Mathematica 11.3 Integration Test Results

Test results for the 29 problems in "6.6.1 (c+d x)^m (a+b csch)^n.m"

Problem 3: 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):

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

Problem 6: 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):

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

Problem 10: Result more than twice size of optimal antiderivative.

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

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

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

Result (type 4, 420 leaves):

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

Problem 11: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

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

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

Result (type 4, 332 leaves):

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

Problem 17: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 448 leaves, 17 steps):

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

Result (type 4, 1635 leaves):

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

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

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

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

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

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

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

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

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

$$e^{-c}\left(b\,d^4\,e^c\,x^4-12\,a\,\text{Cosh}[d\,x]-12\,a\,e^{2c}\,\text{Cosh}[d\,x]-12\,a\,d\,x\,\text{Cosh}[d\,x]+12\,a\,d\,e^{2c}\,x\,\text{Cosh}[d\,x]-\right.$$

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

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

$$12\,b\,d^2\,e^c\,x^2\,\text{PolyLog}\left[2,-\frac{a\,e^{2c+dx}}{b\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+24\,b\,d\,e^c\,x$$

$$\text{PolyLog}\left[3,-\frac{a\,e^{2c+dx}}{b\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+24\,b\,d\,e^c\,x\,\text{PolyLog}\left[3,-\frac{a\,e^{2c+dx}}{b\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-$$

$$24\,b\,e^c\,\text{PolyLog}\left[4,-\frac{a\,e^{2c+dx}}{b\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-24\,b\,e^c\,\text{PolyLog}\left[4,-\frac{a\,e^{2c+dx}}{b\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+$$

$$12\,a\,\text{Sinh}[d\,x]-12\,a\,e^{2c}\,\text{Sinh}[d\,x]+12\,a\,d\,x\,\text{Sinh}[d\,x]+12\,a\,d\,e^{2c}\,x\,\text{Sinh}[d\,x]+$$

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

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

$$\left.\left(-\frac{2\,b\,\text{Log}[b+a\,\text{Sinh}[c+d\,x]]}{a^2\,d}+\frac{2\,\text{Sinh}[c+d\,x]}{a\,d}\right)\right)\Big/$$

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

3
e^2
f
Csch[c + d x]
(b + a Sinh[c + d x])

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

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

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

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

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

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

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

Problem 18: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 330 leaves, 14 steps):

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

Result (type 4, 971 leaves):

$$\frac{1}{6 a^2 d^3 (a+b \operatorname{Csch}[c+d x])} f^2 \operatorname{Csch}[c+d x] \left(-12 b d x \operatorname{PolyLog}\left[2,-\frac{a e^{2 c+d x}}{b e^c-\sqrt{(a^2+b^2) e^{2 c}}}\right]-12 b d x \operatorname{PolyLog}\left[2,-\frac{a e^{2 c+d x}}{b e^c+\sqrt{(a^2+b^2) e^{2 c}}}\right]+e^{-c} \left(2 b d^3 e^c x^3-6 a \operatorname{Cosh}[d x]+6 a e^{2 c} \operatorname{Cosh}[d x]-6 a d x \operatorname{Cosh}[d x]-6 a d e^{2 c} x \operatorname{Cosh}[d x]-3 a d^2 x^2 \operatorname{Cosh}[d x]+3 a d^2 e^{2 c} x^2 \operatorname{Cosh}[d x]-6 b d^2 e^c x^2 \operatorname{Log}\left[1+\frac{a e^{2 c+d x}}{b e^c-\sqrt{(a^2+b^2) e^{2 c}}}\right]-6 b d^2 e^c x^2 \operatorname{Log}\left[1+\frac{a e^{2 c+d x}}{b e^c+\sqrt{(a^2+b^2) e^{2 c}}}\right]+12 b e^c \operatorname{PolyLog}\left[3,-\frac{a e^{2 c+d x}}{b e^c-\sqrt{(a^2+b^2) e^{2 c}}}\right]+12 b e^c \operatorname{PolyLog}\left[3,-\frac{a e^{2 c+d x}}{b e^c+\sqrt{(a^2+b^2) e^{2 c}}}\right]+6 a \operatorname{Sinh}[d x]+6 a e^{2 c} \operatorname{Sinh}[d x]+6 a d x \operatorname{Sinh}[d x]-6 a d e^{2 c} x \operatorname{Sinh}[d x]+3 a d^2 x^2 \operatorname{Sinh}[d x]+3 a d^2 e^{2 c} x^2 \operatorname{Sinh}[d x]\right)\right) (b+a \operatorname{Sinh}[c+d x])+\left(e^2 \operatorname{Csch}[c+d x] (b+a \operatorname{Sinh}[c+d x]) \left(-\frac{2 b \operatorname{Log}[b+a \operatorname{Sinh}[c+d x]]}{a^2 d}+\frac{2 \operatorname{Sinh}[c+d x]}{a d}\right)\right)\Big/ (2 (a+b \operatorname{Csch}[c+d x]))+\frac{1}{a^2 d^2 (a+b \operatorname{Csch}[c+d x])} 2 e f \operatorname{Csch}[c+d x] (b+a \operatorname{Sinh}[c+d x])$$

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

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

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

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

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

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

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

Problem 19: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 212 leaves, 11 steps):

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

Result (type 4, 401 leaves):

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

Problem 21: Attempted integration timed out after 120 seconds.

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

Optimal (type 8, 35 leaves, 1 step):

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

Result (type 1, 1 leaves):

???

Problem 22: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 696 leaves, 24 steps):

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

Result (type 4, 3560 leaves):

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

$$\frac{1}{8\,a\,\left(a+b\,\mathrm{Csch}[c+d\,x]\right)}\,3\,e^2\,f\,\mathrm{Csch}[c+d\,x]\,\Bigg(x^2+\frac{1}{d^2}\,2\,b\,\Bigg(\frac{i\,\pi\,\mathrm{ArcTanh}\Big[\frac{-a+b\,\mathrm{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}\Big]}{\sqrt{a^2+b^2}}+$$

$$\frac{1}{\sqrt{-a^2-b^2}}\,\Bigg(2\,\Big(c+i\,\mathrm{ArcCos}\Big[-\frac{i\,b}{a}\Big]\Big)\,\mathrm{ArcTan}\Big[\frac{(a-i\,b)\,\mathrm{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\Big]+$$

$$(-2\,i\,c+\pi-2\,i\,d\,x)\,\mathrm{ArcTanh}\Big[\frac{(-i\,a+b)\,\mathrm{Tan}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\Big]-$$

$$\Big(\mathrm{ArcCos}\Big[-\frac{i\,b}{a}\Big]-2\,\mathrm{ArcTan}\Big[\frac{(a-i\,b)\,\mathrm{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\Big]\Big)$$

$$\mathrm{Log}\Big[\Big((a+i\,b)\,\Big(a-i\,b+\sqrt{-a^2-b^2}\Big)\,\Big(1+i\,\mathrm{Cot}\Big[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\Big]\Big)\Big)\Big/$$

$$\Big(a\,\Big(a+i\,b+i\,\sqrt{-a^2-b^2}\,\mathrm{Cot}\Big[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\Big]\Big)\Big)\Big]-$$

$$\Big(\mathrm{ArcCos}\Big[-\frac{i\,b}{a}\Big]+2\,\mathrm{ArcTan}\Big[\frac{(a-i\,b)\,\mathrm{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\Big]\Big)$$

$$\mathrm{Log}\Big[\Big(i\,(a+i\,b)\,\Big(-a+i\,b+\sqrt{-a^2-b^2}\Big)\,\Big(i+\mathrm{Cot}\Big[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\Big]\Big)\Big)\Big/$$

$$\Big(a\,\Big(a+i\,b+i\,\sqrt{-a^2-b^2}\,\mathrm{Cot}\Big[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\Big]\Big)\Big)\Big]+$$

$$\Big(\mathrm{ArcCos}\Big[-\frac{i\,b}{a}\Big]+2\,\mathrm{ArcTan}\Big[\frac{(a-i\,b)\,\mathrm{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\Big]-2$$

$$i\,\mathrm{ArcTanh}\Big[\frac{(-i\,a+b)\,\mathrm{Tan}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\Big]\Big)$$

$$\mathrm{Log}\Big[\frac{\sqrt{-a^2-b^2}\,e^{\frac{1}{4}\,(-2\,c-i\,\pi-2\,d\,x)}}{\sqrt{2}\,\sqrt{-i\,a}\,\sqrt{b+a\,\mathrm{Sinh}[c+d\,x]}}\Big]+$$

$$\Big(\mathrm{ArcCos}\Big[-\frac{i\,b}{a}\Big]-2\,\mathrm{ArcTan}\Big[\frac{(a-i\,b)\,\mathrm{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\Big]+2$$

$$i\,\mathrm{ArcTanh}\Big[\frac{(-i\,a+b)\,\mathrm{Tan}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\Big]\Big)$$

$$\mathrm{Log}\Big[\frac{\sqrt{-a^2-b^2}\,e^{\frac{1}{4}\,(2\,c+i\,\pi+2\,d\,x)}}{\sqrt{2}\,\sqrt{-i\,a}\,\sqrt{b+a\,\mathrm{Sinh}[c+d\,x]}}\Big]+i\,\Big(\mathrm{PolyLog}\Big[2,$$

$$\Big(\Big(i\,b+\sqrt{-a^2-b^2}\Big)\,\Big(a+i\,b-i\,\sqrt{-a^2-b^2}\,\mathrm{Cot}\Big[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\Big]\Big)\Big)\Big/$$

$$\Big(a\,\Big(a+i\,b+i\,\sqrt{-a^2-b^2}\,\mathrm{Cot}\Big[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\Big]\Big)\Big)\Big]-\mathrm{PolyLog}\Big[2,$$

$$\left(\left(b+\mathrm{i}\sqrt{-a^2-b^2}\right)\left(\mathrm{i}\,a-b+\sqrt{-a^2-b^2}\,\text{Cot}\left[\frac{1}{4}\left(2\,\mathrm{i}\,c+\pi+2\,\mathrm{i}\,d\,x\right)\right]\right)\right)\Big/$$

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

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

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

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

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

$$\left.\left(b+a\,\text{Sinh}[c+d\,x]\right)\right)\Big/\left(4\,a\left(a+b\,\text{Csch}[c+d\,x]\right)\right)+\left(f^3\right.$$

$$\text{Csch}[c+d\,x]$$

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

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

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

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

$$\left.\left(d^4\sqrt{\left(a^2+b^2\right)e^{2\,c}}\right)\right)\left(b+a\,\text{Sinh}[c+d\,x]\right)\Big)\Big/$$

$$\left(16\,a\left(a+b\,\text{Csch}[c+d\,x]\right)\right)+\frac{1}{8\,a^3\left(a+b\,\text{Csch}[c+d\,x]\right)}$$

$$e\,f^2\,\text{Csch}[$$

$$c + d\, x]$$

$$\left(2\left(a^2+4b^2\right)x^3-\left(6b\left(3a^2+4b^2\right)e^c\left(d^2x^2\,\text{Log}\left[1+\frac{a\,e^{2c+dx}}{b\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-d^2x^2\,\text{Log}\left[1+\frac{a\,e^{2c+dx}}{b\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+2\,d\,x\,\text{PolyLog}\left[2,-\frac{a\,e^{2c+dx}}{b\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-2\,d\,x\,\text{PolyLog}\left[2,-\frac{a\,e^{2c+dx}}{b\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]-2\,\text{PolyLog}\left[3,-\frac{a\,e^{2c+dx}}{b\,e^c-\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]+2\,\text{PolyLog}\left[3,-\frac{a\,e^{2c+dx}}{b\,e^c+\sqrt{\left(a^2+b^2\right)e^{2c}}}\right]\right)\right)\Big/\left(d^3\sqrt{\left(a^2+b^2\right)e^{2c}}\right)-\frac{24\,a\,b\,\text{Cosh}[d\,x]\left(\left(2+d^2x^2\right)\text{Cosh}[c]-2\,d\,x\,\text{Sinh}[c]\right)}{d^3}+\frac{3\,a^2\,\text{Cosh}[2\,d\,x]\left(-2\,d\,x\,\text{Cosh}[2\,c]+\left(1+2\,d^2x^2\right)\text{Sinh}[2\,c]\right)}{d^3}-\frac{24\,a\,b\left(-2\,d\,x\,\text{Cosh}[c]+\left(2+d^2x^2\right)\text{Sinh}[c]\right)\text{Sinh}[d\,x]}{d^3}+\frac{3\,a^2\left(\left(1+2\,d^2x^2\right)\text{Cosh}[2\,c]-2\,d\,x\,\text{Sinh}[2\,c]\right)\text{Sinh}[2\,d\,x]}{d^3}\right)$$

$$\left(b+a\,\text{Sinh}[c+d\,x]\right)+\frac{1}{16\,a^3\left(a+b\,\text{Csch}[c+d\,x]\right)}$$

$$f^3\,\text{Csch}[c+d\,x]$$

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

$$\frac{16\,a\,b\,\text{Cosh}[d\,x]\,\left(d\,x\,\left(6+d^2\,x^2\right)\,\text{Cosh}[c]-3\,\left(2+d^2\,x^2\right)\,\text{Sinh}[c]\right)}{d^4}+$$

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

$$\frac{1}{d^4}16\,a\,b\,\left(-3\,\left(2+d^2\,x^2\right)\,\text{Cosh}[c]+d\,x\,\left(6+d^2\,x^2\right)\,\text{Sinh}[c]\right)\,\text{Sinh}[d\,x]+$$

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

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

$$\text{Csch}[c+d\,x]\,\left(b+a\,\text{Sinh}[c+d\,x]\right)$$

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

$$\left.\left.4\,a\,b\,\text{Cosh}[c+d\,x]+a^2\,\text{Sinh}\left[2\,\left(c+d\,x\right)\right]\right)\right)\Big/$$

$$\left(4\,a^3\,d\,\left(a+b\,\text{Csch}[c+d\,x]\right)\right)+$$

$$\left(3\right.$$

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

$$\left(\left(a^2+4\,b^2\right)\,\left(-c+d\,x\right)\,\left(c+d\,x\right)-\right.$$

$$8\,a\,b\,d\,x\,\text{Cosh}[c+d\,x]-a^2\,\text{Cosh}\left[2\,\left(c+d\,x\right)\right]-$$

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

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

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

$$\left.\left.8\,a\,b\,\text{Sinh}[c+d\,x]+2\,a^2\,d\,x\,\text{Sinh}\left[2\,\left(c+d\,x\right)\right]\right)\right)\Big/\left(8\,a^3\,d^2\,\left(a+b\,\text{Csch}[c+d\,x]\right)\right)$$

Problem 23: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 510 leaves, 21 steps):

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

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

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

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

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

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

Result (type 4, 2497 leaves):

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\text{Log}\Big[\frac{\sqrt{-a^2-b^2}\ e^{\frac{1}{4}(2c+i\pi+2dx)}}{\sqrt{2}\ \sqrt{-i a}\ \sqrt{b+a\,\text{Sinh}[c+dx]}}\Big]+i\Big(\text{PolyLog}\Big[2,$$

$$\Big(\Big(i b+\sqrt{-a^2-b^2}\Big)\Big(a+i b-i\sqrt{-a^2-b^2}\ \text{Cot}\Big[\frac{1}{4}(2 i c+\pi+2 i d x)\Big]\Big)\Big)\Big/$$

$$\Big(a\Big(a+i b+i\sqrt{-a^2-b^2}\ \text{Cot}\Big[\frac{1}{4}(2 i c+\pi+2 i d x)\Big]\Big)\Big)\Big]-\text{PolyLog}\Big[2,$$

$$\Big(\Big(b+i\sqrt{-a^2-b^2}\Big)\Big(i a-b+\sqrt{-a^2-b^2}\ \text{Cot}\Big[\frac{1}{4}(2 i c+\pi+2 i d x)\Big]\Big)\Big)\Big/$$

$$\Big(a\Big(a+i b+i\sqrt{-a^2-b^2}\ \text{Cot}\Big[\frac{1}{4}(2 i c+\pi+2 i d x)\Big]\Big)\Big)\Big]\Big)\Big)\Big)$$

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

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

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

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

$$(b+a\,\text{Sinh}[c+dx])\Big)\Big/\big(12a\,(a+b\,\text{Csch}[c+dx])\big)+$$

$$\frac{1}{24a^3\,(a+b\,\text{Csch}[c+dx])}$$

$$f^2$$

$$\text{Csch}[$$

$$c+$$

$$d$$

$$x]\ \Big(2$$

$$(a^2+4b^2)$$

$$x^3-$$

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

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

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

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

$$\left(d^3\sqrt{(a^2+b^2)\,e^{2c}}\right)-\frac{24\,a\,b\,\text{Cosh}[d\,x]\,\left((2+d^2x^2)\,\text{Cosh}[c]-2\,d\,x\,\text{Sinh}[c]\right)}{d^3}+$$

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

$$\frac{24\,a\,b\,\left(-2\,d\,x\,\text{Cosh}[c]+(2+d^2x^2)\,\text{Sinh}[c]\right)\,\text{Sinh}[d\,x]}{d^3}+$$

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

$$a\,\text{Sinh}[c+d\,x]\Big)+$$

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

$$\Bigg((a^2+4\,b^2)\,(c+d\,x)-$$

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

$$4\,a\,b\,\text{Cosh}[c+d\,x]+$$

$$a^2\,\text{Sinh}[2\,(c+d\,x)]\Bigg)\Bigg)\Bigg/$$

$$\left(4\,a^3\,d\,\left(a+b\,\text{Csch}[c+d\,x]\right)\right)+\Bigg(e$$

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

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

Problem 24: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 327 leaves, 16 steps):

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

Result (type 4, 1663 leaves):

$$\frac{e\left(\frac{c}{d}+x-\frac{2b\,\text{ArcTan}\left[\frac{a-b\,\text{Tanh}\left[\frac{1}{2}(c+dx)\right]}{\sqrt{-a^2-b^2}}\right]}{\sqrt{-a^2-b^2}\,d}\right)\text{Csch}[c+dx]\,(b+a\,\text{Sinh}[c+dx])}{4a\,(a+b\,\text{Csch}[c+dx])}+$$

$$\frac{1}{8\,a\,\left(a+b\,\mathrm{Csch}[c+d\,x]\right)}\,f\,\mathrm{Csch}[c+d\,x]\,\left(x^2+\frac{1}{d^2}\,2\,b\,\left(\frac{i\,\pi\,\mathrm{ArcTanh}\left[\frac{-a+b\,\mathrm{Tanh}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}\right]}{\sqrt{a^2+b^2}}+\right.\right.$$

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

$$(-2\,i\,c+\pi-2\,i\,d\,x)\,\mathrm{ArcTanh}\left[\frac{(-i\,a+b)\,\mathrm{Tan}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\right]-$$

$$\left(\mathrm{ArcCos}\left[-\frac{i\,b}{a}\right]-2\,\mathrm{ArcTan}\left[\frac{(a-i\,b)\,\mathrm{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\right]\right)$$

$$\mathrm{Log}\left[\left((a+i\,b)\left(a-i\,b+\sqrt{-a^2-b^2}\right)\left(1+i\,\mathrm{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]\right)\right)\Big/\right.$$

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

$$\left(\mathrm{ArcCos}\left[-\frac{i\,b}{a}\right]+2\,\mathrm{ArcTan}\left[\frac{(a-i\,b)\,\mathrm{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\right]\right)$$

$$\mathrm{Log}\left[\left(i\,(a+i\,b)\left(-a+i\,b+\sqrt{-a^2-b^2}\right)\left(i+\mathrm{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]\right)\right)\Big/\right.$$

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

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

$$\left.i\,\mathrm{ArcTanh}\left[\frac{(-i\,a+b)\,\mathrm{Tan}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\right]\right)$$

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

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

$$\left.i\,\mathrm{ArcTanh}\left[\frac{(-i\,a+b)\,\mathrm{Tan}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]}{\sqrt{-a^2-b^2}}\right]\right)$$

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

$$\left(\left(i\,b+\sqrt{-a^2-b^2}\right)\left(a+i\,b-i\,\sqrt{-a^2-b^2}\,\mathrm{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]\right)\right)\Big/$$

$$\left.\left(a\left(a+i\,b+i\,\sqrt{-a^2-b^2}\,\mathrm{Cot}\left[\frac{1}{4}\,(2\,i\,c+\pi+2\,i\,d\,x)\right]\right)\right)\right]-\mathrm{PolyLog}\left[2,\right.$$

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

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

$$\left(b+a\,\text{Sinh}[c+d\,x]\right)+\Bigg(e\,\text{Csch}[c+d\,x]\left(b+a\,\text{Sinh}[c+d\,x]\right)$$

$$\Bigg(\left(a^2+4\,b^2\right)$$

$$\left(c+d\,x\right)-$$

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

$$4$$
$$a$$
$$b$$
$$\text{Cosh}[c+d\,x]+a^2$$

$$\text{Sinh}\left[2\left(c+d\,x\right)\right]\Bigg)\Bigg)\Big/$$

$$\left(4\,a^3\,d\left(a+b\,\text{Csch}[c+d\,x]\right)\right)+\Bigg(f\,\text{Csch}[$$

$$c+$$
$$d\,x]\left(b+\right.$$
$$\left.a\,\text{Sinh}[c+d\,x]\right)$$

$$\Bigg(\left(a^2+4\,b^2\right)\left(-c+d\,x\right)\left(c+d\,x\right)-$$

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

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

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

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

$$\left.\left.8\,a\,b\,\text{Sinh}[c+d\,x]+2\,a^2\,d\,x\,\text{Sinh}\left[2\left(c+d\,x\right)\right]\right)\right)\Big/\left(8\,a^3\,d^2\left(a+\right.\right.$$

$$\left.\left.b\,\text{Csch}[c+d\,x]\right)\right)$$

Problem 26: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 864 leaves, 31 steps):

$$-\frac{3 b f^3 x}{8 a^2 d^3}-\frac{b (e+f x)^3}{4 a^2 d}+\frac{b (a^2+b^2) (e+f x)^4}{4 a^4 f}-\frac{40 f^3 \text{Cosh}[c+d x]}{9 a d^4}-\frac{6 b^2 f^3 \text{Cosh}[c+d x]}{a^3 d^4}-\frac{2 f (e+f x)^2 \text{Cosh}[c+d x]}{a d^2}-\frac{3 b^2 f (e+f x)^2 \text{Cosh}[c+d x]}{a^3 d^2}-\frac{2 f^3 \text{Cosh}[c+d x]^3}{27 a d^4}-\frac{f (e+f x)^2 \text{Cosh}[c+d x]^3}{3 a d^2}-\frac{b (a^2+b^2) (e+f x)^3 \text{Log}\left[1+\frac{a e^{c+d x}}{b-\sqrt{a^2+b^2}}\right]}{a^4 d}-\frac{b (a^2+b^2) (e+f x)^3 \text{Log}\left[1+\frac{a e^{c+d x}}{b+\sqrt{a^2+b^2}}\right]}{a^4 d}-\frac{3 b (a^2+b^2) f (e+f x)^2 \text{PolyLog}\left[2,-\frac{a e^{c+d x}}{b-\sqrt{a^2+b^2}}\right]}{a^4 d^2}-\frac{3 b (a^2+b^2) f (e+f x)^2 \text{PolyLog}\left[2,-\frac{a e^{c+d x}}{b+\sqrt{a^2+b^2}}\right]}{a^4 d^2}+\frac{6 b (a^2+b^2) f^2 (e+f x) \text{PolyLog}\left[3,-\frac{a e^{c+d x}}{b-\sqrt{a^2+b^2}}\right]}{a^4 d^3}+\frac{6 b (a^2+b^2) f^2 (e+f x) \text{PolyLog}\left[3,-\frac{a e^{c+d x}}{b+\sqrt{a^2+b^2}}\right]}{a^4 d^3}-\frac{6 b (a^2+b^2) f^3 \text{PolyLog}\left[4,-\frac{a e^{c+d x}}{b-\sqrt{a^2+b^2}}\right]}{a^4 d^4}-\frac{6 b (a^2+b^2) f^3 \text{PolyLog}\left[4,-\frac{a e^{c+d x}}{b+\sqrt{a^2+b^2}}\right]}{a^4 d^4}+\frac{40 f^2 (e+f x) \text{Sinh}[c+d x]}{9 a d^3}+\frac{6 b^2 f^2 (e+f x) \text{Sinh}[c+d x]}{a^3 d^3}+\frac{2 (e+f x)^3 \text{Sinh}[c+d x]}{3 a d}+\frac{b^2 (e+f x)^3 \text{Sinh}[c+d x]}{a^3 d}+\frac{3 b f^3 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{8 a^2 d^4}+\frac{3 b f (e+f x)^2 \text{Cosh}[c+d x] \text{Sinh}[c+d x]}{4 a^2 d^2}+\frac{2 f^2 (e+f x) \text{Cosh}[c+d x]^2 \text{Sinh}[c+d x]}{9 a d^3}+\frac{(e+f x)^3 \text{Cosh}[c+d x]^2 \text{Sinh}[c+d x]}{3 a d}-\frac{3 b f^2 (e+f x) \text{Sinh}[c+d x]^2}{4 a^2 d^3}-\frac{b (e+f x)^3 \text{Sinh}[c+d x]^2}{2 a^2 d}$$

Result (type 4, 5945 leaves):

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

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

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

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

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

$$6\, a\, d\, x\, \text{Sinh}[d\, x] - 6\, a\, d\, e^{2c}\, x\, \text{Sinh}[d\, x] + 3\, a\, d^2\, x^2\, \text{Sinh}[d\, x] + 3\, a\, d^2\, e^{2c}\, x^2\, \text{Sinh}[d\, x]\Bigg)\Bigg)$$

$$\left(b + a\, \text{Sinh}[c+d\, x]\right) + \frac{1}{8\, a^2\, d^4\, \left(a + b\, \text{Csch}[c+d\, x]\right)}\, f^3\, \text{Csch}[c+d\, x]$$

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

$$e^{-c}\, \Bigg(b\, d^4\, e^{c}\, x^4 - 12\, a\, \text{Cosh}[d\, x] - 12\, a\, e^{2c}\, \text{Cosh}[d\, x] - 12\, a\, d\, x\, \text{Cosh}[d\, x] + 12\, a\, d\, e^{2c}\, x\, \text{Cosh}[d\, x] -$$

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

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

$$12\, b\, d^2\, e^{c}\, x^2\, \text{PolyLog}\left[2, -\frac{a\, e^{2c+dx}}{b\, e^{c} + \sqrt{\left(a^2+b^2\right) e^{2c}}}\right] + 24\, b\, d\, e^{c}\, x$$

$$\text{PolyLog}\left[3, -\frac{a\, e^{2c+dx}}{b\, e^{c} - \sqrt{\left(a^2+b^2\right) e^{2c}}}\right] + 24\, b\, d\, e^{c}\, x\, \text{PolyLog}\left[3, -\frac{a\, e^{2c+dx}}{b\, e^{c} + \sqrt{\left(a^2+b^2\right) e^{2c}}}\right] -$$

$$24\, b\, e^{c}\, \text{PolyLog}\left[4, -\frac{a\, e^{2c+dx}}{b\, e^{c} - \sqrt{\left(a^2+b^2\right) e^{2c}}}\right] - 24\, b\, e^{c}\, \text{PolyLog}\left[4, -\frac{a\, e^{2c+dx}}{b\, e^{c} + \sqrt{\left(a^2+b^2\right) e^{2c}}}\right] +$$

$$12\, a\, \text{Sinh}[d\, x] - 12\, a\, e^{2c}\, \text{Sinh}[d\, x] + 12\, a\, d\, x\, \text{Sinh}[d\, x] + 12\, a\, d\, e^{2c}\, x\, \text{Sinh}[d\, x] +$$

$$6\, a\, d^2\, x^2\, \text{Sinh}[d\, x] - 6\, a\, d^2\, e^{2c}\, x^2\, \text{Sinh}[d\, x] + 2\, a\, d^3\, x^3\, \text{Sinh}[d\, x] + 2\, a\, d^3\, e^{2c}\, x^3\, \text{Sinh}[d\, x]\Bigg)\Bigg)$$

$$\left(b + a\, \text{Sinh}[c+d\, x]\right) + \frac{1}{144\, a^4\, d^3\, \left(a + b\, \text{Csch}[c+d\, x]\right)}\, e$$

e^{-3c}

f^2

$\text{Csch}[c+d\, x]$

$$\Big(72\, a^2\, b\, d^3\, e^{3c}\, x^3 + 144\, b^3\, d^3\, e^{3c}\, x^3 - 108\, a^3\, e^{2c}\, \text{Cosh}[d\, x] - 432\, a\, b^2\, e^{2c}\, \text{Cosh}[d\, x] +$$

$$108\, a^3\, e^{4c}\, \text{Cosh}[d\, x] + 432\, a\, b^2\, e^{4c}\, \text{Cosh}[d\, x] - 108\, a^3\, d\, e^{2c}\, x\, \text{Cosh}[d\, x] -$$
$$432\, a\, b^2\, d\, e^{2c}\, x\, \text{Cosh}[d\, x] - 108\, a^3\, d\, e^{4c}\, x\, \text{Cosh}[d\, x] - 432\, a\, b^2\, d\, e^{4c}\, x\, \text{Cosh}[d\, x] -$$
$$54\, a^3\, d^2\, e^{2c}\, x^2\, \text{Cosh}[d\, x] - 216\, a\, b^2\, d^2\, e^{2c}\, x^2\, \text{Cosh}[d\, x] + 54\, a^3\, d^2\, e^{4c}\, x^2\, \text{Cosh}[d\, x] +$$
$$216\, a\, b^2\, d^2\, e^{4c}\, x^2\, \text{Cosh}[d\, x] - 27\, a^2\, b\, e^{c}\, \text{Cosh}[2\, d\, x] - 27\, a^2\, b\, e^{5c}\, \text{Cosh}[2\, d\, x] -$$
$$54\, a^2\, b\, d\, e^{c}\, x\, \text{Cosh}[2\, d\, x] + 54\, a^2\, b\, d\, e^{5c}\, x\, \text{Cosh}[2\, d\, x] - 54\, a^2\, b\, d^2\, e^{c}\, x^2\, \text{Cosh}[2\, d\, x] -$$
$$54\, a^2\, b\, d^2\, e^{5c}\, x^2\, \text{Cosh}[2\, d\, x] - 4\, a^3\, \text{Cosh}[3\, d\, x] + 4\, a^3\, e^{6c}\, \text{Cosh}[3\, d\, x] -$$
$$12\, a^3\, d\, x\, \text{Cosh}[3\, d\, x] - 12\, a^3\, d\, e^{6c}\, x\, \text{Cosh}[3\, d\, x] - 18\, a^3\, d^2\, x^2\, \text{Cosh}[3\, d\, x] +$$

$$18\, a^3\, d^2\, e^{6\, c}\, x^2\, \text{Cosh}[3\, d\, x] - 216\, a^2\, b\, d^2\, e^{3\, c}\, x^2\, \text{Log}\left[1 + \frac{a\, e^{2\, c+d\, x}}{b\, e^c - \sqrt{\left(a^2+b^2\right)\, e^{2\, c}}}\right] -$$

$$432\, b^3\, d^2\, e^{3\, c}\, x^2\, \text{Log}\left[1 + \frac{a\, e^{2\, c+d\, x}}{b\, e^c - \sqrt{\left(a^2+b^2\right)\, e^{2\, c}}}\right] -$$

$$216\, a^2\, b\, d^2\, e^{3\, c}\, x^2\, \text{Log}\left[1 + \frac{a\, e^{2\, c+d\, x}}{b\, e^c + \sqrt{\left(a^2+b^2\right)\, e^{2\, c}}}\right] -$$

$$432\, b^3\, d^2\, e^{3\, c}\, x^2\, \text{Log}\left[1 + \frac{a\, e^{2\, c+d\, x}}{b\, e^c + \sqrt{\left(a^2+b^2\right)\, e^{2\, c}}}\right] -$$

$$432\, b\, \left(a^2 + 2\, b^2\right)\, d\, e^{3\, c}\, x\, \text{PolyLog}\left[2, -\frac{a\, e^{2\, c+d\, x}}{b\, e^c - \sqrt{\left(a^2+b^2\right)\, e^{2\, c}}}\right] -$$

$$432\, b\, \left(a^2 + 2\, b^2\right)\, d\, e^{3\, c}\, x\, \text{PolyLog}\left[2, -\frac{a\, e^{2\, c+d\, x}}{b\, e^c + \sqrt{\left(a^2+b^2\right)\, e^{2\, c}}}\right] +$$

$$432\, a^2\, b\, e^{3\, c}\, \text{PolyLog}\left[3, -\frac{a\, e^{2\, c+d\, x}}{b\, e^c - \sqrt{\left(a^2+b^2\right)\, e^{2\, c}}}\right] +$$

$$864\, b^3\, e^{3\, c}\, \text{PolyLog}\left[3, -\frac{a\, e^{2\, c+d\, x}}{b\, e^c - \sqrt{\left(a^2+b^2\right)\, e^{2\, c}}}\right] +$$

$$432\, a^2\, b\, e^{3\, c}\, \text{PolyLog}\left[3, -\frac{a\, e^{2\, c+d\, x}}{b\, e^c + \sqrt{\left(a^2+b^2\right)\, e^{2\, c}}}\right] +$$

$$864\, b^3\, e^{3\, c}\, \text{PolyLog}\left[3, -\frac{a\, e^{2\, c+d\, x}}{b\, e^c + \sqrt{\left(a^2+b^2\right)\, e^{2\, c}}}\right] + 108\, a^3\, e^{2\, c}\, \text{Sinh}[d\, x] +$$

$$432\, a\, b^2\, e^{2\, c}\, \text{Sinh}[d\, x] + 108\, a^3\, e^{4\, c}\, \text{Sinh}[d\, x] + 432\, a\, b^2\, e^{4\, c}\, \text{Sinh}[d\, x] +$$
$$108\, a^3\, d\, e^{2\, c}\, x\, \text{Sinh}[d\, x] + 432\, a\, b^2\, d\, e^{2\, c}\, x\, \text{Sinh}[d\, x] - 108\, a^3\, d\, e^{4\, c}\, x\, \text{Sinh}[d\, x] -$$
$$432\, a\, b^2\, d\, e^{4\, c}\, x\, \text{Sinh}[d\, x] + 54\, a^3\, d^2\, e^{2\, c}\, x^2\, \text{Sinh}[d\, x] + 216\, a\, b^2\, d^2\, e^{2\, c}\, x^2\, \text{Sinh}[d\, x] +$$
$$54\, a^3\, d^2\, e^{4\, c}\, x^2\, \text{Sinh}[d\, x] + 216\, a\, b^2\, d^2\, e^{4\, c}\, x^2\, \text{Sinh}[d\, x] + 27\, a^2\, b\, e^c\, \text{Sinh}[2\, d\, x] -$$
$$27\, a^2\, b\, e^{5\, c}\, \text{Sinh}[2\, d\, x] + 54\, a^2\, b\, d\, e^c\, x\, \text{Sinh}[2\, d\, x] + 54\, a^2\, b\, d\, e^{5\, c}\, x\, \text{Sinh}[2\, d\, x] +$$
$$54\, a^2\, b\, d^2\, e^c\, x^2\, \text{Sinh}[2\, d\, x] - 54\, a^2\, b\, d^2\, e^{5\, c}\, x^2\, \text{Sinh}[2\, d\, x] + 4\, a^3\, \text{Sinh}[3\, d\, x] +$$
$$4\, a^3\, e^{6\, c}\, \text{Sinh}[3\, d\, x] + 12\, a^3\, d\, x\, \text{Sinh}[3\, d\, x] - 12\, a^3\, d\, e^{6\, c}\, x\, \text{Sinh}[3\, d\, x] +$$

$$\left.18\, a^3\, d^2\, x^2\, \text{Sinh}[3\, d\, x] + 18\, a^3\, d^2\, e^{6\, c}\, x^2\, \text{Sinh}[3\, d\, x]\right) \left(b + a\, \text{Sinh}[c + d\, x]\right) +$$

$$\frac{1}{864\, a^4\, d^4\, \left(a + b\, \text{Csch}[c + d\, x]\right)}\, e^{-3\, c}\, f^3\, \text{Csch}[c + d\, x]$$

$$\left(108\, a^2\, b\, d^4\, e^{3\, c}\, x^4 + 216\, b^3\, d^4\, e^{3\, c}\, x^4 - 648\, a^3\, e^{2\, c}\, \text{Cosh}[d\, x] - 2592\, a\, b^2\, e^{2\, c}\, \text{Cosh}[d\, x] -\right.$$

$$648\, a^3\, e^{4\, c}\, \text{Cosh}[d\, x] - 2592\, a\, b^2\, e^{4\, c}\, \text{Cosh}[d\, x] - 648\, a^3\, d\, e^{2\, c}\, x\, \text{Cosh}[d\, x] -$$
$$2592\, a\, b^2\, d\, e^{2\, c}\, x\, \text{Cosh}[d\, x] + 648\, a^3\, d\, e^{4\, c}\, x\, \text{Cosh}[d\, x] + 2592\, a\, b^2\, d\, e^{4\, c}\, x\, \text{Cosh}[d\, x] -$$
$$324\, a^3\, d^2\, e^{2\, c}\, x^2\, \text{Cosh}[d\, x] - 1296\, a\, b^2\, d^2\, e^{2\, c}\, x^2\, \text{Cosh}[d\, x] - 324\, a^3\, d^2\, e^{4\, c}\, x^2\, \text{Cosh}[d\, x] -$$
$$1296\, a\, b^2\, d^2\, e^{4\, c}\, x^2\, \text{Cosh}[d\, x] - 108\, a^3\, d^3\, e^{2\, c}\, x^3\, \text{Cosh}[d\, x] - 432\, a\, b^2\, d^3\, e^{2\, c}\, x^3\, \text{Cosh}[d\, x] +$$

$108\, a^3\, d^3\, e^{4c}\, x^3\, \text{Cosh}[d\, x] + 432\, a\, b^2\, d^3\, e^{4c}\, x^3\, \text{Cosh}[d\, x] - 81\, a^2\, b\, e^{c}\, \text{Cosh}[2\, d\, x] +$
$81\, a^2\, b\, e^{5c}\, \text{Cosh}[2\, d\, x] - 162\, a^2\, b\, d\, e^{c}\, x\, \text{Cosh}[2\, d\, x] - 162\, a^2\, b\, d\, e^{5c}\, x\, \text{Cosh}[2\, d\, x] -$
$162\, a^2\, b\, d^2\, e^{c}\, x^2\, \text{Cosh}[2\, d\, x] + 162\, a^2\, b\, d^2\, e^{5c}\, x^2\, \text{Cosh}[2\, d\, x] -$
$108\, a^2\, b\, d^3\, e^{c}\, x^3\, \text{Cosh}[2\, d\, x] - 108\, a^2\, b\, d^3\, e^{5c}\, x^3\, \text{Cosh}[2\, d\, x] - 8\, a^3\, \text{Cosh}[3\, d\, x] -$
$8\, a^3\, e^{6c}\, \text{Cosh}[3\, d\, x] - 24\, a^3\, d\, x\, \text{Cosh}[3\, d\, x] + 24\, a^3\, d\, e^{6c}\, x\, \text{Cosh}[3\, d\, x] -$
$36\, a^3\, d^2\, x^2\, \text{Cosh}[3\, d\, x] - 36\, a^3\, d^2\, e^{6c}\, x^2\, \text{Cosh}[3\, d\, x] - 36\, a^3\, d^3\, x^3\, \text{Cosh}[3\, d\, x] +$
$36\, a^3\, d^3\, e^{6c}\, x^3\, \text{Cosh}[3\, d\, x] - 432\, a^2\, b\, d^3\, e^{3c}\, x^3\, \text{Log}\left[1 + \frac{a\, e^{2c+d\, x}}{b\, e^{c} - \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] -$
$864\, b^3\, d^3\, e^{3c}\, x^3\, \text{Log}\left[1 + \frac{a\, e^{2c+d\, x}}{b\, e^{c} - \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] - 432\, a^2\, b\, d^3\, e^{3c}\, x^3$
$\text{Log}\left[1 + \frac{a\, e^{2c+d\, x}}{b\, e^{c} + \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] - 864\, b^3\, d^3\, e^{3c}\, x^3\, \text{Log}\left[1 + \frac{a\, e^{2c+d\, x}}{b\, e^{c} + \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] -$
$1296\, b\, \left(a^2 + 2\, b^2\right)\, d^2\, e^{3c}\, x^2\, \text{PolyLog}\left[2, -\frac{a\, e^{2c+d\, x}}{b\, e^{c} - \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] -$
$1296\, b\, \left(a^2 + 2\, b^2\right)\, d^2\, e^{3c}\, x^2\, \text{PolyLog}\left[2, -\frac{a\, e^{2c+d\, x}}{b\, e^{c} + \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] +$
$2592\, a^2\, b\, d\, e^{3c}\, x\, \text{PolyLog}\left[3, -\frac{a\, e^{2c+d\, x}}{b\, e^{c} - \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] +$
$5184\, b^3\, d\, e^{3c}\, x\, \text{PolyLog}\left[3, -\frac{a\, e^{2c+d\, x}}{b\, e^{c} - \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] +$
$2592\, a^2\, b\, d\, e^{3c}\, x\, \text{PolyLog}\left[3, -\frac{a\, e^{2c+d\, x}}{b\, e^{c} + \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] +$
$5184\, b^3\, d\, e^{3c}\, x\, \text{PolyLog}\left[3, -\frac{a\, e^{2c+d\, x}}{b\, e^{c} + \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] -$
$2592\, a^2\, b\, e^{3c}\, \text{PolyLog}\left[4, -\frac{a\, e^{2c+d\, x}}{b\, e^{c} - \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] -$
$5184\, b^3\, e^{3c}\, \text{PolyLog}\left[4, -\frac{a\, e^{2c+d\, x}}{b\, e^{c} - \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] -$
$2592\, a^2\, b\, e^{3c}\, \text{PolyLog}\left[4, -\frac{a\, e^{2c+d\, x}}{b\, e^{c} + \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] -$
$5184\, b^3\, e^{3c}\, \text{PolyLog}\left[4, -\frac{a\, e^{2c+d\, x}}{b\, e^{c} + \sqrt{\left(a^2+b^2\right)\, e^{2c}}}\right] + 648\, a^3\, e^{2c}\, \text{Sinh}[d\, x] +$
$2592\, a\, b^2\, e^{2c}\, \text{Sinh}[d\, x] - 648\, a^3\, e^{4c}\, \text{Sinh}[d\, x] - 2592\, a\, b^2\, e^{4c}\, \text{Sinh}[d\, x] +$
$648\, a^3\, d\, e^{2c}\, x\, \text{Sinh}[d\, x] + 2592\, a\, b^2\, d\, e^{2c}\, x\, \text{Sinh}[d\, x] + 648\, a^3\, d\, e^{4c}\, x\, \text{Sinh}[d\, x] +$
$2592\, a\, b^2\, d\, e^{4c}\, x\, \text{Sinh}[d\, x] + 324\, a^3\, d^2\, e^{2c}\, x^2\, \text{Sinh}[d\, x] + 1296\, a\, b^2\, d^2\, e^{2c}\, x^2\, \text{Sinh}[d\, x] -$
$324\, a^3\, d^2\, e^{4c}\, x^2\, \text{Sinh}[d\, x] - 1296\, a\, b^2\, d^2\, e^{4c}\, x^2\, \text{Sinh}[d\, x] + 108\, a^3\, d^3\, e^{2c}\, x^3\, \text{Sinh}[d\, x] +$
$432\, a\, b^2\, d^3\, e^{2c}\, x^3\, \text{Sinh}[d\, x] + 108\, a^3\, d^3\, e^{4c}\, x^3\, \text{Sinh}[d\, x] + 432\, a\, b^2\, d^3\, e^{4c}\, x^3\, \text{Sinh}[d\, x] +$

$$81\,a^2\,b\,e^c\,\text{Sinh}[2\,d\,x]+81\,a^2\,b\,e^{5\,c}\,\text{Sinh}[2\,d\,x]+162\,a^2\,b\,d\,e^c\,x\,\text{Sinh}[2\,d\,x]-162\,a^2\,b\,d\,e^{5\,c}\,x\,\text{Sinh}[2\,d\,x]+162\,a^2\,b\,d^2\,e^c\,x^2\,\text{Sinh}[2\,d\,x]+162\,a^2\,b\,d^2\,e^{5\,c}\,x^2\,\text{Sinh}[2\,d\,x]+108\,a^2\,b\,d^3\,e^c\,x^3\,\text{Sinh}[2\,d\,x]-108\,a^2\,b\,d^3\,e^{5\,c}\,x^3\,\text{Sinh}[2\,d\,x]+8\,a^3\,\text{Sinh}[3\,d\,x]-8\,a^3\,e^{6\,c}\,\text{Sinh}[3\,d\,x]+24\,a^3\,d\,x\,\text{Sinh}[3\,d\,x]+24\,a^3\,d\,e^{6\,c}\,x\,\text{Sinh}[3\,d\,x]+36\,a^3\,d^2\,x^2\,\text{Sinh}[3\,d\,x]-36\,a^3\,d^2\,e^{6\,c}\,x^2\,\text{Sinh}[3\,d\,x]+36\,a^3\,d^3\,x^3\,\text{Sinh}[3\,d\,x]+36\,a^3\,d^3\,e^{6\,c}\,x^3\,\text{Sinh}[3\,d\,x]\Big)\,(b+a\,\text{Sinh}[c+d\,x])+$$

$$\left(e^3\,\text{Csch}[c+d\,x]\,(b+a\,\text{Sinh}[c+d\,x])\left(-\frac{2\,b\,\text{Log}[b+a\,\text{Sinh}[c+d\,x]]}{a^2\,d}+\frac{2\,\text{Sinh}[c+d\,x]}{a\,d}\right)\right)\Big/\left(4\,(a+b\,\text{Csch}[c+d\,x])\right)+$$

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

$$b\,c\,\text{Log}\left[1+\frac{a\,\text{Sinh}[c+d\,x]}{b}\right]+i\,b\Bigg(-\frac{1}{8}\,i\,(2\,c+i\,\pi+2\,d\,x)^2-$$

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

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

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

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

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

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

$$\left.\left.\frac{4\left(a^2\,b+2\,b^3\right)\text{Log}[b+a\,\text{Sinh}[c+d x]]}{a^4\,d}+\frac{2\left(a^2+4\,b^2\right)\text{Sinh}[c+d x]}{a^3\,d}+\frac{2\,\text{Sinh}\left[3\,(c+d x)\right]}{3\,a\,d}\right)\right)\Big/$$

$$\left(8\left(a+b\,\text{Csch}[c+d x]\right)\right)+\frac{1}{24\,a^4\,d^2\left(a+b\,\text{Csch}[c+d x]\right)}$$

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

$$\left(-18\,a\left(a^2+4\,b^2\right)\text{Cosh}[c+d x]-18\,a^2\,b\,d\,x\,\text{Cosh}\left[2\,(c+d x)\right]-2\,a^3\,\text{Cosh}\left[3\,(c+d x)\right]+\right.$$

$$36\,a^2\,b\,c\,\text{Log}\left[1+\frac{a\,\text{Sinh}[c+d x]}{b}\right]+72\,b^3\,c\,\text{Log}\left[1+\frac{a\,\text{Sinh}[c+d x]}{b}\right]-36\,a^2\,b$$

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

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

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

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

$$\left.\text{PolyLog}\left[2,\frac{\left(b+\sqrt{a^2+b^2}\right)e^{c+d x}}{a}\right]\right)-72\,b^3$$

$$\left(-\frac{1}{8}\left(2c+i\pi+2dx\right)^2-4\,\text{ArcSin}\left[\frac{\sqrt{1+\frac{ib}{a}}}{\sqrt{2}}\right]\text{ArcTan}\left[\frac{\left(i a+b\right)\text{Cot}\left[\frac{1}{4}\left(2ic+\pi+2idx\right)\right]}{\sqrt{a^2+b^2}}\right]+\right.$$

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

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

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

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

$$\left.18a\left(a^2+4b^2\right)dx\,\text{Sinh}\left[c+dx\right]+9a^2b\,\text{Sinh}\left[2\left(c+dx\right)\right]+6a^3dx\,\text{Sinh}\left[3\left(c+dx\right)\right]\right)$$

Problem 27: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\left(e+fx\right)^2\text{Cosh}\left[c+dx\right]^3}{a+b\,\text{Csch}\left[c+dx\right]}\,dx$$

Optimal (type 4, 636 leaves, 24 steps):

$$-\frac{b\,e\,f\,x}{2\,a^2\,d}-\frac{b\,f^2\,x^2}{4\,a^2\,d}+\frac{b\,(a^2+b^2)\,(e+f\,x)^3}{3\,a^4\,f}-\frac{4\,f\,(e+f\,x)\,\text{Cosh}[c+d\,x]}{3\,a\,d^2}-\frac{2\,b^2\,f\,(e+f\,x)\,\text{Cosh}[c+d\,x]}{a^3\,d^2}-$$
$$\frac{2\,f\,(e+f\,x)\,\text{Cosh}[c+d\,x]^3}{9\,a\,d^2}-\frac{b\,(a^2+b^2)\,(e+f\,x)^2\,\text{Log}\left[1+\frac{a\,e^{c+d\,x}}{b-\sqrt{a^2+b^2}}\right]}{a^4\,d}-$$
$$\frac{b\,(a^2+b^2)\,(e+f\,x)^2\,\text{Log}\left[1+\frac{a\,e^{c+d\,x}}{b+\sqrt{a^2+b^2}}\right]}{a^4\,d}-\frac{2\,b\,(a^2+b^2)\,f\,(e+f\,x)\,\text{PolyLog}\left[2,-\frac{a\,e^{c+d\,x}}{b-\sqrt{a^2+b^2}}\right]}{a^4\,d^2}-$$
$$\frac{2\,b\,(a^2+b^2)\,f\,(e+f\,x)\,\text{PolyLog}\left[2,-\frac{a\,e^{c+d\,x}}{b+\sqrt{a^2+b^2}}\right]}{a^4\,d^2}+\frac{2\,b\,(a^2+b^2)\,f^2\,\text{PolyLog}\left[3,-\frac{a\,e^{c+d\,x}}{b-\sqrt{a^2+b^2}}\right]}{a^4\,d^3}+$$
$$\frac{2\,b\,(a^2+b^2)\,f^2\,\text{PolyLog}\left[3,-\frac{a\,e^{c+d\,x}}{b+\sqrt{a^2+b^2}}\right]}{a^4\,d^3}+\frac{14\,f^2\,\text{Sinh}[c+d\,x]}{9\,a\,d^3}+$$
$$\frac{2\,b^2\,f^2\,\text{Sinh}[c+d\,x]}{a^3\,d^3}+\frac{2\,(e+f\,x)^2\,\text{Sinh}[c+d\,x]}{3\,a\,d}+\frac{b^2\,(e+f\,x)^2\,\text{Sinh}[c+d\,x]}{a^3\,d}+$$
$$\frac{b\,f\,(e+f\,x)\,\text{Cosh}[c+d\,x]\,\text{Sinh}[c+d\,x]}{2\,a^2\,d^2}+\frac{(e+f\,x)^2\,\text{Cosh}[c+d\,x]^2\,\text{Sinh}[c+d\,x]}{3\,a\,d}-$$
$$\frac{b\,f^2\,\text{Sinh}[c+d\,x]^2}{4\,a^2\,d^3}-\frac{b\,(e+f\,x)^2\,\text{Sinh}[c+d\,x]^2}{2\,a^2\,d}+\frac{2\,f^2\,\text{Sinh}[c+d\,x]^3}{27\,a\,d^3}$$

Result (type 4, 3303 leaves):

$$\frac{1}{12\,a^2\,d^3\,(a+b\,\text{Csch}[c+d\,x])}f^2\,\text{Csch}[c+d\,x]$$
$$\left(-12\,b\,d\,x\,\text{PolyLog}\left[2,-\frac{a\,e^{2\,c+d\,x}}{b\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]-12\,b\,d\,x\,\text{PolyLog}\left[2,-\frac{a\,e^{2\,c+d\,x}}{b\,e^c+\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+\right.$$
$$e^{-c}\left(2\,b\,d^3\,e^c\,x^3-6\,a\,\text{Cosh}[d\,x]+6\,a\,e^{2\,c}\,\text{Cosh}[d\,x]-6\,a\,d\,x\,\text{Cosh}[d\,x]-6\,a\,d\,e^{2\,c}\,x\,\text{Cosh}[d\,x]-\right.$$
$$3\,a\,d^2\,x^2\,\text{Cosh}[d\,x]+3\,a\,d^2\,e^{2\,c}\,x^2\,\text{Cosh}[d\,x]-6\,b\,d^2\,e^c\,x^2\,\text{Log}\left[1+\frac{a\,e^{2\,c+d\,x}}{b\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]-$$
$$6\,b\,d^2\,e^c\,x^2\,\text{Log}\left[1+\frac{a\,e^{2\,c+d\,x}}{b\,e^c+\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+12\,b\,e^c\,\text{PolyLog}\left[3,-\frac{a\,e^{2\,c+d\,x}}{b\,e^c-\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+$$
$$12\,b\,e^c\,\text{PolyLog}\left[3,-\frac{a\,e^{2\,c+d\,x}}{b\,e^c+\sqrt{(a^2+b^2)\,e^{2\,c}}}\right]+6\,a\,\text{Sinh}[d\,x]+6\,a\,e^{2\,c}\,\text{Sinh}[d\,x]+$$
$$\left.\left.6\,a\,d\,x\,\text{Sinh}[d\,x]-6\,a\,d\,e^{2\,c}\,x\,\text{Sinh}[d\,x]+3\,a\,d^2\,x^2\,\text{Sinh}[d\,x]+3\,a\,d^2\,e^{2\,c}\,x^2\,\text{Sinh}[d\,x]\right)\right)$$
$$(b+a\,\text{Sinh}[c+d\,x])+\frac{1}{432\,a^4\,d^3\,(a+b\,\text{Csch}[c+d\,x])}e^{-3\,c}$$

$$f^2$$

$$\text{Csch}[c+d\,x]$$

$$\Big(72\,a^2\,b\,d^3\,e^{3\,c}\,x^3+144\,b^3\,d^3\,e^{3\,c}\,x^3-108\,a^3\,e^{2\,c}\,\text{Cosh}[d\,x]-432\,a\,b^2\,e^{2\,c}\,\text{Cosh}[d\,x]+$$

$$108\,a^3\,e^{4\,c}\,\text{Cosh}[d\,x]+432\,a\,b^2\,e^{4\,c}\,\text{Cosh}[d\,x]-108\,a^3\,d\,e^{2\,c}\,x\,\text{Cosh}[d\,x]-$$
$$432\,a\,b^2\,d\,e^{2\,c}\,x\,\text{Cosh}[d\,x]-108\,a^3\,d\,e^{4\,c}\,x\,\text{Cosh}[d\,x]-432\,a\,b^2\,d\,e^{4\,c}\,x\,\text{Cosh}[d\,x]-$$
$$54\,a^3\,d^2\,e^{2\,c}\,x^2\,\text{Cosh}[d\,x]-216\,a\,b^2\,d^2\,e^{2\,c}\,x^2\,\text{Cosh}[d\,x]+54\,a^3\,d^2\,e^{4\,c}\,x^2\,\text{Cosh}[d\,x]+$$
$$216\,a\,b^2\,d^2\,e^{4\,c}\,x^2\,\text{Cosh}[d\,x]-27\,a^2\,b\,e^{c}\,\text{Cosh}[2\,d\,x]-27\,a^2\,b\,e^{5\,c}\,\text{Cosh}[2\,d\,x]-$$
$$54\,a^2\,b\,d\,e^{c}\,x\,\text{Cosh}[2\,d\,x]+54\,a^2\,b\,d\,e^{5\,c}\,x\,\text{Cosh}[2\,d\,x]-54\,a^2\,b\,d^2\,e^{c}\,x^2\,\text{Cosh}[2\,d\,x]-$$
$$54\,a^2\,b\,d^2\,e^{5\,c}\,x^2\,\text{Cosh}[2\,d\,x]-4\,a^3\,\text{Cosh}[3\,d\,x]+4\,a^3\,e^{6\,c}\,\text{Cosh}[3\,d\,x]-$$
$$12\,a^3\,d\,x\,\text{Cosh}[3\,d\,x]-12\,a^3\,d\,e^{6\,c}\,x\,\text{Cosh}[3\,d\,x]-18\,a^3\,d^2\,x^2\,\text{Cosh}[3\,d\,x]+$$
$$18\,a^3\,d^2\,e^{6\,c}\,x^2\,\text{Cosh}[3\,d\,x]-216\,a^2\,b\,d^2\,e^{3\,c}\,x^2\,\text{Log}\Big[1+\frac{a\,e^{2\,c+d\,x}}{b\,e^{c}-\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\Big]-$$
$$432\,b^3\,d^2\,e^{3\,c}\,x^2\,\text{Log}\Big[1+\frac{a\,e^{2\,c+d\,x}}{b\,e^{c}-\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\Big]-216\,a^2\,b\,d^2\,e^{3\,c}\,x^2$$
$$\text{Log}\Big[1+\frac{a\,e^{2\,c+d\,x}}{b\,e^{c}+\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\Big]-432\,b^3\,d^2\,e^{3\,c}\,x^2\,\text{Log}\Big[1+\frac{a\,e^{2\,c+d\,x}}{b\,e^{c}+\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\Big]-$$
$$432\,b\,\left(a^2+2\,b^2\right)\,d\,e^{3\,c}\,x\,\text{PolyLog}\Big[2,-\frac{a\,e^{2\,c+d\,x}}{b\,e^{c}-\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\Big]-$$
$$432\,b\,\left(a^2+2\,b^2\right)\,d\,e^{3\,c}\,x\,\text{PolyLog}\Big[2,-\frac{a\,e^{2\,c+d\,x}}{b\,e^{c}+\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\Big]+$$
$$432\,a^2\,b\,e^{3\,c}\,\text{PolyLog}\Big[3,-\frac{a\,e^{2\,c+d\,x}}{b\,e^{c}-\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\Big]+$$
$$864\,b^3\,e^{3\,c}\,\text{PolyLog}\Big[3,-\frac{a\,e^{2\,c+d\,x}}{b\,e^{c}-\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\Big]+$$
$$432\,a^2\,b\,e^{3\,c}\,\text{PolyLog}\Big[3,-\frac{a\,e^{2\,c+d\,x}}{b\,e^{c}+\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\Big]+$$
$$864\,b^3\,e^{3\,c}\,\text{PolyLog}\Big[3,-\frac{a\,e^{2\,c+d\,x}}{b\,e^{c}+\sqrt{\left(a^2+b^2\right)\,e^{2\,c}}}\Big]+108\,a^3\,e^{2\,c}\,\text{Sinh}[d\,x]+$$
$$432\,a\,b^2\,e^{2\,c}\,\text{Sinh}[d\,x]+108\,a^3\,e^{4\,c}\,\text{Sinh}[d\,x]+432\,a\,b^2\,e^{4\,c}\,\text{Sinh}[d\,x]+$$
$$108\,a^3\,d\,e^{2\,c}\,x\,\text{Sinh}[d\,x]+432\,a\,b^2\,d\,e^{2\,c}\,x\,\text{Sinh}[d\,x]-108\,a^3\,d\,e^{4\,c}\,x\,\text{Sinh}[d\,x]-$$
$$432\,a\,b^2\,d\,e^{4\,c}\,x\,\text{Sinh}[d\,x]+54\,a^3\,d^2\,e^{2\,c}\,x^2\,\text{Sinh}[d\,x]+216\,a\,b^2\,d^2\,e^{2\,c}\,x^2\,\text{Sinh}[d\,x]+$$
$$54\,a^3\,d^2\,e^{4\,c}\,x^2\,\text{Sinh}[d\,x]+216\,a\,b^2\,d^2\,e^{4\,c}\,x^2\,\text{Sinh}[d\,x]+27\,a^2\,b\,e^{c}\,\text{Sinh}[2\,d\,x]-$$
$$27\,a^2\,b\,e^{5\,c}\,\text{Sinh}[2\,d\,x]+54\,a^2\,b\,d\,e^{c}\,x\,\text{Sinh}[2\,d\,x]+54\,a^2\,b\,d\,e^{5\,c}\,x\,\text{Sinh}[2\,d\,x]+$$
$$54\,a^2\,b\,d^2\,e^{c}\,x^2\,\text{Sinh}[2\,d\,x]-54\,a^2\,b\,d^2\,e^{5\,c}\,x^2\,\text{Sinh}[2\,d\,x]+4\,a^3\,\text{Sinh}[3\,d\,x]+$$
$$4\,a^3\,e^{6\,c}\,\text{Sinh}[3\,d\,x]+12\,a^3\,d\,x\,\text{Sinh}[3\,d\,x]-12\,a^3\,d\,e^{6\,c}\,x\,\text{Sinh}[3\,d\,x]+$$
$$18\,a^3\,d^2\,x^2\,\text{Sinh}[3\,d\,x]+18\,a^3\,d^2\,e^{6\,c}\,x^2\,\text{Sinh}[3\,d\,x]\Big)\,\left(b+a\,\text{Sinh}[c+d\,x]\right)+$$

$$\left(e^2 \operatorname{Csch}[c+d x] \, (b+a \operatorname{Sinh}[c+d x]) \left(-\frac{2 b \operatorname{Log}[b+a \operatorname{Sinh}[c+d x]]}{a^2 d}+\frac{2 \operatorname{Sinh}[c+d x]}{a d}\right)\right) \Big/ \left(4 \, (a+b \operatorname{Csch}[c+d x])\right)+$$

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

$$b c \operatorname{Log}\left[1+\frac{a \operatorname{Sinh}[c+d x]}{b}\right]+\mathbb{i} b \left(-\frac{1}{8} \mathbb{i} \, (2 c+\mathbb{i} \pi+2 d x)^2-\right.$$

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

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

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

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

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

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

$$\left.\left.\frac{4 \, (a^2 b+2 b^3) \operatorname{Log}[b+a \operatorname{Sinh}[c+d x]]}{a^4 d}+\frac{2 \, (a^2+4 b^2) \operatorname{Sinh}[c+d x]}{a^3 d}+\frac{2 \operatorname{Sinh}[3 \, (c+d x)]}{3 a d}\right)\right) \Big/$$

$$\left(8\,(a+b\,\text{Csch}[c+d\,x])\right)+\frac{1}{36\,a^4\,d^2\,(a+b\,\text{Csch}[c+d\,x])}$$

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

$$\Bigg(-18\,a\,(a^2+4\,b^2)\,\text{Cosh}[c+d\,x]-18\,a^2\,b\,d\,x\,\text{Cosh}[2\,(c+d\,x)]-2\,a^3\,\text{Cosh}[3\,(c+d\,x)]+$$

$$36\,a^2\,b\,c\,\text{Log}\left[1+\frac{a\,\text{Sinh}[c+d\,x]}{b}\right]+72\,b^3\,c\,\text{Log}\left[1+\frac{a\,\text{Sinh}[c+d\,x]}{b}\right]-36\,a^2\,b$$

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

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

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

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

$$\text{PolyLog}\left[2,\frac{\left(b+\sqrt{a^2+b^2}\right)e^{c+d\,x}}{a}\right]\Bigg)-72\,b^3$$

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

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

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

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

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

$$\left.18\,a\,\left(a^2+4\,b^2\right)\,d\,x\,\text{Sinh}[c+d\,x]+9\,a^2\,b\,\text{Sinh}[2\,(c+d\,x)]+6\,a^3\,d\,x\,\text{Sinh}[3\,(c+d\,x)]\right)$$

Problem 28: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 400 leaves, 18 steps):

$$-\frac{b\,f\,x}{4\,a^2\,d}+\frac{b\,\left(a^2+b^2\right)\,(e+f\,x)^2}{2\,a^4\,f}-\frac{2\,f\,\text{Cosh}[c+d\,x]}{3\,a\,d^2}-\frac{b^2\,f\,\text{Cosh}[c+d\,x]}{a^3\,d^2}-\frac{f\,\text{Cosh}[c+d\,x]^3}{9\,a\,d^2}-$$

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

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

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

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

Result (type 4, 1315 leaves):

$$\frac{1}{72\,a^4\,d^2}\left(36\,a^2\,b\,c^2\,f+36\,b^3\,c^2\,f+36\,i\,a^2\,b\,c\,f\,\pi+36\,i\,b^3\,c\,f\,\pi-9\,a^2\,b\,f\,\pi^2-9\,b^3\,f\,\pi^2+\right.$$

$$72 a^2 b c d f x + 72 b^3 c d f x + 36 i a^2 b d f \pi x + 36 i b^3 d f \pi x + 36 a^2 b d^2 f x^2 + 36 b^3 d^2 f x^2 +$$

$$288 a^2 b f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i b}{a}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(i a + b) \text{Cot}\left[\frac{1}{4}(2 i c + \pi + 2 i d x)\right]}{\sqrt{a^2+b^2}}\right] +$$

$$288 b^3 f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i b}{a}}}{\sqrt{2}}\right] \text{ArcTan}\left[\frac{(i a + b) \text{Cot}\left[\frac{1}{4}(2 i c + \pi + 2 i d x)\right]}{\sqrt{a^2+b^2}}\right] -$$

$$54 a^3 f \text{Cosh}[c + d x] - 72 a b^2 f \text{Cosh}[c + d x] - 18 a^2 b d e \text{Cosh}[2 (c + d x)] -$$

$$18 a^2 b d f x \text{Cosh}[2 (c + d x)] - 2 a^3 f \text{Cosh}[3 (c + d x)] -$$

$$72 a^2 b c f \text{Log}\left[1 + \frac{\left(-b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] - 72 b^3 c f \text{Log}\left[1 + \frac{\left(-b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] -$$

$$36 i a^2 b f \pi \text{Log}\left[1 + \frac{\left(-b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] - 36 i b^3 f \pi \text{Log}\left[1 + \frac{\left(-b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] -$$

$$72 a^2 b d f x \text{Log}\left[1 + \frac{\left(-b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] - 72 b^3 d f x \text{Log}\left[1 + \frac{\left(-b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] -$$

$$144 i a^2 b f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i b}{a}}}{\sqrt{2}}\right] \text{Log}\left[1 + \frac{\left(-b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] -$$

$$144 i b^3 f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i b}{a}}}{\sqrt{2}}\right] \text{Log}\left[1 + \frac{\left(-b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] -$$

$$72 a^2 b c f \text{Log}\left[1 - \frac{\left(b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] - 72 b^3 c f \text{Log}\left[1 - \frac{\left(b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] -$$

$$36 i a^2 b f \pi \text{Log}\left[1 - \frac{\left(b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] - 36 i b^3 f \pi \text{Log}\left[1 - \frac{\left(b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] -$$

$$72 a^2 b d f x \text{Log}\left[1 - \frac{\left(b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] - 72 b^3 d f x \text{Log}\left[1 - \frac{\left(b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] +$$

$$144 i a^2 b f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i b}{a}}}{\sqrt{2}}\right] \text{Log}\left[1 - \frac{\left(b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] +$$

$$144 i b^3 f \text{ArcSin}\left[\frac{\sqrt{1+\frac{i b}{a}}}{\sqrt{2}}\right] \text{Log}\left[1 - \frac{\left(b + \sqrt{a^2+b^2}\right) e^{c+d x}}{a}\right] - 72 a^2 b d e \text{Log}[b + a \text{Sinh}[c + d x]] -$$

$$72 b^3 d e \text{Log}[b + a \text{Sinh}[c + d x]] + 36 i a^2 b f \pi \text{Log}[b + a \text{Sinh}[c + d x]] +$$

$$36 i b^3 f \pi \text{Log}[b + a \text{Sinh}[c + d x]] + 72 a^2 b c f \text{Log}\left[1 + \frac{a \text{Sinh}[c + d x]}{b}\right] +$$

$$72\,b^3\,c\,f\,\mathrm{Log}\left[1+\frac{a\,\mathrm{Sinh}[c+d\,x]}{b}\right]-72\,b\,\left(a^2+b^2\right)\,f\,\mathrm{PolyLog}\left[2,\,\frac{\left(b-\sqrt{a^2+b^2}\right)\,e^{c+d\,x}}{a}\right]-$$

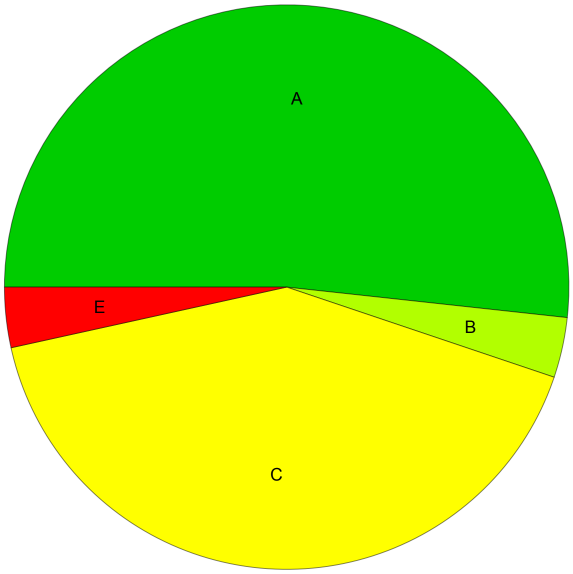
$$72\,b\,\left(a^2+b^2\right)\,f\,\mathrm{PolyLog}\left[2,\,\frac{\left(b+\sqrt{a^2+b^2}\right)\,e^{c+d\,x}}{a}\right]+54\,a^3\,d\,e\,\mathrm{Sinh}[c+d\,x]+$$

$$72\,a\,b^2\,d\,e\,\mathrm{Sinh}[c+d\,x]+54\,a^3\,d\,f\,x\,\mathrm{Sinh}[c+d\,x]+72\,a\,b^2\,d\,f\,x\,\mathrm{Sinh}[c+d\,x]+$$

$$\left.9\,a^2\,b\,f\,\mathrm{Sinh}\left[2\,\left(c+d\,x\right)\right]+6\,a^3\,d\,e\,\mathrm{Sinh}\left[3\,\left(c+d\,x\right)\right]+6\,a^3\,d\,f\,x\,\mathrm{Sinh}\left[3\,\left(c+d\,x\right)\right]\right)$$

Summary of Integration Test Results

29 integration problems



A - 15 optimal antiderivatives

B - 1 more than twice size of optimal antiderivatives

C - 12 unnecessarily complex antiderivatives

D - 0 unable to integrate problems

E - 1 integration timeouts