArcTanh}\left[\frac{\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}{\sqrt{2\,a-2\,b}}\right]}{\sqrt{2\,a-2\,b}}+\left(4\,\sqrt{2}\,\left(6\,\sqrt{2}\,a\,b-\frac{57\,b^2}{2\,\sqrt{2}}\right)\,(1+\text{Cosh}[e+f\,x])\right.\right.$$

$$\left.\sqrt{\frac{2\,a-b+b\,\text{Cosh}\left[2\,(e+f\,x)\right]}{(1+\text{Cosh}[e+f\,x])^2}}\,\sqrt{a-2\,a\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+4\,b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^4}\right)\Big/$$

$$\left(\sqrt{2\,a-b+b\,\text{Cosh}\left[2\,(e+f\,x)\right]}\,\left(4\,b-4\,b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+\frac{1}{\sqrt{2}\,\sqrt{a-b}\,b\,\sqrt{2\,a-b+b\,\text{Cosh}\left[2\,(e+f\,x)\right]}\,\left(-1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)}$$

$$\left(2\,\sqrt{2}\,a\,b-\frac{19\,b^2}{2\,\sqrt{2}}\right)\,(1+\text{Cosh}[e+f\,x])\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}\left[2\,(e+f\,x)\right]}{(1+\text{Cosh}[e+f\,x])^2}}\,\left(b\,\text{Log}\left[a-b-a\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\right.\right.$$

$$\left.b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]\,\left(-1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+$$

$$\left.\left.\text{Log}\left[1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\left(b-b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)-2\,\sqrt{a-b}\,\sqrt{4\,b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\right)$$

Problem 469: Result more than twice size of optimal antiderivative.

$$\int\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}\,\text{Tanh}[e+f\,x]^3\,dx$$

Optimal (type 3, 156 leaves, 6 steps):

$$-\frac{(2\,a-5\,b)\,\sqrt{a-b}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{2\,f}+\frac{(2\,a-5\,b)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{2\,f}+$$

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

Result (type 3, 614 leaves):

$$\frac{\sqrt{2a-b+b\,\text{Cosh}[2(e+fx)]}\left(\frac{b\,\text{Cosh}[2(e+fx)]}{6\sqrt{2}}+\frac{(a-b)\,\text{Sech}[e+fx]^2}{2\sqrt{2}}\right)}{f}+$$

$$\frac{1}{12f}\left(-\frac{\left(12\sqrt{2}\,a^2-40\sqrt{2}\,a\,b+\frac{107b^2}{2\sqrt{2}}\right)\text{ArcTanh}\left[\frac{\sqrt{2a-b+b\,\text{Cosh}[2(e+fx)]}}{\sqrt{2a-2b}}\right]}{\sqrt{2a-2b}}+\left(4\sqrt{2}\left(6\sqrt{2}\,a\,b-\frac{39b^2}{2\sqrt{2}}\right)(1+\text{Cosh}[e+fx])\right.\right.$$

$$\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{(1+\text{Cosh}[e+fx])^2}}\sqrt{a-2a\,\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2+4b\,\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2+a\,\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^4}\Bigg)\Bigg/$$

$$\left(\sqrt{2a-b+b\,\text{Cosh}[2(e+fx)]}\left(4b-4b\,\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)+\frac{1}{\sqrt{2}\sqrt{a-b}\,b\sqrt{2a-b+b\,\text{Cosh}[2(e+fx)]}\left(-1+\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right)}$$

$$\left(2\sqrt{2}\,a\,b-\frac{13b^2}{2\sqrt{2}}\right)(1+\text{Cosh}[e+fx])\sqrt{\frac{2a-b+b\,\text{Cosh}[2(e+fx)]}{(1+\text{Cosh}[e+fx])^2}}\left(b\,\text{Log}\left[a-b-a\,\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2+\right.\right.$$

$$b\,\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a-b}\sqrt{4b\,\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\,\Bigg]\left(-1+\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$

$$\left.\left.\text{Log}\left[1+\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right]\left(b-b\,\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right)-2\sqrt{a-b}\sqrt{4b\,\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tanh}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)\right)$$

Problem 470: Result more than twice size of optimal antiderivative.

$$\int \left(a+b\,\text{Sinh}[e+fx]^2\right)^{3/2}\text{Tanh}[e+fx]\,dx$$

Optimal (type 3, 90 leaves, 5 steps):

$$-\frac{(a-b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{\sqrt{a-b}}\right]}{f}+\frac{(a-b)\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{f}+\frac{\left(a+b\,\text{Sinh}[e+fx]^2\right)^{3/2}}{3f}$$

Result (type 3, 590 leaves):

$$\frac{b\,\text{Cosh}[2\,(e+f\,x)]\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}{6\,\sqrt{2}\,f}+$$

$$\frac{1}{12\,f}\left(-\frac{\left(12\,\sqrt{2}\,a^2-22\,\sqrt{2}\,a\,b+\frac{41\,b^2}{2\,\sqrt{2}}\right)\text{ArcTanh}\left[\frac{\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}}{\sqrt{2\,a-2\,b}}\right]}{\sqrt{2\,a-2\,b}}+\left(4\,\sqrt{2}\,\left(6\,\sqrt{2}\,a\,b-\frac{21\,b^2}{2\,\sqrt{2}}\right)\,(1+\text{Cosh}[e+f\,x])\right.\right.$$

$$\left.\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{(1+\text{Cosh}[e+f\,x])^2}}\,\sqrt{a-2\,a\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+4\,b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^4}\right)\Big/$$

$$\left(\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\,\left(4\,b-4\,b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+\frac{1}{\sqrt{2}\,\sqrt{a-b}\,b\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\,\left(-1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)}$$

$$\left(2\,\sqrt{2}\,a\,b-\frac{7\,b^2}{2\,\sqrt{2}}\right)\,(1+\text{Cosh}[e+f\,x])\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{(1+\text{Cosh}[e+f\,x])^2}}\,\left(b\,\text{Log}\left[a-b-a\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\right.\right.$$

$$\left.b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]\,\left(-1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+$$

$$\left.\left.\text{Log}\left[1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\left(b-b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)-2\,\sqrt{a-b}\,\sqrt{4\,b\,\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tanh}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\right)$$

Problem 474: Result unnecessarily involves imaginary or complex numbers.

$$\int\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}\,\text{Tanh}[e+f\,x]^4\,dx$$

Optimal (type 4, 305 leaves, 8 steps):

$$-\frac{(3a-8b)\,\text{Cosh}[e+fx]\,\text{Sinh}[e+fx]\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{3f}-\frac{8\,(a-2b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\,\text{Sech}[e+fx]\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{3f\sqrt{\frac{\text{Sech}[e+fx]^2\,(a+b\,\text{Sinh}[e+fx]^2)}{a}}}+\frac{(3a-8b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\,\text{Sech}[e+fx]\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{3f\sqrt{\frac{\text{Sech}[e+fx]^2\,(a+b\,\text{Sinh}[e+fx]^2)}{a}}}+\frac{8\,(a-2b)\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}\,\text{Tanh}[e+fx]}{3f}+\frac{(a-2b)\,\text{Sinh}[e+fx]^2\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}\,\text{Tanh}[e+fx]}{f}-\frac{(a+b\,\text{Sinh}[e+fx]^2)^{3/2}\,\text{Tanh}[e+fx]^3}{3f}$$

Result (type 4, 224 leaves) :

$$\left(-32\,i\,a\,(a-2b)\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+fx)]}{a}}\,\text{EllipticE}\left[i\,(e+fx),\frac{b}{a}\right]+4\,i\,a\,(5a-8b)\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+fx)]}{a}}\,\text{EllipticF}\left[i\,(e+fx),\frac{b}{a}\right]-\frac{1}{4\sqrt{2}}\left(32a^2-108ab+18b^2+(64a^2-160ab+17b^2)\,\text{Cosh}[2\,(e+fx)]+2\,(6a-17b)\,b\,\text{Cosh}[4\,(e+fx)]-b^2\,\text{Cosh}[6\,(e+fx)]\right)\text{Sech}[e+fx]^2\,\text{Tanh}[e+fx]\right)\Big/\left(12f\sqrt{2a-b+b\,\text{Cosh}[2\,(e+fx)]}\right)$$

Problem 475: Result unnecessarily involves imaginary or complex numbers.

$$\int (a+b\,\text{Sinh}[e+fx]^2)^{3/2}\,\text{Tanh}[e+fx]^2\,dx$$

Optimal (type 4, 260 leaves, 7 steps) :

$$\frac{4\,b\,\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,f}-\frac{(7\,a-8\,b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}+$$

$$\frac{(3\,a-4\,b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}+$$

$$\frac{(7\,a-8\,b)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{3\,f}-\frac{\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}\,\text{Tanh}[e+f\,x]}{f}$$

Result (type 4, 188 leaves) :

$$\Bigg(-8\,i\,a\,(7\,a-8\,b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]+$$

$$32\,i\,a\,(a-b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]+$$

$$\sqrt{2}\,\left(-24\,a^2+40\,a\,b-13\,b^2-4\,(2\,a-3\,b)\,b\,\text{Cosh}[2\,(e+f\,x)]+b^2\,\text{Cosh}[4\,(e+f\,x)]\right)\,\text{Tanh}[e+f\,x]\Bigg)\Bigg/\left(24\,f\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 477: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Coth}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 4, 256 leaves, 7 steps) :

$$\frac{4\,b\,\text{Cosh}[e+f\,x]\,\text{Sinh}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,f}-\frac{\text{Coth}[e+f\,x]\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}}{f}-$$

$$\frac{(7\,a+b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}+$$

$$\frac{(3\,a+5\,b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}+\frac{(7\,a+b)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{3\,f}$$

Result (type 4, 184 leaves) :

$$\Bigg(\sqrt{2}\,\left(-24\,a^2+8\,a\,b+3\,b^2-4\,b\,(2\,a+b)\,\text{Cosh}[2\,(e+f\,x)]+b^2\,\text{Cosh}[4\,(e+f\,x)]\right)\,\text{Coth}[e+f\,x]-$$

$$8\,i\,a\,(7\,a+b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]+$$

$$32\,i\,a\,(a-b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]\Bigg)\Bigg/\left(24\,f\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 478: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Coth}[e+f\,x]^4\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 4, 306 leaves, 8 steps) :

$$-\frac{(a+b)\,\text{Cosh}[e+f x]^2\,\text{Coth}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{f}+\frac{(3 a+5 b)\,\text{Cosh}[e+f x]\,\text{Sinh}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 f}-$$

$$\frac{\text{Coth}[e+f x]^3\,\left(a+b\,\text{Sinh}[e+f x]^2\right)^{3/2}}{3 f}-\frac{8\,(a+b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 f\,\sqrt{\frac{\text{Sech}[e+f x]^2\,\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+$$

$$\frac{(3 a+b)\,(a+3 b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 a f\,\sqrt{\frac{\text{Sech}[e+f x]^2\,\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+\frac{8\,(a+b)\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{3 f}$$

Result (type 4, 368 leaves):

$$\frac{1}{3 f}\sqrt{2}\left(-\frac{i\,\left(3 a^2+6 a b-b^2\right)\,\sqrt{\frac{2 a-b+b\,\text{Cosh}[2 (e+f x)]}{a}}\,\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]}{\sqrt{2}\,\sqrt{2 a-b+b\,\text{Cosh}[2 (e+f x)]}}-\frac{1}{2 b}\right.$$

$$\left.i\,\left(4 a b+4 b^2\right)\left(\frac{2\sqrt{2}\,a\,\sqrt{\frac{2 a-b+b\,\text{Cosh}[2 (e+f x)]}{a}}\,\text{EllipticE}\left[i\,(e+f x),\frac{b}{a}\right]}{\sqrt{2 a-b+b\,\text{Cosh}[2 (e+f x)]}}-\frac{\sqrt{2}\,(2 a-b)\,\sqrt{\frac{2 a-b+b\,\text{Cosh}[2 (e+f x)]}{a}}\,\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]}{\sqrt{2 a-b+b\,\text{Cosh}[2 (e+f x)]}}\right)\right)+\frac{1}{f}$$

$$\sqrt{2 a-b+b\,\text{Cosh}[2 (e+f x)]}\,\left(-\frac{2}{3}\left(\sqrt{2}\,a\,\text{Cosh}[e+f x]+\sqrt{2}\,b\,\text{Cosh}[e+f x]\right)\,\text{Csch}[e+f x]-\frac{a\,\text{Coth}[e+f x]\,\text{Csch}[e+f x]^2}{3\sqrt{2}}+\frac{b\,\text{Sinh}[2 (e+f x)]}{6\sqrt{2}}\right)$$

Problem 485: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Tanh}[e+f x]^4}{\sqrt{a+b\,\text{Sinh}[e+f x]^2}}\,dx$$

Optimal (type 4, 219 leaves, 5 steps):

$$-\frac{2\,(2\,a-b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,(a-b)^2\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}+$$

$$\frac{(3\,a-b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,(a-b)^2\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}+\frac{\text{Sech}[e+f\,x]^2\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{3\,(a-b)\,f}$$

Result (type 4, 206 leaves):

$$\left(-4\,i\,a\,(2\,a-b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\,\frac{b}{a}\right]+2\,i\,a\,(a-b)\,\sqrt{\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\,\frac{b}{a}\right]-\right.$$

$$\left.\frac{1}{\sqrt{2}}\left(2\,(4\,a^2-3\,a\,b+b^2)\,\text{Cosh}[2\,(e+f\,x)]+(2\,a-b)\,(2\,a+b+b\,\text{Cosh}[4\,(e+f\,x)])\right)\,\text{Sech}[e+f\,x]^2\,\text{Tanh}[e+f\,x]\right)\Big/$$

$$\left(6\,(a-b)^2\,f\,\sqrt{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 486: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Tanh}[e+f\,x]^2}{\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}\,dx$$

Optimal (type 4, 156 leaves, 6 steps):

$$-\frac{\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{(a-b)\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}+$$

$$\frac{\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],\,1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{(a-b)\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,(a+b\,\text{Sinh}[e+f\,x]^2)}{a}}}$$

Result (type 4, 109 leaves):

$$\frac{-2\,\mathrm{i}\,a\sqrt{\frac{2a-b+b\,\mathrm{Cosh}[2(e+fx)]}{a}}\;\mathrm{EllipticE}\left[\mathrm{i}\,(e+fx),\frac{b}{a}\right]+\sqrt{2}\,\left(-2a+b-b\,\mathrm{Cosh}[2(e+fx)]\right)\mathrm{Tanh}[e+fx]}{2(a-b)\,f\sqrt{2a-b+b\,\mathrm{Cosh}[2(e+fx)]}}$$

Problem 488: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\mathrm{Coth}[e+fx]^2}{\sqrt{a+b\,\mathrm{Sinh}[e+fx]^2}}\,dx$$

Optimal (type 4, 207 leaves, 6 steps):

$$-\frac{\mathrm{Coth}[e+fx]\sqrt{a+b\,\mathrm{Sinh}[e+fx]^2}}{af}-\frac{\mathrm{EllipticE}\left[\mathrm{ArcTan}[\mathrm{Sinh}[e+fx]],1-\frac{b}{a}\right]\mathrm{Sech}[e+fx]\sqrt{a+b\,\mathrm{Sinh}[e+fx]^2}}{af\sqrt{\frac{\mathrm{Sech}[e+fx]^2\left(a+b\,\mathrm{Sinh}[e+fx]^2\right)}{a}}}+$$

$$\frac{\mathrm{EllipticF}\left[\mathrm{ArcTan}[\mathrm{Sinh}[e+fx]],1-\frac{b}{a}\right]\mathrm{Sech}[e+fx]\sqrt{a+b\,\mathrm{Sinh}[e+fx]^2}}{af\sqrt{\frac{\mathrm{Sech}[e+fx]^2\left(a+b\,\mathrm{Sinh}[e+fx]^2\right)}{a}}}+\frac{\sqrt{a+b\,\mathrm{Sinh}[e+fx]^2}\;\mathrm{Tanh}[e+fx]}{af}$$

Result (type 4, 105 leaves):

$$\frac{\sqrt{2}\,\left(-2a+b-b\,\mathrm{Cosh}[2(e+fx)]\right)\mathrm{Coth}[e+fx]-2\,\mathrm{i}\,a\sqrt{\frac{2a-b+b\,\mathrm{Cosh}[2(e+fx)]}{a}}\;\mathrm{EllipticE}\left[\mathrm{i}\,(e+fx),\frac{b}{a}\right]}{2af\sqrt{2a-b+b\,\mathrm{Cosh}[2(e+fx)]}}$$

Problem 489: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\mathrm{Coth}[e+fx]^4}{\sqrt{a+b\,\mathrm{Sinh}[e+fx]^2}}\,dx$$

Optimal (type 4, 285 leaves, 7 steps):

$$-\frac{2\,(2a-b)\,\mathrm{Coth}[e+f x]\,\sqrt{a+b\,\mathrm{Sinh}[e+f x]^2}}{3a^2 f}-\frac{\mathrm{Coth}[e+f x]\,\mathrm{Csch}[e+f x]^2\,\sqrt{a+b\,\mathrm{Sinh}[e+f x]^2}}{3 a f}-$$

$$\frac{2\,(2a-b)\,\mathrm{EllipticE}\left[\mathrm{ArcTan}[\mathrm{Sinh}[e+f x]],1-\frac{b}{a}\right]\,\mathrm{Sech}[e+f x]\,\sqrt{a+b\,\mathrm{Sinh}[e+f x]^2}}{3a^2 f\sqrt{\frac{\mathrm{Sech}[e+f x]^2\,(a+b\,\mathrm{Sinh}[e+f x]^2)}{a}}}+$$

$$\frac{(3a-b)\,\mathrm{EllipticF}\left[\mathrm{ArcTan}[\mathrm{Sinh}[e+f x]],1-\frac{b}{a}\right]\,\mathrm{Sech}[e+f x]\,\sqrt{a+b\,\mathrm{Sinh}[e+f x]^2}}{3a^2 f\sqrt{\frac{\mathrm{Sech}[e+f x]^2\,(a+b\,\mathrm{Sinh}[e+f x]^2)}{a}}}+\frac{2\,(2a-b)\,\sqrt{a+b\,\mathrm{Sinh}[e+f x]^2}\,\mathrm{Tanh}[e+f x]}{3a^2 f}$$

Result (type 4, 357 leaves):

$$\frac{\sqrt{2a-b+b\,\mathrm{Cosh}[2\,(e+f x)]}\left(\frac{\left(-2\sqrt{2}\,a\,\mathrm{Cosh}[e+f x]+\sqrt{2}\,b\,\mathrm{Cosh}[e+f x]\right)\mathrm{Csch}[e+f x]}{3a^2}-\frac{\mathrm{Coth}[e+f x]\,\mathrm{Csch}[e+f x]^2}{3\sqrt{2}\,a}\right)}{f}+$$

$$\frac{1}{3a^2 f}\sqrt{2}\left(-\frac{i\,(3a^2-3ab+b^2)\sqrt{\frac{2a-b+b\,\mathrm{Cosh}[2\,(e+f x)]}{a}}\,\mathrm{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]}{\sqrt{2}\,\sqrt{2a-b+b\,\mathrm{Cosh}[2\,(e+f x)]}}-\frac{1}{2b}\right.$$

$$\left.i\,(2ab-b^2)\left(\frac{2\sqrt{2}\,a\sqrt{\frac{2a-b+b\,\mathrm{Cosh}[2\,(e+f x)]}{a}}\,\mathrm{EllipticE}\left[i\,(e+f x),\frac{b}{a}\right]}{\sqrt{2a-b+b\,\mathrm{Cosh}[2\,(e+f x)]}}-\frac{\sqrt{2}\,(2a-b)\sqrt{\frac{2a-b+b\,\mathrm{Cosh}[2\,(e+f x)]}{a}}\,\mathrm{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]}{\sqrt{2a-b+b\,\mathrm{Cosh}[2\,(e+f x)]}}\right)\right)$$

Problem 496: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\mathrm{Tanh}[e+f x]^4}{\left(a+b\,\mathrm{Sinh}[e+f x]^2\right)^{3/2}}\,dx$$

Optimal (type 4, 275 leaves, 6 steps):

$$-\frac{\sqrt{a}\,\sqrt{b}\,(7a+b)\,\text{Cosh}[e+fx]\,\text{EllipticE}\left[\text{ArcTan}\left[\frac{\sqrt{b}\,\text{Sinh}[e+fx]}{\sqrt{a}}\right],1-\frac{a}{b}\right]}{3\,(a-b)^3\,f\,\sqrt{\frac{a\,\text{Cosh}[e+fx]^2}{a+b\,\text{Sinh}[e+fx]^2}}\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}}+$$

$$\frac{(3a+5b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\,\text{Sech}[e+fx]\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{3\,(a-b)^3\,f\,\sqrt{\frac{\text{Sech}[e+fx]^2\,(a+b\,\text{Sinh}[e+fx]^2)}{a}}}-$$

$$\frac{4\,a\,\text{Tanh}[e+fx]}{3\,(a-b)^2\,f\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}}+\frac{\text{Sech}[e+fx]^2\,\text{Tanh}[e+fx]}{3\,(a-b)\,f\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}}$$

Result (type 4, 212 leaves):

$$\left(-2\,i\,a\,(7a+b)\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+fx)]}{a}}\,\text{EllipticE}\left[i\,(e+fx),\frac{b}{a}\right]+8\,i\,a\,(a-b)\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+fx)]}{a}}\,\text{EllipticF}\left[i\,(e+fx),\frac{b}{a}\right]-\right.$$

$$\left.\frac{1}{2\sqrt{2}}\left(8a^2+21ab-5b^2+4\,(4a^2+3ab+b^2)\,\text{Cosh}[2\,(e+fx)]+b\,(7a+b)\,\text{Cosh}[4\,(e+fx)]\right)\,\text{Sech}[e+fx]^2\,\text{Tanh}[e+fx]\right)\Big/$$

$$\left(6\,(a-b)^3\,f\,\sqrt{2a-b+b\,\text{Cosh}[2\,(e+fx)]}\right)$$

Problem 497: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Tanh}[e+fx]^2}{\left(a+b\,\text{Sinh}[e+fx]^2\right)^{3/2}}\,dx$$

Optimal (type 4, 217 leaves, 5 steps):

$$-\frac{2\sqrt{a}\,\sqrt{b}\,\text{Cosh}[e+fx]\,\text{EllipticE}\left[\text{ArcTan}\left[\frac{\sqrt{b}\,\text{Sinh}[e+fx]}{\sqrt{a}}\right],1-\frac{a}{b}\right]}{(a-b)^2\,f\,\sqrt{\frac{a\,\text{Cosh}[e+fx]^2}{a+b\,\text{Sinh}[e+fx]^2}}\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}}+$$

$$\frac{(a+b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+fx]],1-\frac{b}{a}\right]\,\text{Sech}[e+fx]\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}}{a\,(a-b)^2\,f\,\sqrt{\frac{\text{Sech}[e+fx]^2\,(a+b\,\text{Sinh}[e+fx]^2)}{a}}}-\frac{\text{Tanh}[e+fx]}{(a-b)\,f\,\sqrt{a+b\,\text{Sinh}[e+fx]^2}}$$

Result (type 4, 158 leaves):

$$\left(-2\,i\,\sqrt{2}\,a\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]+i\,\sqrt{2}\,(a-b)\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]-2\,(a+b\,\text{Cosh}[2\,(e+f\,x)])\,\text{Tanh}[e+f\,x]\right)\Big/\left((a-b)^2\,f\,\sqrt{4a-2b+2b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 499: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Coth}[e+f\,x]^2}{\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 4, 237 leaves, 7 steps):

$$\frac{\text{Coth}[e+f\,x]}{a\,f\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}-\frac{2\,\text{Coth}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{a^2\,f}-\frac{2\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{a^2\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}+\frac{\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{a^2\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}+\frac{2\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{a^2\,f}$$

Result (type 4, 153 leaves):

$$\left(-2\,(a-b+b\,\text{Cosh}[2\,(e+f\,x)])\,\text{Coth}[e+f\,x]-2\,i\,\sqrt{2}\,a\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]+i\,\sqrt{2}\,a\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}}\,\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]\right)\Big/\left(a^2\,f\,\sqrt{4a-2b+2b\,\text{Cosh}[2\,(e+f\,x)]}\right)$$

Problem 500: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Coth}[e+f\,x]^4}{\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 4, 341 leaves, 8 steps):

$$-\frac{(a-b)\,\text{Coth}[e+f x]\,\text{Csch}[e+f x]^2}{a b f\sqrt{a+b\,\text{Sinh}[e+f x]^2}}-\frac{(7 a-8 b)\,\text{Coth}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 a^3 f}+\frac{(3 a-4 b)\,\text{Coth}[e+f x]\,\text{Csch}[e+f x]^2\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 a^2 b f}-\frac{(7 a-8 b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 a^3 f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+\frac{(3 a-4 b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 a^3 f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}+\frac{(7 a-8 b)\sqrt{a+b\,\text{Sinh}[e+f x]^2}\,\text{Tanh}[e+f x]}{3 a^3 f}$$

Result (type 4, 441 leaves):

$$\frac{1}{3 a^3 f}\left(-\frac{i\left(3\sqrt{2}\,a^2-\frac{15 a b}{\sqrt{2}}+4\sqrt{2}\,b^2\right)\sqrt{\frac{2 a-b+b\,\text{Cosh}[2 (e+f x)]}{a}}\,\text{EllipticF}\left[i (e+f x),\frac{b}{a}\right]}{\sqrt{2}\sqrt{2 a-b+b\,\text{Cosh}[2 (e+f x)]}}-\frac{1}{2 b}\,i\left(\frac{7 a b}{\sqrt{2}}-4\sqrt{2}\,b^2\right)\left(\frac{2\sqrt{2}\,a\sqrt{\frac{2 a-b+b\,\text{Cosh}[2 (e+f x)]}{a}}\,\text{EllipticE}\left[i (e+f x),\frac{b}{a}\right]}{\sqrt{2 a-b+b\,\text{Cosh}[2 (e+f x)]}}-\frac{\sqrt{2}\,(2 a-b)\sqrt{\frac{2 a-b+b\,\text{Cosh}[2 (e+f x)]}{a}}\,\text{EllipticF}\left[i (e+f x),\frac{b}{a}\right]}{\sqrt{2 a-b+b\,\text{Cosh}[2 (e+f x)]}}\right)\right)+\frac{1}{f}\sqrt{2 a-b+b\,\text{Cosh}[2 (e+f x)]}\left(\frac{\left(-4\sqrt{2}\,a\,\text{Cosh}[e+f x]+5\sqrt{2}\,b\,\text{Cosh}[e+f x]\right)\text{Csch}[e+f x]}{6 a^3}-\frac{\text{Coth}[e+f x]\,\text{Csch}[e+f x]^2}{3\sqrt{2}\,a^2}+\frac{-\sqrt{2}\,a b\,\text{Sinh}[2 (e+f x)]+\sqrt{2}\,b^2\,\text{Sinh}[2 (e+f x)]}{2 a^3\,(2 a-b+b\,\text{Cosh}[2 (e+f x)])}\right)$$

Problem 507: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Tanh}[e+f x]^4}{\left(a+b\,\text{Sinh}[e+f x]^2\right)^{5/2}}\,dx$$

Optimal (type 4, 333 leaves, 7 steps):

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

$$\frac{(3a+b)\,(a+3b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f x]\,\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3\,a\,(a-b)^4 f\,\sqrt{\frac{\text{Sech}[e+f x]^2\,\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}-$$

$$\frac{2\,(2a+b)\,\text{Tanh}[e+f x]}{3\,(a-b)^2 f\,\left(a+b\,\text{Sinh}[e+f x]^2\right)^{3/2}}+\frac{\text{Sech}[e+f x]^2\,\text{Tanh}[e+f x]}{3\,(a-b)\,f\,\left(a+b\,\text{Sinh}[e+f x]^2\right)^{3/2}}$$

Result (type 4, 479 leaves):

$$\frac{1}{3\,(a-b)^4 f}\sqrt{2}\left(-\frac{i\,\left(3a^2+6ab-b^2\right)\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]}{\sqrt{2}\,\sqrt{2a-b+b\,\text{Cosh}[2\,(e+f x)]}}-\frac{1}{2b}\right.$$

$$\left.i\,\left(4ab+4b^2\right)\left(\frac{2\sqrt{2}\,a\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticE}\left[i\,(e+f x),\frac{b}{a}\right]}{\sqrt{2a-b+b\,\text{Cosh}[2\,(e+f x)]}}-\frac{\sqrt{2}\,(2a-b)\,\sqrt{\frac{2a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}}\,\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]}{\sqrt{2a-b+b\,\text{Cosh}[2\,(e+f x)]}}\right)\right)+$$

$$\frac{1}{f}\sqrt{2a-b+b\,\text{Cosh}[2\,(e+f x)]}\,\left(-\frac{2\,\text{Sech}[e+f x]\,\left(\sqrt{2}\,a\,\text{Sinh}[e+f x]+\sqrt{2}\,b\,\text{Sinh}[e+f x]\right)}{3\,(a-b)^4}-\frac{\sqrt{2}\,a\,b\,\text{Sinh}[2\,(e+f x)]}{3\,(a-b)^3\,\left(2a-b+b\,\text{Cosh}[2\,(e+f x)]\right)^2}-\right.$$

$$\left.\frac{2\left(\sqrt{2}\,a\,b\,\text{Sinh}[2\,(e+f x)]+\sqrt{2}\,b^2\,\text{Sinh}[2\,(e+f x)]\right)}{3\,(a-b)^4\,\left(2a-b+b\,\text{Cosh}[2\,(e+f x)]\right)}+\frac{\text{Sech}[e+f x]^2\,\text{Tanh}[e+f x]}{3\sqrt{2}\,(a-b)^3}\right)$$

Problem 508: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Tanh}[e+f x]^2}{\left(a+b\,\text{Sinh}[e+f x]^2\right)^{5/2}}\,dx$$

Optimal (type 4, 274 leaves, 6 steps):

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

$$\frac{(3 a+5 b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]],1-\frac{b}{a}\right]\text{Sech}[e+f x]\sqrt{a+b\,\text{Sinh}[e+f x]^2}}{3 a\,(a-b)^3 f\sqrt{\frac{\text{Sech}[e+f x]^2\left(a+b\,\text{Sinh}[e+f x]^2\right)}{a}}}-\frac{\text{Tanh}[e+f x]}{(a-b)\,f\left(a+b\,\text{Sinh}[e+f x]^2\right)^{3/2}}$$

Result (type 4, 215 leaves):

$$\left(-2\,i\,a^2\,(7 a+b)\left(\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}\right)^{3/2}\text{EllipticE}\left[i\,(e+f x),\frac{b}{a}\right]+\right.$$

$$8\,i\,a^2\,(a-b)\left(\frac{2 a-b+b\,\text{Cosh}[2\,(e+f x)]}{a}\right)^{3/2}\text{EllipticF}\left[i\,(e+f x),\frac{b}{a}\right]-\frac{1}{\sqrt{2}}$$

$$\left.\left(24 a^3-4 a^2 b+5 a b^2-b^3+4 a\,(11 a-3 b)\,b\,\text{Cosh}[2\,(e+f x)]+b^2\,(7 a+b)\,\text{Cosh}[4\,(e+f x)]\right)\text{Tanh}[e+f x]\right)\Big/$$

$$\left(6 a\,(a-b)^3 f\,(2 a-b+b\,\text{Cosh}[2\,(e+f x)])^{3/2}\right)$$

Problem 510: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Coth}[e+f x]^2}{\left(a+b\,\text{Sinh}[e+f x]^2\right)^{5/2}}\,dx$$

Optimal (type 4, 351 leaves, 8 steps):

$$\frac{\text{Coth}[e+f x]}{3 a f \left(a+b \text{Sinh}[e+f x]^2\right)^{3/2}}+\frac{(3 a-4 b) \text{Coth}[e+f x]}{3 a^2 (a-b) f \sqrt{a+b \text{Sinh}[e+f x]^2}}-\frac{(7 a-8 b) \text{Coth}[e+f x] \sqrt{a+b \text{Sinh}[e+f x]^2}}{3 a^3 (a-b) f}-$$

$$\frac{(7 a-8 b) \text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f x]], 1-\frac{b}{a}\right] \text{Sech}[e+f x] \sqrt{a+b \text{Sinh}[e+f x]^2}}{3 a^3 (a-b) f \sqrt{\frac{\text{Sech}[e+f x]^2 \left(a+b \text{Sinh}[e+f x]^2\right)}{a}}}+$$

$$\frac{(3 a-4 b) \text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f x]], 1-\frac{b}{a}\right] \text{Sech}[e+f x] \sqrt{a+b \text{Sinh}[e+f x]^2}}{3 a^3 (a-b) f \sqrt{\frac{\text{Sech}[e+f x]^2 \left(a+b \text{Sinh}[e+f x]^2\right)}{a}}}+\frac{(7 a-8 b) \sqrt{a+b \text{Sinh}[e+f x]^2} \text{Tanh}[e+f x]}{3 a^3 (a-b) f}$$

Result (type 4, 226 leaves):

$$\left(-\frac{1}{\sqrt{2}}\left(24 a^3-68 a^2 b+69 a b^2-24 b^3+4 b \left(11 a^2-19 a b+8 b^2\right) \text{Cosh}[2 (e+f x)]+(7 a-8 b) b^2 \text{Cosh}[4 (e+f x)]\right) \text{Coth}[e+f x]-\right.$$

$$2 i a^2 (7 a-8 b) \left(\frac{2 a-b+b \text{Cosh}[2 (e+f x)]}{a}\right)^{3/2} \text{EllipticE}\left[i (e+f x), \frac{b}{a}\right]+$$

$$\left.8 i a^2 (a-b) \left(\frac{2 a-b+b \text{Cosh}[2 (e+f x)]}{a}\right)^{3/2} \text{EllipticF}\left[i (e+f x), \frac{b}{a}\right]\right) \Big/ \left(6 a^3 (a-b) f (2 a-b+b \text{Cosh}[2 (e+f x)])^{3/2}\right)$$

Problem 511: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Coth}[e+f x]^4}{\left(a+b \text{Sinh}[e+f x]^2\right)^{5/2}} \, dx$$

Optimal (type 4, 385 leaves, 9 steps):

$$-\frac{(a-b)\,\text{Coth}[e+f\,x]\,\text{Csch}[e+f\,x]^2}{3\,a\,b\,f\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^{3/2}}-\frac{2\,(a-3\,b)\,\text{Coth}[e+f\,x]\,\text{Csch}[e+f\,x]^2}{3\,a^2\,b\,f\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}-$$

$$\frac{8\,(a-2\,b)\,\text{Coth}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a^4\,f}+\frac{(3\,a-8\,b)\,\text{Coth}[e+f\,x]\,\text{Csch}[e+f\,x]^2\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a^3\,b\,f}-$$

$$\frac{8\,(a-2\,b)\,\text{EllipticE}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a^4\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}+$$

$$\frac{(3\,a-8\,b)\,\text{EllipticF}\left[\text{ArcTan}[\text{Sinh}[e+f\,x]],1-\frac{b}{a}\right]\,\text{Sech}[e+f\,x]\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}}{3\,a^4\,f\,\sqrt{\frac{\text{Sech}[e+f\,x]^2\,\left(a+b\,\text{Sinh}[e+f\,x]^2\right)}{a}}}+\frac{8\,(a-2\,b)\,\sqrt{a+b\,\text{Sinh}[e+f\,x]^2}\,\text{Tanh}[e+f\,x]}{3\,a^4\,f}$$

Result (type 4, 247 leaves):

$$-\left(\left(i\left(\frac{1}{\sqrt{2}}i\,b\,\left(8\,a^3-63\,a^2\,b+92\,a\,b^2-40\,b^3-2\,\left(8\,a^3-38\,a^2\,b+63\,a\,b^2-30\,b^3\right)\,\text{Cosh}[2\,(e+f\,x)]-b\,\left(13\,a^2-36\,a\,b+24\,b^2\right)\,\text{Cosh}[4\,(e+f\,x)]-\right.\right.\right.\right.$$

$$\left.2\,a\,b^2\,\text{Cosh}[6\,(e+f\,x)]+4\,b^3\,\text{Cosh}[6\,(e+f\,x)]\right)\,\text{Coth}[e+f\,x]\,\text{Csch}[e+f\,x]^2+2\,a^2\,b\,\left(\frac{2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]}{a}\right)^{3/2}$$

$$\left.\left.\left.\left(8\,(a-2\,b)\,\text{EllipticE}\left[i\,(e+f\,x),\frac{b}{a}\right]+(-5\,a+8\,b)\,\text{EllipticF}\left[i\,(e+f\,x),\frac{b}{a}\right]\right)\right)\right)\Big/\left(6\,a^4\,b\,f\,\left(2\,a-b+b\,\text{Cosh}[2\,(e+f\,x)]\right)^{3/2}\right)\right)$$

Problem 512: Unable to integrate problem.

$$\int\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^p\,(d\,\text{Tanh}[e+f\,x])^m\,dx$$

Optimal (type 6, 122 leaves, 3 steps):

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

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

Result (type 8, 27 leaves):

$$\int\left(a+b\,\text{Sinh}[e+f\,x]^2\right)^p\,(d\,\text{Tanh}[e+f\,x])^m\,dx$$

Problem 513: Unable to integrate problem.

$$\int \left(a + b \operatorname{Sinh}[c + d x]^2\right)^p \operatorname{Tanh}[c + d x]^3 \, dx$$

Optimal (type 5, 110 leaves, 3 steps):

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

Result (type 8, 25 leaves):

$$\int \left(a + b \operatorname{Sinh}[c + d x]^2\right)^p \operatorname{Tanh}[c + d x]^3 \, dx$$

Problem 514: Unable to integrate problem.

$$\int \left(a + b \operatorname{Sinh}[c + d x]^2\right)^p \operatorname{Tanh}[c + d x] \, dx$$

Optimal (type 5, 63 leaves, 2 steps):

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

Result (type 8, 23 leaves):

$$\int \left(a + b \operatorname{Sinh}[c + d x]^2\right)^p \operatorname{Tanh}[c + d x] \, dx$$

Problem 516: Unable to integrate problem.

$$\int \operatorname{Coth}[c + d x]^3 \left(a + b \operatorname{Sinh}[c + d x]^2\right)^p \, dx$$

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

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

Result (type 8, 25 leaves):

$$\int \operatorname{Coth}[c + d x]^3 \left(a + b \operatorname{Sinh}[c + d x]^2\right)^p \, dx$$

Problem 517: Unable to integrate problem.

$$\int \left(a+b\,\text{Sinh}[c+d\,x]^2\right)^p\,\text{Tanh}[c+d\,x]^4\,dx$$

Optimal (type 6, 103 leaves, 3 steps):

$$\frac{1}{5\,d}\text{AppellF1}\left[\frac{5}{2},\frac{5}{2},-p,\frac{7}{2},-\text{Sinh}[c+d\,x]^2,-\frac{b\,\text{Sinh}[c+d\,x]^2}{a}\right]\sqrt{\text{Cosh}[c+d\,x]^2}\,\text{Sinh}[c+d\,x]^4\left(a+b\,\text{Sinh}[c+d\,x]^2\right)^p\left(1+\frac{b\,\text{Sinh}[c+d\,x]^2}{a}\right)^{-p}\text{Tanh}[c+d\,x]$$

Result (type 8, 25 leaves):

$$\int \left(a+b\,\text{Sinh}[c+d\,x]^2\right)^p\,\text{Tanh}[c+d\,x]^4\,dx$$

Problem 518: Unable to integrate problem.

$$\int \left(a+b\,\text{Sinh}[c+d\,x]^2\right)^p\,\text{Tanh}[c+d\,x]^2\,dx$$

Optimal (type 6, 103 leaves, 3 steps):

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

Result (type 8, 25 leaves):

$$\int \left(a+b\,\text{Sinh}[c+d\,x]^2\right)^p\,\text{Tanh}[c+d\,x]^2\,dx$$

Problem 519: Unable to integrate problem.

$$\int \text{Coth}[c+d\,x]^2\left(a+b\,\text{Sinh}[c+d\,x]^2\right)^p\,dx$$

Optimal (type 6, 99 leaves, 3 steps):

$$-\frac{1}{d}\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-p,\frac{1}{2},-\text{Sinh}[c+d\,x]^2,-\frac{b\,\text{Sinh}[c+d\,x]^2}{a}\right]\sqrt{\text{Cosh}[c+d\,x]^2}\,\text{Csch}[c+d\,x]\,\text{Sech}[c+d\,x]\left(a+b\,\text{Sinh}[c+d\,x]^2\right)^p\left(1+\frac{b\,\text{Sinh}[c+d\,x]^2}{a}\right)^{-p}$$

Result (type 8, 25 leaves):

$$\int \text{Coth}[c+d x]^2 \left(a+b \,\text{Sinh}[c+d x]^2\right)^p \, dx$$

Problem 520: Unable to integrate problem.

$$\int \text{Coth}[c+d x]^4 \left(a+b \,\text{Sinh}[c+d x]^2\right)^p \, dx$$

Optimal (type 6, 103 leaves, 3 steps):

$$-\frac{1}{3 d}\text{AppellF1}\left[-\frac{3}{2}, -\frac{3}{2}, -p, -\frac{1}{2}, -\text{Sinh}[c+d x]^2, -\frac{b \,\text{Sinh}[c+d x]^2}{a}\right] \sqrt{\text{Cosh}[c+d x]^2}\ \text{Csch}[c+d x]^3 \,\text{Sech}[c+d x] \left(a+b \,\text{Sinh}[c+d x]^2\right)^p \left(1+\frac{b \,\text{Sinh}[c+d x]^2}{a}\right)^{-p}$$

Result (type 8, 25 leaves):

$$\int \text{Coth}[c+d x]^4 \left(a+b \,\text{Sinh}[c+d x]^2\right)^p \, dx$$

Problem 521: Result is not expressed in closed-form.

$$\int \frac{\text{Coth}[x]^3}{a+b \,\text{Sinh}[x]^3} \, dx$$

Optimal (type 3, 152 leaves, 12 steps):

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

Result (type 7, 162 leaves):

$$-\frac{1}{24 a}\left(8 \,\text{RootSum}\left[-b+3 b \,\#1^2+8 a \,\#1^3-3 b \,\#1^4+b \,\#1^6 \&, \frac{-b x+b \,\text{Log}[e^x-\#1]+4 a x \,\#1^3-4 a \,\text{Log}[e^x-\#1] \,\#1^3-3 b x \,\#1^4+3 b \,\text{Log}[e^x-\#1] \,\#1^4}{b-2 b \,\#1^2-4 a \,\#1^3+b \,\#1^4} \&\right]+3 \left(8 x+\text{Csch}\left[\frac{x}{2}\right]^2-8 \,\text{Log}[\text{Sinh}[x]]-\text{Sech}\left[\frac{x}{2}\right]^2\right)\right)$$

Problem 522: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Coth}[x]}{\sqrt{a+b\,\text{Sinh}[x]^3}}\,dx$$

Optimal (type 3, 28 leaves, 4 steps):

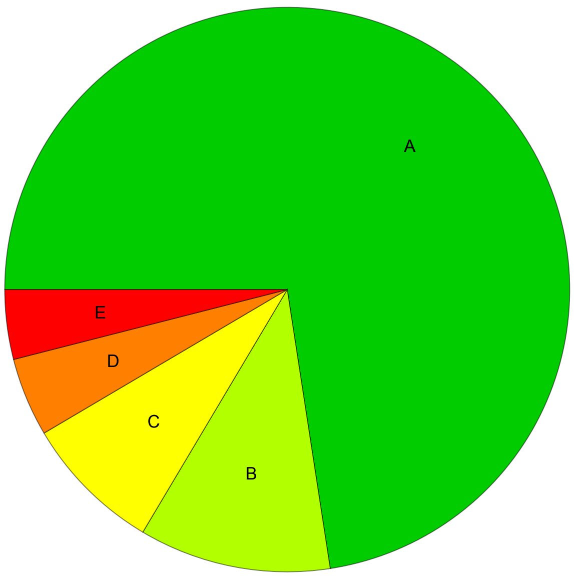
$$-\frac{2\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Sinh}[x]^3}}{\sqrt{a}}\right]}{3\sqrt{a}}$$

Result (type 3, 66 leaves):

$$-\frac{2\sqrt{b}\,\text{ArcSinh}\left[\frac{\sqrt{a}\,\text{Csch}[x]^{3/2}}{\sqrt{b}}\right]\sqrt{\frac{b+a\,\text{Csch}[x]^3}{b}}}{3\sqrt{a}\,\text{Csch}[x]^{3/2}\sqrt{a+b\,\text{Sinh}[x]^3}}$$

Summary of Integration Test Results

1531 integration problems



A - 1111 optimal antiderivatives

B - 168 more than twice size of optimal antiderivatives

C - 122 unnecessarily complex antiderivatives

D - 69 unable to integrate problems

E - 61 integration timeouts