Mathematica 11.3 Integration Test Results

Test results for the 1059 problems in "6.7.1 Hyperbolic functions.m"

Problem 8: Result more than twice size of optimal antiderivative.

$$\int \text{Cosh}[a + b\,x]\,\text{Sinh}[a + b\,x]\,dx$$

Optimal (type 3, 15 leaves, 2 steps):

$$\frac{\text{Sinh}[a + b\,x]^2}{2\,b}$$

Result (type 3, 37 leaves):

$$\frac{1}{2}\left(\frac{\text{Cosh}[2\,a]\,\text{Cosh}[2\,b\,x]}{2\,b} + \frac{\text{Sinh}[2\,a]\,\text{Sinh}[2\,b\,x]}{2\,b}\right)$$

Problem 24: Result more than twice size of optimal antiderivative.

$$\int \text{Csch}[a + b\,x]\,\text{Sech}[a + b\,x]\,dx$$

Optimal (type 3, 11 leaves, 2 steps):

$$\frac{\text{Log}[\text{Tanh}[a + b\,x]]}{b}$$

Result (type 3, 31 leaves):

$$2\left(-\frac{\text{Log}[\text{Cosh}[a + b\,x]]}{2\,b} + \frac{\text{Log}[\text{Sinh}[a + b\,x]]}{2\,b}\right)$$

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

$$\int \text{Csch}[a + b\,x]^2\,\text{Sech}[a + b\,x]\,dx$$

Optimal (type 3, 24 leaves, 3 steps):

$$-\frac{\text{ArcTan}[\text{Sinh}[a + b\,x]]}{b} - \frac{\text{Csch}[a + b\,x]}{b}$$

Result (type 3, 51 leaves):

$$-\frac{2\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}\,(a + b\,x)\right]\right]}{b} - \frac{\text{Coth}\left[\frac{1}{2}\,(a + b\,x)\right]}{2\,b} + \frac{\text{Tanh}\left[\frac{1}{2}\,(a + b\,x)\right]}{2\,b}$$

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

$$\int \text{Csch}[a + b\,x]^4 \, \text{Sech}[a + b\,x] \, dx$$

Optimal (type 3, 37 leaves, 4 steps):

$$\frac{\text{ArcTan}[\text{Sinh}[a + b\,x]]}{b} + \frac{\text{Csch}[a + b\,x]}{b} - \frac{\text{Csch}[a + b\,x]^3}{3\,b}$$

Result (type 3, 109 leaves):

$$\frac{2\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}\,(a + b\,x)\right]\right]}{b} + \frac{7\,\text{Coth}\left[\frac{1}{2}\,(a + b\,x)\right]}{12\,b} - \frac{\text{Coth}\left[\frac{1}{2}\,(a + b\,x)\right]\,\text{Csch}\left[\frac{1}{2}\,(a + b\,x)\right]^2}{24\,b} -$$
$$\frac{7\,\text{Tanh}\left[\frac{1}{2}\,(a + b\,x)\right]}{12\,b} - \frac{\text{Sech}\left[\frac{1}{2}\,(a + b\,x)\right]^2\,\text{Tanh}\left[\frac{1}{2}\,(a + b\,x)\right]}{24\,b}$$

Problem 49: Result unnecessarily involves higher level functions.

$$\int \frac{\text{Sinh}[a + b\,x]^{7/2}}{\text{Cosh}[a + b\,x]^{7/2}} \, dx$$

Optimal (type 3, 106 leaves, 6 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{\text{Cosh}[a+b\,x]}}{\sqrt{\text{Sinh}[a+b\,x]}}\right]}{b} + \frac{\text{ArcTanh}\left[\frac{\sqrt{\text{Cosh}[a+b\,x]}}{\sqrt{\text{Sinh}[a+b\,x]}}\right]}{b} - \frac{2\,\sqrt{\text{Sinh}[a + b\,x]}}{b\,\sqrt{\text{Cosh}[a + b\,x]}} - \frac{2\,\text{Sinh}[a + b\,x]^{5/2}}{5\,b\,\text{Cosh}[a + b\,x]^{5/2}}$$

Result (type 5, 98 leaves):

$$\left(2\,\text{Sinh}[a + b\,x]^{5/2}\,\left(5\,\text{Cosh}[a + b\,x]^4\,\text{Hypergeometric2F1}\left[\frac{3}{4}, \frac{3}{4}, \frac{7}{4}, \text{Cosh}[a + b\,x]^2\right] + \right.\right.$$
$$\left.\left. 3\,(2 + 3\,\text{Cosh}[2\,(a + b\,x)])\,(-\text{Sinh}[a + b\,x]^2)^{1/4}\right)\right) \bigg/ \left(15\,b\,\text{Cosh}[a + b\,x]^{5/2}\,(-\text{Sinh}[a + b\,x]^2)^{5/4}\right)$$

Problem 50: Result unnecessarily involves higher level functions.

$$\int \frac{\text{Sinh}[a + b\,x]^{5/2}}{\text{Cosh}[a + b\,x]^{5/2}} \, dx$$

Optimal (type 3, 81 leaves, 5 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{\text{Sinh}[a+b\,x]}}{\sqrt{\text{Cosh}[a+b\,x]}}\right]}{b} + \frac{\text{ArcTanh}\left[\frac{\sqrt{\text{Sinh}[a+b\,x]}}{\sqrt{\text{Cosh}[a+b\,x]}}\right]}{b} - \frac{2\,\text{Sinh}[a + b\,x]^{3/2}}{3\,b\,\text{Cosh}[a + b\,x]^{3/2}}$$

Result (type 5, 85 leaves):

$$-\frac{2\,\text{Sinh}[a+b\,x]^{3/2}}{3\,b\,\text{Cosh}[a+b\,x]^{3/2}}-$$

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

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

Problem 51: Result unnecessarily involves higher level functions.

$$\int\frac{\text{Sinh}[a+b\,x]^{3/2}}{\text{Cosh}[a+b\,x]^{3/2}}\,dx$$

Optimal (type 3, 79 leaves, 5 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{\text{Cosh}[a+b\,x]}}{\sqrt{\text{Sinh}[a+b\,x]}}\right]}{b}+\frac{\text{ArcTanh}\left[\frac{\sqrt{\text{Cosh}[a+b\,x]}}{\sqrt{\text{Sinh}[a+b\,x]}}\right]}{b}-\frac{2\,\sqrt{\text{Sinh}[a+b\,x]}}{b\,\sqrt{\text{Cosh}[a+b\,x]}}$$

Result (type 5, 85 leaves):

$$-\frac{2\,\sqrt{\text{Sinh}[a+b\,x]}}{b\,\sqrt{\text{Cosh}[a+b\,x]}}-$$

$$\left(2\,\text{Cosh}[a+b\,x]^{3/2}\,\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\text{Cosh}[a+b\,x]^2\right]\sqrt{\text{Sinh}[a+b\,x]}\right)\Big/$$

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

Problem 52: Result unnecessarily involves higher level functions.

$$\int\frac{\sqrt{\text{Sinh}[a+b\,x]}}{\sqrt{\text{Cosh}[a+b\,x]}}\,dx$$

Optimal (type 3, 54 leaves, 4 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{\text{Sinh}[a+b\,x]}}{\sqrt{\text{Cosh}[a+b\,x]}}\right]}{b}+\frac{\text{ArcTanh}\left[\frac{\sqrt{\text{Sinh}[a+b\,x]}}{\sqrt{\text{Cosh}[a+b\,x]}}\right]}{b}$$

Result (type 5, 57 leaves):

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

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

Problem 53: Result unnecessarily involves higher level functions.

$$\int\frac{\sqrt{\text{Cosh}[a+b\,x]}}{\sqrt{\text{Sinh}[a+b\,x]}}\,dx$$

Optimal (type 3, 54 leaves, 4 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{\text{Cosh}[a+b\,x]}}{\sqrt{\text{Sinh}[a+b\,x]}}\right]}{b} + \frac{\text{ArcTanh}\left[\frac{\sqrt{\text{Cosh}[a+b\,x]}}{\sqrt{\text{Sinh}[a+b\,x]}}\right]}{b}$$

Result (type 5, 59 leaves):

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

Problem 54: Result unnecessarily involves higher level functions.

$$\int \frac{\text{Cosh}[a+b\,x]^{3/2}}{\text{Sinh}[a+b\,x]^{3/2}}\,dx$$

Optimal (type 3, 79 leaves, 5 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{\text{Sinh}[a+b\,x]}}{\sqrt{\text{Cosh}[a+b\,x]}}\right]}{b} + \frac{\text{ArcTanh}\left[\frac{\sqrt{\text{Sinh}[a+b\,x]}}{\sqrt{\text{Cosh}[a+b\,x]}}\right]}{b} - \frac{2\sqrt{\text{Cosh}[a+b\,x]}}{b\sqrt{\text{Sinh}[a+b\,x]}}$$

Result (type 5, 83 leaves):

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

Problem 55: Result unnecessarily involves higher level functions.

$$\int \frac{\text{Cosh}[a+b\,x]^{5/2}}{\text{Sinh}[a+b\,x]^{5/2}}\,dx$$

Optimal (type 3, 81 leaves, 5 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{\text{Cosh}[a+b\,x]}}{\sqrt{\text{Sinh}[a+b\,x]}}\right]}{b} + \frac{\text{ArcTanh}\left[\frac{\sqrt{\text{Cosh}[a+b\,x]}}{\sqrt{\text{Sinh}[a+b\,x]}}\right]}{b} - \frac{2\,\text{Cosh}[a+b\,x]^{3/2}}{3\,b\,\text{Sinh}[a+b\,x]^{3/2}}$$

Result (type 5, 83 leaves):

$$\left(2\,\text{Cosh}[a+b\,x]^{3/2}\sqrt{\text{Sinh}[a+b\,x]}\right.$$
$$\left(\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\text{Cosh}[a+b\,x]^2\right]\text{Sinh}[a+b\,x]^2 + \left(-\text{Sinh}[a+b\,x]^2\right)^{1/4}\right)\Bigg)\Bigg/$$
$$\left(3\,b\,\left(-\text{Sinh}[a+b\,x]^2\right)^{5/4}\right)$$

Problem 56: Result unnecessarily involves higher level functions.

$$\int \frac{Cosh[a+bx]^{7/2}}{Sinh[a+bx]^{7/2}} \, dx$$

Optimal (type 3, 106 leaves, 6 steps):

$$-\frac{ArcTan\left[\frac{\sqrt{Sinh[a+bx]}}{\sqrt{Cosh[a+bx]}}\right]}{b} + \frac{ArcTanh\left[\frac{\sqrt{Sinh[a+bx]}}{\sqrt{Cosh[a+bx]}}\right]}{b} - \frac{2\,Cosh[a+bx]^{5/2}}{5\,b\,Sinh[a+bx]^{5/2}} - \frac{2\,\sqrt{Cosh[a+bx]}}{b\,\sqrt{Sinh[a+bx]}}$$

Result (type 5, 97 leaves):

$$\left(2\,\sqrt{Cosh[a+bx]}\,\left(5\,Hypergeometric2F1\left[\frac{1}{4}, \frac{1}{4}, \frac{5}{4}, Cosh[a+bx]^2\right]\,Sinh[a+bx]^4 + \right.\right.$$
$$\left.\left.\left(-Sinh[a+bx]^2\right)^{3/4}\,\left(1+6\,Sinh[a+bx]^2\right)\right)\right) \Big/ \left(5\,b\,\sqrt{Sinh[a+bx]}\,\left(-Sinh[a+bx]^2\right)^{7/4}\right)$$

Problem 57: Result unnecessarily involves higher level functions.

$$\int \frac{Sinh[a+bx]^{7/3}}{Cosh[a+bx]^{7/3}} \, dx$$

Optimal (type 3, 155 leaves, 9 steps):

$$-\frac{\sqrt{3}\,ArcTan\left[\frac{1+\frac{2\,Sinh[a+bx]^{2/3}}{Cosh[a+bx]^{2/3}}}{\sqrt{3}}\right]}{2\,b} - \frac{Log\left[1-\frac{Sinh[a+bx]^{2/3}}{Cosh[a+bx]^{2/3}}\right]}{2\,b} +$$

$$\frac{Log\left[1+\frac{Sinh[a+bx]^{2/3}}{Cosh[a+bx]^{2/3}} + \frac{Sinh[a+bx]^{4/3}}{Cosh[a+bx]^{4/3}}\right]}{4\,b} - \frac{3\,Sinh[a+bx]^{4/3}}{4\,b\,Cosh[a+bx]^{4/3}}$$

Result (type 5, 80 leaves):

$$\left(3\,\left(-Sinh[a+bx]^2 + 2\,Cosh[a+bx]^2\,Hypergeometric2F1\left[\frac{1}{3}, \frac{1}{3}, \frac{4}{3}, Cosh[a+bx]^2\right]\right.\right.$$
$$\left.\left.\left(-Sinh[a+bx]^2\right)^{1/3}\right)\right) \Big/ \left(4\,b\,Cosh[a+bx]^{4/3}\,Sinh[a+bx]^{2/3}\right)$$

Problem 58: Result unnecessarily involves higher level functions.

$$\int \frac{Sinh[a+bx]^{5/3}}{Cosh[a+bx]^{5/3}} \, dx$$

Optimal (type 3, 155 leaves, 9 steps):

$$-\frac{\sqrt{3}\ \mathrm{ArcTan}\left[\frac{1+\frac{2\,\mathrm{Cosh}[a+b\,x]^{2/3}}{\mathrm{Sinh}[a+b\,x]^{2/3}}}{\sqrt{3}}\right]}{2\,b}-\frac{\mathrm{Log}\left[1-\frac{\mathrm{Cosh}[a+b\,x]^{2/3}}{\mathrm{Sinh}[a+b\,x]^{2/3}}\right]}{2\,b}+$$

$$\frac{\mathrm{Log}\left[1+\frac{\mathrm{Cosh}[a+b\,x]^{4/3}}{\mathrm{Sinh}[a+b\,x]^{4/3}}+\frac{\mathrm{Cosh}[a+b\,x]^{2/3}}{\mathrm{Sinh}[a+b\,x]^{2/3}}\right]}{4\,b}-\frac{3\,\mathrm{Sinh}[a+b\,x]^{2/3}}{2\,b\,\mathrm{Cosh}[a+b\,x]^{2/3}}$$

Result (type 5, 87 leaves) :

$$-\frac{3\,\mathrm{Sinh}[a+b\,x]^{2/3}}{2\,b\,\mathrm{Cosh}[a+b\,x]^{2/3}}-$$

$$\left(3\,\mathrm{Cosh}[a+b\,x]^{4/3}\,\mathrm{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},\mathrm{Cosh}[a+b\,x]^2\right]\mathrm{Sinh}[a+b\,x]^{2/3}\right)\Big/$$

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

Problem 59: Result unnecessarily involves higher level functions.

$$\int\frac{\mathrm{Sinh}[a+b\,x]^{4/3}}{\mathrm{Cosh}[a+b\,x]^{4/3}}\,\mathbb{d}x$$

Optimal (type 3, 243 leaves, 12 steps) :

$$\frac{\sqrt{3}\ \mathrm{ArcTan}\left[\frac{1-\frac{2\,\mathrm{Cosh}[a+b\,x]^{1/3}}{\mathrm{Sinh}[a+b\,x]^{1/3}}}{\sqrt{3}}\right]}{2\,b}-\frac{\sqrt{3}\ \mathrm{ArcTan}\left[\frac{1+\frac{2\,\mathrm{Cosh}[a+b\,x]^{1/3}}{\mathrm{Sinh}[a+b\,x]^{1/3}}}{\sqrt{3}}\right]}{2\,b}+\frac{\mathrm{ArcTanh}\left[\frac{\mathrm{Cosh}[a+b\,x]^{1/3}}{\mathrm{Sinh}[a+b\,x]^{1/3}}\right]}{b}-$$

$$\frac{\mathrm{Log}\left[1+\frac{\mathrm{Cosh}[a+b\,x]^{2/3}}{\mathrm{Sinh}[a+b\,x]^{2/3}}-\frac{\mathrm{Cosh}[a+b\,x]^{1/3}}{\mathrm{Sinh}[a+b\,x]^{1/3}}\right]}{4\,b}+\frac{\mathrm{Log}\left[1+\frac{\mathrm{Cosh}[a+b\,x]^{2/3}}{\mathrm{Sinh}[a+b\,x]^{2/3}}+\frac{\mathrm{Cosh}[a+b\,x]^{1/3}}{\mathrm{Sinh}[a+b\,x]^{1/3}}\right]}{4\,b}-\frac{3\,\mathrm{Sinh}[a+b\,x]^{1/3}}{b\,\mathrm{Cosh}[a+b\,x]^{1/3}}$$

Result (type 5, 85 leaves) :

$$-\frac{3\,\mathrm{Sinh}[a+b\,x]^{1/3}}{b\,\mathrm{Cosh}[a+b\,x]^{1/3}}-$$

$$\left(3\,\mathrm{Cosh}[a+b\,x]^{5/3}\,\mathrm{Hypergeometric2F1}\left[\frac{5}{6},\frac{5}{6},\frac{11}{6},\mathrm{Cosh}[a+b\,x]^2\right]\mathrm{Sinh}[a+b\,x]^{1/3}\right)\Big/$$

$$\left(5\,b\left(-\mathrm{Sinh}[a+b\,x]^2\right)^{1/6}\right)$$

Problem 60: Result unnecessarily involves higher level functions.

$$\int\frac{\mathrm{Sinh}[a+b\,x]^{2/3}}{\mathrm{Cosh}[a+b\,x]^{2/3}}\,\mathbb{d}x$$

Optimal (type 3, 218 leaves, 11 steps) :

$$\frac{\sqrt{3}\;\text{ArcTan}\left[\frac{1-\frac{2\,\text{Sinh}[a+b\,x]^{1/3}}{\text{Cosh}[a+b\,x]^{1/3}}}{\sqrt{3}}\right]}{2\,b} - \frac{\sqrt{3}\;\text{ArcTan}\left[\frac{1+\frac{2\,\text{Sinh}[a+b\,x]^{1/3}}{\text{Cosh}[a+b\,x]^{1/3}}}{\sqrt{3}}\right]}{2\,b} + \frac{\text{ArcTanh}\left[\frac{\text{Sinh}[a+b\,x]^{1/3}}{\text{Cosh}[a+b\,x]^{1/3}}\right]}{b} -$$

$$\frac{\text{Log}\left[1-\frac{\text{Sinh}[a+b\,x]^{1/3}}{\text{Cosh}[a+b\,x]^{1/3}}+\frac{\text{Sinh}[a+b\,x]^{2/3}}{\text{Cosh}[a+b\,x]^{2/3}}\right]}{4\,b} + \frac{\text{Log}\left[1+\frac{\text{Sinh}[a+b\,x]^{1/3}}{\text{Cosh}[a+b\,x]^{1/3}}+\frac{\text{Sinh}[a+b\,x]^{2/3}}{\text{Cosh}[a+b\,x]^{2/3}}\right]}{4\,b}$$

Result (type 5, 57 leaves):

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

Problem 61: Result unnecessarily involves higher level functions.

$$\int\frac{\text{Sinh}[a+b\,x]^{1/3}}{\text{Cosh}[a+b\,x]^{1/3}}\,dx$$

Optimal (type 3, 128 leaves, 8 steps):

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

Result (type 5, 59 leaves):

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

Problem 62: Result unnecessarily involves higher level functions.

$$\int\frac{\text{Cosh}[a+b\,x]^{1/3}}{\text{Sinh}[a+b\,x]^{1/3}}\,dx$$

Optimal (type 3, 128 leaves, 8 steps):

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

Result (type 5, 59 leaves):

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

Problem 63: Result unnecessarily involves higher level functions.

$$\int \frac{\text{Cosh}[a + b\,x]^{2/3}}{\text{Sinh}[a + b\,x]^{2/3}}\,dx$$

Optimal (type 3, 218 leaves, 11 steps):

$$\frac{\sqrt{3}\ \text{ArcTan}\left[\frac{1 - \frac{2\,\text{Cosh}[a+b\,x]^{1/3}}{\text{Sinh}[a+b\,x]^{1/3}}}{\sqrt{3}}\right]}{2\,b} - \frac{\sqrt{3}\ \text{ArcTan}\left[\frac{1 + \frac{2\,\text{Cosh}[a+b\,x]^{1/3}}{\text{Sinh}[a+b\,x]^{1/3}}}{\sqrt{3}}\right]}{2\,b} + \frac{\text{ArcTanh}\left[\frac{\text{Cosh}[a+b\,x]^{1/3}}{\text{Sinh}[a+b\,x]^{1/3}}\right]}{b} -$$

$$\frac{\text{Log}\left[1 + \frac{\text{Cosh}[a+b\,x]^{2/3}}{\text{Sinh}[a+b\,x]^{2/3}} - \frac{\text{Cosh}[a+b\,x]^{1/3}}{\text{Sinh}[a+b\,x]^{1/3}}\right]}{4\,b} + \frac{\text{Log}\left[1 + \frac{\text{Cosh}[a+b\,x]^{2/3}}{\text{Sinh}[a+b\,x]^{2/3}} + \frac{\text{Cosh}[a+b\,x]^{1/3}}{\text{Sinh}[a+b\,x]^{1/3}}\right]}{4\,b}$$

Result (type 5, 59 leaves):

$$-\left(\left(3\,\text{Cosh}[a + b\,x]^{5/3}\,\text{Hypergeometric2F1}\left[\frac{5}{6}, \frac{5}{6}, \frac{11}{6}, \text{Cosh}[a + b\,x]^2\right]\,\text{Sinh}[a + b\,x]^{1/3}\right)\middle/\right.$$

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

Problem 64: Result unnecessarily involves higher level functions.

$$\int \frac{\text{Cosh}[a + b\,x]^{4/3}}{\text{Sinh}[a + b\,x]^{4/3}}\,dx$$

Optimal (type 3, 243 leaves, 12 steps):

$$\frac{\sqrt{3}\ \text{ArcTan}\left[\frac{1 - \frac{2\,\text{Sinh}[a+b\,x]^{1/3}}{\text{Cosh}[a+b\,x]^{1/3}}}{\sqrt{3}}\right]}{2\,b} - \frac{\sqrt{3}\ \text{ArcTan}\left[\frac{1 + \frac{2\,\text{Sinh}[a+b\,x]^{1/3}}{\text{Cosh}[a+b\,x]^{1/3}}}{\sqrt{3}}\right]}{2\,b} + \frac{\text{ArcTanh}\left[\frac{\text{Sinh}[a+b\,x]^{1/3}}{\text{Cosh}[a+b\,x]^{1/3}}\right]}{b} -$$

$$\frac{\text{Log}\left[1 - \frac{\text{Sinh}[a+b\,x]^{1/3}}{\text{Cosh}[a+b\,x]^{1/3}} + \frac{\text{Sinh}[a+b\,x]^{2/3}}{\text{Cosh}[a+b\,x]^{2/3}}\right]}{4\,b} + \frac{\text{Log}\left[1 + \frac{\text{Sinh}[a+b\,x]^{1/3}}{\text{Cosh}[a+b\,x]^{1/3}} + \frac{\text{Sinh}[a+b\,x]^{2/3}}{\text{Cosh}[a+b\,x]^{2/3}}\right]}{4\,b} - \frac{3\,\text{Cosh}[a + b\,x]^{1/3}}{b\,\text{Sinh}[a + b\,x]^{1/3}}$$

Result (type 5, 83 leaves):

$$-\frac{3\,\text{Cosh}[a + b\,x]^{1/3}}{b\,\text{Sinh}[a + b\,x]^{1/3}} -$$

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

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

Problem 65: Result unnecessarily involves higher level functions.

$$\int \frac{\text{Cosh}[a + b\,x]^{5/3}}{\text{Sinh}[a + b\,x]^{5/3}}\,dx$$

Optimal (type 3, 155 leaves, 9 steps):

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

$$\frac{\text{Log}\left[1+\frac{\text{Sinh}[a+b\,x]^{2/3}}{\text{Cosh}[a+b\,x]^{2/3}}+\frac{\text{Sinh}[a+b\,x]^{4/3}}{\text{Cosh}[a+b\,x]^{4/3}}\right]}{4\,b}-\frac{3\,\text{Cosh}[a+b\,x]^{2/3}}{2\,b\,\text{Sinh}[a+b\,x]^{2/3}}$$

Result (type 5, 83 leaves):

$$\left(3\,\text{Cosh}[a+b\,x]^{2/3}\,\text{Sinh}[a+b\,x]^{4/3}\right.$$

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

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

Problem 66: Result unnecessarily involves higher level functions.

$$\int\frac{\text{Cosh}[a+b\,x]^{7/3}}{\text{Sinh}[a+b\,x]^{7/3}}\,dx$$

Optimal (type 3, 155 leaves, 9 steps):

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

$$\frac{\text{Log}\left[1+\frac{\text{Cosh}[a+b\,x]^{4/3}}{\text{Sinh}[a+b\,x]^{4/3}}+\frac{\text{Cosh}[a+b\,x]^{2/3}}{\text{Sinh}[a+b\,x]^{2/3}}\right]}{4\,b}-\frac{3\,\text{Cosh}[a+b\,x]^{4/3}}{4\,b\,\text{Sinh}[a+b\,x]^{4/3}}$$

Result (type 5, 83 leaves):

$$\left(3\,\text{Cosh}[a+b\,x]^{4/3}\,\text{Sinh}[a+b\,x]^{2/3}\right.$$

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

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

Problem 100: Result more than twice size of optimal antiderivative.

$$\int\text{Sech}[x]^8\,\text{Tanh}[x]^6\,dx$$

Optimal (type 3, 33 leaves, 3 steps):

$$\frac{\text{Tanh}[x]^7}{7}-\frac{\text{Tanh}[x]^9}{3}+\frac{3\,\text{Tanh}[x]^{11}}{11}-\frac{\text{Tanh}[x]^{13}}{13}$$

Result (type 3, 67 leaves):

$$\frac{16\,\text{Tanh}[x]}{3003} + \frac{8\,\text{Sech}[x]^2\,\text{Tanh}[x]}{3003} + \frac{2\,\text{Sech}[x]^4\,\text{Tanh}[x]}{1001} + \frac{5\,\text{Sech}[x]^6\,\text{Tanh}[x]}{3003} -$$

$$\frac{53}{429}\,\text{Sech}[x]^8\,\text{Tanh}[x] + \frac{27}{143}\,\text{Sech}[x]^{10}\,\text{Tanh}[x] - \frac{1}{13}\,\text{Sech}[x]^{12}\,\text{Tanh}[x]$$

Problem 102: Result more than twice size of optimal antiderivative.

$$\int \text{Cosh}[a + b\,x]\,\text{Coth}[a + b\,x]^2\,dx$$

Optimal (type 3, 22 leaves, 3 steps):

$$-\frac{\text{Csch}[a + b\,x]}{b} + \frac{\text{Sinh}[a + b\,x]}{b}$$

Result (type 3, 45 leaves):

$$-\frac{\text{Coth}\left[\frac{1}{2}\,(a + b\,x)\right]}{2\,b} + \frac{\text{Sinh}[a + b\,x]}{b} + \frac{\text{Tanh}\left[\frac{1}{2}\,(a + b\,x)\right]}{2\,b}$$

Problem 104: Result more than twice size of optimal antiderivative.

$$\int \text{Cosh}[a + b\,x]\,\text{Coth}[a + b\,x]^4\,dx$$

Optimal (type 3, 37 leaves, 3 steps):

$$-\frac{2\,\text{Csch}[a + b\,x]}{b} - \frac{\text{Csch}[a + b\,x]^3}{3\,b} + \frac{\text{Sinh}[a + b\,x]}{b}$$

Result (type 3, 103 leaves):

$$-\frac{11\,\text{Coth}\left[\frac{1}{2}\,(a + b\,x)\right]}{12\,b} - \frac{\text{Coth}\left[\frac{1}{2}\,(a + b\,x)\right]\,\text{Csch}\left[\frac{1}{2}\,(a + b\,x)\right]^2}{24\,b} +$$

$$\frac{\text{Sinh}[a + b\,x]}{b} + \frac{11\,\text{Tanh}\left[\frac{1}{2}\,(a + b\,x)\right]}{12\,b} - \frac{\text{Sech}\left[\frac{1}{2}\,(a + b\,x)\right]^2\,\text{Tanh}\left[\frac{1}{2}\,(a + b\,x)\right]}{24\,b}$$

Problem 118: Result more than twice size of optimal antiderivative.

$$\int \text{Coth}[a + b\,x]^3\,\text{Csch}[a + b\,x]\,dx$$

Optimal (type 3, 27 leaves, 2 steps):

$$-\frac{\text{Csch}[a + b\,x]}{b} - \frac{\text{Csch}[a + b\,x]^3}{3\,b}$$

Result (type 3, 93 leaves):

$$-\frac{5\,\text{Coth}\left[\frac{1}{2}\,(a+b\,x)\right]}{12\,b}-\frac{\text{Coth}\left[\frac{1}{2}\,(a+b\,x)\right]\text{Csch}\left[\frac{1}{2}\,(a+b\,x)\right]^2}{24\,b}+$$

$$\frac{5\,\text{Tanh}\left[\frac{1}{2}\,(a+b\,x)\right]}{12\,b}-\frac{\text{Sech}\left[\frac{1}{2}\,(a+b\,x)\right]^2\text{Tanh}\left[\frac{1}{2}\,(a+b\,x)\right]}{24\,b}$$

Problem 119: Result more than twice size of optimal antiderivative.

$$\int \text{Coth}[a+b\,x]^3\,\text{Csch}[a+b\,x]^3\,dx$$

Optimal (type 3, 31 leaves, 3 steps):

$$-\frac{\text{Csch}[a+b\,x]^3}{3\,b}-\frac{\text{Csch}[a+b\,x]^5}{5\,b}$$

Result (type 3, 151 leaves):

$$\frac{11\,\text{Coth}\left[\frac{1}{2}\,(a+b\,x)\right]}{240\,b}-\frac{11\,\text{Coth}\left[\frac{1}{2}\,(a+b\,x)\right]\text{Csch}\left[\frac{1}{2}\,(a+b\,x)\right]^2}{480\,b}-$$

$$\frac{\text{Coth}\left[\frac{1}{2}\,(a+b\,x)\right]\text{Csch}\left[\frac{1}{2}\,(a+b\,x)\right]^4}{160\,b}-\frac{11\,\text{Tanh}\left[\frac{1}{2}\,(a+b\,x)\right]}{240\,b}-$$

$$\frac{11\,\text{Sech}\left[\frac{1}{2}\,(a+b\,x)\right]^2\text{Tanh}\left[\frac{1}{2}\,(a+b\,x)\right]}{480\,b}+\frac{\text{Sech}\left[\frac{1}{2}\,(a+b\,x)\right]^4\text{Tanh}\left[\frac{1}{2}\,(a+b\,x)\right]}{160\,b}$$

Problem 121: Result more than twice size of optimal antiderivative.

$$\int \text{Coth}[a+b\,x]^2\,\text{Csch}[a+b\,x]\,dx$$

Optimal (type 3, 34 leaves, 2 steps):

$$-\frac{\text{ArcTanh}[\text{Cosh}[a+b\,x]]}{2\,b}-\frac{\text{Coth}[a+b\,x]\,\text{Csch}[a+b\,x]}{2\,b}$$

Result (type 3, 75 leaves):

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

Problem 122: Result more than twice size of optimal antiderivative.

$$\int \text{Coth}[a+b\,x]^2\,\text{Csch}[a+b\,x]^3\,dx$$

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

$$\frac{\text{ArcTanh}[\text{Cosh}[a+b\,x]]}{8\,b}-\frac{\text{Coth}[a+b\,x]\,\text{Csch}[a+b\,x]}{8\,b}-\frac{\text{Coth}[a+b\,x]\,\text{Csch}[a+b\,x]^3}{4\,b}$$

Result (type 3, 113 leaves):

$$-\frac{\text{Csch}\left[\frac{1}{2}\,(a+b\,x)\right]^2}{32\,b}-\frac{\text{Csch}\left[\frac{1}{2}\,(a+b\,x)\right]^4}{64\,b}+\frac{\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(a+b\,x)\right]\right]}{8\,b}-$$

$$\frac{\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(a+b\,x)\right]\right]}{8\,b}-\frac{\text{Sech}\left[\frac{1}{2}\,(a+b\,x)\right]^2}{32\,b}+\frac{\text{Sech}\left[\frac{1}{2}\,(a+b\,x)\right]^4}{64\,b}$$

Problem 123: Result more than twice size of optimal antiderivative.

$$\int \text{Coth}[a+b\,x]^4\,\text{Csch}[a+b\,x]\,dx$$

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

$$-\frac{3\,\text{ArcTanh}[\text{Cosh}[a+b\,x]]}{8\,b}-\frac{3\,\text{Coth}[a+b\,x]\,\text{Csch}[a+b\,x]}{8\,b}-\frac{\text{Coth}[a+b\,x]^3\,\text{Csch}[a+b\,x]}{4\,b}$$

Result (type 3, 113 leaves):

$$-\frac{5\,\text{Csch}\left[\frac{1}{2}\,(a+b\,x)\right]^2}{32\,b}-\frac{\text{Csch}\left[\frac{1}{2}\,(a+b\,x)\right]^4}{64\,b}-\frac{3\,\text{Log}\left[\text{Cosh}\left[\frac{1}{2}\,(a+b\,x)\right]\right]}{8\,b}+$$

$$\frac{3\,\text{Log}\left[\text{Sinh}\left[\frac{1}{2}\,(a+b\,x)\right]\right]}{8\,b}-\frac{5\,\text{Sech}\left[\frac{1}{2}\,(a+b\,x)\right]^2}{32\,b}+\frac{\text{Sech}\left[\frac{1}{2}\,(a+b\,x)\right]^4}{64\,b}$$

Problem 127: Result more than twice size of optimal antiderivative.

$$\int \text{Coth}[x]^4\,\text{Csch}[x]^3\,dx$$

Optimal (type 3, 38 leaves, 4 steps):

$$\frac{1}{16}\,\text{ArcTanh}[\text{Cosh}[x]]-\frac{1}{16}\,\text{Coth}[x]\,\text{Csch}[x]-\frac{1}{8}\,\text{Coth}[x]\,\text{Csch}[x]^3-\frac{1}{6}\,\text{Coth}[x]^3\,\text{Csch}[x]^3$$

Result (type 3, 95 leaves):

$$-\frac{1}{64}\,\text{Csch}\left[\frac{x}{2}\right]^2-\frac{1}{64}\,\text{Csch}\left[\frac{x}{2}\right]^4-\frac{1}{384}\,\text{Csch}\left[\frac{x}{2}\right]^6+\frac{1}{16}\,\text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right]-$$

$$\frac{1}{16}\,\text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right]-\frac{1}{64}\,\text{Sech}\left[\frac{x}{2}\right]^2+\frac{1}{64}\,\text{Sech}\left[\frac{x}{2}\right]^4-\frac{1}{384}\,\text{Sech}\left[\frac{x}{2}\right]^6$$

Problem 129: Result more than twice size of optimal antiderivative.

$$\int \text{Coth}[6\,x]^5\,\text{Csch}[6\,x]\,dx$$

Optimal (type 3, 29 leaves, 3 steps):

$$-\frac{1}{6}\,\text{Csch}[6\,x]-\frac{1}{9}\,\text{Csch}[6\,x]^3-\frac{1}{30}\,\text{Csch}[6\,x]^5$$

Result (type 3, 73 leaves):

$$-\frac{89\,\text{Coth}[3\,x]}{1440}-\frac{31\,\text{Coth}[3\,x]\,\text{Csch}[3\,x]^2}{2880}-\frac{1}{960}\,\text{Coth}[3\,x]\,\text{Csch}[3\,x]^4+$$
$$\frac{89\,\text{Tanh}[3\,x]}{1440}-\frac{31\,\text{Sech}[3\,x]^2\,\text{Tanh}[3\,x]}{2880}+\frac{1}{960}\,\text{Sech}[3\,x]^4\,\text{Tanh}[3\,x]$$

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

$$\int \text{Coth}[x]^7\,\text{Csch}[x]^3\,dx$$

Optimal (type 3, 33 leaves, 3 steps):

$$-\frac{1}{3}\,\text{Csch}[x]^3-\frac{3\,\text{Csch}[x]^5}{5}-\frac{3\,\text{Csch}[x]^7}{7}-\frac{\text{Csch}[x]^9}{9}$$

Result (type 3, 165 leaves):

$$\frac{1823\,\text{Coth}\left[\frac{x}{2}\right]}{80\,640}-\frac{1823\,\text{Coth}\left[\frac{x}{2}\right]\,\text{Csch}\left[\frac{x}{2}\right]^2}{161\,280}-\frac{463\,\text{Coth}\left[\frac{x}{2}\right]\,\text{Csch}\left[\frac{x}{2}\right]^4}{53\,760}-$$
$$\frac{73\,\text{Coth}\left[\frac{x}{2}\right]\,\text{Csch}\left[\frac{x}{2}\right]^6}{32\,256}-\frac{\text{Coth}\left[\frac{x}{2}\right]\,\text{Csch}\left[\frac{x}{2}\right]^8}{4608}-\frac{1823\,\text{Tanh}\left[\frac{x}{2}\right]}{80\,640}-\frac{1823\,\text{Sech}\left[\frac{x}{2}\right]^2\,\text{Tanh}\left[\frac{x}{2}\right]}{161\,280}+$$
$$\frac{463\,\text{Sech}\left[\frac{x}{2}\right]^4\,\text{Tanh}\left[\frac{x}{2}\right]}{53\,760}-\frac{73\,\text{Sech}\left[\frac{x}{2}\right]^6\,\text{Tanh}\left[\frac{x}{2}\right]}{32\,256}+\frac{\text{Sech}\left[\frac{x}{2}\right]^8\,\text{Tanh}\left[\frac{x}{2}\right]}{4608}$$

Problem 143: Result more than twice size of optimal antiderivative.

$$\int \text{Sinh}[a+b\,x]\,\text{Tanh}[c+b\,x]\,dx$$

Optimal (type 3, 29 leaves, 3 steps):

$$-\frac{\text{ArcTan}[\text{Sinh}[c+b\,x]]\,\text{Cosh}[a-c]}{b}+\frac{\text{Sinh}[a+b\,x]}{b}$$

Result (type 3, 86 leaves):

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

Problem 144: Result more than twice size of optimal antiderivative.

$$\int \text{Sinh}[a+b\,x]\,\text{Tanh}[c+b\,x]^2\,dx$$

Optimal (type 3, 45 leaves, 6 steps):

$$\frac{\text{Cosh}[a+b\,x]}{b}+\frac{\text{Cosh}[a-c]\,\text{Sech}[c+b\,x]}{b}-\frac{\text{ArcTan}[\text{Sinh}[c+b\,x]]\,\text{Sinh}[a-c]}{b}$$

Result (type 3, 102 leaves):

$$\frac{\text{Cosh}[a]\,\text{Cosh}[b\,x]}{b} + \frac{\text{Cosh}[a-c]\,\text{Sech}[c+b\,x]}{b} -$$

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

Problem 146: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Coth}[c+b\,x]\,\text{Sinh}[a+b\,x]\,dx$$

Optimal (type 3, 29 leaves, 3 steps):

$$-\frac{\text{ArcTanh}[\text{Cosh}[c+b\,x]]\,\text{Sinh}[a-c]}{b} + \frac{\text{Sinh}[a+b\,x]}{b}$$

Result (type 3, 93 leaves):

$$\frac{\text{Cosh}[b\,x]\,\text{Sinh}[a]}{b} -$$

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

Problem 147: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Coth}[c+b\,x]^2\,\text{Sinh}[a+b\,x]\,dx$$

Optimal (type 3, 46 leaves, 6 steps):

$$-\frac{\text{ArcTanh}[\text{Cosh}[c+b\,x]]\,\text{Cosh}[a-c]}{b} + \frac{\text{Cosh}[a+b\,x]}{b} - \frac{\text{Csch}[c+b\,x]\,\text{Sinh}[a-c]}{b}$$

Result (type 3, 110 leaves):

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

$$\frac{\text{Cosh}[a]\,\text{Cosh}[b\,x]}{b} - \frac{\text{Csch}[c+b\,x]\,\text{Sinh}[a-c]}{b} + \frac{\text{Sinh}[a]\,\text{Sinh}[b\,x]}{b}$$

Problem 150: Result more than twice size of optimal antiderivative.

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

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

$$-\frac{\text{Cosh}[a-c]\,\text{Sech}[c+b\,x]}{b}+\frac{\text{ArcTan}[\text{Sinh}[c+b\,x]]\,\text{Sinh}[a-c]}{b}$$

Result (type 3, 83 leaves):

$$-\frac{\text{Cosh}[a-c]\,\text{Sech}[c+b\,x]}{b}+\frac{2\,\text{ArcTan}\left[\frac{(\text{Cosh}[c]-\text{Sinh}[c])\,\left(\text{Cosh}\left[\frac{bx}{2}\right]\,\text{Sinh}[c]+\text{Cosh}[c]\,\text{Sinh}\left[\frac{bx}{2}\right]\right)}{\text{Cosh}[c]\,\text{Cosh}\left[\frac{bx}{2}\right]-\text{Cosh}\left[\frac{bx}{2}\right]\,\text{Sinh}[c]}\right]\,\text{Sinh}[a-c]}{b}$$

Problem 153: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 36 leaves, 4 steps):

$$-\frac{\text{ArcTanh}[\text{Cosh}[c+b\,x]]\,\text{Cosh}[a-c]}{b}-\frac{\text{Csch}[c+b\,x]\,\text{Sinh}[a-c]}{b}$$

Result (type 3, 90 leaves):

$$-\frac{2\,\dot{\imath}\,\text{ArcTan}\left[\frac{(\text{Cosh}[c]-\text{Sinh}[c])\,\left(\text{Cosh}[c]\,\text{Cosh}\left[\frac{bx}{2}\right]+\text{Sinh}[c]\,\text{Sinh}\left[\frac{bx}{2}\right]\right)}{\dot{\imath}\,\text{Cosh}[c]\,\text{Cosh}\left[\frac{bx}{2}\right]-\dot{\imath}\,\text{Cosh}\left[\frac{bx}{2}\right]\,\text{Sinh}[c]}\right]\,\text{Cosh}[a-c]}{b}-\frac{\text{Csch}[c+b\,x]\,\text{Sinh}[a-c]}{b}$$

Problem 155: Result more than twice size of optimal antiderivative.

$$\int\text{Cosh}[a+b\,x]\,\text{Tanh}[c+b\,x]\,dx$$

Optimal (type 3, 29 leaves, 3 steps):

$$\frac{\text{Cosh}[a+b\,x]}{b}-\frac{\text{ArcTan}[\text{Sinh}[c+b\,x]]\,\text{Sinh}[a-c]}{b}$$

Result (type 3, 86 leaves):

$$\frac{\text{Cosh}[a]\,\text{Cosh}[b\,x]}{b}-$$

$$\frac{2\,\text{ArcTan}\left[\frac{(\text{Cosh}[c]-\text{Sinh}[c])\,\left(\text{Cosh}\left[\frac{bx}{2}\right]\,\text{Sinh}[c]+\text{Cosh}[c]\,\text{Sinh}\left[\frac{bx}{2}\right]\right)}{\text{Cosh}[c]\,\text{Cosh}\left[\frac{bx}{2}\right]-\text{Cosh}\left[\frac{bx}{2}\right]\,\text{Sinh}[c]}\right]\,\text{Sinh}[a-c]}{b}+\frac{\text{Sinh}[a]\,\text{Sinh}[b\,x]}{b}$$

Problem 156: Result more than twice size of optimal antiderivative.

$$\int\text{Cosh}[a+b\,x]\,\text{Tanh}[c+b\,x]^2\,dx$$

Optimal (type 3, 45 leaves, 6 steps):

$$-\frac{\text{ArcTan}[\text{Sinh}[c + b\,x]]\,\text{Cosh}[a - c]}{b} + \frac{\text{Sech}[c + b\,x]\,\text{Sinh}[a - c]}{b} + \frac{\text{Sinh}[a + b\,x]}{b}$$

Result (type 3, 102 leaves):

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

$$\frac{\text{Cosh}[b\,x]\,\text{Sinh}[a]}{b} + \frac{\text{Sech}[c + b\,x]\,\text{Sinh}[a - c]}{b} + \frac{\text{Cosh}[a]\,\text{Sinh}[b\,x]}{b}$$

Problem 158: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cosh}[a + b\,x]\,\text{Coth}[c + b\,x]\,dx$$

Optimal (type 3, 29 leaves, 3 steps):

$$-\frac{\text{ArcTanh}[\text{Cosh}[c + b\,x]]\,\text{Cosh}[a - c]}{b} + \frac{\text{Cosh}[a + b\,x]}{b}$$

Result (type 3, 93 leaves):

$$-\frac{2\,\mathbb{i}\,\text{ArcTan}\left[\frac{(\text{Cosh}[c]-\text{Sinh}[c])\,\left(\text{Cosh}[c]\,\text{Cosh}\left[\frac{b\,x}{2}\right]+\text{Sinh}[c]\,\text{Sinh}\left[\frac{b\,x}{2}\right]\right)}{\mathbb{i}\,\text{Cosh}[c]\,\text{Cosh}\left[\frac{b\,x}{2}\right]-\mathbb{i}\,\text{Cosh}\left[\frac{b\,x}{2}\right]\,\text{Sinh}[c]}\right]\,\text{Cosh}[a - c]}{b} +$$

$$\frac{\text{Cosh}[a]\,\text{Cosh}[b\,x]}{b} + \frac{\text{Sinh}[a]\,\text{Sinh}[b\,x]}{b}$$

Problem 159: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cosh}[a + b\,x]\,\text{Coth}[c + b\,x]^2\,dx$$

Optimal (type 3, 46 leaves, 6 steps):

$$-\frac{\text{Cosh}[a - c]\,\text{Csch}[c + b\,x]}{b} - \frac{\text{ArcTanh}[\text{Cosh}[c + b\,x]]\,\text{Sinh}[a - c]}{b} + \frac{\text{Sinh}[a + b\,x]}{b}$$

Result (type 3, 110 leaves):

$$-\frac{\text{Cosh}[a - c]\,\text{Csch}[c + b\,x]}{b} + \frac{\text{Cosh}[b\,x]\,\text{Sinh}[a]}{b} -$$

$$\frac{2\,\mathbb{i}\,\text{ArcTan}\left[\frac{(\text{Cosh}[c]-\text{Sinh}[c])\,\left(\text{Cosh}[c]\,\text{Cosh}\left[\frac{b\,x}{2}\right]+\text{Sinh}[c]\,\text{Sinh}\left[\frac{b\,x}{2}\right]\right)}{\mathbb{i}\,\text{Cosh}[c]\,\text{Cosh}\left[\frac{b\,x}{2}\right]-\mathbb{i}\,\text{Cosh}\left[\frac{b\,x}{2}\right]\,\text{Sinh}[c]}\right]\,\text{Sinh}[a - c]}{b} + \frac{\text{Cosh}[a]\,\text{Sinh}[b\,x]}{b}$$

Problem 162: Result more than twice size of optimal antiderivative.

$$\int \text{Cosh}[a + b\, x]\ \text{Sech}[c + b\, x]^2\ dx$$

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

$$\frac{\text{ArcTan}[\text{Sinh}[c + b\, x]]\ \text{Cosh}[a - c]}{b} - \frac{\text{Sech}[c + b\, x]\ \text{Sinh}[a - c]}{b}$$

Result (type 3, 83 leaves):

$$\frac{2\ \text{ArcTan}\left[\frac{(\text{Cosh}[c] - \text{Sinh}[c])\ \left(\text{Cosh}\left[\frac{b\, x}{2}\right]\ \text{Sinh}[c] + \text{Cosh}[c]\ \text{Sinh}\left[\frac{b\, x}{2}\right]\right)}{\text{Cosh}[c]\ \text{Cosh}\left[\frac{b\, x}{2}\right] - \text{Cosh}\left[\frac{b\, x}{2}\right]\ \text{Sinh}[c]}\right]\ \text{Cosh}[a - c]}{b} - \frac{\text{Sech}[c + b\, x]\ \text{Sinh}[a - c]}{b}$$

Problem 165: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 36 leaves, 4 steps):

$$-\frac{\text{Cosh}[a - c]\ \text{Csch}[c + b\, x]}{b} - \frac{\text{ArcTanh}[\text{Cosh}[c + b\, x]]\ \text{Sinh}[a - c]}{b}$$

Result (type 3, 90 leaves):

$$-\frac{\text{Cosh}[a - c]\ \text{Csch}[c + b\, x]}{b} - \frac{2\ \dot{\imath}\ \text{ArcTan}\left[\frac{(\text{Cosh}[c] - \text{Sinh}[c])\ \left(\text{Cosh}[c]\ \text{Cosh}\left[\frac{b\, x}{2}\right] + \text{Sinh}[c]\ \text{Sinh}\left[\frac{b\, x}{2}\right]\right)}{\dot{\imath}\ \text{Cosh}[c]\ \text{Cosh}\left[\frac{b\, x}{2}\right] - \dot{\imath}\ \text{Cosh}\left[\frac{b\, x}{2}\right]\ \text{Sinh}[c]}\right]\ \text{Sinh}[a - c]}{b}$$

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

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

Optimal (type 5, 121 leaves, 6 steps):

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

Result (type 5, 278 leaves):

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

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

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

$$\left(b+2\,d\right)\left(-\text{Sech}[c]-e^{2\,a}\,\text{Sech}[c]+\left(1+e^{2\,a}+2\,e^{2\,c}\right)\text{Hypergeometric2F1}\left[1,\right.\right.$$

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

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

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

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

Optimal (type 5, 117 leaves, 6 steps):

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

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

Result (type 5, 240 leaves):

$$\frac{\text{Cosh}[a]\,\text{Cosh}[b\,x]\,\text{Coth}[c]}{b}+$$

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

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

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

$$\left.\frac{e^{b\,x}\,\text{Hypergeometric2F1}\left[1,\,\frac{b}{2\,d},\,1+\frac{b}{2\,d},\,e^{2\,(c+d\,x)}\right]}{b}\right)+\frac{\text{Coth}[c]\,\text{Sinh}[a]\,\text{Sinh}[b\,x]}{b}$$

Problem 200: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sinh}[x]\,\text{Tanh}[2\,x]\,dx$$

Optimal (type 3, 19 leaves, 4 steps):

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

Result (type 3, 167 leaves) :

$$\frac{1}{4\sqrt{2}}\left(-2\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right] + \text{Sinh}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right] - \left(-1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right] - \right.$$

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

$$\left. \dot{\imath}\,\text{Log}\left[\sqrt{2}\,-2\,\text{Cosh}[x]\right] + \dot{\imath}\,\text{Log}\left[\sqrt{2}\,+2\,\text{Cosh}[x]\right] - \dot{\imath}\,\text{Log}[\text{Cosh}[2\,x]] + 4\sqrt{2}\,\text{Sinh}[x]\right)$$

Problem 202: Result is not expressed in closed-form.

$$\int \text{Sinh}[x]\,\text{Tanh}[4\,x]\,dx$$

Optimal (type 3, 69 leaves, 6 steps) :

$$-\frac{1}{4}\sqrt{2-\sqrt{2}}\;\text{ArcTan}\left[\frac{2\,\text{Sinh}[x]}{\sqrt{2-\sqrt{2}}}\right] - \frac{1}{4}\sqrt{2+\sqrt{2}}\;\text{ArcTan}\left[\frac{2\,\text{Sinh}[x]}{\sqrt{2+\sqrt{2}}}\right] + \text{Sinh}[x]$$

Result (type 7, 111 leaves) :

$$-\frac{1}{16}\,\text{RootSum}\left[1 + \#1^8\,\&,\,\frac{1}{\#1^7}\left(x + 2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right] - \text{Sinh}\left[\frac{x}{2}\right] + \text{Cosh}\left[\frac{x}{2}\right]\#1 - \text{Sinh}\left[\frac{x}{2}\right]\#1\right] + \right.\right.$$

$$\left.\left. x\,\#1^6 + 2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right] - \text{Sinh}\left[\frac{x}{2}\right] + \text{Cosh}\left[\frac{x}{2}\right]\#1 - \text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^6\right)\&\right] + \text{Sinh}[x]$$

Problem 203: Result is not expressed in closed-form.

$$\int \text{Sinh}[x]\,\text{Tanh}[5\,x]\,dx$$

Optimal (type 3, 87 leaves, 9 steps) :

$$-\frac{1}{5}\,\text{ArcTan}[\text{Sinh}[x]] - \frac{1}{5}\sqrt{\frac{1}{2}\left(3+\sqrt{5}\right)}\;\text{ArcTan}\left[2\sqrt{\frac{2}{3+\sqrt{5}}}\;\text{Sinh}[x]\right] -$$

$$\frac{1}{5}\sqrt{\frac{1}{2}\left(3-\sqrt{5}\right)}\;\text{ArcTan}\left[\sqrt{2\left(3+\sqrt{5}\right)}\;\text{Sinh}[x]\right] + \text{Sinh}[x]$$

Result (type 7, 262 leaves) :

$$-\frac{2}{5} \, \text{ArcTan}\Big[\text{Tanh}\Big[\frac{x}{2}\Big]\Big] - \frac{1}{20} \, \text{RootSum}\Big[1 - \#1^2 + \#1^4 - \#1^6 + \#1^8 \, \&,$$

$$\Big(3\,x + 6\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\,\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\,\#1\Big] -$$

$$x\,\#1^2 - 2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\,\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\,\#1\Big]\,\#1^2 -$$

$$x\,\#1^4 - 2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\,\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\,\#1\Big]\,\#1^4 +$$

$$3\,x\,\#1^6 + 6\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\,\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\,\#1\Big]\,\#1^6\Big)\Big/$$

$$\Big(-\#1 + 2\,\#1^3 - 3\,\#1^5 + 4\,\#1^7\Big)\,\&\Big] + \text{Sinh}[x]$$

Problem 204: Result is not expressed in closed-form.

$$\int \text{Sinh}[x]\,\text{Tanh}[6\,x]\,\mathrm{d}x$$

Optimal (type 3, 87 leaves, 10 steps) :

$$-\frac{\text{ArcTan}\big[\sqrt{2}\,\,\text{Sinh}[x]\big]}{3\sqrt{2}} - \frac{1}{6}\sqrt{2-\sqrt{3}}\;\text{ArcTan}\Big[\frac{2\,\text{Sinh}[x]}{\sqrt{2-\sqrt{3}}}\Big] -$$

$$\frac{1}{6}\sqrt{2+\sqrt{3}}\;\text{ArcTan}\Big[\frac{2\,\text{Sinh}[x]}{\sqrt{2+\sqrt{3}}}\Big] + \text{Sinh}[x]$$

Result (type 7, 397 leaves) :

$$-\frac{1}{24\sqrt{2}}\,\Bigg(4\,\text{ArcTan}\Big[\frac{\text{Cosh}\big[\frac{x}{2}\big] + \text{Sinh}\big[\frac{x}{2}\big]}{\big(1+\sqrt{2}\,\big)\,\text{Cosh}\big[\frac{x}{2}\big] - \big(-1+\sqrt{2}\,\big)\,\text{Sinh}\big[\frac{x}{2}\big]}\Big] +$$

$$4\,\text{ArcTan}\Big[\frac{\text{Cosh}\big[\frac{x}{2}\big] + \text{Sinh}\big[\frac{x}{2}\big]}{\big(-1+\sqrt{2}\,\big)\,\text{Cosh}\big[\frac{x}{2}\big] - \big(1+\sqrt{2}\,\big)\,\text{Sinh}\big[\frac{x}{2}\big]}\Big] +$$

$$4\,\text{ArcTan}\big[\sqrt{2}\,\,\text{Sinh}[x]\big] - 2\,\mathring{\imath}\,\text{Log}\big[\sqrt{2}\, - 2\,\text{Cosh}[x]\big] -$$

$$2\,\mathring{\imath}\,\text{Log}\big[\sqrt{2}\, + 2\,\text{Cosh}[x]\big] + 2\,\mathring{\imath}\,\text{Log}[\text{Cosh}[2\,x]] + \sqrt{2}\,\,\text{RootSum}\big[1 - \#1^4 + \#1^8 \, \&,$$

$$\frac{1}{-\#1^3 + 2\,\#1^7}\,\Big(2\,x + 4\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\,\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\,\#1\Big] - x\,\#1^2 -$$

$$2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\,\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\,\#1\Big]\,\#1^2 - x\,\#1^4 -$$

$$2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\,\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\,\#1\Big]\,\#1^4 + 2\,x\,\#1^6 +$$

$$4\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\,\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\,\#1\Big]\,\#1^6\Big)\,\&\Big] - 24\sqrt{2}\,\,\text{Sinh}[x]\Bigg)$$

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

$$\int \text{Sinh}[x]\,\text{Tanh}[n\,x]\,\mathrm{d}x$$

Optimal (type 5, 81 leaves, 6 steps):

$$\frac{e^{-x}}{2} + \frac{e^{x}}{2} - e^{-x} \text{Hypergeometric2F1}\left[1, -\frac{1}{2n}, 1 - \frac{1}{2n}, -e^{2nx}\right] -$$

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

Result (type 5, 164 leaves):

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

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

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

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

Problem 208: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Coth}[4x] \,\text{Sinh}[x] \,dx$$

Optimal (type 3, 28 leaves, 6 steps):

$$-\frac{1}{4} \text{ArcTan}[\text{Sinh}[x]] - \frac{\text{ArcTan}\left[\sqrt{2}\,\text{Sinh}[x]\right]}{2\sqrt{2}} + \text{Sinh}[x]$$

Result (type 3, 181 leaves):

$$-\frac{1}{8\sqrt{2}} \left(2 \text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right] + \text{Sinh}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right] - \left(-1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right] + \right.$$

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

$$2 \text{ArcTan}\left[\sqrt{2}\,\text{Sinh}[x]\right] + 4\sqrt{2}\,\text{ArcTan}\left[\text{Tanh}\left[\frac{x}{2}\right]\right] - i \text{Log}\left[\sqrt{2} - 2\text{Cosh}[x]\right] -$$

$$\left. i \text{Log}\left[\sqrt{2} + 2\text{Cosh}[x]\right] + i \text{Log}[\text{Cosh}[2x]] - 8\sqrt{2}\,\text{Sinh}[x]\right)$$

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

$$\int \text{Coth}[5x] \,\text{Sinh}[x] \,dx$$

Optimal (type 3, 82 leaves, 6 steps) :

$$-\frac{1}{5}\sqrt{\frac{1}{2}\left(5+\sqrt{5}\right)}\,\,\text{ArcTan}\Big[2\,\sqrt{\frac{2}{5+\sqrt{5}}}\,\,\text{Sinh}[x]\Big]\,-$$

$$\frac{1}{5}\sqrt{\frac{1}{2}\left(5-\sqrt{5}\right)}\,\,\text{ArcTan}\Big[\sqrt{\frac{2}{5}\left(5+\sqrt{5}\right)}\,\,\text{Sinh}[x]\Big]+\text{Sinh}[x]$$

Result (type 3, 198 leaves) :

$$\frac{1}{20\sqrt{5}}\left(-\left(-5+\sqrt{5}\right)\sqrt{2\left(5+\sqrt{5}\right)}\,\,\text{ArcTan}\Big[\frac{\left(-3+\sqrt{5}\right)\text{Tanh}\big[\frac{x}{2}\big]}{\sqrt{10-2\sqrt{5}}}\Big]\,+\right.$$

$$\left(-5+\sqrt{5}\right)\sqrt{2\left(5+\sqrt{5}\right)}\,\,\text{ArcTan}\Big[\frac{\left(5+\sqrt{5}\right)\text{Tanh}\big[\frac{x}{2}\big]}{\sqrt{10-2\sqrt{5}}}\Big]+\sqrt{10-2\sqrt{5}}\,\left(5+\sqrt{5}\right)$$

$$\left.\left(\text{ArcTan}\Big[\frac{\left(-5+\sqrt{5}\right)\text{Tanh}\big[\frac{x}{2}\big]}{\sqrt{2\left(5+\sqrt{5}\right)}}\Big]-\text{ArcTan}\Big[\frac{\left(3+\sqrt{5}\right)\text{Tanh}\big[\frac{x}{2}\big]}{\sqrt{2\left(5+\sqrt{5}\right)}}\Big]\right)+20\sqrt{5}\,\,\text{Sinh}[x]\right)$$

Problem 211: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\text{Sech}[2\,x]\,\text{Sinh}[x]\,dx$$

Optimal (type 3, 16 leaves, 2 steps) :

$$-\frac{\text{ArcTanh}\big[\sqrt{2}\,\text{Cosh}[x]\big]}{\sqrt{2}}$$

Result (type 3, 155 leaves) :

$$\frac{1}{4\sqrt{2}}\left(-2\,i\,\text{ArcTan}\Big[\frac{\text{Cosh}\big[\frac{x}{2}\big]+\text{Sinh}\big[\frac{x}{2}\big]}{\left(1+\sqrt{2}\right)\text{Cosh}\big[\frac{x}{2}\big]-\left(-1+\sqrt{2}\right)\text{Sinh}\big[\frac{x}{2}\big]}\Big]\,+\right.$$

$$2\,i\,\text{ArcTan}\Big[\frac{\text{Cosh}\big[\frac{x}{2}\big]+\text{Sinh}\big[\frac{x}{2}\big]}{\left(-1+\sqrt{2}\right)\text{Cosh}\big[\frac{x}{2}\big]-\left(1+\sqrt{2}\right)\text{Sinh}\big[\frac{x}{2}\big]}\Big]\,-$$

$$\left.4\,\text{ArcTanh}\Big[\sqrt{2}\,-i\,\text{Tanh}\Big[\frac{x}{2}\Big]\Big]+\text{Log}\Big[\sqrt{2}\,-2\,\text{Cosh}[x]\Big]-\text{Log}\Big[\sqrt{2}\,+2\,\text{Cosh}[x]\Big]\right)$$

Problem 213: Result is not expressed in closed-form.

$$\int \text{Sech}[4\,x]\,\text{Sinh}[x]\,dx$$

Optimal (type 3, 71 leaves, 4 steps):

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

Result (type 7, 110 leaves):

$$\frac{1}{16}\,\text{RootSum}\Big[1+\#1^8\,\&,\;\frac{1}{\#1^5}\Big(-x-2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big]-\text{Sinh}\Big[\frac{x}{2}\Big]+\text{Cosh}\Big[\frac{x}{2}\Big]\#1-\text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]+$$
$$x\,\#1^2+2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big]-\text{Sinh}\Big[\frac{x}{2}\Big]+\text{Cosh}\Big[\frac{x}{2}\Big]\#1-\text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^2\Big)\,\&\Big]$$

Problem 215: Result is not expressed in closed-form.

$$\int \text{Sech}[6\,x]\,\text{Sinh}[x]\,dx$$

Optimal (type 3, 85 leaves, 7 steps):

$$\frac{\text{ArcTanh}\left[\sqrt{2}\,\text{Cosh}[x]\right]}{3\sqrt{2}} - \frac{\text{ArcTanh}\left[\frac{2\,\text{Cosh}[x]}{\sqrt{2-\sqrt{3}}}\right]}{6\sqrt{2-\sqrt{3}}} - \frac{\text{ArcTanh}\left[\frac{2\,\text{Cosh}[x]}{\sqrt{2+\sqrt{3}}}\right]}{6\sqrt{2+\sqrt{3}}}$$

Result (type 7, 385 leaves):

$$\frac{1}{24\sqrt{2}}\left(4\,i\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right] - \right.$$

$$4\,i\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right] + 8\,\text{ArcTanh}\left[\sqrt{2}-i\,\text{Tanh}\left[\frac{x}{2}\right]\right] -$$

$$2\,\text{Log}\left[\sqrt{2}-2\,\text{Cosh}[x]\right]+2\,\text{Log}\left[\sqrt{2}+2\,\text{Cosh}[x]\right]+\sqrt{2}\,\text{RootSum}\Big[1-\#1^4+\#1^8\,\&,$$

$$\frac{1}{-\#1^3+2\,\#1^7}\Big(-x-2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big]-\text{Sinh}\Big[\frac{x}{2}\Big]+\text{Cosh}\Big[\frac{x}{2}\Big]\#1-\text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]+$$

$$x\,\#1^2+2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big]-\text{Sinh}\Big[\frac{x}{2}\Big]+\text{Cosh}\Big[\frac{x}{2}\Big]\#1-\text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^2-$$

$$x\,\#1^4-2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big]-\text{Sinh}\Big[\frac{x}{2}\Big]+\text{Cosh}\Big[\frac{x}{2}\Big]\#1-\text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^4+$$

$$\left.x\,\#1^6+2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big]-\text{Sinh}\Big[\frac{x}{2}\Big]+\text{Cosh}\Big[\frac{x}{2}\Big]\#1-\text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^6\Big)\,\&\Big]\right)$$

Problem 218: Result unnecessarily involves complex numbers and more than

twice size of optimal antiderivative.

$$\int \text{Csch}[4\,x]\ \text{Sinh}[x]\ dx$$

Optimal (type 3, 26 leaves, 4 steps):

$$-\frac{1}{4}\,\text{ArcTan}[\text{Sinh}[x]] + \frac{\text{ArcTan}\left[\sqrt{2}\ \text{Sinh}[x]\right]}{2\sqrt{2}}$$

Result (type 3, 172 leaves):

$$-\frac{1}{8\sqrt{2}}\,i\left(2\,i\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]+\right.$$

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

$$\left.4\,i\,\sqrt{2}\ \text{ArcTan}\left[\text{Tanh}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\sqrt{2}-2\,\text{Cosh}[x]\right]+\text{Log}\left[\sqrt{2}+2\,\text{Cosh}[x]\right]-\text{Log}[\text{Cosh}[2\,x]]\right)$$

Problem 229: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cosh}[x]\ \text{Tanh}[2\,x]\ dx$$

Optimal (type 3, 19 leaves, 4 steps):

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

Result (type 3, 164 leaves):

$$\frac{1}{4\sqrt{2}}\left(-2\,i\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]+\right.$$

$$2\,i\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]-4\,\text{ArcTanh}\left[\sqrt{2}-i\,\text{Tanh}\left[\frac{x}{2}\right]\right]+$$

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

Problem 230: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cosh}[x]\ \text{Tanh}[3\,x]\ dx$$

Optimal (type 3, 20 leaves, 3 steps):

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

Result (type 3, 55 leaves):

$$-\frac{\text{ArcTanh}\left[\frac{2-i\,\text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]}{\sqrt{3}} - \frac{\text{ArcTanh}\left[\frac{2+i\,\text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]}{\sqrt{3}} + \text{Cosh}[x]$$

Problem 231: Result is not expressed in closed-form.

$$\int \text{Cosh}[x]\,\text{Tanh}[4\,x]\,\mathbb{d}x$$

Optimal (type 3, 69 leaves, 6 steps):

$$-\frac{1}{4}\sqrt{2-\sqrt{2}}\,\text{ArcTanh}\left[\frac{2\,\text{Cosh}[x]}{\sqrt{2-\sqrt{2}}}\right] - \frac{1}{4}\sqrt{2+\sqrt{2}}\,\text{ArcTanh}\left[\frac{2\,\text{Cosh}[x]}{\sqrt{2+\sqrt{2}}}\right] + \text{Cosh}[x]$$

Result (type 7, 113 leaves):

$$\text{Cosh}[x] +$$
$$\frac{1}{16}\,\text{RootSum}\left[1+\#1^8\,\&,\,\frac{1}{\#1^7}\left(-x - 2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right] - \text{Sinh}\left[\frac{x}{2}\right] + \text{Cosh}\left[\frac{x}{2}\right]\#1 - \text{Sinh}\left[\frac{x}{2}\right]\#1\right] + x\,\#1^6 +\right.$$
$$\left.2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right] - \text{Sinh}\left[\frac{x}{2}\right] + \text{Cosh}\left[\frac{x}{2}\right]\#1 - \text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^6\right)\&\right]$$

Problem 232: Result is not expressed in closed-form.

$$\int \text{Cosh}[x]\,\text{Tanh}[5\,x]\,\mathbb{d}x$$

Optimal (type 3, 82 leaves, 6 steps):

$$-\frac{1}{5}\sqrt{\frac{1}{2}\left(5+\sqrt{5}\right)}\,\text{ArcTanh}\left[2\sqrt{\frac{2}{5+\sqrt{5}}}\,\text{Cosh}[x]\right] -$$

$$\frac{1}{5}\sqrt{\frac{1}{2}\left(5-\sqrt{5}\right)}\,\text{ArcTanh}\left[\sqrt{\frac{2}{5}\left(5+\sqrt{5}\right)}\,\text{Cosh}[x]\right] + \text{Cosh}[x]$$

Result (type 7, 249 leaves):

$$\text{Cosh}[x] + \frac{1}{4}$$

$$\text{RootSum}\Big[1 - \#1^2 + \#1^4 - \#1^6 + \#1^8 \ \&, \ \Big(-x - 2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big] +$$

$$x\,\#1^2 + 2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^2 - x\,\#1^4 -$$

$$2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^4 + x\,\#1^6 + 2\,\text{Log}\Big[$$

$$-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^6\Big) \Big/ \Big(-\#1 + 2\,\#1^3 - 3\,\#1^5 + 4\,\#1^7\Big) \ \&\Big]$$

Problem 233: Result is not expressed in closed-form.

$$\int \text{Cosh}[x]\,\text{Tanh}[6\,x]\,dx$$

Optimal (type 3, 87 leaves, 10 steps):

$$-\frac{\text{ArcTanh}\Big[\sqrt{2}\,\text{Cosh}[x]\Big]}{3\sqrt{2}} - \frac{1}{6}\sqrt{2 - \sqrt{3}}\ \text{ArcTanh}\Big[\frac{2\,\text{Cosh}[x]}{\sqrt{2 - \sqrt{3}}}\Big] -$$

$$\frac{1}{6}\sqrt{2 + \sqrt{3}}\ \text{ArcTanh}\Big[\frac{2\,\text{Cosh}[x]}{\sqrt{2 + \sqrt{3}}}\Big] + \text{Cosh}[x]$$

Result (type 7, 395 leaves):

$$\frac{1}{24\sqrt{2}}\Bigg(-4\,i\,\text{ArcTan}\Big[\frac{\text{Cosh}\Big[\frac{x}{2}\Big] + \text{Sinh}\Big[\frac{x}{2}\Big]}{\Big(1 + \sqrt{2}\Big)\text{Cosh}\Big[\frac{x}{2}\Big] - \Big(-1 + \sqrt{2}\Big)\text{Sinh}\Big[\frac{x}{2}\Big]}\Big] +$$

$$4\,i\,\text{ArcTan}\Big[\frac{\text{Cosh}\Big[\frac{x}{2}\Big] + \text{Sinh}\Big[\frac{x}{2}\Big]}{\Big(-1 + \sqrt{2}\Big)\text{Cosh}\Big[\frac{x}{2}\Big] - \Big(1 + \sqrt{2}\Big)\text{Sinh}\Big[\frac{x}{2}\Big]}\Big] - 8\,\text{ArcTanh}\Big[\sqrt{2} - i\,\text{Tanh}\Big[\frac{x}{2}\Big]\Big] +$$

$$24\sqrt{2}\,\text{Cosh}[x] + 2\,\text{Log}\Big[\sqrt{2} - 2\,\text{Cosh}[x]\Big] - 2\,\text{Log}\Big[\sqrt{2} + 2\,\text{Cosh}[x]\Big] + \sqrt{2}\,\text{RootSum}\Big[1 - \#1^4 + \#1^8 \ \&,$$

$$\frac{1}{-\#1^3 + 2\,\#1^7}\Big(-2\,x - 4\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big] -$$

$$x\,\#1^2 - 2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^2 +$$

$$x\,\#1^4 + 2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^4 +$$

$$2\,x\,\#1^6 + 4\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big] - \text{Sinh}\Big[\frac{x}{2}\Big] + \text{Cosh}\Big[\frac{x}{2}\Big]\#1 - \text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^6\Big) \ \&\Big]\Bigg)$$

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

$$\int \text{Cosh}[x]\,\text{Coth}[2\,x]\,dx$$

Optimal (type 3, 10 leaves, 4 steps):

$$-\frac{1}{2}\,\text{ArcTanh}[\text{Cosh}[x]]+\text{Cosh}[x]$$

Result (type 3, 25 leaves) :

$$\text{Cosh}[x]-\frac{1}{2}\,\text{Log}\Big[\text{Cosh}\Big[\frac{x}{2}\Big]\Big]+\frac{1}{2}\,\text{Log}\Big[\text{Sinh}\Big[\frac{x}{2}\Big]\Big]$$

Problem 236: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cosh}[x]\,\text{Coth}[4\,x]\,\mathbb{d}x$$

Optimal (type 3, 28 leaves, 6 steps) :

$$-\frac{1}{4}\,\text{ArcTanh}[\text{Cosh}[x]]-\frac{\text{ArcTanh}\big[\sqrt{2}\,\text{Cosh}[x]\big]}{2\sqrt{2}}+\text{Cosh}[x]$$

Result (type 3, 192 leaves) :

$$\frac{1}{8\sqrt{2}}\left(-2\,\mathbb{i}\,\text{ArcTan}\Big[\frac{\text{Cosh}\big[\frac{x}{2}\big]+\text{Sinh}\big[\frac{x}{2}\big]}{\big(1+\sqrt{2}\big)\,\text{Cosh}\big[\frac{x}{2}\big]-\big(-1+\sqrt{2}\big)\,\text{Sinh}\big[\frac{x}{2}\big]}\Big]+\right.$$

$$2\,\mathbb{i}\,\text{ArcTan}\Big[\frac{\text{Cosh}\big[\frac{x}{2}\big]+\text{Sinh}\big[\frac{x}{2}\big]}{\big(-1+\sqrt{2}\big)\,\text{Cosh}\big[\frac{x}{2}\big]-\big(1+\sqrt{2}\big)\,\text{Sinh}\big[\frac{x}{2}\big]}\Big]-$$

$$4\,\text{ArcTanh}\Big[\sqrt{2}-\mathbb{i}\,\text{Tanh}\Big[\frac{x}{2}\Big]\Big]+8\sqrt{2}\,\text{Cosh}[x]-2\sqrt{2}\,\text{Log}\Big[\text{Cosh}\Big[\frac{x}{2}\Big]\Big]+$$

$$\left.\text{Log}\Big[\sqrt{2}-2\,\text{Cosh}[x]\Big]-\text{Log}\Big[\sqrt{2}+2\,\text{Cosh}[x]\Big]+2\sqrt{2}\,\text{Log}\Big[\text{Sinh}\Big[\frac{x}{2}\Big]\Big]\right)$$

Problem 238: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cosh}[x]\,\text{Coth}[6\,x]\,\mathbb{d}x$$

Optimal (type 3, 38 leaves, 7 steps) :

$$-\frac{1}{6}\,\text{ArcTanh}[\text{Cosh}[x]]-\frac{1}{6}\,\text{ArcTanh}[2\,\text{Cosh}[x]]-\frac{\text{ArcTanh}\Big[\frac{2\,\text{Cosh}[x]}{\sqrt{3}}\Big]}{2\sqrt{3}}+\text{Cosh}[x]$$

Result (type 3, 95 leaves) :

$$\frac{1}{12}\left(-2\sqrt{3}\ \text{ArcTanh}\left[\frac{2-\mathbb{i}\ \text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]-2\sqrt{3}\ \text{ArcTanh}\left[\frac{2+\mathbb{i}\ \text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]+12\ \text{Cosh}[x]-\right.$$

$$\left.2\ \text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right]+\text{Log}[1-2\ \text{Cosh}[x]]-\text{Log}[1+2\ \text{Cosh}[x]]+2\ \text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right]\right)$$

Problem 239: Result more than twice size of optimal antiderivative.

$$\int \text{Cosh}[x]\ \text{Coth}[n\,x]\ \mathbb{d}x$$

Optimal (type 5, 76 leaves, 6 steps):

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

Result (type 5, 156 leaves):

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

Problem 240: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cosh}[x]\ \text{Sech}[2\,x]\ \mathbb{d}x$$

Optimal (type 3, 15 leaves, 2 steps):

$$\frac{\text{ArcTan}\left[\sqrt{2}\ \text{Sinh}[x]\right]}{\sqrt{2}}$$

Result (type 3, 156 leaves):

$$-\frac{1}{4\sqrt{2}}\,\dot{\mathbb{i}}\left(2\,\dot{\mathbb{i}}\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]+\right.$$

$$2\,\dot{\mathbb{i}}\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]+2\,\dot{\mathbb{i}}\,\text{ArcTan}\left[\sqrt{2}\,\text{Sinh}[x]\right]+$$

$$\left.\text{Log}\left[\sqrt{2}-2\,\text{Cosh}[x]\right]+\text{Log}\left[\sqrt{2}+2\,\text{Cosh}[x]\right]-\text{Log}[\text{Cosh}[2\,x]]\right)$$

Problem 242: Result is not expressed in closed-form.

$$\int \text{Cosh}[x]\,\text{Sech}[4\,x]\,\mathbb{d}x$$

Optimal (type 3, 71 leaves, 4 steps) :

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

Result (type 7, 108 leaves) :

$$\frac{1}{16}\,\text{RootSum}\left[1+\#1^8\,\&,\,\frac{1}{\#1^5}\left(x+2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]+\right.\right.$$

$$\left.\left.x\,\#1^2+2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^2\right)\&\right]$$

Problem 244: Result is not expressed in closed-form.

$$\int \text{Cosh}[x]\,\text{Sech}[6\,x]\,\mathbb{d}x$$

Optimal (type 3, 85 leaves, 7 steps) :

$$-\frac{\text{ArcTan}\left[\sqrt{2}\,\text{Sinh}[x]\right]}{3\sqrt{2}}+\frac{\text{ArcTan}\left[\frac{2\,\text{Sinh}[x]}{\sqrt{2-\sqrt{3}}}\right]}{6\sqrt{2-\sqrt{3}}}+\frac{\text{ArcTan}\left[\frac{2\,\text{Sinh}[x]}{\sqrt{2+\sqrt{3}}}\right]}{6\sqrt{2+\sqrt{3}}}$$

Result (type 7, 383 leaves) :

$$\frac{1}{24\sqrt{2}}\left(-4\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]-\right.$$

$$4\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]-$$

$$4\,\text{ArcTan}\left[\sqrt{2}\,\text{Sinh}[x]\right]+2\,\mathbb{i}\,\text{Log}\left[\sqrt{2}-2\,\text{Cosh}[x]\right]+$$

$$2\,\mathbb{i}\,\text{Log}\left[\sqrt{2}+2\,\text{Cosh}[x]\right]-2\,\mathbb{i}\,\text{Log}[\text{Cosh}[2\,x]]+\sqrt{2}\,\text{RootSum}\left[1-\#1^4+\#1^8\,\&,\right.$$

$$\frac{1}{-\#1^3+2\,\#1^7}\left(x+2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]+x\,\#1^2+\right.$$

$$2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^2+x\,\#1^4+$$

$$2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^4+x\,\#1^6+$$

$$\left.\left.\left.2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^6\right)\&\right]\right)$$

Problem 245: Result more than twice size of optimal antiderivative.

$$\int \text{Cosh}[x]\,\text{Csch}[2\,x]\,\mathbb{d}x$$

Optimal (type 3, 7 leaves, 2 steps):

$$-\frac{1}{2}\,\text{ArcTanh}[\text{Cosh}[x]]$$

Result (type 3, 21 leaves):

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

Problem 247: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cosh}[x]\,\text{Csch}[4\,x]\,\mathbb{d}x$$

Optimal (type 3, 26 leaves, 4 steps):

$$-\frac{1}{4}\,\text{ArcTanh}[\text{Cosh}[x]]+\frac{\text{ArcTanh}\left[\sqrt{2}\,\text{Cosh}[x]\right]}{2\sqrt{2}}$$

Result (type 3, 183 leaves):

$$\frac{1}{8\sqrt{2}}\left(2\,\mathbb{i}\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]-$$

$$2\,\mathbb{i}\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]+4\,\text{ArcTanh}\left[\sqrt{2}-\mathbb{i}\,\text{Tanh}\left[\frac{x}{2}\right]\right]-$$

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

Problem 249: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\text{Cosh}[x]\,\text{Csch}[6\,x]\,\mathbb{d}x$$

Optimal (type 3, 36 leaves, 7 steps):

$$-\frac{1}{6}\,\text{ArcTanh}[\text{Cosh}[x]]-\frac{1}{6}\,\text{ArcTanh}[2\,\text{Cosh}[x]]+\frac{\text{ArcTanh}\left[\frac{2\,\text{Cosh}[x]}{\sqrt{3}}\right]}{2\sqrt{3}}$$

Result (type 3, 91 leaves):

$$\frac{1}{12}\left(2\sqrt{3}\,\text{ArcTanh}\left[\frac{2-\mathbb{i}\,\text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]+2\sqrt{3}\,\text{ArcTanh}\left[\frac{2+\mathbb{i}\,\text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]-$$

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

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

$$\int\text{Cosh}[a+b\,x]\,\text{Sinh}[a+b\,x]\,\mathbb{d}x$$

Optimal (type 3, 15 leaves, 2 steps):

$$\frac{\text{Sinh}[a+b\,x]^2}{2\,b}$$

Result (type 3, 37 leaves):

$$\frac{1}{2}\left(\frac{\text{Cosh}[2\,a]\,\text{Cosh}[2\,b\,x]}{2\,b}+\frac{\text{Sinh}[2\,a]\,\text{Sinh}[2\,b\,x]}{2\,b}\right)$$

Problem 337: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int x\,\text{Tanh}[a+b\,x]\,\mathbb{d}x$$

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

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

Result (type 4, 197 leaves):

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

Problem 349: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int x^3\,\text{Sech}[a+b\,x]^2\,\text{Tanh}[a+b\,x]\,dx$$

Optimal (type 4, 83 leaves, 6 steps):

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

Result (type 4, 228 leaves):

$$-\frac{x^3\,\text{Sech}[a+b\,x]^2}{2\,b} +$$
$$\left(3\,\text{Csch}[a]\,\left(-b^2\,e^{-\text{ArcTanh}[\text{Coth}[a]]}\,x^2 + \frac{1}{\sqrt{1-\text{Coth}[a]^2}}\,i\,\text{Coth}[a]\,\left(-b\,x\,(-\pi + 2\,i\,\text{ArcTanh}[\text{Coth}[a]]) - \right.\right.\right.$$
$$\pi\,\text{Log}\left[1+e^{2\,b\,x}\right] - 2\,\left(i\,b\,x + i\,\text{ArcTanh}[\text{Coth}[a]]\right)\,\text{Log}\left[1-e^{2\,i\,(i\,b\,x+i\,\text{ArcTanh}[\text{Coth}[a]])}\right] +$$
$$\pi\,\text{Log}[\text{Cosh}[b\,x]] + 2\,i\,\text{ArcTanh}[\text{Coth}[a]]\,\text{Log}[i\,\text{Sinh}[b\,x + \text{ArcTanh}[\text{Coth}[a]]]] +$$
$$i\,\text{PolyLog}\left[2,\,e^{2\,i\,(i\,b\,x+i\,\text{ArcTanh}[\text{Coth}[a]])}\right]\right)\,\text{Sech}[a]\right)\Big/$$
$$\left(2\,b^4\,\sqrt{\text{Csch}[a]^2\,\left(-\text{Cosh}[a]^2 + \text{Sinh}[a]^2\right)}\right) + \frac{3\,x^2\,\text{Sech}[a]\,\text{Sech}[a+b\,x]\,\text{Sinh}[b\,x]}{2\,b^2}$$

Problem 358: Result more than twice size of optimal antiderivative.

$$\int x\,\text{Sinh}[a+b\,x]\,\text{Tanh}[a+b\,x]\,dx$$

Optimal (type 4, 77 leaves, 8 steps):

$$-\frac{2\,x\,\text{ArcTan}\left[\mathbb{e}^{a+b\,x}\right]}{b}-\frac{\text{Cosh}\left[a+b\,x\right]}{b^2}+$$

$$\frac{\mathbb{i}\,\text{PolyLog}\left[2,\,-\mathbb{i}\,\mathbb{e}^{a+b\,x}\right]}{b^2}-\frac{\mathbb{i}\,\text{PolyLog}\left[2,\,\mathbb{i}\,\mathbb{e}^{a+b\,x}\right]}{b^2}+\frac{x\,\text{Sinh}\left[a+b\,x\right]}{b}$$

Result (type 4, 212 leaves):

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

$$\left(-\mathbb{i}\,a+\frac{\pi}{2}\right)\text{Log}\left[\text{Tan}\left[\frac{1}{2}\left(-\mathbb{i}\,a+\frac{\pi}{2}-\mathbb{i}\,b\,x\right)\right]\right]\right)+$$

$$\mathbb{i}\left(\text{PolyLog}\left[2,\,-\mathbb{e}^{\mathbb{i}\left(-\mathbb{i}\,a+\frac{\pi}{2}-\mathbb{i}\,b\,x\right)}\right]-\text{PolyLog}\left[2,\,\mathbb{e}^{\mathbb{i}\left(-\mathbb{i}\,a+\frac{\pi}{2}-\mathbb{i}\,b\,x\right)}\right]\right)\right)+$$

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

Problem 364: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int x^2\,\text{Tanh}\left[a+b\,x\right]^2\,\mathbb{d}x$$

Optimal (type 4, 65 leaves, 6 steps):

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

Result (type 4, 213 leaves):

$$\frac{x^3}{3}-$$

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

$$\pi\,\text{Log}\left[1+\mathbb{e}^{2\,b\,x}\right]-2\left(\mathbb{i}\,b\,x+\mathbb{i}\,\text{ArcTanh}\left[\text{Coth}\left[a\right]\right]\right)\text{Log}\left[1-\mathbb{e}^{2\,\mathbb{i}\,(\mathbb{i}\,b\,x+\mathbb{i}\,\text{ArcTanh}\left[\text{Coth}\left[a\right]\right])}\right]+$$

$$\pi\,\text{Log}\left[\text{Cosh}\left[b\,x\right]\right]+2\,\mathbb{i}\,\text{ArcTanh}\left[\text{Coth}\left[a\right]\right]\text{Log}\left[\mathbb{i}\,\text{Sinh}\left[b\,x+\text{ArcTanh}\left[\text{Coth}\left[a\right]\right]\right]\right]+$$

$$\left.\left.\left.\mathbb{i}\,\text{PolyLog}\left[2,\,\mathbb{e}^{2\,\mathbb{i}\,(\mathbb{i}\,b\,x+\mathbb{i}\,\text{ArcTanh}\left[\text{Coth}\left[a\right]\right])}\right]\right)\right)\text{Sech}\left[a\right]\right)\Bigg/$$

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

Problem 393: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int x\,\text{Tanh}\left[a+b\,x\right]^3\,\mathbb{d}x$$

Optimal (type 4, 82 leaves, 7 steps):

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

Result (type 4, 232 leaves):

$$\frac{x\,Sech[a+b\,x]^2}{2\,b} -$$

$$\left(Csch[a]\left(-b^2\,e^{-ArcTanh[Coth[a]]}\,x^2 + \frac{1}{\sqrt{1-Coth[a]^2}}\,i\,Coth[a]\,\left(-b\,x\,\left(-\pi + 2\,i\,ArcTanh[Coth[a]]\right) - \right.\right.\right.$$

$$\pi\,Log\left[1+e^{2\,b\,x}\right] - 2\,\left(i\,b\,x + i\,ArcTanh[Coth[a]]\right)\,Log\left[1-e^{2\,i\,(i\,b\,x+i\,ArcTanh[Coth[a]])}\right] +$$

$$\pi\,Log[Cosh[b\,x]] + 2\,i\,ArcTanh[Coth[a]]\,Log[i\,Sinh[b\,x+ArcTanh[Coth[a]]]] +$$

$$\left.\left.\left. i\,PolyLog\left[2,\,e^{2\,i\,(i\,b\,x+i\,ArcTanh[Coth[a]])}\right]\right)\right)\,Sech[a]\right) \Big/$$

$$\left(2\,b^2\,\sqrt{Csch[a]^2\,\left(-Cosh[a]^2 + Sinh[a]^2\right)}\right) - \frac{Sech[a]\,Sech[a+b\,x]\,Sinh[b\,x]}{2\,b^2} +$$

$$\frac{1}{2}$$
$$x^2$$
$$Tanh[a]$$

Problem 400: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int x\,Coth[a+b\,x]\,dx$$

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

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

Result (type 4, 148 leaves):

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

Problem 420: Result unnecessarily involves imaginary or complex numbers.

$$\int x^3\,Cosh[x]^2\,Coth[x]^2\,dx$$

Optimal (type 4, 102 leaves, 12 steps):

$$\frac{3\,x^2}{8} - x^3 + \frac{3\,x^4}{8} - \frac{3\,\text{Cosh}[x]^2}{8} - \frac{3}{4}\,x^2\,\text{Cosh}[x]^2 - x^3\,\text{Coth}[x] + 3\,x^2\,\text{Log}\left[1 - \mathbb{e}^{2\,x}\right] +$$

$$3\,x\,\text{PolyLog}\left[2,\,\mathbb{e}^{2\,x}\right] - \frac{3}{2}\,\text{PolyLog}\left[3,\,\mathbb{e}^{2\,x}\right] + \frac{3}{4}\,x\,\text{Cosh}[x]\,\text{Sinh}[x] + \frac{1}{2}\,x^3\,\text{Cosh}[x]\,\text{Sinh}[x]$$

Result (type 4, 94 leaves):

$$\frac{1}{16}\left(2\,\mathbb{i}\,\pi^3 - 16\,x^3 + 6\,x^4 - 3\,\text{Cosh}[2\,x] - 6\,x^2\,\text{Cosh}[2\,x] - 16\,x^3\,\text{Coth}[x] + 48\,x^2\,\text{Log}\left[1 - \mathbb{e}^{2\,x}\right] + \right.$$

$$\left. 48\,x\,\text{PolyLog}\left[2,\,\mathbb{e}^{2\,x}\right] - 24\,\text{PolyLog}\left[3,\,\mathbb{e}^{2\,x}\right] + 6\,x\,\text{Sinh}[2\,x] + 4\,x^3\,\text{Sinh}[2\,x]\right)$$

Problem 422: Result unnecessarily involves imaginary or complex numbers.

$$\int x^2\,\text{Cosh}[x]^2\,\text{Coth}[x]^3\,\mathbb{d}x$$

Optimal (type 4, 96 leaves, 19 steps):

$$\frac{3\,x^2}{4} - \frac{2\,x^3}{3} - x\,\text{Coth}[x] - \frac{1}{2}\,x^2\,\text{Coth}[x]^2 + 2\,x^2\,\text{Log}\left[1 - \mathbb{e}^{2\,x}\right] + \text{Log}[\text{Sinh}[x]] +$$

$$2\,x\,\text{PolyLog}\left[2,\,\mathbb{e}^{2\,x}\right] - \text{PolyLog}\left[3,\,\mathbb{e}^{2\,x}\right] - \frac{1}{2}\,x\,\text{Cosh}[x]\,\text{Sinh}[x] + \frac{\text{Sinh}[x]^2}{4} + \frac{1}{2}\,x^2\,\text{Sinh}[x]^2$$

Result (type 4, 98 leaves):

$$\frac{\mathbb{i}\,\pi^3}{12} - \frac{2\,x^3}{3} + \frac{1}{8}\,\text{Cosh}[2\,x] + \frac{1}{4}\,x^2\,\text{Cosh}[2\,x] - x\,\text{Coth}[x] - \frac{1}{2}\,x^2\,\text{Csch}[x]^2 +$$

$$2\,x^2\,\text{Log}\left[1 - \mathbb{e}^{2\,x}\right] + \text{Log}[\text{Sinh}[x]] + 2\,x\,\text{PolyLog}\left[2,\,\mathbb{e}^{2\,x}\right] - \text{PolyLog}\left[3,\,\mathbb{e}^{2\,x}\right] - \frac{1}{4}\,x\,\text{Sinh}[2\,x]$$

Problem 426: Result more than twice size of optimal antiderivative.

$$\int x^2\,\text{Coth}[a + b\,x]\,\text{Csch}[a + b\,x]\,\mathbb{d}x$$

Optimal (type 4, 59 leaves, 6 steps):

$$-\frac{4\,x\,\text{ArcTanh}\left[\mathbb{e}^{a+b\,x}\right]}{b^2} - \frac{x^2\,\text{Csch}[a + b\,x]}{b} - \frac{2\,\text{PolyLog}\left[2,\,-\mathbb{e}^{a+b\,x}\right]}{b^3} + \frac{2\,\text{PolyLog}\left[2,\,\mathbb{e}^{a+b\,x}\right]}{b^3}$$

Result (type 4, 133 leaves):

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

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

Problem 427: Result more than twice size of optimal antiderivative.

$$\int x\,\text{Coth}[a + b\,x]\,\text{Csch}[a + b\,x]\,\mathbb{d}x$$

Optimal (type 3, 25 leaves, 2 steps):

$$-\frac{\text{ArcTanh}[\text{Cosh}[a + b\,x]]}{b^2} - \frac{x\,\text{Csch}[a + b\,x]}{b}$$

Result (type 3, 114 leaves):

$$-\frac{x\,\text{Csch}[a]}{b} - \frac{\text{Log}\left[\text{Cosh}\left[\frac{a}{2} + \frac{b\,x}{2}\right]\right]}{b^2} + \frac{\text{Log}\left[\text{Sinh}\left[\frac{a}{2} + \frac{b\,x}{2}\right]\right]}{b^2} +$$

$$\frac{x\,\text{Csch}\left[\frac{a}{2}\right]\text{Csch}\left[\frac{a}{2} + \frac{b\,x}{2}\right]\text{Sinh}\left[\frac{b\,x}{2}\right]}{2\,b} + \frac{x\,\text{Sech}\left[\frac{a}{2}\right]\text{Sech}\left[\frac{a}{2} + \frac{b\,x}{2}\right]\text{Sinh}\left[\frac{b\,x}{2}\right]}{2\,b}$$

Problem 433: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int x^2\,\text{Coth}[a + b\,x]^2\,\mathbb{d}x$$

Optimal (type 4, 65 leaves, 6 steps):

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

Result (type 4, 211 leaves):

$$\frac{x^3}{3} + \frac{x^2\,\text{Csch}[a]\,\text{Csch}[a + b\,x]\,\text{Sinh}[b\,x]}{b} +$$

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

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

$$\pi\,\text{Log}[\text{Cosh}[b\,x]] + 2\,\mathbb{i}\,\text{ArcTanh}[\text{Tanh}[a]]\,\text{Log}[\mathbb{i}\,\text{Sinh}[b\,x + \text{ArcTanh}[\text{Tanh}[a]]]] +$$

$$\left.\left.\left.\mathbb{i}\,\text{PolyLog}\left[2,\,\mathbb{e}^{2\,\mathbb{i}\,(\mathbb{i}\,b\,x+\mathbb{i}\,\text{ArcTanh}[\text{Tanh}[a]])}\right]\right)\text{Tanh}[a]\right)\right)\Big/$$

$$\left(b^3\,\sqrt{\text{Sech}[a]^2\left(\text{Cosh}[a]^2 - \text{Sinh}[a]^2\right)}\right)$$

Problem 440: Result more than twice size of optimal antiderivative.

$$\int x^2\,\text{Cosh}[a + b\,x]\,\text{Coth}[a + b\,x]^2\,\mathbb{d}x$$

Optimal (type 4, 95 leaves, 10 steps):

$$-\frac{4\,x\,\text{ArcTanh}\left[\mathbb{e}^{a+b\,x}\right]}{b^2} - \frac{2\,x\,\text{Cosh}[a + b\,x]}{b^2} - \frac{x^2\,\text{Csch}[a + b\,x]}{b} -$$

$$\frac{2\,\text{PolyLog}\left[2,\,-\mathbb{e}^{a+b\,x}\right]}{b^3} + \frac{2\,\text{PolyLog}\left[2,\,\mathbb{e}^{a+b\,x}\right]}{b^3} + \frac{2\,\text{Sinh}[a + b\,x]}{b^3} + \frac{x^2\,\text{Sinh}[a + b\,x]}{b}$$

Result (type 4, 230 leaves):

$$\frac{1}{4\,b^3}\,\text{Csch}\Big[\frac{1}{2}\,(a+b\,x)\Big]\,\text{Sech}\Big[\frac{1}{2}\,(a+b\,x)\Big]$$

$$\Big(-2-3\,b^2\,x^2+2\,\text{Cosh}\big[2\,(a+b\,x)\big]+b^2\,x^2\,\text{Cosh}\big[2\,(a+b\,x)\big]+4\,a\,\text{Log}\big[1-e^{-a-b\,x}\big]\,\text{Sinh}[a+b\,x]+$$

$$4\,b\,x\,\text{Log}\big[1-e^{-a-b\,x}\big]\,\text{Sinh}[a+b\,x]-4\,a\,\text{Log}\big[1+e^{-a-b\,x}\big]\,\text{Sinh}[a+b\,x]-4\,b\,x\,\text{Log}\big[1+e^{-a-b\,x}\big]$$

$$\text{Sinh}[a+b\,x]-4\,a\,\text{Log}\Big[\text{Tanh}\Big[\frac{1}{2}\,(a+b\,x)\Big]\Big]\,\text{Sinh}[a+b\,x]+4\,\text{PolyLog}\big[2,\,-e^{-a-b\,x}\big]\,\text{Sinh}[a+b\,x]-$$

$$4\,\text{PolyLog}\big[2,\,e^{-a-b\,x}\big]\,\text{Sinh}[a+b\,x]-2\,b\,x\,\text{Sinh}\big[2\,(a+b\,x)\big]\Big)$$

Problem 442: Result more than twice size of optimal antiderivative.

$$\int \text{Cosh}[a+b\,x]\,\text{Coth}[a+b\,x]^2\,dx$$

Optimal (type 3, 22 leaves, 3 steps):

$$-\frac{\text{Csch}[a+b\,x]}{b}+\frac{\text{Sinh}[a+b\,x]}{b}$$

Result (type 3, 45 leaves):

$$-\frac{\text{Coth}\big[\frac{1}{2}\,(a+b\,x)\big]}{2\,b}+\frac{\text{Sinh}[a+b\,x]}{b}+\frac{\text{Tanh}\big[\frac{1}{2}\,(a+b\,x)\big]}{2\,b}$$

Problem 446: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int x^3\,\text{Coth}[a+b\,x]\,\text{Csch}[a+b\,x]^2\,dx$$

Optimal (type 4, 83 leaves, 6 steps):

$$-\frac{3\,x^2}{2\,b^2}-\frac{3\,x^2\,\text{Coth}[a+b\,x]}{2\,b^2}-\frac{x^3\,\text{Csch}[a+b\,x]^2}{2\,b}+\frac{3\,x\,\text{Log}\big[1-e^{2\,(a+b\,x)}\big]}{b^3}+\frac{3\,\text{PolyLog}\big[2,\,e^{2\,(a+b\,x)}\big]}{2\,b^4}$$

Result (type 4, 228 leaves):

$$-\frac{x^3\,\text{Csch}[a+b\,x]^2}{2\,b}+\frac{3\,x^2\,\text{Csch}[a]\,\text{Csch}[a+b\,x]\,\text{Sinh}[b\,x]}{2\,b^2}+$$

$$\Bigg(3\,\text{Csch}[a]\,\text{Sech}[a]\,\Bigg(-b^2\,e^{-\text{ArcTanh}[\text{Tanh}[a]]}\,x^2+\frac{1}{\sqrt{1-\text{Tanh}[a]^2}}$$

$$i\,\Big(-b\,x\,\big(-\pi+2\,i\,\text{ArcTanh}[\text{Tanh}[a]]\big)-\pi\,\text{Log}\big[1+e^{2\,b\,x}\big]-2\,\big(i\,b\,x+i\,\text{ArcTanh}[\text{Tanh}[a]]\big)$$

$$\text{Log}\big[1-e^{2\,i\,(i\,b\,x+i\,\text{ArcTanh}[\text{Tanh}[a]])}\big]+\pi\,\text{Log}[\text{Cosh}[b\,x]]+2\,i\,\text{ArcTanh}[\text{Tanh}[a]]$$

$$\text{Log}[i\,\text{Sinh}[b\,x+\text{ArcTanh}[\text{Tanh}[a]]]]+i\,\text{PolyLog}\big[2,\,e^{2\,i\,(i\,b\,x+i\,\text{ArcTanh}[\text{Tanh}[a]])}\big]\Big)$$

$$\text{Tanh}[a]\Bigg)\Bigg)\Big/\Big(2\,b^4\,\sqrt{\text{Sech}[a]^2\,\big(\text{Cosh}[a]^2-\text{Sinh}[a]^2\big)}\Big)$$

Problem 456: Result more than twice size of optimal antiderivative.

$$\int \text{Coth}[a + b\,x]^2\,\text{Csch}[a + b\,x]\;\mathbb{d}x$$

Optimal (type 3, 34 leaves, 2 steps):

$$-\frac{\text{ArcTanh}[\text{Cosh}[a + b\,x]]}{2\,b} - \frac{\text{Coth}[a + b\,x]\,\text{Csch}[a + b\,x]}{2\,b}$$

Result (type 3, 75 leaves):

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

Problem 462: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int x\,\text{Coth}[a + b\,x]^3\;\mathbb{d}x$$

Optimal (type 4, 82 leaves, 7 steps):

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

Result (type 4, 232 leaves):

$$\frac{1}{2}\,x^2\,\text{Coth}[a] - \frac{x\,\text{Csch}[a + b\,x]^2}{2\,b} + \frac{\text{Csch}[a]\,\text{Csch}[a + b\,x]\,\text{Sinh}[b\,x]}{2\,b^2} +$$

$$\left(\text{Csch}[a]\,\text{Sech}[a]\,\left(-b^2\,\mathbb{e}^{-\text{ArcTanh}[\text{Tanh}[a]]}\,x^2 + \frac{1}{\sqrt{1 - \text{Tanh}[a]^2}}\right.\right.$$

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

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

$$\left.\text{Log}[\mathbb{i}\,\text{Sinh}[b\,x + \text{ArcTanh}[\text{Tanh}[a]]]] + \mathbb{i}\,\text{PolyLog}\left[2,\ \mathbb{e}^{2\,\mathbb{i}\,(\mathbb{i}\,b\,x + \mathbb{i}\,\text{ArcTanh}[\text{Tanh}[a]])}\right]\right)$$

$$\left.\left.\text{Tanh}[a]\right)\right) \Bigg/ \left(2\,b^2\,\sqrt{\text{Sech}[a]^2\,\left(\text{Cosh}[a]^2 - \text{Sinh}[a]^2\right)}\right)$$

Problem 470: Result more than twice size of optimal antiderivative.

$$\int \text{Csch}[a + b\,x]\,\text{Sech}[a + b\,x]\;\mathbb{d}x$$

Optimal (type 3, 11 leaves, 2 steps):

$$\frac{\text{Log}[\text{Tanh}[a + b\,x]]}{b}$$

Result (type 3, 31 leaves):

$$2 \left(-\frac{\text{Log}[\text{Cosh}[a+bx]]}{2b} + \frac{\text{Log}[\text{Sinh}[a+bx]]}{2b} \right)$$

Problem 485: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Csch}[a+bx]\,\text{Sech}[a+bx]^3}{x}\,dx$$

Optimal (type 8, 21 leaves, 0 steps):

$$\text{Int}\left[\frac{\text{Csch}[a+bx]\,\text{Sech}[a+bx]^3}{x},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 491: Result more than twice size of optimal antiderivative.

$$\int \text{Csch}[a+bx]^2\,\text{Sech}[a+bx]\,dx$$

Optimal (type 3, 24 leaves, 3 steps):

$$-\frac{\text{ArcTan}[\text{Sinh}[a+bx]]}{b} - \frac{\text{Csch}[a+bx]}{b}$$

Result (type 3, 51 leaves):

$$-\frac{2\,\text{ArcTan}\left[\text{Tanh}\left[\frac{1}{2}(a+bx)\right]\right]}{b} - \frac{\text{Coth}\left[\frac{1}{2}(a+bx)\right]}{2b} + \frac{\text{Tanh}\left[\frac{1}{2}(a+bx)\right]}{2b}$$

Problem 505: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Csch}[a+bx]^2\,\text{Sech}[a+bx]^3}{x}\,dx$$

Optimal (type 8, 23 leaves, 0 steps):

$$\text{Int}\left[\frac{\text{Csch}[a+bx]^2\,\text{Sech}[a+bx]^3}{x},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 512: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Csch}[a+bx]^3\,\text{Sech}[a+bx]}{x}\,dx$$

Optimal (type 8, 21 leaves, 0 steps):

$$\text{Int}\left[\frac{\text{Csch}[a+bx]^3\,\text{Sech}[a+bx]}{x}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 516: Result more than twice size of optimal antiderivative.

$$\int x^2\,\text{Csch}[a+bx]^3\,\text{Sech}[a+bx]^2\,dx$$

Optimal (type 4, 197 leaves, 29 steps):

$$\frac{4\,x\,\text{ArcTan}\left[e^{a+bx}\right]}{b^2} + \frac{3\,x^2\,\text{ArcTanh}\left[e^{a+bx}\right]}{b} - \frac{\text{ArcTanh}[\text{Cosh}[a+bx]]}{b^3} -$$
$$\frac{x\,\text{Csch}[a+bx]}{b^2} + \frac{3\,x\,\text{PolyLog}\left[2, -e^{a+bx}\right]}{b^2} - \frac{2\,i\,\text{PolyLog}\left[2, -i\,e^{a+bx}\right]}{b^3} +$$
$$\frac{2\,i\,\text{PolyLog}\left[2, i\,e^{a+bx}\right]}{b^3} - \frac{3\,x\,\text{PolyLog}\left[2, e^{a+bx}\right]}{b^2} - \frac{3\,\text{PolyLog}\left[3, -e^{a+bx}\right]}{b^3} +$$
$$\frac{3\,\text{PolyLog}\left[3, e^{a+bx}\right]}{b^3} - \frac{3\,x^2\,\text{Sech}[a+bx]}{2\,b} - \frac{x^2\,\text{Csch}[a+bx]^2\,\text{Sech}[a+bx]}{2\,b}$$

Result (type 4, 425 leaves):

$$-\frac{x\,\text{Csch}[a]}{b^2} - \frac{x^2\,\text{Csch}\left[\frac{a}{2}+\frac{bx}{2}\right]^2}{8\,b} - \frac{1}{b^3}$$
$$2\left(\left(-i\,a+\frac{\pi}{2}-i\,bx\right)\left(\text{Log}\left[1-e^{i\left(-i\,a+\frac{\pi}{2}-i\,bx\right)}\right] - \text{Log}\left[1+e^{i\left(-i\,a+\frac{\pi}{2}-i\,bx\right)}\right]\right) -$$
$$\left(-i\,a+\frac{\pi}{2}\right)\text{Log}\left[\text{Tan}\left[\frac{1}{2}\left(-i\,a+\frac{\pi}{2}-i\,bx\right)\right]\right]\right) +$$
$$i\left(\text{PolyLog}\left[2, -e^{i\left(-i\,a+\frac{\pi}{2}-i\,bx\right)}\right] - \text{PolyLog}\left[2, e^{i\left(-i\,a+\frac{\pi}{2}-i\,bx\right)}\right]\right)\right) - \frac{1}{2\,b^3}$$
$$\left(4\,\text{ArcTanh}\left[e^{a+bx}\right] + 3\,b^2\,x^2\,\text{Log}\left[1-e^{a+bx}\right] - 3\,b^2\,x^2\,\text{Log}\left[1+e^{a+bx}\right] - 6\,b\,x\,\text{PolyLog}\left[2, -e^{a+bx}\right] +$$
$$6\,b\,x\,\text{PolyLog}\left[2, e^{a+bx}\right] + 6\,\text{PolyLog}\left[3, -e^{a+bx}\right] - 6\,\text{PolyLog}\left[3, e^{a+bx}\right]\right) -$$
$$\frac{x^2\,\text{Sech}\left[\frac{a}{2}+\frac{bx}{2}\right]^2}{8\,b} - \frac{x^2\,\text{Sech}[a+bx]}{b} + \frac{x\,\text{Csch}\left[\frac{a}{2}\right]\,\text{Csch}\left[\frac{a}{2}+\frac{bx}{2}\right]\,\text{Sinh}\left[\frac{bx}{2}\right]}{2\,b^2} +$$
$$\frac{x\,\text{Sech}\left[\frac{a}{2}\right]\,\text{Sech}\left[\frac{a}{2}+\frac{bx}{2}\right]\,\text{Sinh}\left[\frac{bx}{2}\right]}{2\,b^2}$$

Problem 519: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Csch}[a+bx]^3\,\text{Sech}[a+bx]^2}{x}\,dx$$

Optimal (type 8, 23 leaves, 0 steps):

$$\text{Int}\left[\frac{\text{Csch}[a + b\, x]^3 \, \text{Sech}[a + b\, x]^2}{x}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 529: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int x \, \text{Cosh}[a + b\, x]^{3/2} \, \text{Sinh}[a + b\, x] \, \mathbb{d}x$$

Optimal (type 4, 64 leaves, 3 steps):

$$\frac{2\, x \, \text{Cosh}[a + b\, x]^{5/2}}{5\, b} + \frac{12\, \mathbb{i} \, \text{EllipticE}\left[\frac{1}{2}\, \mathbb{i}\, (a + b\, x), 2\right]}{25\, b^2} - \frac{4\, \text{Cosh}[a + b\, x]^{3/2} \, \text{Sinh}[a + b\, x]}{25\, b^2}$$

Result (type 5, 142 leaves):

$$\left(\mathbb{e}^{-3\,(a+b\,x)} \left(\left(1 + \mathbb{e}^{2\,(a+b\,x)}\right)\left(2 + 5\, b\, x + 2\, \mathbb{e}^{2\,(a+b\,x)}\left(-12 + 5\, b\, x\right) + \mathbb{e}^{4\,(a+b\,x)}\left(-2 + 5\, b\, x\right)\right) + 48\, \mathbb{e}^{2\,(a+b\,x)}\right.\right.$$
$$\left.\left.\sqrt{1 + \mathbb{e}^{2\,(a+b\,x)}} \, \text{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -\mathbb{e}^{2\,(a+b\,x)}\right]\right)\right) \Big/ \left(50\, \sqrt{2}\, b^2 \sqrt{\mathbb{e}^{-a-b\,x} + \mathbb{e}^{a+b\,x}}\right)$$

Problem 531: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{x \, \text{Sinh}[a + b\, x]}{\sqrt{\text{Cosh}[a + b\, x]}} \, \mathbb{d}x$$

Optimal (type 4, 37 leaves, 2 steps):

$$\frac{2\, x \, \sqrt{\text{Cosh}[a + b\, x]}}{b} + \frac{4\, \mathbb{i} \, \text{EllipticE}\left[\frac{1}{2}\, \mathbb{i}\, (a + b\, x), 2\right]}{b^2}$$

Result (type 5, 109 leaves):

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

Problem 540: Result unnecessarily involves higher level functions.

$$\int x \, \sqrt{\text{Sech}[a + b\, x]} \, \text{Sinh}[a + b\, x] \, \mathbb{d}x$$

Optimal (type 4, 57 leaves, 3 steps):

$$\frac{2\,x}{b\,\sqrt{\text{Sech}[a+b\,x]}} + \frac{4\,\mathbb{i}\,\sqrt{\text{Cosh}[a+b\,x]}\ \text{EllipticE}\left[\frac{1}{2}\,\mathbb{i}\,(a+b\,x),\,2\right]\,\sqrt{\text{Sech}[a+b\,x]}}{b^2}$$

Result (type 5, 100 leaves):

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

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

Problem 542: Result unnecessarily involves higher level functions.

$$\int \frac{x\,\text{Sinh}[a+b\,x]}{\text{Sech}[a+b\,x]^{3/2}}\,\mathbb{d}x$$

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

$$\frac{2\,x}{5\,b\,\text{Sech}[a+b\,x]^{5/2}} +$$

$$\frac{12\,\mathbb{i}\,\sqrt{\text{Cosh}[a+b\,x]}\ \text{EllipticE}\left[\frac{1}{2}\,\mathbb{i}\,(a+b\,x),\,2\right]\,\sqrt{\text{Sech}[a+b\,x]}}{25\,b^2} - \frac{4\,\text{Sinh}[a+b\,x]}{25\,b^2\,\text{Sech}[a+b\,x]^{3/2}}$$

Result (type 5, 125 leaves):

$$\frac{1}{100\,b^2}\mathbb{e}^{-3\,(a+b\,x)}\left(\left(1+\mathbb{e}^{2\,(a+b\,x)}\right)\,\left(2+5\,b\,x+2\,\mathbb{e}^{2\,(a+b\,x)}\,\left(-12+5\,b\,x\right)+\mathbb{e}^{4\,(a+b\,x)}\,\left(-2+5\,b\,x\right)\right)+\right.$$

$$\left.48\,\mathbb{e}^{2\,(a+b\,x)}\,\sqrt{1+\mathbb{e}^{2\,(a+b\,x)}}\ \text{Hypergeometric2F1}\left[-\frac{1}{4},\,\frac{1}{2},\,\frac{3}{4},\,-\mathbb{e}^{2\,(a+b\,x)}\right]\right)\,\sqrt{\text{Sech}[a+b\,x]}$$

Problem 545: Result unnecessarily involves higher level functions.

$$\int x\,\text{Cosh}[a+b\,x]\,\text{Sinh}[a+b\,x]^{3/2}\,\mathbb{d}x$$

Optimal (type 4, 98 leaves, 4 steps):

$$-\frac{12\,\mathbb{i}\,\text{EllipticE}\left[\frac{1}{2}\,\left(\mathbb{i}\,a-\frac{\pi}{2}+\mathbb{i}\,b\,x\right),\,2\right]\,\sqrt{\text{Sinh}[a+b\,x]}}{25\,b^2\,\sqrt{\mathbb{i}\,\text{Sinh}[a+b\,x]}} -$$

$$\frac{4\,\text{Cosh}[a+b\,x]\,\text{Sinh}[a+b\,x]^{3/2}}{25\,b^2} + \frac{2\,x\,\text{Sinh}[a+b\,x]^{5/2}}{5\,b}$$

Result (type 5, 143 leaves):

$$\left(\mathbb{e}^{-3\,(a+b\,x)}\,\left(\left(-1+\mathbb{e}^{2\,(a+b\,x)}\right)\,\left(2+5\,b\,x+\mathbb{e}^{2\,(a+b\,x)}\,\left(24-10\,b\,x\right)+\mathbb{e}^{4\,(a+b\,x)}\,\left(-2+5\,b\,x\right)\right)+48\,\mathbb{e}^{2\,(a+b\,x)}\right.\right.$$

$$\left.\left.\sqrt{1-\mathbb{e}^{2\,(a+b\,x)}}\ \text{Hypergeometric2F1}\left[-\frac{1}{4},\,\frac{1}{2},\,\frac{3}{4},\,\mathbb{e}^{2\,(a+b\,x)}\right]\right)\right)\Big/\left(50\,\sqrt{2}\ b^2\,\sqrt{-\mathbb{e}^{-a-b\,x}+\mathbb{e}^{a+b\,x}}\right)$$

Problem 547: Result unnecessarily involves higher level functions.

$$\int \frac{x \, \text{Cosh}[a + b\,x]}{\sqrt{\text{Sinh}[a + b\,x]}} \, dx$$

Optimal (type 4, 71 leaves, 3 steps):

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

Result (type 5, 115 leaves):

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

Problem 556: Result unnecessarily involves higher level functions.

$$\int x \, \text{Cosh}[a + b\,x]\,\sqrt{\text{Csch}[a + b\,x]} \, dx$$

Optimal (type 4, 71 leaves, 3 steps):

$$\frac{2\,x}{b\,\sqrt{\text{Csch}[a + b\,x]}} + \frac{4\,\mathbb{i}\,\text{EllipticE}\left[\frac{1}{2}\left(\mathbb{i}\,a - \frac{\pi}{2} + \mathbb{i}\,b\,x\right), 2\right]}{b^2\,\sqrt{\text{Csch}[a + b\,x]}\,\sqrt{\mathbb{i}\,\text{Sinh}[a + b\,x]}}$$

Result (type 5, 100 leaves):

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

Problem 558: Result unnecessarily involves higher level functions.

$$\int \frac{x \, \text{Cosh}[a + b\,x]}{\text{Csch}[a + b\,x]^{3/2}} \, dx$$

Optimal (type 4, 98 leaves, 4 steps):

$$\frac{2\,x}{5\,b\,\text{Csch}[a + b\,x]^{5/2}} - \frac{4\,\text{Cosh}[a + b\,x]}{25\,b^2\,\text{Csch}[a + b\,x]^{3/2}} - \frac{12\,\mathbb{i}\,\text{EllipticE}\left[\frac{1}{2}\left(\mathbb{i}\,a - \frac{\pi}{2} + \mathbb{i}\,b\,x\right), 2\right]}{25\,b^2\,\sqrt{\text{Csch}[a + b\,x]}\,\sqrt{\mathbb{i}\,\text{Sinh}[a + b\,x]}}$$

Result (type 5, 111 leaves):

$$\left(e^{-2\,(a+b\,x)}\left(2 + 5\,b\,x + e^{2\,(a+b\,x)}\,\left(24 - 10\,b\,x \right) + e^{4\,(a+b\,x)}\,\left(-2 + 5\,b\,x \right) - \right.\right.$$

$$\left.\left. \frac{48\,e^{2\,(a+b\,x)}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\,\frac{1}{2},\,\frac{3}{4},\,e^{2\,(a+b\,x)} \right]}{\sqrt{1 - e^{2\,(a+b\,x)}}} \right)\right) \Big/ \left(50\,b^2\,\sqrt{\text{Csch}[a + b\,x]} \right)$$

Problem 563: Result more than twice size of optimal antiderivative.

$$\int \sqrt{\text{Cosh}[x]\,\text{Coth}[x]}\,\ dx$$

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

$$2\,\sqrt{\text{Cosh}[x]\,\text{Coth}[x]}\,\ \text{Tanh}[x]$$

Result (type 3, 35 leaves):

$$\frac{2\,\sqrt{\text{Cosh}[x]\,\text{Coth}[x]}\,\left(-1 + \left(-\text{Sinh}[x]^2 \right)^{1/4} \right)\,\text{Tanh}[x]}{\left(-\text{Sinh}[x]^2 \right)^{1/4}}$$

Problem 584: Result more than twice size of optimal antiderivative.

$$\int \left(a\,\text{Cosh}[x] + b\,\text{Sinh}[x] \right)^5 dx$$

Optimal (type 3, 61 leaves, 3 steps):

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

Result (type 3, 133 leaves):

$$\frac{1}{240}$$
$$\left(150\,b\,\left(a^2 - b^2 \right)^2\,\text{Cosh}[x] - 25\,b\,\left(-3\,a^4 + 2\,a^2\,b^2 + b^4 \right)\,\text{Cosh}[3\,x] + 3\,b\,\left(5\,a^4 + 10\,a^2\,b^2 + b^4 \right)\,\text{Cosh}[5\,x] + \right.$$
$$\left. 150\,a\,\left(a^2 - b^2 \right)^2\,\text{Sinh}[x] + 25\,a\,\left(a^4 + 2\,a^2\,b^2 - 3\,b^4 \right)\,\text{Sinh}[3\,x] + 3\,a\,\left(a^4 + 10\,a^2\,b^2 + 5\,b^4 \right)\,\text{Sinh}[5\,x] \right)$$

Problem 590: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \sqrt{a\,\text{Cosh}[x] + b\,\text{Sinh}[x]}\,\ dx$$

Optimal (type 4, 65 leaves, 2 steps):

$$-\frac{2\,i\,\text{EllipticE}\left[\frac{1}{2}\,\left(i\,x - \text{ArcTan}[a,\,-i\,b] \right),\,2 \right]\,\sqrt{a\,\text{Cosh}[x] + b\,\text{Sinh}[x]}}{\sqrt{\frac{a\,\text{Cosh}[x] + b\,\text{Sinh}[x]}{\sqrt{a^2 - b^2}}}}$$

Result (type 5, 206 leaves) :

$$
\left(b\ (-a^2 + b^2) \right.
$$

$$
\mathrm{HypergeometricPFQ}\Big[\Big\{-\frac{1}{2},\ -\frac{1}{4}\Big\},\ \Big\{\frac{3}{4}\Big\},\ \mathrm{Cosh}\Big[x + \mathrm{ArcTanh}\Big[\frac{b}{a}\Big]\Big]^2\Big]\ \mathrm{Sinh}\Big[x + \mathrm{ArcTanh}\Big[\frac{b}{a}\Big]\Big] +
$$

$$
\sqrt{-\mathrm{Sinh}\Big[x + \mathrm{ArcTanh}\Big[\frac{b}{a}\Big]\Big]^2}\ \Big(2\,a^3\ \sqrt{1 - \frac{b^2}{a^2}}\ \mathrm{Cosh}[x] - 2\,a\ (a^2 - b^2)\ \mathrm{Cosh}\Big[x + \mathrm{ArcTanh}\Big[\frac{b}{a}\Big]\Big] +
$$

$$
2\,a^2\,b\ \sqrt{1 - \frac{b^2}{a^2}}\ \mathrm{Sinh}[x] + a^2\,b\ \mathrm{Sinh}\Big[x + \mathrm{ArcTanh}\Big[\frac{b}{a}\Big]\Big] - b^3\ \mathrm{Sinh}\Big[x + \mathrm{ArcTanh}\Big[\frac{b}{a}\Big]\Big] \Big) \Big) \Big/
$$

$$
\left(a\,b\ \sqrt{1 - \frac{b^2}{a^2}}\ \sqrt{a\,\mathrm{Cosh}[x] + b\,\mathrm{Sinh}[x]}\ \sqrt{-\mathrm{Sinh}\Big[x + \mathrm{ArcTanh}\Big[\frac{b}{a}\Big]\Big]^2} \right)
$$

Problem 591: Result unnecessarily involves higher level functions.

$$
\int \left(a\,\mathrm{Cosh}[x] + b\,\mathrm{Sinh}[x] \right)^{3/2}\ dx
$$

Optimal (type 4, 103 leaves, 3 steps) :

$$
\frac{2}{3}\ \left(b\,\mathrm{Cosh}[x] + a\,\mathrm{Sinh}[x] \right)\ \sqrt{a\,\mathrm{Cosh}[x] + b\,\mathrm{Sinh}[x]}\ -
$$

$$
\left(2\,i\ (a^2 - b^2)\ \mathrm{EllipticF}\Big[\frac{1}{2}\ \big(i\,x - \mathrm{ArcTan}[a,\ -i\,b]\big),\ 2\Big]\ \sqrt{\frac{a\,\mathrm{Cosh}[x] + b\,\mathrm{Sinh}[x]}{\sqrt{a^2 - b^2}}} \right) \Big/
$$

$$
\left(3\,\sqrt{a\,\mathrm{Cosh}[x] + b\,\mathrm{Sinh}[x]} \right)
$$

Result (type 5, 92 leaves) :

$$
\frac{2}{3}\ \left(b\,\mathrm{Cosh}[x] - \sqrt{1 - \frac{a^2}{b^2}}\ b\ \sqrt{\mathrm{Cosh}\Big[x + \mathrm{ArcTanh}\Big[\frac{a}{b}\Big]\Big]^2}\ \mathrm{HypergeometricPFQ}\Big[\Big\{\frac{1}{4},\ \frac{1}{2}\Big\},\ \Big\{\frac{5}{4}\Big\}, \right.
$$

$$
\left. -\mathrm{Sinh}\Big[x + \mathrm{ArcTanh}\Big[\frac{a}{b}\Big]\Big]^2\Big]\ \mathrm{Sech}\Big[x + \mathrm{ArcTanh}\Big[\frac{a}{b}\Big]\Big] + a\,\mathrm{Sinh}[x] \right)\ \sqrt{a\,\mathrm{Cosh}[x] + b\,\mathrm{Sinh}[x]}
$$

Problem 592: Result unnecessarily involves higher level functions.

$$
\int \left(a\,\mathrm{Cosh}[x] + b\,\mathrm{Sinh}[x] \right)^{5/2}\ dx
$$

Optimal (type 4, 103 leaves, 3 steps) :

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

$$\left(6 \, \mathbb{i} \, \left(a^2 - b^2\right) \, \text{EllipticE}\left[\frac{1}{2} \left(\mathbb{i} \, x - \text{ArcTan}[a, -\mathbb{i} \, b]\right), 2\right] \sqrt{a \, \text{Cosh}[x] + b \, \text{Sinh}[x]}\right) \Bigg/$$

$$\left(5 \sqrt{\frac{a \, \text{Cosh}[x] + b \, \text{Sinh}[x]}{\sqrt{a^2 - b^2}}}\right)$$

Result (type 5, 193 leaves) :

$$\left(\left(a \, \text{Cosh}[x] + b \, \text{Sinh}[x]\right) \left(6 \, a \left(a^2 - b^2\right) + 2 \, a \, b^2 \, \text{Cosh}[2 \, x] + b \left(a^2 + b^2\right) \text{Sinh}[2 \, x]\right) - \right.$$

$$\left(3 \left(a - b\right)^2 \left(a + b\right)^2\right.$$

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

$$\sqrt{-\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{a}\right]\right]^2} \left(2 \, a \, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{b}{a}\right]\right] - b \, \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{a}\right]\right]\right)\right)\Bigg/$$

$$\left(a \sqrt{1 - \frac{b^2}{a^2}} \sqrt{-\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{a}\right]\right]^2}\right)\right) \Bigg/ \left(5 \, b \, \sqrt{a \, \text{Cosh}[x] + b \, \text{Sinh}[x]}\right)$$

Problem 593: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{a \, \text{Cosh}[x] + b \, \text{Sinh}[x]}} \, \mathbb{d}x$$

Optimal (type 4, 65 leaves, 2 steps) :

$$-\frac{2 \, \mathbb{i} \, \text{EllipticF}\left[\frac{1}{2} \left(\mathbb{i} \, x - \text{ArcTan}[a, -\mathbb{i} \, b]\right), 2\right] \sqrt{\frac{a \, \text{Cosh}[x] + b \, \text{Sinh}[x]}{\sqrt{a^2 - b^2}}}}{\sqrt{a \, \text{Cosh}[x] + b \, \text{Sinh}[x]}}$$

Result (type 5, 81 leaves) :

$$\frac{1}{\sqrt{1 - \frac{a^2}{b^2}} \, b}$$

$$2 \sqrt{\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{a}{b}\right]\right]^2} \, \text{HypergeometricPFQ}\left[\left\{\frac{1}{4}, \frac{1}{2}\right\}, \left\{\frac{5}{4}\right\}, -\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{a}{b}\right]\right]^2\right]$$

$$\text{Sech}\left[x + \text{ArcTanh}\left[\frac{a}{b}\right]\right] \sqrt{a \, \text{Cosh}[x] + b \, \text{Sinh}[x]}$$

Problem 594: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 112 leaves, 3 steps):

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

$$\frac{2\,\dot{\imath}\,\text{EllipticE}\left[\frac{1}{2}\left(\dot{\imath}\,x - \text{ArcTan}[a, -\dot{\imath}\,b]\right), 2\right]\sqrt{a\,\text{Cosh}[x] + b\,\text{Sinh}[x]}}{\left(a^2 - b^2\right)\sqrt{\dfrac{a\,\text{Cosh}[x] + b\,\text{Sinh}[x]}{\sqrt{a^2 - b^2}}}}$$

Result (type 5, 148 leaves):

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

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

$$\left. \left(2\,a\,\sqrt{1 - \frac{b^2}{a^2}}\,\text{Cosh}[x] - 2\,a\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{b}{a}\right]\right] + b\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{a}\right]\right]\right)\right) \Big/$$

$$\left(a\,b\,\sqrt{1 - \frac{b^2}{a^2}}\,\sqrt{a\,\text{Cosh}[x] + b\,\text{Sinh}[x]}\,\sqrt{-\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{a}\right]\right]^2} \right)$$

Problem 595: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 116 leaves, 3 steps):

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

$$\frac{2\,\dot{\imath}\,\text{EllipticF}\left[\frac{1}{2}\left(\dot{\imath}\,x - \text{ArcTan}[a, -\dot{\imath}\,b]\right), 2\right]\sqrt{\dfrac{a\,\text{Cosh}[x] + b\,\text{Sinh}[x]}{\sqrt{a^2 - b^2}}}}{3\left(a^2 - b^2\right)\sqrt{a\,\text{Cosh}[x] + b\,\text{Sinh}[x]}}$$

Result (type 5, 133 leaves):

$$-\left(\left(2\left(\sqrt{1-\frac{a^2}{b^2}}\;b\;(b\,\text{Cosh}[x]+a\,\text{Sinh}[x])+\sqrt{\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{a}{b}\right]\right]^2}\;\text{HypergeometricPFQ}\left[\left\{\frac{1}{4},\frac{1}{2}\right\},\right.\right.\right.\right.$$

$$\left.\left.\left.\left\{\frac{5}{4}\right\},-\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{a}{b}\right]\right]^2\right]\text{Sech}\left[x+\text{ArcTanh}\left[\frac{a}{b}\right]\right]\;(a\,\text{Cosh}[x]+b\,\text{Sinh}[x])^2\right)\right)\right/$$

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

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

$$\int\left(a\,\text{Coth}[x]+b\,\text{Csch}[x]\right)dx$$

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

$$-b\,\text{ArcTanh}[\text{Cosh}[x]]+a\,\text{Log}[\text{Sinh}[x]]$$

Result (type 3, 25 leaves):

$$-b\,\text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right]+b\,\text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right]+a\,\text{Log}[\text{Sinh}[x]]$$

Problem 658: Result more than twice size of optimal antiderivative.

$$\int\left(\text{Coth}[x]+\text{Csch}[x]\right)dx$$

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

$$-\text{ArcTanh}[\text{Cosh}[x]]+\text{Log}[\text{Sinh}[x]]$$

Result (type 3, 20 leaves):

$$-\text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right]+\text{Log}[\text{Sinh}[x]]$$

Problem 674: Result more than twice size of optimal antiderivative.

$$\int\left(\text{Csch}[x]+\text{Sinh}[x]\right)dx$$

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

$$-\text{ArcTanh}[\text{Cosh}[x]]+\text{Cosh}[x]$$

Result (type 3, 19 leaves):

$$\text{Cosh}[x]-\text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right]$$

Problem 677: Result more than twice size of optimal antiderivative.

$$\int \sqrt{\text{Csch}[x] + \text{Sinh}[x]} \, dx$$

Optimal (type 3, 13 leaves, 4 steps):

$$2 \sqrt{\text{Cosh}[x] \, \text{Coth}[x]} \, \text{Tanh}[x]$$

Result (type 3, 35 leaves):

$$\frac{2 \sqrt{\text{Cosh}[x] \, \text{Coth}[x]} \, \left(-1 + \left(-\text{Sinh}[x]^2\right)^{1/4}\right) \text{Tanh}[x]}{\left(-\text{Sinh}[x]^2\right)^{1/4}}$$

Problem 687: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\text{Sinh}[x] - \text{Tanh}[x]} \, dx$$

Optimal (type 3, 20 leaves, 6 steps):

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

Result (type 3, 50 leaves):

$$-\frac{1}{4} \text{Csch}\left[\frac{x}{2}\right]^2 \left(1 - \text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right] + \text{Cosh}[x] \left(\text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right] - \text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right]\right) + \text{Log}\left[\text{Sinh}\left[\frac{x}{2}\right]\right]\right)$$

Problem 702: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sinh}[x]}{\left(a \, \text{Cosh}[x] + b \, \text{Sinh}[x]\right)^3} \, dx$$

Optimal (type 3, 19 leaves, 2 steps):

$$\frac{\text{Tanh}[x]^2}{2 a \left(a + b \, \text{Tanh}[x]\right)^2}$$

Result (type 3, 54 leaves):

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

Problem 704: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cosh}[x]}{\left(a \, \text{Cosh}[x] + b \, \text{Sinh}[x]\right)^3} \, dx$$

Optimal (type 3, 19 leaves, 2 steps):

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

Result (type 3, 40 leaves):

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

Problem 745: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)^4}\,\mathrm{d}x$$

Optimal (type 3, 220 leaves, 6 steps):

$$-\frac{a\,\left(2\,a^2 + 3\,b^2 - 3\,c^2\right)\,\text{ArcTanh}\left[\frac{c - (a-b)\,\text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{a^2-b^2+c^2}}\right]}{\left(a^2 - b^2 + c^2\right)^{7/2}} -$$

$$\frac{c\,\text{Cosh}[x] + b\,\text{Sinh}[x]}{3\,\left(a^2 - b^2 + c^2\right)\,\left(a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)^3} - \frac{5\,\left(a\,c\,\text{Cosh}[x] + a\,b\,\text{Sinh}[x]\right)}{6\,\left(a^2 - b^2 + c^2\right)^2\,\left(a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)^2} -$$

$$\frac{c\,\left(11\,a^2 + 4\,b^2 - 4\,c^2\right)\,\text{Cosh}[x] + b\,\left(11\,a^2 + 4\,b^2 - 4\,c^2\right)\,\text{Sinh}[x]}{6\,\left(a^2 - b^2 + c^2\right)^3\,\left(a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)}$$

Result (type 3, 488 leaves):

$$-\frac{a\,\left(2\,a^2 + 3\,b^2 - 3\,c^2\right)\,\text{ArcTan}\left[\frac{c + (-a+b)\,\text{Tanh}\left[\frac{x}{2}\right]}{\sqrt{-a^2+b^2-c^2}}\right]}{\left(-a^2 + b^2 - c^2\right)^{7/2}} - \frac{1}{24\,b\,\left(a^2 - b^2 + c^2\right)^3\,\left(a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)^3}$$

$$\left(-44\,a^5\,c - 82\,a^3\,b^2\,c - 24\,a\,b^4\,c + 82\,a^3\,c^3 + 48\,a\,b^2\,c^3 - 24\,a\,c^5 - 30\,a^2\,b\,c\,\left(2\,a^2 + 3\,b^2 - 3\,c^2\right)\,\text{Cosh}[x] - \right.$$
$$6\,a\,c\,\left(a^2\,\left(-7\,b^2 + 11\,c^2\right) + 2\,\left(b^4 + b^2\,c^2 - 2\,c^4\right)\right)\,\text{Cosh}[2\,x] + 22\,a^2\,b^3\,c\,\text{Cosh}[3\,x] +$$
$$8\,b^5\,c\,\text{Cosh}[3\,x] - 22\,a^2\,b\,c^3\,\text{Cosh}[3\,x] - 16\,b^3\,c^3\,\text{Cosh}[3\,x] + 8\,b\,c^5\,\text{Cosh}[3\,x] + 72\,a^4\,b^2\,\text{Sinh}[x] -$$
$$9\,a^2\,b^4\,\text{Sinh}[x] + 12\,b^6\,\text{Sinh}[x] - 132\,a^4\,c^2\,\text{Sinh}[x] - 72\,a^2\,b^2\,c^2\,\text{Sinh}[x] - 36\,b^4\,c^2\,\text{Sinh}[x] +$$
$$81\,a^2\,c^4\,\text{Sinh}[x] + 36\,b^2\,c^4\,\text{Sinh}[x] - 12\,c^6\,\text{Sinh}[x] + 54\,a^3\,b^3\,\text{Sinh}[2\,x] + 6\,a\,b^5\,\text{Sinh}[2\,x] -$$
$$78\,a^3\,b\,c^2\,\text{Sinh}[2\,x] - 48\,a\,b^3\,c^2\,\text{Sinh}[2\,x] + 42\,a\,b\,c^4\,\text{Sinh}[2\,x] + 11\,a^2\,b^4\,\text{Sinh}[3\,x] +$$
$$\left.4\,b^6\,\text{Sinh}[3\,x] - 4\,b^4\,c^2\,\text{Sinh}[3\,x] - 11\,a^2\,c^4\,\text{Sinh}[3\,x] - 4\,b^2\,c^4\,\text{Sinh}[3\,x] + 4\,c^6\,\text{Sinh}[3\,x]\right)$$

Problem 749: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{a + a\,\text{Cosh}[x] + c\,\text{Sinh}[x]}\,\mathrm{d}x$$

Optimal (type 3, 15 leaves, 2 steps):

$$\frac{\text{Log}\left[a + c\,\text{Tanh}\left[\frac{x}{2}\right]\right]}{c}$$

Result (type 3, 35 leaves):

$$-\frac{\text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right]}{c} + \frac{\text{Log}\left[a\,\text{Cosh}\left[\frac{x}{2}\right] + c\,\text{Sinh}\left[\frac{x}{2}\right]\right]}{c}$$

Problem 750: Result more than twice size of optimal antiderivative.

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

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

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

Result (type 3, 87 leaves):

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

Problem 752: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(a + a\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)^4}\,dx$$

Optimal (type 3, 140 leaves, 5 steps):

$$\frac{a\left(5\,a^2 - 3\,c^2\right)\text{Log}\left[a + c\,\text{Tanh}\left[\frac{x}{2}\right]\right]}{2\,c^7} - \frac{c\,\text{Cosh}[x] + a\,\text{Sinh}[x]}{3\,c^2\left(a + a\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)^3} -$$
$$\frac{5\left(a\,c\,\text{Cosh}[x] + a^2\,\text{Sinh}[x]\right)}{6\,c^4\left(a + a\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)^2} - \frac{c\left(15\,a^2 - 4\,c^2\right)\text{Cosh}[x] + a\left(15\,a^2 - 4\,c^2\right)\text{Sinh}[x]}{6\,c^6\left(a + a\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)}$$

Result (type 3, 300 leaves):

$$\frac{1}{384\,c^7}\left(192\left(-5\,a^3 + 3\,a\,c^2\right)\text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right] + \right.$$

$$192\,a\left(5\,a^2 - 3\,c^2\right)\text{Log}\left[a\,\text{Cosh}\left[\frac{x}{2}\right] + c\,\text{Sinh}\left[\frac{x}{2}\right]\right] - \frac{1}{a\left(a + c\,\text{Tanh}\left[\frac{x}{2}\right]\right)^3}$$

$$c\,\text{Sech}\left[\frac{x}{2}\right]^6\left(-150\,a^5\,c + 130\,a^3\,c^3 - 24\,a\,c^5 + \left(-75\,a^5\,c + 75\,a^3\,c^3 + 12\,a\,c^5\right)\text{Cosh}[x] + \right.$$
$$6\,a\,c\left(25\,a^4 - 15\,a^2\,c^2 + 4\,c^4\right)\text{Cosh}[2\,x] + 75\,a^5\,c\,\text{Cosh}[3\,x] - 35\,a^3\,c^3\,\text{Cosh}[3\,x] +$$
$$4\,a\,c^5\,\text{Cosh}[3\,x] + 150\,a^6\,\text{Sinh}[x] - 255\,a^4\,c^2\,\text{Sinh}[x] + 129\,a^2\,c^4\,\text{Sinh}[x] -$$
$$12\,c^6\,\text{Sinh}[x] + 120\,a^6\,\text{Sinh}[2\,x] - 72\,a^4\,c^2\,\text{Sinh}[2\,x] + 36\,a^2\,c^4\,\text{Sinh}[2\,x] +$$

$$\left.\left.30\,a^6\,\text{Sinh}[3\,x] + 37\,a^4\,c^2\,\text{Sinh}[3\,x] - 27\,a^2\,c^4\,\text{Sinh}[3\,x] + 4\,c^6\,\text{Sinh}[3\,x]\right)\right)$$

Problem 760: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(\sqrt{b^2 - c^2} + b\, \text{Cosh}[x] + c\, \text{Sinh}[x]\right)^4}\, dx$$

Optimal (type 3, 198 leaves, 4 steps):

$$\frac{c\, \text{Cosh}[x] + b\, \text{Sinh}[x]}{7\sqrt{b^2 - c^2}\,\left(\sqrt{b^2 - c^2} + b\, \text{Cosh}[x] + c\, \text{Sinh}[x]\right)^4} + \frac{3\left(c\, \text{Cosh}[x] + b\, \text{Sinh}[x]\right)}{35\left(b^2 - c^2\right)\left(\sqrt{b^2 - c^2} + b\, \text{Cosh}[x] + c\, \text{Sinh}[x]\right)^3} +$$

$$\frac{2\left(c\, \text{Cosh}[x] + b\, \text{Sinh}[x]\right)}{35\left(b^2 - c^2\right)^{3/2}\left(\sqrt{b^2 - c^2} + b\, \text{Cosh}[x] + c\, \text{Sinh}[x]\right)^2} - \frac{2\left(c + \sqrt{b^2 - c^2}\,\text{Sinh}[x]\right)}{35\, c\,\left(b^2 - c^2\right)^{3/2}\left(c\, \text{Cosh}[x] + b\, \text{Sinh}[x]\right)}$$

Result (type 3, 425 leaves):

$$-\frac{1}{1120\,(b - c)\,c\,(b + c)\,\left(c\, \text{Cosh}[x] + b\, \text{Sinh}[x]\right)^7}$$

$$\left(-832\, b^4\, c\,\sqrt{b^2 - c^2} + 1664\, b^2\, c^3\,\sqrt{b^2 - c^2} - 832\, c^5\,\sqrt{b^2 - c^2} + 1190\, b\, c\,\left(b^2 - c^2\right)^2\, \text{Cosh}[x] +\right.$$

$$448\, c\,\sqrt{b^2 - c^2}\,\left(-b^4 + c^4\right)\, \text{Cosh}[2x] + 112\, b^5\, c\, \text{Cosh}[3x] + 56\, b^3\, c^3\, \text{Cosh}[3x] -$$

$$168\, b\, c^5\, \text{Cosh}[3x] - 28\, b^5\, c\, \text{Cosh}[5x] + 28\, b\, c^5\, \text{Cosh}[5x] + 6\, b^5\, c\, \text{Cosh}[7x] +$$

$$20\, b^3\, c^3\, \text{Cosh}[7x] + 6\, b\, c^5\, \text{Cosh}[7x] - 35\, b^6\, \text{Sinh}[x] + 1295\, b^4\, c^2\, \text{Sinh}[x] -$$

$$2485\, b^2\, c^4\, \text{Sinh}[x] + 1225\, c^6\, \text{Sinh}[x] - 896\, b^3\, c^2\,\sqrt{b^2 - c^2}\,\text{Sinh}[2x] +$$

$$896\, b\, c^4\,\sqrt{b^2 - c^2}\,\text{Sinh}[2x] + 21\, b^6\, \text{Sinh}[3x] + 189\, b^4\, c^2\, \text{Sinh}[3x] - 161\, b^2\, c^4\, \text{Sinh}[3x] -$$

$$49\, c^6\, \text{Sinh}[3x] - 7\, b^6\, \text{Sinh}[5x] - 35\, b^4\, c^2\, \text{Sinh}[5x] + 35\, b^2\, c^4\, \text{Sinh}[5x] +$$

$$\left.7\, c^6\, \text{Sinh}[5x] + b^6\, \text{Sinh}[7x] + 15\, b^4\, c^2\, \text{Sinh}[7x] + 15\, b^2\, c^4\, \text{Sinh}[7x] + c^6\, \text{Sinh}[7x]\right)$$

Problem 761: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 294 leaves, 7 steps):

$$\frac{16}{15}\left(a\,c\,\text{Cosh}[x] + a\,b\,\text{Sinh}[x]\right)\sqrt{a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]} \ +$$

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

$$\left(2\,\mathbb{i}\,\left(23\,a^2 + 9\,b^2 - 9\,c^2\right)\text{EllipticE}\left[\frac{1}{2}\left(\mathbb{i}\,x - \text{ArcTan}[b,\,-\mathbb{i}\,c]\right),\ \frac{2\sqrt{b^2 - c^2}}{a + \sqrt{b^2 - c^2}}\right]\right.$$

$$\left.\sqrt{a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}\right) \Big/ \left(15\,\sqrt{\frac{a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}{a + \sqrt{b^2 - c^2}}}\right) +$$

$$\left(16\,\mathbb{i}\,a\,\left(a^2 - b^2 + c^2\right)\text{EllipticF}\left[\frac{1}{2}\left(\mathbb{i}\,x - \text{ArcTan}[b,\,-\mathbb{i}\,c]\right),\ \frac{2\sqrt{b^2 - c^2}}{a + \sqrt{b^2 - c^2}}\right]\right.$$

$$\left.\sqrt{\frac{a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}{a + \sqrt{b^2 - c^2}}}\right) \Big/ \left(15\,\sqrt{a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}\right)$$

Result (type 6, 3775 leaves) :

$$\sqrt{a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}\left(\frac{2\,b\,\left(23\,a^2 + 9\,b^2 - 9\,c^2\right)}{15\,c} + \right.$$

$$\left.\frac{22}{15}\,a\,c\,\text{Cosh}[x] + \frac{2}{5}\,b\,c\,\text{Cosh}[2\,x] + \frac{22}{15}\,a\,b\,\text{Sinh}[x] + \frac{1}{5}\left(b^2 + c^2\right)\text{Sinh}[2\,x]\right) +$$

$$\left(2\,a^3\,\text{AppellF1}\left[\frac{1}{2},\ \frac{1}{2},\ \frac{1}{2},\ \frac{3}{2},\ -\frac{\mathbb{i}\left(a + \sqrt{1 - \frac{b^2}{c^2}}\;c\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1 - \frac{b^2}{c^2}}\left(1 - \frac{\mathbb{i}\,a}{\sqrt{1 - \frac{b^2}{c^2}}\;c}\right)c},\right.\right.$$

$$\left.-\frac{\mathbb{i}\left(a + \sqrt{1 - \frac{b^2}{c^2}}\;c\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1 - \frac{b^2}{c^2}}\left(-1 - \frac{\mathbb{i}\,a}{\sqrt{1 - \frac{b^2}{c^2}}\;c}\right)c}\right]\text{Sech}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{-1 + \mathbb{i}\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}\sqrt{\frac{c\,\sqrt{\frac{-b^2 + c^2}{c^2}} - \mathbb{i}\,c\,\sqrt{\frac{-b^2 + c^2}{c^2}}\;\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}{\mathbb{i}\,a + c\,\sqrt{\frac{-b^2 + c^2}{c^2}}}}$$

$$\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}+i\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}{-i\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}\;\sqrt{a+c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\Bigg/$$

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

$$\left(34\,a\,b^2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{i\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(1-\frac{i\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c},\right.\right.$$

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

$$\sqrt{-1+i\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\;\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}-i\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}{i\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

$$\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}+i\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}{-i\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}\;\sqrt{a+c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\Bigg/$$

$$\left(15\sqrt{1-\frac{b^2}{c^2}}\,c\sqrt{i\left(i+\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right)-$$

$$34\, a\, c\, \text{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{3}{2}, -\frac{\dot{\imath}\left(a + \sqrt{1 - \frac{b^2}{c^2}}\; c\, \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1 - \frac{b^2}{c^2}}\;\left(1 - \frac{\dot{\imath}\, a}{\sqrt{1 - \frac{b^2}{c^2}}\; c}\right)c},\right.$$

$$\left. -\frac{\dot{\imath}\left(a + \sqrt{1 - \frac{b^2}{c^2}}\; c\, \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1 - \frac{b^2}{c^2}}\;\left(-1 - \frac{\dot{\imath}\, a}{\sqrt{1 - \frac{b^2}{c^2}}\; c}\right)c}\right]\, \text{Sech}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{-1 + \dot{\imath}\, \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}\;\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}} - \dot{\imath}\, c\sqrt{\frac{-b^2+c^2}{c^2}}\; \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}{\dot{\imath}\, a + c\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

$$\left.\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}} + \dot{\imath}\, c\sqrt{\frac{-b^2+c^2}{c^2}}\; \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}{-\dot{\imath}\, a + c\sqrt{\frac{-b^2+c^2}{c^2}}}}\;\sqrt{a + c\sqrt{\frac{-b^2 + c^2}{c^2}}\; \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}\right)\bigg/$$

$$\left(15\sqrt{1 - \frac{b^2}{c^2}}\;\sqrt{\dot{\imath}\left(\dot{\imath} + \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\,\right) - \frac{1}{15\, c}$$

$$23\, a^2\, b^2\left(\left(c\, \text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a + b\sqrt{1 - \frac{c^2}{b^2}}\; \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}\;\left(1 + \frac{a}{b\sqrt{1 - \frac{c^2}{b^2}}}\right)}\right.\right.,$$

$$\frac{a + b \sqrt{1 - \frac{c^2}{b^2}} \; \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1 - \frac{c^2}{b^2}} \left(-1 + \frac{a}{b \sqrt{1 - \frac{c^2}{b^2}}}\right)}\right] \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right] \bigg/$$

$$\left(\left(b \sqrt{1 - \frac{c^2}{b^2}} \sqrt{\frac{b \sqrt{\frac{b^2 - c^2}{b^2}} - b \sqrt{\frac{b^2 - c^2}{b^2}} \; \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{a + b \sqrt{\frac{b^2 - c^2}{b^2}}}}\right.\right.$$

$$\sqrt{a + b \sqrt{\frac{b^2 - c^2}{b^2}} \; \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]} \; \sqrt{\frac{b \sqrt{\frac{b^2 - c^2}{b^2}} + b \sqrt{\frac{b^2 - c^2}{b^2}} \; \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b \sqrt{\frac{b^2 - c^2}{b^2}}}}\right) -$$

$$\left.\frac{-\frac{2 b \left(a + b \sqrt{1 - \frac{c^2}{b^2}} \; \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)}{b^2 - c^2} + \frac{c \; \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1 - \frac{c^2}{b^2}}}}{\sqrt{a + b \sqrt{1 - \frac{c^2}{b^2}} \; \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}}\right) - \frac{1}{5 c}$$

$$3 b^4 \left(\left(c \; \text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a + b \sqrt{1 - \frac{c^2}{b^2}} \; \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1 - \frac{c^2}{b^2}} \left(1 + \frac{a}{b \sqrt{1 - \frac{c^2}{b^2}}}\right)},\right.\right.$$

$$\left.\frac{a + b \sqrt{1 - \frac{c^2}{b^2}} \; \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1 - \frac{c^2}{b^2}} \left(-1 + \frac{a}{b \sqrt{1 - \frac{c^2}{b^2}}}\right)}\right] \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right] \bigg/$$

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

$$\sqrt{a + b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}\,\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}} + b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b\sqrt{\frac{b^2-c^2}{b^2}}}}\; \right) -$$

$$\frac{-\dfrac{2b\left(a + b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)}{b^2-c^2} + \dfrac{c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}}}{\sqrt{a + b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}} +$$

$$\frac{23}{15}a^2 c \left(\left(c\,\text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a + b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1 + \frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}, \right. \right.$$

$$\left. \frac{a + b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1 + \frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right] \right) \Bigg/$$

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

$$\sqrt{a + b\sqrt{\frac{b^2 - c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}\,\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}} + b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b\sqrt{\frac{b^2-c^2}{b^2}}}}\, -$$

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

$$\frac{6}{5}\,b^2\,c\left(\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},\,-\frac{1}{2},\,-\frac{1}{2},\,\frac{1}{2},\,\frac{a + b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\right.\right.\right.$$

$$\left.\left.\left.\frac{a + b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)\right/$$

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

$$\sqrt{a + b\sqrt{\frac{b^2 - c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}\,\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}} + b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b\sqrt{\frac{b^2-c^2}{b^2}}}}\, -$$

$$\frac{-\frac{2 b \left(a+b \sqrt{1-\frac{c^2}{b^2}} \, \cosh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)}{b^2-c^2} + \frac{c \, \sinh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1-\frac{c^2}{b^2}}}}{\sqrt{a+b \sqrt{1-\frac{c^2}{b^2}} \, \cosh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}}\Bigg) -$$

$$\frac{3}{5} c^3 \left(\left(\left(c \, \text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a+b \sqrt{1-\frac{c^2}{b^2}} \, \cosh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1-\frac{c^2}{b^2}} \left(1+\frac{a}{b \sqrt{1-\frac{c^2}{b^2}}}\right)}, \right.\right.\right.$$

$$\left.\left.\left.\frac{a+b \sqrt{1-\frac{c^2}{b^2}} \, \cosh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1-\frac{c^2}{b^2}} \left(-1+\frac{a}{b \sqrt{1-\frac{c^2}{b^2}}}\right)}\right] \sinh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right) \Bigg/ \right.$$

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

$$\sqrt{a+b \sqrt{\frac{b^2-c^2}{b^2}} \, \cosh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]} \, \sqrt{\frac{b \sqrt{\frac{b^2-c^2}{b^2}} + b \sqrt{\frac{b^2-c^2}{b^2}} \, \cosh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a+b \sqrt{\frac{b^2-c^2}{b^2}}}}\right) -$$

$$\frac{-\frac{2 b \left(a+b \sqrt{1-\frac{c^2}{b^2}} \, \cosh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)}{b^2-c^2} + \frac{c \, \sinh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1-\frac{c^2}{b^2}}}}{\sqrt{a+b \sqrt{1-\frac{c^2}{b^2}} \, \cosh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}}\Bigg)$$

Problem 762: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \left(a + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]\right)^{3/2} \, dx$$

Optimal (type 4, 249 leaves, 6 steps):

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

$$\left(8 \, i \, a \, \text{EllipticE}\left[\frac{1}{2}\left(i \, x - \text{ArcTan}[b, -i \, c]\right), \frac{2\sqrt{b^2 - c^2}}{a + \sqrt{b^2 - c^2}}\right] \sqrt{a + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]}\right) \Big/$$

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

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

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

Result (type 6, 2292 leaves):

$$\left(\frac{8 \, a \, b}{3 \, c} + \frac{2}{3} \, c \, \text{Cosh}[x] + \frac{2}{3} \, b \, \text{Sinh}[x]\right) \sqrt{a + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]} \; +$$

$$\left(2 \, a^2 \, \text{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{3}{2}, -\frac{i\left(a + \sqrt{1 - \frac{b^2}{c^2}} \, c \, \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1 - \frac{b^2}{c^2}}\left(1 - \frac{i \, a}{\sqrt{1 - \frac{b^2}{c^2}} \, c}\right) c}\right. \right.,$$

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

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

$$\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}+\mathbb{i}\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}{-\mathbb{i}\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}\;\sqrt{a+c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\;\Bigg/$$

$$\left(\left(\sqrt{1-\frac{b^2}{c^2}}\,c\sqrt{\mathbb{i}\left(\mathbb{i}+\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right)+$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{\mathbb{i}\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(1-\frac{\mathbb{i}\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c},\right.$$

$$\left.-\frac{\mathbb{i}\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(-1-\frac{\mathbb{i}\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c}\right]\text{Sech}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{-1+\mathbb{i}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\;\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}-\mathbb{i}\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}{\mathbb{i}\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

$$\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}+\mathbb{i}\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}{-\mathbb{i}\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}\;\sqrt{a+c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\;\Bigg/$$

$$\left(3\sqrt{1-\frac{b^2}{c^2}}\,c\sqrt{\mathbb{i}\left(\mathbb{i}+\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right)-$$

$$\Bigg(2\, c\; \text{AppellF1}\Big[\frac{1}{2},\, \frac{1}{2},\, \frac{1}{2},\, \frac{3}{2},\, -\frac{\dot{\mathbb{i}}\left(a + \sqrt{1 - \frac{b^2}{c^2}}\; c\; \text{Sinh}\big[x + \text{ArcTanh}\big[\frac{b}{c}\big]\big]\right)}{\sqrt{1 - \frac{b^2}{c^2}}\left(1 - \frac{\dot{\mathbb{i}}\,a}{\sqrt{1 - \frac{b^2}{c^2}}\; c}\right) c},$$

$$-\frac{\dot{\mathbb{i}}\left(a + \sqrt{1 - \frac{b^2}{c^2}}\; c\; \text{Sinh}\big[x + \text{ArcTanh}\big[\frac{b}{c}\big]\big]\right)}{\sqrt{1 - \frac{b^2}{c^2}}\left(-1 - \frac{\dot{\mathbb{i}}\,a}{\sqrt{1 - \frac{b^2}{c^2}}\; c}\right) c}\Big]\; \text{Sech}\Big[x + \text{ArcTanh}\Big[\frac{b}{c}\Big]\Big]$$

$$\sqrt{-1 + \dot{\mathbb{i}}\; \text{Sinh}\Big[x + \text{ArcTanh}\Big[\frac{b}{c}\Big]\Big]}\; \sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}} - \dot{\mathbb{i}}\, c\sqrt{\frac{-b^2+c^2}{c^2}}\; \text{Sinh}\big[x + \text{ArcTanh}\big[\frac{b}{c}\big]\big]}{\dot{\mathbb{i}}\,a + c\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

$$\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}} + \dot{\mathbb{i}}\, c\sqrt{\frac{-b^2+c^2}{c^2}}\; \text{Sinh}\big[x + \text{ArcTanh}\big[\frac{b}{c}\big]\big]}{-\dot{\mathbb{i}}\,a + c\sqrt{\frac{-b^2+c^2}{c^2}}}}\; \sqrt{a + c\sqrt{\frac{-b^2+c^2}{c^2}}\; \text{Sinh}\Big[x + \text{ArcTanh}\Big[\frac{b}{c}\Big]\Big]}\Bigg) \Big/$$

$$\left(3\sqrt{1 - \frac{b^2}{c^2}}\; \sqrt{\dot{\mathbb{i}}\left(\dot{\mathbb{i}} + \text{Sinh}\Big[x + \text{ArcTanh}\Big[\frac{b}{c}\Big]\Big]\right)}\right) - \frac{1}{3\,c}$$

$$4\,a\,b^2\left(\left(c\; \text{AppellF1}\Big[-\frac{1}{2},\, -\frac{1}{2},\, -\frac{1}{2},\, \frac{1}{2},\, \frac{a + b\sqrt{1 - \frac{c^2}{b^2}}\; \text{Cosh}\big[x + \text{ArcTanh}\big[\frac{c}{b}\big]\big]}{b\sqrt{1 - \frac{c^2}{b^2}}\left(1 + \frac{a}{b\sqrt{1 - \frac{c^2}{b^2}}}\right)}\Big],\right.\right.$$

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

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

$$\sqrt{a + b \sqrt{\frac{b^2 - c^2}{b^2}} \, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]} \sqrt{\frac{b \sqrt{\frac{b^2 - c^2}{b^2}} + b \sqrt{\frac{b^2 - c^2}{b^2}} \, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b \sqrt{\frac{b^2 - c^2}{b^2}}}}\right) -$$

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

$$\frac{4}{3} a c \left(\left(c \, \text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a + b \sqrt{1 - \frac{c^2}{b^2}} \, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1 - \frac{c^2}{b^2}} \left(1 + \frac{a}{b \sqrt{1 - \frac{c^2}{b^2}}}\right)},\right.\right.$$

$$\left.\frac{a + b \sqrt{1 - \frac{c^2}{b^2}} \, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1 - \frac{c^2}{b^2}} \left(-1 + \frac{a}{b \sqrt{1 - \frac{c^2}{b^2}}}\right)}\right] \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]\right) \Bigg/$$

$$\left(b \sqrt{1 - \frac{c^2}{b^2}} \sqrt{\frac{b \sqrt{\frac{b^2-c^2}{b^2}} - b \sqrt{\frac{b^2-c^2}{b^2}} \cosh\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{a + b \sqrt{\frac{b^2-c^2}{b^2}}}} \right.$$

$$\sqrt{a + b \sqrt{\frac{b^2-c^2}{b^2}} \cosh\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]} \sqrt{\frac{b \sqrt{\frac{b^2-c^2}{b^2}} + b \sqrt{\frac{b^2-c^2}{b^2}} \cosh\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b \sqrt{\frac{b^2-c^2}{b^2}}}} \right) -$$

$$-\frac{-\frac{2b\left(a+b\sqrt{1-\frac{c^2}{b^2}} \cosh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)}{b^2-c^2} + \frac{c \sinh\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}}}{\sqrt{a + b\sqrt{1-\frac{c^2}{b^2}} \cosh\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}}$$

Problem 763: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \sqrt{a + b \cosh[x] + c \sinh[x]} \; dx$$

Optimal (type 4, 102 leaves, 2 steps):

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

Result (type 6, 1401 leaves):

$$\frac{2 \, b \, \sqrt{a + b \cosh[x] + c \sinh[x]}}{c} +$$

$$\left(2 \, a \, \text{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{3}{2}, -\frac{i \left(a + \sqrt{1 - \frac{b^2}{c^2}} \, c \, \sinh\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1 - \frac{b^2}{c^2}} \left(1 - \frac{i \, a}{\sqrt{1-\frac{b^2}{c^2}} \, c}\right) c}\right), \right.$$

$$-\frac{\mathbb{i}\left(a+\sqrt{1-\frac{b^2}{c^2}}\;c\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\;\left(-1-\frac{\mathbb{i}\,a}{\sqrt{1-\frac{b^2}{c^2}}\;c}\right)c}\right]\,\mathrm{Sech}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{-1+\mathbb{i}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}\;\sqrt{\frac{c\,\sqrt{\frac{-b^2+c^2}{c^2}}-\mathbb{i}\,c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}{\mathbb{i}\,a+c\,\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

$$\sqrt{\frac{c\,\sqrt{\frac{-b^2+c^2}{c^2}}+\mathbb{i}\,c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}{-\mathbb{i}\,a+c\,\sqrt{\frac{-b^2+c^2}{c^2}}}}\;\sqrt{a+c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}\Bigg)\Bigg/$$

$$\left(\left(\sqrt{1-\frac{b^2}{c^2}}\;c\,\sqrt{\mathbb{i}\left(\mathbb{i}+\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right)-\frac{1}{c}\right)$$

$$b^2\Bigg(\Bigg(c\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\,\sqrt{1-\frac{c^2}{b^2}}\,\mathrm{Cosh}\left[x+\mathrm{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\,\sqrt{1-\frac{c^2}{b^2}}\,\left(1+\frac{a}{b\,\sqrt{1-\frac{c^2}{b^2}}}\right)},\right.$$

$$\left.\frac{a+b\,\sqrt{1-\frac{c^2}{b^2}}\,\mathrm{Cosh}\left[x+\mathrm{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\,\sqrt{1-\frac{c^2}{b^2}}\,\left(-1+\frac{a}{b\,\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/$$

$$\Bigg(b\,\sqrt{1-\frac{c^2}{b^2}}\;\sqrt{\frac{b\,\sqrt{\frac{b^2-c^2}{b^2}}-b\,\sqrt{\frac{b^2-c^2}{b^2}}\,\mathrm{Cosh}\left[x+\mathrm{ArcTanh}\left[\frac{c}{b}\right]\right]}{a+b\,\sqrt{\frac{b^2-c^2}{b^2}}}}$$

$$\sqrt{a + b\sqrt{\frac{b^2 - c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}\ \sqrt{\frac{b\sqrt{\frac{b^2 - c^2}{b^2}} + b\sqrt{\frac{b^2 - c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b\sqrt{\frac{b^2 - c^2}{b^2}}}}\ \Bigg) -$$

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

$$c\ \Bigg(\Bigg(c\,\text{AppellF1}\left[-\frac{1}{2},\ -\frac{1}{2},\ -\frac{1}{2},\ \frac{1}{2},\ \frac{a + b\sqrt{1 - \frac{c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}\left(1 + \frac{a}{b\sqrt{1 - \frac{c^2}{b^2}}}\right)},\right.$$

$$\left.\frac{a + b\sqrt{1 - \frac{c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}\left(-1 + \frac{a}{b\sqrt{1 - \frac{c^2}{b^2}}}\right)}\right]\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]\Bigg) \Bigg/$$

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

$$\sqrt{a + b\sqrt{\frac{b^2 - c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}\ \sqrt{\frac{b\sqrt{\frac{b^2 - c^2}{b^2}} + b\sqrt{\frac{b^2 - c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b\sqrt{\frac{b^2 - c^2}{b^2}}}}\ \Bigg) -$$

$$\left. -\frac{\dfrac{2\,b\left(a+b\,\sqrt{1-\frac{c^2}{b^2}}\ \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)}{b^2-c^2}+\dfrac{c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\,\sqrt{1-\frac{c^2}{b^2}}}}{\sqrt{a+b\,\sqrt{1-\frac{c^2}{b^2}}\ \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}}\right)$$

Problem 764: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}\,dx$$

Optimal (type 4, 102 leaves, 2 steps):

$$-\left(\left(\left(2\,i\,\text{EllipticF}\left[\frac{1}{2}\left(i\,x-\text{ArcTan}[b,-i\,c]\right),\frac{2\,\sqrt{b^2-c^2}}{a+\sqrt{b^2-c^2}}\right]\sqrt{\frac{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{a+\sqrt{b^2-c^2}}}\right)\right/\right.$$
$$\left.\left(\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}\ \right)\right)$$

Result (type 6, 237 leaves):

$$\frac{1}{\sqrt{1-\frac{b^2}{c^2}}\ c}2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},\frac{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{a+i\,\sqrt{1-\frac{b^2}{c^2}}\ c},\frac{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{a-i\,\sqrt{1-\frac{b^2}{c^2}}\ c}\right]$$

$$\text{Sech}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}$$

$$\sqrt{-\frac{-i\,\sqrt{1-\frac{b^2}{c^2}}\ c+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{a+i\,\sqrt{1-\frac{b^2}{c^2}}\ c}}\ \sqrt{-\frac{i\,\sqrt{1-\frac{b^2}{c^2}}\ c+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{a-i\,\sqrt{1-\frac{b^2}{c^2}}\ c}}$$

Problem 765: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 156 leaves, 3 steps):

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

$$\left(2\,\mathbb{i}\,\text{EllipticE}\left[\frac{1}{2}\left(\mathbb{i}\,x-\text{ArcTan}[b,\,-\mathbb{i}\,c]\right),\,\frac{2\sqrt{b^2-c^2}}{a+\sqrt{b^2-c^2}}\right]\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}\right)\Big/$$

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

Result (type 6, 1522 leaves):

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

$$\left(2\,a\,\text{AppellF1}\left[\frac{1}{2},\,\frac{1}{2},\,\frac{1}{2},\,\frac{3}{2},\,-\frac{\mathbb{i}\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(1-\frac{\mathbb{i}\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c}\right.\right.,$$

$$-\frac{\mathbb{i}\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(-1-\frac{\mathbb{i}\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c}\left.\right]\text{Sech}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{-1+\mathbb{i}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}-\mathbb{i}\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}{\mathbb{i}\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

$$\left.\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}+\mathbb{i}\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}{-\mathbb{i}\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\right)\Big/$$

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

$$b^2 \left(\left(c\, \text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a + b\sqrt{1 - \frac{c^2}{b^2}}\, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}\left(1 + \frac{a}{b\sqrt{1 - \frac{c^2}{b^2}}}\right)}\right. \right. \right.$$

$$\left. \left. \frac{a + b\sqrt{1 - \frac{c^2}{b^2}}\, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}\left(-1 + \frac{a}{b\sqrt{1 - \frac{c^2}{b^2}}}\right)}\right] \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]\right) \Big/$$

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

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

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

$$c\left(\left(c\, \text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a + b\sqrt{1 - \frac{c^2}{b^2}}\, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}\left(1 + \frac{a}{b\sqrt{1 - \frac{c^2}{b^2}}}\right)}\right.\right.\right.,$$

$$\left. \frac{a + b\sqrt{1 - \frac{c^2}{b^2}}\ \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}\left(-1 + \frac{a}{b\sqrt{1 - \frac{c^2}{b^2}}}\right)}\right]\ \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]\right/$$

$$\left(b\sqrt{1 - \frac{c^2}{b^2}}\ \sqrt{\frac{b\sqrt{\frac{b^2 - c^2}{b^2}} - b\sqrt{\frac{b^2 - c^2}{b^2}}\ \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{a + b\sqrt{\frac{b^2 - c^2}{b^2}}}}\right.$$

$$\left.\sqrt{a + b\sqrt{\frac{b^2 - c^2}{b^2}}\ \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}\ \sqrt{\frac{b\sqrt{\frac{b^2 - c^2}{b^2}} + b\sqrt{\frac{b^2 - c^2}{b^2}}\ \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b\sqrt{\frac{b^2 - c^2}{b^2}}}}\right) -$$

$$\frac{-\frac{2b\left(a + b\sqrt{1 - \frac{c^2}{b^2}}\ \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)}{b^2 - c^2} + \frac{c\ \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}}}{\sqrt{a + b\sqrt{1 - \frac{c^2}{b^2}}\ \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}}$$

Problem 766: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 322 leaves, 7 steps) :

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

$$\left(8\,\mathbb{i}\,a\,\text{EllipticE}\left[\frac{1}{2}\,(\mathbb{i}\,x - \text{ArcTan}[b, -\mathbb{i}\,c]),\,\frac{2\,\sqrt{b^2 - c^2}}{a + \sqrt{b^2 - c^2}}\right]\,\sqrt{a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}\right) \Big/$$

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

$$\left(2\,\mathbb{i}\,\text{EllipticF}\left[\frac{1}{2}\,(\mathbb{i}\,x - \text{ArcTan}[b, -\mathbb{i}\,c]),\,\frac{2\,\sqrt{b^2 - c^2}}{a + \sqrt{b^2 - c^2}}\right]\,\sqrt{\frac{a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}{a + \sqrt{b^2 - c^2}}}\right) \Big/$$

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

Result (type 6, 2492 leaves):

$$\sqrt{a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}\,\left(\frac{8\,a\,(b^2 - c^2)}{3\,b\,c\,(a^2 - b^2 + c^2)^2} - \frac{2\,(a\,c - b^2\,\text{Sinh}[x] + c^2\,\text{Sinh}[x])}{3\,b\,(-a^2 + b^2 - c^2)\,(a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x])^2} - \right.$$

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

$$\left(2\,a^2\,\text{AppellF1}\left[\frac{1}{2},\,\frac{1}{2},\,\frac{1}{2},\,\frac{3}{2},\,-\frac{\mathbb{i}\,\left(a + \sqrt{1 - \frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1 - \frac{b^2}{c^2}}\,\left(1 - \frac{\mathbb{i}\,a}{\sqrt{1 - \frac{b^2}{c^2}}\,c}\right)\,c},\right.\right.$$

$$\left.\left. -\frac{\mathbb{i}\,\left(a + \sqrt{1 - \frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1 - \frac{b^2}{c^2}}\,\left(-1 - \frac{\mathbb{i}\,a}{\sqrt{1 - \frac{b^2}{c^2}}\,c}\right)\,c}\right]\,\text{Sech}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right.$$

$$\sqrt{-1 + \mathbb{i}\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}\,\sqrt{\frac{c\,\sqrt{\frac{-b^2 + c^2}{c^2}} - \mathbb{i}\,c\,\sqrt{\frac{-b^2 + c^2}{c^2}}\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}{\mathbb{i}\,a + c\,\sqrt{\frac{-b^2 + c^2}{c^2}}}}$$

$$\sqrt{\frac{c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,+\,\dot{\mathbb{i}}\,c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\!\left[x+\text{ArcTanh}\!\left[\frac{b}{c}\right]\right]}{-\dot{\mathbb{i}}\,a+c\,\sqrt{\frac{-b^2+c^2}{c^2}}}}\;\sqrt{a+c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\!\left[x+\text{ArcTanh}\!\left[\frac{b}{c}\right]\right]}\Bigg)\Bigg/$$

$$\left(\sqrt{1-\frac{b^2}{c^2}}\,c\,\left(a^2-b^2+c^2\right)^2\,\sqrt{\dot{\mathbb{i}}\,\left(\dot{\mathbb{i}}+\text{Sinh}\!\left[x+\text{ArcTanh}\!\left[\frac{b}{c}\right]\right]\right)}\right)\,+$$

$$\left(2\,b^2\,\text{AppellF1}\!\left[\frac{1}{2},\,\frac{1}{2},\,\frac{1}{2},\,\frac{3}{2},\,-\frac{\dot{\mathbb{i}}\,\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\!\left[x+\text{ArcTanh}\!\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\,\left(1-\frac{\dot{\mathbb{i}}\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)\,c},\right.\right.$$

$$\left.-\frac{\dot{\mathbb{i}}\,\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\!\left[x+\text{ArcTanh}\!\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\,\left(-1-\frac{\dot{\mathbb{i}}\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)\,c}\right]\,\text{Sech}\!\left[x+\text{ArcTanh}\!\left[\frac{b}{c}\right]\right]$$

$$\sqrt{-1+\dot{\mathbb{i}}\,\text{Sinh}\!\left[x+\text{ArcTanh}\!\left[\frac{b}{c}\right]\right]}\;\sqrt{\frac{c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,-\,\dot{\mathbb{i}}\,c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\!\left[x+\text{ArcTanh}\!\left[\frac{b}{c}\right]\right]}{\dot{\mathbb{i}}\,a+c\,\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

$$\sqrt{\frac{c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,+\,\dot{\mathbb{i}}\,c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\!\left[x+\text{ArcTanh}\!\left[\frac{b}{c}\right]\right]}{-\dot{\mathbb{i}}\,a+c\,\sqrt{\frac{-b^2+c^2}{c^2}}}}\;\sqrt{a+c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\!\left[x+\text{ArcTanh}\!\left[\frac{b}{c}\right]\right]}\Bigg)\Bigg/$$

$$\left(3\,\sqrt{1-\frac{b^2}{c^2}}\,c\,\left(a^2-b^2+c^2\right)^2\,\sqrt{\dot{\mathbb{i}}\,\left(\dot{\mathbb{i}}+\text{Sinh}\!\left[x+\text{ArcTanh}\!\left[\frac{b}{c}\right]\right]\right)}\right)\,-$$

$$\left(2\,c\,\text{AppellF1}\left[\frac{1}{2},\,\frac{1}{2},\,\frac{1}{2},\,\frac{3}{2},\,-\frac{\dot{\mathbb{i}}\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\,\left(1-\frac{\dot{\mathbb{i}}\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c},\right.$$

$$\left.-\frac{\dot{\mathbb{i}}\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\,\left(-1-\frac{\dot{\mathbb{i}}\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c}\right]\,\text{Sech}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{-1+\dot{\mathbb{i}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\,\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}-\dot{\mathbb{i}}\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}{\dot{\mathbb{i}}\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

$$\left.\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}+\dot{\mathbb{i}}\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}{-\dot{\mathbb{i}}\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}\,\sqrt{a+c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\right)\Bigg/$$

$$\left(3\sqrt{1-\frac{b^2}{c^2}}\,\left(a^2-b^2+c^2\right)^2\sqrt{\dot{\mathbb{i}}\left(\dot{\mathbb{i}}+\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right)-$$

$$\left(4\,a\,b^2\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},\,-\frac{1}{2},\,-\frac{1}{2},\,\frac{1}{2},\,\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\,\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\right.\right.\right.$$

$$\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\Bigg/\left(b\sqrt{1-\frac{c^2}{b^2}}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}}-b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2-c^2}{b^2}}}}\,\sqrt{a+b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}}+b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2-c^2}{b^2}}}}\right)-$$

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

$$\frac{1}{3\left(a^2-b^2+c^2\right)^2}4\,a\,c\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right.\right.,$$

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

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

$$\sqrt{a + b \sqrt{\frac{b^2 - c^2}{b^2}} \, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]} \; \sqrt{\frac{b \sqrt{\frac{b^2-c^2}{b^2}} + b \sqrt{\frac{b^2-c^2}{b^2}} \, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b \sqrt{\frac{b^2-c^2}{b^2}}}} \; \right) \; -$$

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

Problem 767: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(a + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]\right)^{7/2}} \, dx$$

Optimal (type 4, 411 leaves, 8 steps):

$$-\frac{2 \left(c \, \text{Cosh}[x] + b \, \text{Sinh}[x]\right)}{5 \left(a^2 - b^2 + c^2\right) \left(a + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]\right)^{5/2}} - \frac{16 \left(a c \, \text{Cosh}[x] + a b \, \text{Sinh}[x]\right)}{15 \left(a^2 - b^2 + c^2\right)^2 \left(a + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]\right)^{3/2}} -$$

$$\left(2 i \left(23 a^2 + 9 b^2 - 9 c^2\right) \text{EllipticE}\left[\frac{1}{2} \left(i x - \text{ArcTan}[b, -i c]\right), \frac{2 \sqrt{b^2 - c^2}}{a + \sqrt{b^2 - c^2}}\right]\right.$$

$$\left. \sqrt{a + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]} \right) \Big/ \left(15 \left(a^2 - b^2 + c^2\right)^3 \sqrt{\frac{a + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]}{a + \sqrt{b^2 - c^2}}}\right) +$$

$$\left(16 i \, a \, \text{EllipticF}\left[\frac{1}{2} \left(i x - \text{ArcTan}[b, -i c]\right), \frac{2 \sqrt{b^2 - c^2}}{a + \sqrt{b^2 - c^2}}\right] \sqrt{\frac{a + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]}{a + \sqrt{b^2 - c^2}}}\right) \Big/$$

$$\left(15 \left(a^2 - b^2 + c^2\right)^2 \sqrt{a + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]}\right) -$$

$$\frac{2 \left(c \left(23 a^2 + 9 b^2 - 9 c^2\right) \text{Cosh}[x] + b \left(23 a^2 + 9 b^2 - 9 c^2\right) \text{Sinh}[x]\right)}{15 \left(a^2 - b^2 + c^2\right)^3 \sqrt{a + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]}}$$

Result (type 6, 4093 leaves):

$$\sqrt{a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}$$
$$\left(-\frac{2\left(23\,a^2 + 9\,b^2 - 9\,c^2\right)\left(b^2 - c^2\right)}{15\,b\,c\left(-a^2 + b^2 - c^2\right)^3} - \frac{2\left(a\,c - b^2\,\text{Sinh}[x] + c^2\,\text{Sinh}[x]\right)}{5\,b\left(-a^2 + b^2 - c^2\right)\left(a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)^3} - \right.$$
$$\frac{2\left(-5\,a^2\,c - 3\,b^2\,c + 3\,c^3 + 8\,a\,b^2\,\text{Sinh}[x] - 8\,a\,c^2\,\text{Sinh}[x]\right)}{15\,b\left(-a^2 + b^2 - c^2\right)^2\left(a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)^2} +$$
$$\left(2\left(-15\,a^3\,c - 17\,a\,b^2\,c + 17\,a\,c^3 + 23\,a^2\,b^2\,\text{Sinh}[x] + 9\,b^4\,\text{Sinh}[x] - 23\,a^2\,c^2\,\text{Sinh}[x] - \right.\right.$$
$$\left.\left.\left. 18\,b^2\,c^2\,\text{Sinh}[x] + 9\,c^4\,\text{Sinh}[x]\right)\right) \middle/ \left(15\,b\left(-a^2 + b^2 - c^2\right)^3\left(a + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)\right)\right) +$$

$$\left(2\,a^3\,\text{AppellF1}\left[\frac{1}{2},\,\frac{1}{2},\,\frac{1}{2},\,\frac{3}{2},\,-\frac{\dot{\mathbb{i}}\left(a + \sqrt{1 - \frac{b^2}{c^2}}\;c\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1 - \frac{b^2}{c^2}}\left(1 - \frac{\dot{\mathbb{i}}\,a}{\sqrt{1 - \frac{b^2}{c^2}}\;c}\right)c},\right.\right.$$

$$\left. -\frac{\dot{\mathbb{i}}\left(a + \sqrt{1 - \frac{b^2}{c^2}}\;c\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1 - \frac{b^2}{c^2}}\left(-1 - \frac{\dot{\mathbb{i}}\,a}{\sqrt{1 - \frac{b^2}{c^2}}\;c}\right)c}\right]\text{Sech}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{-1 + \dot{\mathbb{i}}\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}\;\sqrt{\frac{c\sqrt{\frac{-b^2 + c^2}{c^2}} - \dot{\mathbb{i}}\,c\sqrt{\frac{-b^2 + c^2}{c^2}}\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}{\dot{\mathbb{i}}\,a + c\sqrt{\frac{-b^2 + c^2}{c^2}}}}$$

$$\sqrt{\frac{c\sqrt{\frac{-b^2 + c^2}{c^2}} + \dot{\mathbb{i}}\,c\sqrt{\frac{-b^2 + c^2}{c^2}}\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}{-\dot{\mathbb{i}}\,a + c\sqrt{\frac{-b^2 + c^2}{c^2}}}}\;\sqrt{a + c\sqrt{\frac{-b^2 + c^2}{c^2}}\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}\right) \Big/$$

$$\left(\sqrt{1 - \frac{b^2}{c^2}}\;c\left(a^2 - b^2 + c^2\right)^3\sqrt{\dot{\mathbb{i}}\left(\dot{\mathbb{i}} + \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right) +$$

$$34\,a\,b^2\,\text{AppellF1}\Big[\frac{1}{2},\,\frac{1}{2},\,\frac{1}{2},\,\frac{3}{2},\,-\frac{\mathring{\imath}\,\Big(a+\sqrt{1-\frac{b^2}{c^2}}\ c\,\text{Sinh}\big[x+\text{ArcTanh}\big[\frac{b}{c}\big]\big]\Big)}{\sqrt{1-\frac{b^2}{c^2}}\ \Big(1-\frac{\mathring{\imath}\,a}{\sqrt{1-\frac{b^2}{c^2}}\ c}\Big)\ c},$$

$$-\frac{\mathring{\imath}\,\Big(a+\sqrt{1-\frac{b^2}{c^2}}\ c\,\text{Sinh}\big[x+\text{ArcTanh}\big[\frac{b}{c}\big]\big]\Big)}{\sqrt{1-\frac{b^2}{c^2}}\ \Big(-1-\frac{\mathring{\imath}\,a}{\sqrt{1-\frac{b^2}{c^2}}\ c}\Big)\ c}\Big]\ \text{Sech}\big[x+\text{ArcTanh}\big[\frac{b}{c}\big]\big]$$

$$\sqrt{-1+\mathring{\imath}\,\text{Sinh}\big[x+\text{ArcTanh}\big[\frac{b}{c}\big]\big]}\ \sqrt{\frac{c\,\sqrt{\frac{-b^2+c^2}{c^2}}-\mathring{\imath}\,c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\big[x+\text{ArcTanh}\big[\frac{b}{c}\big]\big]}{\mathring{\imath}\,a+c\,\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

$$\sqrt{\frac{c\,\sqrt{\frac{-b^2+c^2}{c^2}}+\mathring{\imath}\,c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\big[x+\text{ArcTanh}\big[\frac{b}{c}\big]\big]}{-\mathring{\imath}\,a+c\,\sqrt{\frac{-b^2+c^2}{c^2}}}}\ \sqrt{a+c\,\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\big[x+\text{ArcTanh}\big[\frac{b}{c}\big]\big]}\ \Big/$$

$$\Big(15\,\sqrt{1-\frac{b^2}{c^2}}\ c\,\big(a^2-b^2+c^2\big)^3\,\sqrt{\mathring{\imath}\,\big(\mathring{\imath}+\text{Sinh}\big[x+\text{ArcTanh}\big[\frac{b}{c}\big]\big]\big)}\Big)\ -$$

$$34\,a\,c\,\text{AppellF1}\Big[\frac{1}{2},\,\frac{1}{2},\,\frac{1}{2},\,\frac{3}{2},\,-\frac{\mathring{\imath}\,\Big(a+\sqrt{1-\frac{b^2}{c^2}}\ c\,\text{Sinh}\big[x+\text{ArcTanh}\big[\frac{b}{c}\big]\big]\Big)}{\sqrt{1-\frac{b^2}{c^2}}\ \Big(1-\frac{\mathring{\imath}\,a}{\sqrt{1-\frac{b^2}{c^2}}\ c}\Big)\ c},$$

$$-\frac{\mathring{\imath}\,\Big(a+\sqrt{1-\frac{b^2}{c^2}}\ c\,\text{Sinh}\big[x+\text{ArcTanh}\big[\frac{b}{c}\big]\big]\Big)}{\sqrt{1-\frac{b^2}{c^2}}\ \Big(-1-\frac{\mathring{\imath}\,a}{\sqrt{1-\frac{b^2}{c^2}}\ c}\Big)\ c}\Big]\ \text{Sech}\big[x+\text{ArcTanh}\big[\frac{b}{c}\big]\big]$$

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

$$\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}} + i\, c\sqrt{\frac{-b^2+c^2}{c^2}}\, \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}{-i\, a + c\sqrt{\frac{-b^2+c^2}{c^2}}}}\, \sqrt{a + c\sqrt{\frac{-b^2+c^2}{c^2}}\, \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]}\Bigg) \Bigg/$$

$$\left(15\sqrt{1 - \frac{b^2}{c^2}}\,\left(a^2 - b^2 + c^2\right)^3\sqrt{i\left(i + \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right) -$$

$$\left(23\, a^2\, b^2 \left(\left(c\, \text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a + b\sqrt{1 - \frac{c^2}{b^2}}\, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}\left(1 + \frac{a}{b\sqrt{1 - \frac{c^2}{b^2}}}\right)},\right.\right.\right.$$

$$\left.\frac{a + b\sqrt{1 - \frac{c^2}{b^2}}\, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}\left(-1 + \frac{a}{b\sqrt{1 - \frac{c^2}{b^2}}}\right)}\right]\, \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]\right) \Bigg/ \left(b\sqrt{1 - \frac{c^2}{b^2}}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}} - b\sqrt{\frac{b^2-c^2}{b^2}}\, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{a + b\sqrt{\frac{b^2-c^2}{b^2}}}}\, \sqrt{a + b\sqrt{\frac{b^2-c^2}{b^2}}\, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}} + b\sqrt{\frac{b^2-c^2}{b^2}}\, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b\sqrt{\frac{b^2-c^2}{b^2}}}}\right) -$$

$$-\frac{-\frac{2 b \left(a+b \sqrt{1-\frac{c^2}{b^2}} \, \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)}{b^2-c^2}+\frac{c \, \text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1-\frac{c^2}{b^2}}}}{\sqrt{a+b \sqrt{1-\frac{c^2}{b^2}} \, \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}}\Bigg) \Bigg/ \left(15 c \left(a^2-b^2+c^2\right)^3\right) -$$

$$\Bigg(3 b^4 \Bigg(\Bigg(c \, \text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a+b \sqrt{1-\frac{c^2}{b^2}} \, \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1-\frac{c^2}{b^2}} \left(1+\frac{a}{b \sqrt{1-\frac{c^2}{b^2}}}\right)},\right.$$

$$\left.\frac{a+b \sqrt{1-\frac{c^2}{b^2}} \, \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1-\frac{c^2}{b^2}} \left(-1+\frac{a}{b \sqrt{1-\frac{c^2}{b^2}}}\right)}\right] \text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\Bigg) \Bigg/ \Bigg(b \sqrt{1-\frac{c^2}{b^2}}$$

$$\sqrt{\frac{b \sqrt{\frac{b^2-c^2}{b^2}} - b \sqrt{\frac{b^2-c^2}{b^2}} \, \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{a+b \sqrt{\frac{b^2-c^2}{b^2}}}} \sqrt{a+b \sqrt{\frac{b^2-c^2}{b^2}} \, \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}$$

$$\sqrt{\frac{b \sqrt{\frac{b^2-c^2}{b^2}} + b \sqrt{\frac{b^2-c^2}{b^2}} \, \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a+b \sqrt{\frac{b^2-c^2}{b^2}}}}\Bigg) -$$

$$\frac{-\frac{2 b \left(a+b \sqrt{1-\frac{c^2}{b^2}} \, \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)}{b^2-c^2}+\frac{c \, \text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b \sqrt{1-\frac{c^2}{b^2}}}}{\sqrt{a+b \sqrt{1-\frac{c^2}{b^2}} \, \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}}\Bigg) \Bigg/ \left(5 c \left(a^2-b^2+c^2\right)^3\right) +$$

$$\frac{1}{15\left(a^2-b^2+c^2\right)^3}23\,a^2\,c\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\right.\right.\right.$$

$$\left.\left.\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)\Bigg/$$

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

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

$$\frac{-\frac{2\,b\left(a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)}{b^2-c^2}+\frac{c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}}\right)+\frac{1}{5\left(a^2-b^2+c^2\right)^3}$$

$$6\,b^2\,c\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\right.\right.\right.$$

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

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

$$\sqrt{a + b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}\,\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}} + b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b\sqrt{\frac{b^2-c^2}{b^2}}}}\right) -$$

$$\frac{-\frac{2b\left(a + b\sqrt{1 - \frac{c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)}{b^2 - c^2} + \frac{c\,\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}}}{\sqrt{a + b\sqrt{1 - \frac{c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}} - \frac{1}{5\left(a^2 - b^2 + c^2\right)^3}$$

$$3\,c^3\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a + b\sqrt{1 - \frac{c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}\left(1 + \frac{a}{b\sqrt{1 - \frac{c^2}{b^2}}}\right)},\right.\right.$$

$$\left.\frac{a + b\sqrt{1 - \frac{c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1 - \frac{c^2}{b^2}}\left(-1 + \frac{a}{b\sqrt{1 - \frac{c^2}{b^2}}}\right)}\right]\text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]\Bigg/$$

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

$$\sqrt{a + b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}\,\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}} + b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a + b\sqrt{\frac{b^2-c^2}{b^2}}}} \right) -$$

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

Problem 768: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \left(\sqrt{b^2 - c^2} + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)^{5/2} dx$$

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

$$\frac{64\left(b^2 - c^2\right)\left(c\,\text{Cosh}[x] + b\,\text{Sinh}[x]\right)}{15\sqrt{\sqrt{b^2 - c^2} + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}} +$$

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

$$\frac{2}{5}\left(c\,\text{Cosh}[x] + b\,\text{Sinh}[x]\right)\left(\sqrt{b^2 - c^2} + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]\right)^{3/2}$$

Result (type 4, 10 223 leaves):

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

$$\sqrt{\sqrt{b^2 - c^2} + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}\left(\frac{44b\left(b^2 - c^2\right)}{15c} + \frac{2}{15}c\sqrt{b^2 - c^2}\,\text{Cosh}[x] + \right.$$

$$\left.\frac{2}{5}b\,c\,\text{Cosh}[2x] + \frac{2}{15}b\sqrt{b^2 - c^2}\,\text{Sinh}[x] + \frac{1}{5}\left(b^2 + c^2\right)\text{Sinh}[2x]\right) +$$

$$\left(256\, b\, \left(-b+c\right)\, \left(b+c\right)^2 \sqrt{b^2-c^2}\, \left(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\, \left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\, \left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\right.\right.$$

$$\left.1\right] - 2\,\text{EllipticPi}\left[-1,\text{ArcSin}\left[\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\, \left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\, \left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

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

$$\left.\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\, \left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\, \left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\, \left(-c+\left(-b+\sqrt{b^2-c^2}\right)\,\text{Tanh}\left[\frac{x}{2}\right]\right)\right) \Bigg/$$

$$\left(15\, \left(b+c-\sqrt{b^2-c^2}\right)^2 \left(b+c+\sqrt{b^2-c^2}\right)\, \left(1+\text{Cosh}[x]\right)\right.$$

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

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

$$\frac{1}{15\, c\, \left(1+\text{Cosh}[x]\right)\, \sqrt{\frac{\sqrt{(b-c)\,(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{(1+\text{Cosh}[x])^2}}}$$

$$64\, \left(b-c\right)^2 \left(b+c\right)^2 \sqrt{\sqrt{\left(b-c\right)\, \left(b+c\right)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}$$

$$\left(\left(\left(b-c\,\text{Tanh}\left[\frac{x}{2}\right]\right)\, \sqrt{-b-\sqrt{b^2-c^2}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]-b\,\text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{b^2-c^2}\,\text{Tanh}\left[\frac{x}{2}\right]^2}\right.\right.$$

$$\left.\left.\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\, \left(-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\, \left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)-b\, \left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)}\right)\right) \Bigg/$$

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

$$b \left(1 + \text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) + \left| \sqrt{\left(\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}\right.$$

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

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

$$\left(\left(2c^2\left(-1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\right.\right.\left(-\text{EllipticF}\left[\text{ArcSin}\left[\right.\right.\right.$$

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

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

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/$$

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

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

$$\left(8b^3\left(\left(-b + c + \sqrt{b^2 - c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\right.\right.\right.$$

$$1\Big] - 2c\,\text{EllipticPi}\left[\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\right)\left(-1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right) \bigg/$$

$$\left(\left(\left(b - c - \sqrt{b^2 - c^2}\right)\left(-b - c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\right.\right.$$

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

$$\left(-b - \sqrt{(b - c)(b + c)} - 2\,c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)(b + c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\bigg)\bigg) -$$

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

$$\left.1\right] - 2\,c\,\text{EllipticPi}\left[\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\right)\left(-1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right) \bigg/$$

$$\left(c^2\left(b - c - \sqrt{b^2 - c^2}\right)\left(-b - c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\right.$$

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

$$\left(-b - \sqrt{(b - c)(b + c)} - 2\,c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)(b + c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\bigg)\bigg) -$$

$$\Bigg(4\,b\,c^2\,\Bigg(\Big(-b+c+\sqrt{b^2-c^2}\,\Big)\,\text{EllipticF}\Bigg[\text{ArcSin}\Bigg[\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\,\big)\,\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\,\big)\,\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\,\Bigg],$$

$$1\Bigg]-2\,c\,\text{EllipticPi}\Bigg[\frac{\big(b+c-\sqrt{b^2-c^2}\,\big)\,\Big(1+\frac{c}{-b+\sqrt{b^2-c^2}}\Big)}{\big(b-c-\sqrt{b^2-c^2}\,\big)\,\Big(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\Big)},$$

$$\text{ArcSin}\Bigg[\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\,\big)\,\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\,\big)\,\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\,\Bigg],1\Bigg]\Bigg)\,\Big(-1+\text{Tanh}\big[\frac{x}{2}\big]\Big)$$

$$\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\,\big)\,\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\,\big)\,\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\,\Big(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\big[\frac{x}{2}\big]\Big)\Bigg)\Bigg/$$

$$\Bigg(\Big(b-c-\sqrt{b^2-c^2}\,\Big)\,\Big(-b-c+\sqrt{b^2-c^2}\,\Big)\,\Big(1-\frac{c}{-b+\sqrt{b^2-c^2}}\Big)$$

$$\Big(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\Big)\sqrt{\Big(\big(-1+\text{Tanh}\big[\frac{x}{2}\big]^2\big)\,\big(-b-\sqrt{(b-c)\,(b+c)}\ -}$$

$$2\,c\,\text{Tanh}\big[\frac{x}{2}\big]+\big(-b+\sqrt{(b-c)\,(b+c)}\,\big)\,\text{Tanh}\big[\frac{x}{2}\big]^2\big)\Big)}\Bigg)-\Bigg(8\,b^2\,\sqrt{b^2-c^2}$$

$$\Bigg(\Big(-b+c+\sqrt{b^2-c^2}\,\Big)\,\text{EllipticF}\Bigg[\text{ArcSin}\Bigg[\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\,\big)\,\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\,\big)\,\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\,\Bigg],$$

$$1\Bigg]-2\,c\,\text{EllipticPi}\Bigg[\frac{\big(b+c-\sqrt{b^2-c^2}\,\big)\,\Big(1+\frac{c}{-b+\sqrt{b^2-c^2}}\Big)}{\big(b-c-\sqrt{b^2-c^2}\,\big)\,\Big(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\Big)},$$

$$\text{ArcSin}\Bigg[\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\,\big)\,\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\,\big)\,\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\,\Bigg],1\Bigg]\Bigg)\,\Big(-1+\text{Tanh}\big[\frac{x}{2}\big]\Big)$$

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

$$\left.\left.2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\,\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)+\left(8\,b^4\,\sqrt{b^2-c^2}\right.$$

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

$$\left.1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

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

$$\Bigg(\bigg(-b+c+\sqrt{b^2-c^2}\bigg)\,\text{EllipticF}\bigg[\text{ArcSin}\bigg[\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\big)\,\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\big)\,\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\bigg],$$

$$1\bigg]-2\,c\,\text{EllipticPi}\bigg[\frac{\big(b+c-\sqrt{b^2-c^2}\big)\,\bigg(1+\frac{c}{-b+\sqrt{b^2-c^2}}\bigg)}{\big(b-c-\sqrt{b^2-c^2}\big)\,\bigg(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\bigg)},$$

$$\text{ArcSin}\bigg[\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\big)\,\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\big)\,\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\bigg],1\bigg]\Bigg)\,\bigg(-1+\text{Tanh}\bigg[\frac{x}{2}\bigg]\bigg)$$

$$\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\big)\,\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\big)\,\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\,\bigg(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\bigg[\frac{x}{2}\bigg]\bigg)\Bigg)\Bigg/$$

$$\Bigg(\bigg(b-c-\sqrt{b^2-c^2}\bigg)\,\bigg(-b-c+\sqrt{b^2-c^2}\bigg)\,\bigg(1-\frac{c}{-b+\sqrt{b^2-c^2}}\bigg)$$

$$\bigg(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\bigg)\sqrt{\bigg(\big(-1+\text{Tanh}\big[\frac{x}{2}\big]^2\big)\,\bigg(-b-\sqrt{(b-c)\,(b+c)}-}$$

$$2\,c\,\text{Tanh}\bigg[\frac{x}{2}\bigg]+\bigg(-b+\sqrt{(b-c)\,(b+c)}\bigg)\,\text{Tanh}\bigg[\frac{x}{2}\bigg]^2\bigg)\bigg)}\Bigg)-\Bigg|4\,b^3\,\big(b^2-c^2\big)$$

$$\Bigg(\bigg(-b+c+\sqrt{b^2-c^2}\bigg)\,\text{EllipticF}\bigg[\text{ArcSin}\bigg[\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\big)\,\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\big)\,\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\bigg],$$

$$1\bigg]-2\,c\,\text{EllipticPi}\bigg[\frac{\big(b+c-\sqrt{b^2-c^2}\big)\,\bigg(1+\frac{c}{-b+\sqrt{b^2-c^2}}\bigg)}{\big(b-c-\sqrt{b^2-c^2}\big)\,\bigg(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\bigg)},$$

$$\text{ArcSin}\bigg[\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\big)\,\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\big)\,\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\bigg],1\bigg]\Bigg)\,\bigg(-1+\text{Tanh}\bigg[\frac{x}{2}\bigg]\bigg)$$

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

$$\left.\left(-b-\sqrt{(b-c)(b+c)}-2c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)+$$

$$\left(8b^3\left(\left(-b+c-\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right.\right.\right.\right.,$$

$$1\Bigg]-2c\,\text{EllipticPi}\Bigg[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(\left(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.\right.$$

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

$$\left.\left(-b-\sqrt{(b-c)(b+c)}-2c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)-$$

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

$$\left.1\right] - 2\,c\;\mathrm{EllipticPi}\!\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\,\right)\left(1 + \dfrac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\,\right)\left(-1 + \dfrac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

$$\left.\mathrm{ArcSin}\!\left[\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\,\right)\left(1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\,\right)\left(-1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)}}\;\right],\,1\right]\right)\left(-1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)$$

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\,\right)\left(1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\,\right)\left(-1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)}}\;\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)\right) \Big/$$

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

$$\left(\frac{-b - \sqrt{b^2 - c^2}}{c} - \frac{-b + \sqrt{b^2 - c^2}}{c}\right)\sqrt{\left(\left(-1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]^2\right)\right)}$$

$$\left.\left(-b - \sqrt{(b - c)\,(b + c)} - 2\,c\,\mathrm{Tanh}\!\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)\,(b + c)}\,\right)\mathrm{Tanh}\!\left[\frac{x}{2}\right]^2\right)\right)\right) -$$

$$\left(4\,b\,c^2\left(\left(-b + c - \sqrt{b^2 - c^2}\,\right)\mathrm{EllipticF}\!\left[\mathrm{ArcSin}\!\left[\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\,\right)\left(1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\,\right)\left(-1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)}}\;\right],\right.\right.$$

$$\left.1\right] - 2\,c\;\mathrm{EllipticPi}\!\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\,\right)\left(1 + \dfrac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\,\right)\left(-1 + \dfrac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

$$\left.\mathrm{ArcSin}\!\left[\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\,\right)\left(1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\,\right)\left(-1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)}}\;\right],\,1\right]\right)\left(-1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)$$

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\,\right)\left(1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\,\right)\left(-1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)}}\;\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \mathrm{Tanh}\!\left[\frac{x}{2}\right]\right)\right) \Big/$$

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

$$\left(\frac{-b - \sqrt{b^2 - c^2}}{c} - \frac{-b + \sqrt{b^2 - c^2}}{c}\right)\sqrt{\left(\left(-1 + \mathrm{Tanh}\!\left[\frac{x}{2}\right]^2\right)\left(-b - \sqrt{(b - c)\,(b + c)}\;-\right.\right.}$$

$$2\,c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b-c)\,(b+c)}\,\right)\text{Tanh}\left[\frac{x}{2}\right]^2\Big)\Big) - \Bigg(4\,b\,(b^2-c^2)$$

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

$$1\Bigg] - 2\,c\,\text{EllipticPi}\Bigg[\frac{\left(b+c+\sqrt{b^2-c^2}\,\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\,\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\,\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\,\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\left(-b-c-\sqrt{b^2-c^2}\,\right)\left(b-c+\sqrt{b^2-c^2}\,\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)$$

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

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

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

$$1\Bigg] - 2\,c\,\text{EllipticPi}\Bigg[\frac{\left(b+c+\sqrt{b^2-c^2}\,\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\,\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},$$

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

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(c^2\left(-b - c - \sqrt{b^2 - c^2}\right)\left(b - c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\right.$$

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

$$\left.\left(-b - \sqrt{(b - c)(b + c)} - 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)(b + c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right) -$$

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

$$\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(-1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

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

$$\left.\left(-b - \sqrt{(b - c)(b + c)} - 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)(b + c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) +$$

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

$$\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(-1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

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

$$\left.\left(-b - \sqrt{(b - c)(b + c)} - 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)(b + c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) +$$

$$\left(2\,b^2\,\sqrt{b^2 - c^2}\left(-1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\right.\right.\right.$$

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

$$\sqrt{\frac{\left(-1 + \frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1 + \frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right) \Big/$$

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

$$\left.\left(-b - \sqrt{(b - c)(b + c)} - 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)(b + c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right) +$$

$$\left(b\,c\left(2\left(\frac{1}{2}\left(1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\right.\right.\right.\right.\right.$$

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

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

$$\left(\left(-b + \sqrt{b^2 - c^2}\right)\left(-1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\right)\right) + \left(2\,c\,\text{EllipticPi}\left[\frac{1 + \frac{c}{-b+\sqrt{b^2-c^2}}}{-1 + \frac{c}{-b+\sqrt{b^2-c^2}}},\right.\right.$$

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

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

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

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

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

$$\left(c\sqrt{b^2-c^2}\left(2\left(\frac{1}{2}\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\right.\right.\right.\right.$$

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

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

$$\left(\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right)+\left(2\,c\,\text{EllipticPi}\left[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\right.\right.$$

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

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

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

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

$$\left(-b-\sqrt{(b-c)\ (b+c)}\ -2\,c\,\text{Tanh}\!\left[\tfrac{x}{2}\right]+\left(-b+\sqrt{(b-c)\ (b+c)}\ \right)\,\text{Tanh}\!\left[\tfrac{x}{2}\right]^2\right)\right)\Bigg/$$

$$\left(\,(b-c)\ (b+c)\ \left(-1+\text{Tanh}\!\left[\tfrac{x}{2}\right]^2\right)\sqrt{\left(-b-\sqrt{(b-c)\ (b+c)}\ -2\,c\,\text{Tanh}\!\left[\tfrac{x}{2}\right]-\right.}\right.$$

$$\left.b\,\text{Tanh}\!\left[\tfrac{x}{2}\right]^2+\sqrt{(b-c)\ (b+c)}\ \text{Tanh}\!\left[\tfrac{x}{2}\right]^2\right)$$

$$\sqrt{\left(-2\,c\,\text{Tanh}\!\left[\tfrac{x}{2}\right]+\sqrt{b^2-c^2}\ \left(-1+\text{Tanh}\!\left[\tfrac{x}{2}\right]^2\right)-b\,\left(1+\text{Tanh}\!\left[\tfrac{x}{2}\right]^2\right)\right)}\right]$$

Problem 769: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 92 leaves, 2 steps) :

$$\frac{8\sqrt{b^2-c^2}\ \left(c\,\text{Cosh}[x]+b\,\text{Sinh}[x]\right)}{3\sqrt{\sqrt{b^2-c^2}\ +b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}+$$

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

Result (type 4, 10 141 leaves) :

$$\frac{2\,b\,\sqrt{b^2-c^2}\ \sqrt{\sqrt{b^2-c^2}\ +b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}{c}+$$

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

$$\left(32\,b\,(-b+c)\ (b+c)^2\left(\text{EllipticF}\!\left[\text{ArcSin}\!\left[\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\ \right)\,\left(1+\text{Tanh}\!\left[\tfrac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\ \right)\,\left(-1+\text{Tanh}\!\left[\tfrac{x}{2}\right]\right)}}\ \right],1\right]-\right.\right.$$

$$\left.\left.2\,\text{EllipticPi}\!\left[-1,\text{ArcSin}\!\left[\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\ \right)\,\left(1+\text{Tanh}\!\left[\tfrac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\ \right)\,\left(-1+\text{Tanh}\!\left[\tfrac{x}{2}\right]\right)}}\ \right],1\right]\right)\right)$$

$$\sqrt{\sqrt{(b-c)\ (b+c)}\ +b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}\ \left(-1+\text{Tanh}\!\left[\tfrac{x}{2}\right]\right)$$

$$\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\ \left(-c+\left(-b+\sqrt{b^2-c^2}\right)\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\Bigg(3\left(b+c-\sqrt{b^2-c^2}\right)^2\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Cosh}[x]\right)$$

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

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

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

$$8\,(b-c)\,(b+c)\sqrt{b^2-c^2}\sqrt{\sqrt{(b-c)\,(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}$$

$$\Bigg(\left(\left(b-c\,\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\left(-b-\sqrt{b^2-c^2}-2c\,\text{Tanh}\left[\frac{x}{2}\right]-b\,\text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{b^2-c^2}\,\text{Tanh}\left[\frac{x}{2}\right]^2\right)}\right.$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-2c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)-b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)}\Bigg)\Bigg/$$

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

$$b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\Bigg)\Bigg)+\Bigg(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}$$

$$\left(-b-\sqrt{(b-c)\,(b+c)}-2c\,\text{Tanh}\left[\frac{x}{2}\right]-b\,\text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{(b-c)\,(b+c)}\,\text{Tanh}\left[\frac{x}{2}\right]^2\right)\Bigg)$$

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

$$\left(\left(2c^2\left(-1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]+2\,\text{EllipticPi}\left[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\right.\right.\right.\right.$$

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

$$\left.\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

$$\left.\left(-b-\sqrt{(b-c)(b+c)}-2c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)+$$

$$\left(8b^3\left(\left(-b+c+\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\right.\right.\right.$$

$$\left.1\right]-2c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\left.\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

$$\left.\left(-b-\sqrt{(b-c)(b+c)}-2c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)-$$

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

$$\left.1\right]-2c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

$$\left(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

$$\left.\left(-b-\sqrt{(b-c)(b+c)}-2c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)-$$

$$\left(4bc^2\left(\left(-b+c+\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\right.\right.\right.$$

$$\left.1\right]-2c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

$$\left.\left.2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)-\Bigg(8\,b^2\,\sqrt{b^2-c^2}$$

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

$$1\Big]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

$$\left.\left.2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)+\Bigg(8\,b^4\,\sqrt{b^2-c^2}$$

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

$$\left.1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\,\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\,\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\,\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\,\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left.\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

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

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

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

$$\left.1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\,\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\,\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right) \left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right) \left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}} \left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right) \Bigg/$$

$$\left(\left(b - c - \sqrt{b^2 - c^2}\right) \left(-b - c + \sqrt{b^2 - c^2}\right) \left(1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\right.$$

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

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

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

$$1\Bigg] - 2 c\, \text{EllipticPi}\left[\frac{\left(b + c - \sqrt{b^2 - c^2}\right) \left(1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\right) \left(-1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)}\right.,$$

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

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right) \left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right) \left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}} \left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right) \Bigg/$$

$$\left(c^2 \left(b - c - \sqrt{b^2 - c^2}\right) \left(-b - c + \sqrt{b^2 - c^2}\right) \left(1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\right.$$

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

$$\left(-b - \sqrt{(b-c)(b+c)} - 2 c\, \text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b-c)(b+c)}\right) \text{Tanh}\left[\frac{x}{2}\right]^2\right)\Bigg) \Bigg) +$$

$$\left(8 b^3 \left(\left(-b + c - \sqrt{b^2 - c^2}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right) \left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right) \left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\right]\right.\right.\right],$$

$$1\Big] - 2\,c\;\text{EllipticPi}\Big[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},$$

$$\text{ArcSin}\Big[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\Big],1\Big]\Big)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)$$

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\;\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Big)\Big/$$

$$\left(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

$$\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\Big)\Big)-$$

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

$$1\Big] - 2\,c\;\text{EllipticPi}\Big[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},$$

$$\text{ArcSin}\Big[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\Big],1\Big]\Big)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)$$

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\;\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Big)\Big/$$

$$\left(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

$$\left(-b-\sqrt{(b-c)\ (b+c)}\ -2\ c\ \text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\ (b+c)}\ \right)\ \text{Tanh}\left[\frac{x}{2}\right]^{2}\right)\right)-$$

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

$$\left.1\right]-2\ c\ \text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^{2}-c^{2}}\ \right)\ \left(1+\frac{c}{-b+\sqrt{b^{2}-c^{2}}}\right)}{\left(b-c+\sqrt{b^{2}-c^{2}}\ \right)\ \left(-1+\frac{c}{-b+\sqrt{b^{2}-c^{2}}}\right)},\right.$$

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

$$\left.\sqrt{\frac{\left(b+c-\sqrt{b^{2}-c^{2}}\ \right)\ \left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^{2}-c^{2}}\ \right)\ \left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\ \left(-\frac{c}{-b+\sqrt{b^{2}-c^{2}}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

$$\left(\left(-b-c-\sqrt{b^{2}-c^{2}}\ \right)\ \left(b-c+\sqrt{b^{2}-c^{2}}\ \right)\ \left(1-\frac{c}{-b+\sqrt{b^{2}-c^{2}}}\right)\right.$$

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

$$\left.\left.\left.2\ c\ \text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\ (b+c)}\ \right)\ \text{Tanh}\left[\frac{x}{2}\right]^{2}\right)\right)\right)-\left(4\ b\ \left(b^{2}-c^{2}\right)\right.$$

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

$$\left.1\right]-2\ c\ \text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^{2}-c^{2}}\ \right)\ \left(1+\frac{c}{-b+\sqrt{b^{2}-c^{2}}}\right)}{\left(b-c+\sqrt{b^{2}-c^{2}}\ \right)\ \left(-1+\frac{c}{-b+\sqrt{b^{2}-c^{2}}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

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

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

$$1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

$$\left.\left(-b-\sqrt{(b-c)(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\Bigg)-$$

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

$$\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right) \sqrt{\frac{\left(-1 + \frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1 + \frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}} \left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right) \Big/$$

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

$$\left.\left(-b - \sqrt{(b-c)(b+c)} - 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right) +$$

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

$$\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right) \sqrt{\frac{\left(-1 + \frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1 + \frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}} \left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right) \Big/$$

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

$$\left.\left(-b - \sqrt{(b-c)(b+c)} - 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right) +$$

$$2 b^2 \sqrt{b^2 - c^2} \left(-1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right) \text{EllipticF}\left[\text{ArcSin}\left[\right.\right.$$

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

$$\sqrt{\frac{\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\ \left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

$$\left.\left(-b-\sqrt{(b-c)(b+c)}-2c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)+$$

$$\left(b\,c\left(2\left(\frac{1}{2}\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\right.\right.\right.\right.$$

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

$$\left(c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\ \right],1\right]\right)\Bigg/$$

$$\left(\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right)\right)+\left(2c\,\text{EllipticPi}\left[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\right.\right.$$

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

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

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

$$\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)^2\right)\Bigg/\left(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}\right.$$

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

$$\left(c\sqrt{b^2-c^2}\left(2\left(\frac{1}{2}\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\right.\right.\right.\right.\right.$$

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

$$\left(c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)\Bigg/$$

$$\left(\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right)+\left(2\,c\,\text{EllipticPi}\left[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\right.\right.$$

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

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

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

$$\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)^2\right)\Bigg/\left(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}\right.$$

$$\left(-b-\sqrt{(b-c)(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)\Bigg/$$

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

$$\left.\left.b\,\text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{(b-c)(b+c)}\,\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)$$

$$\sqrt{\left(-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\,\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)-b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\;\Biggr)$$

Problem 770: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\sqrt{\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}\;dx$$

Optimal (type 3, 37 leaves, 1 step):

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

Result (type 4, 10 054 leaves):

$$\frac{2\,b\,\sqrt{\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}{c}-$$

$$\left(8\,b\,(b+c)\,\sqrt{b^2-c^2}\,\left(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-\right.\right.$$

$$\left.2\,\text{EllipticPi}\left[-1,\text{ArcSin}\left[\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

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

$$\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(-c+\left(-b+\sqrt{b^2-c^2}\right)\text{Tanh}\left[\frac{x}{2}\right]\right)\Biggr)\Bigg/$$

$$\left(\left(b+c-\sqrt{b^2-c^2}\right)^2\left(b+c+\sqrt{b^2-c^2}\right)(1+\text{Cosh}[x])\sqrt{\frac{\sqrt{(b-c)(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{(1+\text{Cosh}[x])^2}}\right.$$

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

$$\frac{1}{c\left(1+\text{Cosh}[x]\right)\sqrt{\frac{\sqrt{(b-c)\ (b+c)}\ +b\ \text{Cosh}[x]+c\ \text{Sinh}[x]}{(1+\text{Cosh}[x])^2}}}$$

$$2\left(b-c\right)\left(b+c\right)\sqrt{\sqrt{(b-c)\ (b+c)}\ +b\ \text{Cosh}[x]\ +c\ \text{Sinh}[x]}$$

$$\left(\left(\left(b-c\ \text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\left(-b-\sqrt{b^2-c^2}\ -2\ c\ \text{Tanh}\left[\frac{x}{2}\right]-b\ \text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{b^2-c^2}\ \text{Tanh}\left[\frac{x}{2}\right]^2\right)}\right.\right.$$

$$\left.\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-2\ c\ \text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\ \left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)-b\ \left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)}\right)\Bigg/$$

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

$$\left. b\ \left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)+\left(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}\right.$$

$$\left(-b-\sqrt{(b-c)\ (b+c)}\ -2\ c\ \text{Tanh}\left[\frac{x}{2}\right]-b\ \text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{(b-c)\ (b+c)}\ \text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)$$

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

$$\left(\left(2\ c^2\left(-1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\text{EllipticF}\left[\text{ArcSin}\left[\right.\right.\right.\right.\right.$$

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

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\ \right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\ \right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\ \left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

$$\left.\left(-b - \sqrt{(b-c)(b+c)} - 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right) +$$

$$\left(8b^3\left(\left(-b + c + \sqrt{b^2 - c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\right.\right.\right.$$

$$\left.1\right] - 2c\,\text{EllipticPi}\left[\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\right)\left(-1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)},$$

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

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right) \Bigg/$$

$$\left(\left(b - c - \sqrt{b^2 - c^2}\right)\left(-b - c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\right.$$

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

$$\left.\left(-b - \sqrt{(b-c)(b+c)} - 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right) -$$

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

$$\left.1\right] - 2c\,\text{EllipticPi}\left[\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\right)\left(-1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)},$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

$$\left.\left(-b-\sqrt{(b-c)\ (b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\ (b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)-$$

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

$$1\Big] - 2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.\right.$$

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

$$\left.\left.\left.2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\ (b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)-\left(8\,b^2\,\sqrt{b^2-c^2}\right.$$

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

$$1\Big] - 2\,c\,\text{EllipticPi}\Big[\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\,\left(1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\right)\,\left(-1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)},$$

$$\text{ArcSin}\Big[\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\Big],\,1\Big]\Big)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)$$

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\;\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Big)\Big/$$

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

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

$$\left.\left.2\,c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)\,(b + c)}\right)\,\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) + \left(8\,b^4\,\sqrt{b^2 - c^2}\right.$$

$$\left(\left(-b + c + \sqrt{b^2 - c^2}\right)\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\Big],$$

$$1\Big] - 2\,c\,\text{EllipticPi}\Big[\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\,\left(1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\right)\,\left(-1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)},$$

$$\text{ArcSin}\Big[\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\Big],\,1\Big]\Big)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)$$

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\;\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Big)\Big/$$

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

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

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

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

$$\left. 1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

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

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

$$\left. 1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},$$

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

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg) \Big/$$

$$\left(c^2\left(b - c - \sqrt{b^2 - c^2}\right)\left(-b - c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\right.$$

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

$$\left.\left(-b - \sqrt{(b - c)(b + c)} - 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)(b + c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\Bigg) +$$

$$\left(8b^3\left(\left(-b + c - \sqrt{b^2 - c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\right.\right.$$

$$\left.1\right] - 2c\,\text{EllipticPi}\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg) \Big/$$

$$\left(\left(-b - c - \sqrt{b^2 - c^2}\right)\left(b - c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\right.$$

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

$$\left.\left(-b - \sqrt{(b - c)(b + c)} - 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)(b + c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\Bigg) -$$

$$\Bigg(4\,b^5\,\Bigg(\Big(-b+c-\sqrt{b^2-c^2}\,\Big)\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\Big(b+c-\sqrt{b^2-c^2}\,\Big)\,\Big(1+\text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(-b+c+\sqrt{b^2-c^2}\,\Big)\,\Big(-1+\text{Tanh}\big[\frac{x}{2}\big]\Big)}}\,\Big],$$

$$1\Big]-2\,c\,\text{EllipticPi}\Big[\frac{\Big(b+c+\sqrt{b^2-c^2}\,\Big)\,\Big(1+\frac{c}{-b+\sqrt{b^2-c^2}}\Big)}{\Big(b-c+\sqrt{b^2-c^2}\,\Big)\,\Big(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\Big)},$$

$$\text{ArcSin}\Big[\sqrt{\frac{\Big(b+c-\sqrt{b^2-c^2}\,\Big)\,\Big(1+\text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(-b+c+\sqrt{b^2-c^2}\,\Big)\,\Big(-1+\text{Tanh}\big[\frac{x}{2}\big]\Big)}}\,\Big],1\Big]\Bigg)\,\Big(-1+\text{Tanh}\big[\frac{x}{2}\big]\Big)$$

$$\sqrt{\frac{\Big(b+c-\sqrt{b^2-c^2}\,\Big)\,\Big(1+\text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(-b+c+\sqrt{b^2-c^2}\,\Big)\,\Big(-1+\text{Tanh}\big[\frac{x}{2}\big]\Big)}}\,\Big(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\big[\frac{x}{2}\big]\Big)\Bigg)\Bigg/$$

$$\Bigg(c^2\,\Big(-b-c-\sqrt{b^2-c^2}\,\Big)\,\Big(b-c+\sqrt{b^2-c^2}\,\Big)\,\Big(1-\frac{c}{-b+\sqrt{b^2-c^2}}\Big)$$

$$\Big(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\Big)\,\sqrt{\Big(\Big(-1+\text{Tanh}\big[\frac{x}{2}\big]^2\Big)}$$

$$\Big(-b-\sqrt{(b-c)\,(b+c)}\,-2\,c\,\text{Tanh}\big[\frac{x}{2}\big]+\Big(-b+\sqrt{(b-c)\,(b+c)}\,\Big)\,\text{Tanh}\big[\frac{x}{2}\big]^2\Big)\Big)\Bigg)-$$

$$\Bigg(4\,b\,c^2\,\Bigg(\Big(-b+c-\sqrt{b^2-c^2}\,\Big)\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\Big(b+c-\sqrt{b^2-c^2}\,\Big)\,\Big(1+\text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(-b+c+\sqrt{b^2-c^2}\,\Big)\,\Big(-1+\text{Tanh}\big[\frac{x}{2}\big]\Big)}}\,\Big],$$

$$1\Big]-2\,c\,\text{EllipticPi}\Big[\frac{\Big(b+c+\sqrt{b^2-c^2}\,\Big)\,\Big(1+\frac{c}{-b+\sqrt{b^2-c^2}}\Big)}{\Big(b-c+\sqrt{b^2-c^2}\,\Big)\,\Big(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\Big)},$$

$$\text{ArcSin}\Big[\sqrt{\frac{\Big(b+c-\sqrt{b^2-c^2}\,\Big)\,\Big(1+\text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(-b+c+\sqrt{b^2-c^2}\,\Big)\,\Big(-1+\text{Tanh}\big[\frac{x}{2}\big]\Big)}}\,\Big],1\Big]\Bigg)\,\Big(-1+\text{Tanh}\big[\frac{x}{2}\big]\Big)$$

$$\sqrt{\frac{\Big(b+c-\sqrt{b^2-c^2}\,\Big)\,\Big(1+\text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(-b+c+\sqrt{b^2-c^2}\,\Big)\,\Big(-1+\text{Tanh}\big[\frac{x}{2}\big]\Big)}}\,\Big(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\big[\frac{x}{2}\big]\Big)\Bigg)\Bigg/$$

$$\left(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

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

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

$$\left.1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

$$\left(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

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

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

$$\left.1\right] - 2\,c\;\text{EllipticPi}\!\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \dfrac{c}{-b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \dfrac{c}{-b + \sqrt{b^2 - c^2}}\right)},\right.$$

$$\left.\text{ArcSin}\!\left[\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\!\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\!\left[\frac{x}{2}\right]\right)}}\right], 1\right]\right)\left(-1 + \text{Tanh}\!\left[\frac{x}{2}\right]\right)$$

$$\sqrt{\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\!\left[\frac{x}{2}\right]\right)}{\left(-b + c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\!\left[\frac{x}{2}\right]\right)}}\;\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\!\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

$$\left(c^2\left(-b - c - \sqrt{b^2 - c^2}\right)\left(b - c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\right.$$

$$\left(\frac{-b - \sqrt{b^2 - c^2}}{c} - \frac{-b + \sqrt{b^2 - c^2}}{c}\right)\sqrt{\left(\left(-1 + \text{Tanh}\!\left[\frac{x}{2}\right]^2\right)\right)}$$

$$\left.\left(-b - \sqrt{(b - c)\,(b + c)} - 2\,c\;\text{Tanh}\!\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)\,(b + c)}\right)\text{Tanh}\!\left[\frac{x}{2}\right]^2\right)\right) -$$

$$\left(2\,b^3\left(-1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\text{EllipticF}\!\left[\text{ArcSin}\!\left[\sqrt{\frac{\left(-1 + \dfrac{c}{-b + \sqrt{b^2 - c^2}}\right)\left(1 + \text{Tanh}\!\left[\frac{x}{2}\right]\right)}{\left(1 + \dfrac{c}{-b + \sqrt{b^2 - c^2}}\right)\left(-1 + \text{Tanh}\!\left[\frac{x}{2}\right]\right)}}\right], 1\right]\right.$$

$$\left.\left(-1 + \text{Tanh}\!\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(-1 + \dfrac{c}{-b + \sqrt{b^2 - c^2}}\right)\left(1 + \text{Tanh}\!\left[\frac{x}{2}\right]\right)}{\left(1 + \dfrac{c}{-b + \sqrt{b^2 - c^2}}\right)\left(-1 + \text{Tanh}\!\left[\frac{x}{2}\right]\right)}}\;\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\!\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

$$\left(c\left(-1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\left(1 + \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\sqrt{\left(\left(-1 + \text{Tanh}\!\left[\frac{x}{2}\right]^2\right)\right)}\right.$$

$$\left.\left(-b - \sqrt{(b - c)\,(b + c)} - 2\,c\;\text{Tanh}\!\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)\,(b + c)}\right)\text{Tanh}\!\left[\frac{x}{2}\right]^2\right)\right) +$$

$$\left(2\,b\,c\left(-1 - \frac{c}{-b + \sqrt{b^2 - c^2}}\right)\text{EllipticF}\!\left[\text{ArcSin}\!\left[\sqrt{\frac{\left(-1 + \dfrac{c}{-b + \sqrt{b^2 - c^2}}\right)\left(1 + \text{Tanh}\!\left[\frac{x}{2}\right]\right)}{\left(1 + \dfrac{c}{-b + \sqrt{b^2 - c^2}}\right)\left(-1 + \text{Tanh}\!\left[\frac{x}{2}\right]\right)}}\right], 1\right]\right.$$

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

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

$$\left.\left.\left(-b-\sqrt{(b-c)(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)+$$

$$\Bigg(2\,b^2\sqrt{b^2-c^2}\left(-1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\text{EllipticF}\Big[\text{ArcSin}\Big[$$

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

$$\sqrt{\frac{\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

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

$$\left.\left.\left(-b-\sqrt{(b-c)(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)+$$

$$\Bigg(b\,c\left(2\left(\frac{1}{2}\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\Big[\text{ArcSin}\Big[\right.\right.$$

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

$$\left(c\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\Big],1\Big]\right)\Bigg/$$

$$\left(\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right)+\left(2\,c\;\text{EllipticPi}\left[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)\Bigg/$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\;\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)+$$

$$\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)^2\Bigg)\Bigg)\Bigg/\left(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}\right.$$

$$\left(-b-\sqrt{(b-c)\,(b+c)}\;-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\Bigg)\Bigg)\Bigg)-$$

$$\left(c\,\sqrt{b^2-c^2}\;\left(2\left(\frac{1}{2}\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\vphantom{\frac{x}{2}}\right.\right.\right.\right.\right.$$

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

$$\left.\left(c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)\Bigg/\right.$$

$$\left(\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right)+\left(2\,c\;\text{EllipticPi}\left[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)\Bigg/$$

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

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

$$\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)\left(-\frac{c}{-b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)^2\Bigg] \Bigg/ \left(\sqrt{\left(\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}\right.$$

$$\left(-b - \sqrt{(b - c)(b + c)} - 2\,c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(-b + \sqrt{(b - c)(b + c)}\,\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\Bigg)\Bigg)\Bigg] \Bigg/$$

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

$$\left. b\,\text{Tanh}\left[\frac{x}{2}\right]^2 + \sqrt{(b - c)(b + c)}\,\text{Tanh}\left[\frac{x}{2}\right]^2\right)$$

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

Problem 771: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{\sqrt{b^2 - c^2} + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}}\,\mathbb{d}x$$

Optimal (type 3, 99 leaves, 3 steps):

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

Result (type 4, 211 leaves):

$$-\left(\left(\left(\sqrt{2}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{\sqrt{b^2-c^2}\ -b\,\text{Cosh}[x]-c\,\text{Sinh}[x]}{\sqrt{b^2-c^2}}}}{\sqrt{2}}\right],1\right]\right.\right.$$

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

$$\sqrt{-\frac{-b^2+c^2+b\,\sqrt{b^2-c^2}\ \text{Cosh}[x]+c\,\sqrt{b^2-c^2}\ \text{Sinh}[x]}{b^2-c^2}}\ \Bigg)\Bigg/$$

$$\left(\sqrt{b^2-c^2}\ \left(c\,\text{Cosh}[x]+b\,\text{Sinh}[x]\right)\sqrt{\sqrt{b^2-c^2}\ +b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}\right)\Bigg)$$

Problem 772: Attempted integration timed out after 120 seconds.

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

Optimal (type 3, 155 leaves, 4 steps):

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

Result (type 1, 1 leaves):
???

Problem 773: Attempted integration timed out after 120 seconds.

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

Optimal (type 3, 205 leaves, 5 steps):

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

$$\frac{}{16 \sqrt{2} \, \left(b^2 - c^2\right)^{5/4}} +$$

$$\frac{c \, \text{Cosh}[x] + b \, \text{Sinh}[x]}{4 \sqrt{b^2 - c^2} \, \left(\sqrt{b^2 - c^2} + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]\right)^{5/2}} +$$

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

Result (type 1, 1 leaves):

???

Problem 774: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \left(-\sqrt{b^2 - c^2} + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]\right)^{5/2} \, dx$$

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

$$\frac{64 \, \left(b^2 - c^2\right) \, \left(c \, \text{Cosh}[x] + b \, \text{Sinh}[x]\right)}{15 \sqrt{-\sqrt{b^2 - c^2} + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]}} -$$

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

$$\frac{2}{5} \, \left(c \, \text{Cosh}[x] + b \, \text{Sinh}[x]\right) \, \left(-\sqrt{b^2 - c^2} + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]\right)^{3/2}$$

Result (type 4, 9943 leaves):

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

$$\sqrt{-\sqrt{b^2 - c^2} + b \, \text{Cosh}[x] + c \, \text{Sinh}[x]} \, \left(\frac{44 \, b \, \left(b^2 - c^2\right)}{15 \, c} - \frac{2}{15} \, c \sqrt{b^2 - c^2} \, \text{Cosh}[x] + \frac{2}{5} \, b \, c \, \text{Cosh}[2 \, x] - \right.$$

$$\left. \frac{2}{15} \, b \sqrt{b^2 - c^2} \, \text{Sinh}[x] + \frac{1}{5} \, \left(b^2 + c^2\right) \, \text{Sinh}[2 \, x]\right) + \left(256 \, b \, c \, \left(-b + c\right) \, \left(b + c\right) \sqrt{b^2 - c^2}\right.$$

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

$$2\,\text{EllipticPi}\Big[-1,\,\text{ArcSin}\Big[\sqrt{-\frac{\big(b+c+\sqrt{b^2-c^2}\,\big)\,\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(b-c+\sqrt{b^2-c^2}\,\big)\,\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\,\Big],\,1\Big]$$

$$\sqrt{-\sqrt{(b-c)\,(b+c)}\,+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}\ \Big(-1+\text{Tanh}\Big[\frac{x}{2}\Big]\Big)$$

$$\Big(-\frac{\big(b+c+\sqrt{b^2-c^2}\,\big)\,\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(b-c+\sqrt{b^2-c^2}\,\big)\,\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}\Big)^{3/2}\,\Big(c+\Big(b+\sqrt{b^2-c^2}\,\Big)\,\text{Tanh}\Big[\frac{x}{2}\Big]\Big)\,\Big(-1+\text{Tanh}\Big[\frac{x}{2}\Big]^2\Big)\Big)\Big/$$

$$\Big(15\,\Big(b+c+\sqrt{b^2-c^2}\,\Big)^3\,\Big(-b^2+c^2+b\,\sqrt{b^2-c^2}\,\Big)\,\big(1+\text{Cosh}[x]\big)$$

$$\sqrt{\frac{-\sqrt{(b-c)\,(b+c)}\,+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{\big(1+\text{Cosh}[x]\big)^2}}\ \Big(1+\text{Tanh}\Big[\frac{x}{2}\Big]\Big)^2$$

$$\sqrt{\Big(-\Big(-1+\text{Tanh}\Big[\frac{x}{2}\Big]^2\Big)\Big(2\,c\,\text{Tanh}\Big[\frac{x}{2}\Big]+\sqrt{b^2-c^2}\,\Big(-1+\text{Tanh}\Big[\frac{x}{2}\Big]^2\Big)+b\,\Big(1+\text{Tanh}\Big[\frac{x}{2}\Big]^2\Big)\Big)\Big)\Big)-$$

$$\frac{1}{15\,c\,\big(1+\text{Cosh}[x]\big)\,\sqrt{\frac{-\sqrt{(b-c)\,(b+c)}\,+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{(1+\text{Cosh}[x])^2}}}$$

$$64\,(b-c)^2\,(b+c)^2\,\sqrt{-\sqrt{(b-c)\,(b+c)}\,+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}$$

$$\Big(\Big(\Big(b-c\,\text{Tanh}\Big[\frac{x}{2}\Big]\Big)\,\sqrt{\Big(b-\sqrt{b^2-c^2}\,+2\,c\,\text{Tanh}\Big[\frac{x}{2}\Big]+b\,\text{Tanh}\Big[\frac{x}{2}\Big]^2+\sqrt{b^2-c^2}\,\text{Tanh}\Big[\frac{x}{2}\Big]^2\Big)}$$

$$\sqrt{\Big(-\Big(-1+\text{Tanh}\Big[\frac{x}{2}\Big]^2\Big)\Big(2\,c\,\text{Tanh}\Big[\frac{x}{2}\Big]+\sqrt{b^2-c^2}\,\Big(-1+\text{Tanh}\Big[\frac{x}{2}\Big]^2\Big)+b\,\Big(1+\text{Tanh}\Big[\frac{x}{2}\Big]^2\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big(\big(-b^2+c^2\big)\,\Big(-1+\text{Tanh}\Big[\frac{x}{2}\Big]^2\Big)$$

$$\sqrt{\Big(2\,c\,\text{Tanh}\Big[\frac{x}{2}\Big]+\sqrt{b^2-c^2}\,\Big(-1+\text{Tanh}\Big[\frac{x}{2}\Big]^2\Big)+b\,\Big(1+\text{Tanh}\Big[\frac{x}{2}\Big]^2\Big)\Big)}\Big)-$$

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

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

$$\Bigg(\Bigg(2c^2\left(-1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]+2\,\text{EllipticPi}\Bigg[$$

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

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

$$\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\left(\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right)$$

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

$$\Bigg(8b^3\Bigg(\left(-b+c+\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],$$

$$1\Bigg]-2c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

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

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

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

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

$$1\right]-2c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

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

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

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

$$\left(4bc^2\left(\left(-b+c+\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\right.\right.$$

$$1\Big] - 2\,c\;\text{EllipticPi}\Big[\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\,\left(1 - \frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\right)\,\left(-1 - \frac{c}{b+\sqrt{b^2-c^2}}\right)},$$

$$\text{ArcSin}\Big[\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\Big],\,1\Big]\Big)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)$$

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Big)\Big/$$

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

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

$$\left(b - \sqrt{b^2 - c^2} + 2\,c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{b^2 - c^2}\right)\,\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right) - \Big(4\,b\,\left(b^2 - c^2\right)$$

$$\left(\left(-b + c + \sqrt{b^2 - c^2}\right)\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\Big],\right.$$

$$1\Big] - 2\,c\;\text{EllipticPi}\Big[\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\,\left(1 - \frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\right)\,\left(-1 - \frac{c}{b+\sqrt{b^2-c^2}}\right)},$$

$$\text{ArcSin}\Big[\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\Big],\,1\Big]\Big)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)$$

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Big)\Big/$$

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

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

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

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

$$1\right] - 2 c \, \text{EllipticPi}\left[\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}} \left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right) \Bigg/$$

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

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

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

$$\left(8 b^3 \left(\left(-b + c - \sqrt{b^2 - c^2}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\right.\right.$$

$$1\right] - 2 c \, \text{EllipticPi}\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/\left(\left(-b-c-\right.\right.$$

$$\left.\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

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

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

$$\left.1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/\left(c^2\left(-b-c-\right.\right.$$

$$\left.\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

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

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

$$\left.1\right] - 2\,c\,\text{EllipticPi}\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\,\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\,\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

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

$$\left.\left(b - \sqrt{b^2 - c^2} + 2\,c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{b^2 - c^2}\right)\,\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right) + \left(8\,b^2\,\sqrt{b^2 - c^2}\right.$$

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

$$\left.1\right] - 2\,c\,\text{EllipticPi}\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\,\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\,\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

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

$$\left.\left(b - \sqrt{b^2 - c^2} + 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{b^2 - c^2}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) - \left(8\,b^4\,\sqrt{b^2 - c^2}\right.$$

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

$$1\right] - 2c\,\text{EllipticPi}\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},$$

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

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right) \Big/$$

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

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

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

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

$$1\right] - 2c\,\text{EllipticPi}\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

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

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

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

$$\left.1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

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

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

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

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

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

$$\left.\left.\left(b - \sqrt{b^2 - c^2} + 2 c \, \text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{b^2 - c^2}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) +$$

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

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

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

$$\left.\left.\left(b - \sqrt{b^2 - c^2} + 2 c \, \text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{b^2 - c^2}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) - \left(2 b^2 \sqrt{b^2 - c^2}\right.$$

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

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

$$2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{b^2-c^2}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\Big)\Big)\Big)+\Bigg(b\,c\left(2\left(\frac{1}{2}\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.\right.$$

$$\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]+$$

$$\left(c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)\Bigg/$$

$$\left(\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\right)\right)-\left(2\,c\,\text{EllipticPi}\left[\frac{1-\frac{c}{b+\sqrt{b^2-c^2}}}{-1-\frac{c}{b+\sqrt{b^2-c^2}}},\right.\right.$$

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

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

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

$$\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)^2\Bigg)\Bigg)\Bigg/$$

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

$$\left(c \sqrt{b^2 - c^2} \left(2 \left(\frac{1}{2} \left(1 - \frac{c}{b + \sqrt{b^2 - c^2}} \right) \text{EllipticE} \left[\right. \right. \right. \right.$$

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

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

$$\left(\left(b + \sqrt{b^2 - c^2} \right) \left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}} \right) \right) \right) - \left(2 c \, \text{EllipticPi} \left[\frac{1 - \frac{c}{b + \sqrt{b^2 - c^2}}}{-1 - \frac{c}{b + \sqrt{b^2 - c^2}}}, \right. \right.$$

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

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

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

$$\left(1 + \text{Tanh} \left[\frac{x}{2} \right] \right) \left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh} \left[\frac{x}{2} \right] \right)^2 \right) \Big/$$

$$\left(\sqrt{ \left(\left(-1 + \text{Tanh} \left[\frac{x}{2} \right]^2 \right) \left(b - \sqrt{b^2 - c^2} + 2 c \, \text{Tanh} \left[\frac{x}{2} \right] + \left(b + \sqrt{b^2 - c^2} \right) \text{Tanh} \left[\frac{x}{2} \right]^2 \right) \right)} \right) \right) \Big/$$

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

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

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

Problem 775: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 96 leaves, 2 steps):

$$-\frac{8\,\sqrt{b^2 - c^2}\,\left(c\,\text{Cosh}[x] + b\,\text{Sinh}[x]\right)}{3\,\sqrt{-\sqrt{b^2 - c^2} + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}} + $$

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

Result (type 4, 9861 leaves):

$$-\frac{2\,b\,\sqrt{b^2 - c^2}\,\sqrt{-\sqrt{b^2 - c^2} + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}}{c} + $$

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

$$\left(32\,b\,c\,\left(-b + c\right)\,\left(b + c\right)\,\left(-b^2 + c^2\right)\,\left(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\right.\right.$$

$$\left.\left. 1\right] - 2\,\text{EllipticPi}\left[-1,\,\text{ArcSin}\left[\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\,\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\,\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\,1\right]\right)$$

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

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

$$\left(3\,\left(b + c + \sqrt{b^2 - c^2}\right)^3\,\left(-b^2 + c^2 + b\,\sqrt{b^2 - c^2}\right)\,\left(1 + \text{Cosh}[x]\right)\right)$$

$$\sqrt{\frac{-\sqrt{(b-c)\,(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{(1+\text{Cosh}[x])^2}}\,\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)^2$$

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

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

$$8\,(b-c)\,(b+c)\,\sqrt{b^2-c^2}\,\sqrt{-\sqrt{(b-c)\,(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}$$

$$\left(\left(\left(b-c\,\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\left(b-\sqrt{b^2-c^2}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+b\,\text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{b^2-c^2}\,\text{Tanh}\left[\frac{x}{2}\right]^2\right)}\right.\right.$$

$$\sqrt{\left(-\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\,\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)+b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)}\right)\Bigg/$$

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

$$\left. b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)-\left(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}\right.$$

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

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

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

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]+2\,\text{EllipticPi}\right[$$

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

$$\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right) \sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}} \left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg) \Bigg/$$

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

$$\left.\left(b - \sqrt{(b - c)(b + c)} + 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{(b - c)(b + c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) +$$

$$\left(8 b^3 \left(\left(-b + c + \sqrt{b^2 - c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\right.\right.\right.$$

$$\left. 1\right] - 2c\,\text{EllipticPi}\left[\frac{\left(b + c - \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}\right.,$$

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

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}} \left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg) \Bigg/$$

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

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

$$\left.\left.\left(b - \sqrt{(b - c)(b + c)} + 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{(b - c)(b + c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) -$$

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

$$1\Big] - 2\,c\,\text{EllipticPi}\Big[\frac{\Big(b + c - \sqrt{b^2 - c^2}\,\Big)\,\Big(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\Big)}{\Big(b - c - \sqrt{b^2 - c^2}\,\Big)\,\Big(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\Big)},$$

$$\text{ArcSin}\Big[\sqrt{-\frac{\Big(b + c + \sqrt{b^2 - c^2}\,\Big)\,\Big(1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(b - c + \sqrt{b^2 - c^2}\,\Big)\,\Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}}\,\Big], 1\Big]\Big)\,\Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)$$

$$\sqrt{-\frac{\Big(b + c + \sqrt{b^2 - c^2}\,\Big)\,\Big(1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(b - c + \sqrt{b^2 - c^2}\,\Big)\,\Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}}\,\Big(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\big[\frac{x}{2}\big]\Big)\Big) \Big/$$

$$\Big(c^2\,\Big(b - c - \sqrt{b^2 - c^2}\,\Big)\,\Big(-b - c + \sqrt{b^2 - c^2}\,\Big)\,\Big(-\frac{-b - \sqrt{b^2 - c^2}}{c} + \frac{-b + \sqrt{b^2 - c^2}}{c}\Big)$$

$$\Big(1 + \frac{c}{b + \sqrt{b^2 - c^2}}\Big)\,\sqrt{\Big(\Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)^2\Big)}$$

$$\Big(b - \sqrt{(b - c)\,(b + c)} + 2\,c\,\text{Tanh}\big[\frac{x}{2}\big] + \Big(b + \sqrt{(b - c)\,(b + c)}\,\Big)\,\text{Tanh}\big[\frac{x}{2}\big]^2\Big)\Big) -$$

$$\Bigg(4\,b\,c^2\,\Bigg(\Big(-b + c + \sqrt{b^2 - c^2}\,\Big)\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{-\frac{\Big(b + c + \sqrt{b^2 - c^2}\,\Big)\,\Big(1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(b - c + \sqrt{b^2 - c^2}\,\Big)\,\Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}}\,\Big],$$

$$1\Big] - 2\,c\,\text{EllipticPi}\Big[\frac{\Big(b + c - \sqrt{b^2 - c^2}\,\Big)\,\Big(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\Big)}{\Big(b - c - \sqrt{b^2 - c^2}\,\Big)\,\Big(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\Big)},$$

$$\text{ArcSin}\Big[\sqrt{-\frac{\Big(b + c + \sqrt{b^2 - c^2}\,\Big)\,\Big(1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(b - c + \sqrt{b^2 - c^2}\,\Big)\,\Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}}\,\Big], 1\Big]\Big)\,\Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)$$

$$\sqrt{-\frac{\Big(b + c + \sqrt{b^2 - c^2}\,\Big)\,\Big(1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(b - c + \sqrt{b^2 - c^2}\,\Big)\,\Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}}\,\Big(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\big[\frac{x}{2}\big]\Big)\Big) \Big/$$

$$\Bigg(\Big(b - c - \sqrt{b^2 - c^2}\,\Big)\,\Big(-b - c + \sqrt{b^2 - c^2}\,\Big)\,\Big(-\frac{-b - \sqrt{b^2 - c^2}}{c} + \frac{-b + \sqrt{b^2 - c^2}}{c}\Big)$$

$$\Big(1 + \frac{c}{b + \sqrt{b^2 - c^2}}\Big)\,\sqrt{\Big(\Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)^2\Big)\,\Big(b - \sqrt{(b - c)\,(b + c)} + }$$

$$2 c \text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{(b-c)\ (b+c)}\ \right) \text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) - \left(4 b\ (b^2 - c^2)\right.$$

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

$$1\right] - 2 c\ \text{EllipticPi}\left[\frac{\left(b + c - \sqrt{b^2 - c^2}\ \right)\ \left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\ \right)\ \left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\ \right)\ \left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\ \right)\ \left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\ \left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right) \Big/$$

$$\left(\left(b - c - \sqrt{b^2 - c^2}\ \right)\ \left(-b - c + \sqrt{b^2 - c^2}\ \right)\ \left(-\frac{-b - \sqrt{b^2 - c^2}}{c} + \frac{-b + \sqrt{b^2 - c^2}}{c}\right)\right)$$

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

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

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

$$1\right] - 2 c\ \text{EllipticPi}\left[\frac{\left(b + c - \sqrt{b^2 - c^2}\ \right)\ \left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c - \sqrt{b^2 - c^2}\ \right)\ \left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

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

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

$$\left(8\,b^3\left(\left(-b+c-\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right],\right.\right.$$

$$\left.1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

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

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

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

$$\left.1\right] - 2 c \, \text{EllipticPi}\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}} \left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right) \Bigg/$$

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

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

$$\left.\left.\left(b - \sqrt{(b - c)(b + c)} + 2 c \, \text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{(b - c)(b + c)}\right) \text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) -$$

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

$$\left.1\right] - 2 c \, \text{EllipticPi}\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}} \left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right) \Bigg/$$

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

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

$$\left.2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)+\left(8\,b^2\,\sqrt{b^2-c^2}\right.$$

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

$$\left.1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/$$

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

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

$$\left.2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)-\left(8\,b^4\,\sqrt{b^2-c^2}\right.$$

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

$$1\Big] - 2\,c\,\text{EllipticPi}\Big[\frac{\Big(b + c + \sqrt{b^2 - c^2}\Big)\ \Big(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\Big)}{\Big(b - c + \sqrt{b^2 - c^2}\Big)\ \Big(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\Big)},$$

$$\text{ArcSin}\Big[\sqrt{-\frac{\Big(b + c + \sqrt{b^2 - c^2}\Big)\ \Big(1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(b - c + \sqrt{b^2 - c^2}\Big)\ \Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}}\ \Big], 1\Big]\Bigg)\ \Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)$$

$$\sqrt{-\frac{\Big(b + c + \sqrt{b^2 - c^2}\Big)\ \Big(1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(b - c + \sqrt{b^2 - c^2}\Big)\ \Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}}\ \ \Big(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\big[\frac{x}{2}\big]\Big)\Bigg)\Bigg/$$

$$\Bigg(c^2\ \Big(-b - c - \sqrt{b^2 - c^2}\Big)\ \Big(b - c + \sqrt{b^2 - c^2}\Big)\ \Big(\frac{-b - \sqrt{b^2 - c^2}}{c} - \frac{-b + \sqrt{b^2 - c^2}}{c}\Big)$$

$$\Big(1 + \frac{c}{b + \sqrt{b^2 - c^2}}\Big)\ \sqrt{\Big(\Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]^2\Big)\ \Big(b - \sqrt{(b - c)\ (b + c)}\ +$$

$$2\,c\,\text{Tanh}\big[\frac{x}{2}\big] + \Big(b + \sqrt{(b - c)\ (b + c)}\Big)\ \text{Tanh}\big[\frac{x}{2}\big]^2\Big)\Big)\Bigg) + \Bigg(4\,b\,\big(b^2 - c^2\big)$$

$$\Bigg(\Big(-b + c - \sqrt{b^2 - c^2}\Big)\ \text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{-\frac{\Big(b + c + \sqrt{b^2 - c^2}\Big)\ \Big(1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(b - c + \sqrt{b^2 - c^2}\Big)\ \Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}}\ \Big],$$

$$1\Big] - 2\,c\,\text{EllipticPi}\Big[\frac{\Big(b + c + \sqrt{b^2 - c^2}\Big)\ \Big(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\Big)}{\Big(b - c + \sqrt{b^2 - c^2}\Big)\ \Big(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\Big)},$$

$$\text{ArcSin}\Big[\sqrt{-\frac{\Big(b + c + \sqrt{b^2 - c^2}\Big)\ \Big(1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(b - c + \sqrt{b^2 - c^2}\Big)\ \Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}}\ \Big], 1\Big]\Bigg)\ \Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)$$

$$\sqrt{-\frac{\Big(b + c + \sqrt{b^2 - c^2}\Big)\ \Big(1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}{\Big(b - c + \sqrt{b^2 - c^2}\Big)\ \Big(-1 + \text{Tanh}\big[\frac{x}{2}\big]\Big)}}\ \ \Big(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\big[\frac{x}{2}\big]\Big)\Bigg)\Bigg/$$

$$\Bigg(\Big(-b - c - \sqrt{b^2 - c^2}\Big)\ \Big(b - c + \sqrt{b^2 - c^2}\Big)\ \Big(\frac{-b - \sqrt{b^2 - c^2}}{c} - \frac{-b + \sqrt{b^2 - c^2}}{c}\Big)$$

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

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

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

$$\left. 1\right] - 2\, c\, \text{EllipticPi}\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}, \right.$$

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

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}} \left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg) \Bigg/$$

$$\left(c^2 \left(-b - c - \sqrt{b^2 - c^2}\right) \left(b - c + \sqrt{b^2 - c^2}\right) \left(\frac{-b - \sqrt{b^2 - c^2}}{c} - \frac{-b + \sqrt{b^2 - c^2}}{c}\right)\right)$$

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

$$\left. \left(b - \sqrt{(b - c)(b + c)} + 2\, c\, \text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{(b - c)(b + c)}\right) \text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\Bigg) -$$

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

$$\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right) \sqrt{\frac{\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}} \left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg) \Bigg/$$

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

$$\left.\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)+$$

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

$$\left.\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

$$\left.\left.2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)-\left(2\,b^2\,\sqrt{b^2-c^2}\right.$$

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

$$\left.\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)+$$

$$\left(b\,c\left(2\left(\frac{1}{2}\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\right.\right.\right.\right.$$

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

$$\left(c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right],\,1\right]\right)\Bigg/$$

$$\left(\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\right)-\left(2\,c\,\text{EllipticPi}\left[\frac{1-\frac{c}{b+\sqrt{b^2-c^2}}}{-1-\frac{c}{b+\sqrt{b^2-c^2}}},\right.\right.$$

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

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

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

$$\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)^2\Bigg)\Bigg/\left(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}\right.$$

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

$$\left(c\,\sqrt{b^2-c^2}\,\left(2\left(\frac{1}{2}\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\right.\right.\right.\right.$$

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

$$\left(c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right],\,1\right]\right)\Bigg/$$

$$\left(\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\right)-\left(2\,c\,\text{EllipticPi}\left[\frac{1-\frac{c}{b+\sqrt{b^2-c^2}}}{-1-\frac{c}{b+\sqrt{b^2-c^2}}},\right.\right.$$

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

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

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

$$\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)^2\right)\Bigg/\left(\sqrt{\left(\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}\right.$$

$$\left(b - \sqrt{(b-c)(b+c)} + 2c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)\Bigg/$$

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

$$\left. b\,\text{Tanh}\left[\frac{x}{2}\right]^2 + \sqrt{(b-c)(b+c)}\;\text{Tanh}\left[\frac{x}{2}\right]^2\right)$$

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

Problem 776: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \sqrt{-\sqrt{b^2 - c^2} + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}\;\;dx$$

Optimal (type 3, 39 leaves, 1 step):

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

Result (type 4, 9771 leaves):

$$\frac{2\,b\,\sqrt{-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}{c}-$$

$$\left(8\,b\,c\,\sqrt{b^2-c^2}\;\left(-b^2+c^2\right)\;\left(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\;\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\;\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-\right.$$

$$\left.2\,\text{EllipticPi}\left[-1,\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\;\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\;\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

$$\sqrt{-\sqrt{(b-c)\;(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}\;\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)$$

$$\left.\left(-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\;\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\;\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}\right)^{3/2}\;\left(c+\left(b+\sqrt{b^2-c^2}\right)\,\text{Tanh}\left[\frac{x}{2}\right]\right)\;\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\Big/$$

$$\left(\left(b+c+\sqrt{b^2-c^2}\right)^3\;\left(-b^2+c^2+b\,\sqrt{b^2-c^2}\right)\;\left(1+\text{Cosh}[x]\right)\right.$$

$$\sqrt{\frac{-\sqrt{(b-c)\;(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{\left(1+\text{Cosh}[x]\right)^2}}\;\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)^2$$

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

$$\frac{1}{c\,\left(1+\text{Cosh}[x]\right)\,\sqrt{\frac{-\sqrt{(b-c)\;(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{(1+\text{Cosh}[x])^2}}}$$

$$2\,(b-c)\;(b+c)\,\sqrt{-\sqrt{(b-c)\;(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}$$

$$\left(\left(\left(b-c\,\text{Tanh}\left[\frac{x}{2}\right]\right)\,\sqrt{\left(b-\sqrt{b^2-c^2}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+b\,\text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{b^2-c^2}\;\text{Tanh}\left[\frac{x}{2}\right]^2\right)}\right.\right.$$

$$\left.\left.\sqrt{\left(-\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\;\left(2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\;\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)+b\,\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)}\right)\right)\Big/$$

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

$$b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)-\left|\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}\right.$$

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

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

$$\left|\left(\left(2c^2\left(-1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.\right.\right.$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[-\sqrt{\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]+2\,\text{EllipticPi}\left[\right.\right.$$

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

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

$$\left(8b^3\left(\left(-b+c+\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[-\sqrt{\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\right.\right.\right.$$

$$1\Bigg]-2c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

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

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

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

$$\left.1\right]-2c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

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

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

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

$$\left.1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Bigg/$$

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

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

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

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

$$\left.1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

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

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

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

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

$$\left.1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

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

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

$$\left.\left.\left(b-\sqrt{(b-c)(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)+$$

$$\left(8\,b^3\left(\left(-b+c-\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\right.\right.$$

$$1\Big] - 2\,c\;\text{EllipticPi}\Big[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},$$

$$\text{ArcSin}\Big[\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\big[\frac{x}{2}\big]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\big[\frac{x}{2}\big]\right)}}\Big], 1\Big]\Big)\left(-1 + \text{Tanh}\Big[\frac{x}{2}\Big]\right)$$

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\big[\frac{x}{2}\big]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\big[\frac{x}{2}\big]\right)}}\;\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\Big[\frac{x}{2}\Big]\right)\Big)\Big/$$

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

$$\left(1 + \frac{c}{b + \sqrt{b^2 - c^2}}\right)\sqrt{\left(\left(-1 + \text{Tanh}\Big[\frac{x}{2}\Big]^2\right)\right)}$$

$$\left(b - \sqrt{(b - c)\,(b + c)} + 2\,c\;\text{Tanh}\Big[\frac{x}{2}\Big] + \left(b + \sqrt{(b - c)\,(b + c)}\right)\text{Tanh}\Big[\frac{x}{2}\Big]^2\right)\right) -$$

$$\left(4\,b^5\left(\left(-b + c - \sqrt{b^2 - c^2}\right)\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\big[\frac{x}{2}\big]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\big[\frac{x}{2}\big]\right)}}\Big],\right.\right.$$

$$1\Big] - 2\,c\;\text{EllipticPi}\Big[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},$$

$$\text{ArcSin}\Big[\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\big[\frac{x}{2}\big]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\big[\frac{x}{2}\big]\right)}}\Big], 1\Big]\Big)\left(-1 + \text{Tanh}\Big[\frac{x}{2}\Big]\right)$$

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\big[\frac{x}{2}\big]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\big[\frac{x}{2}\big]\right)}}\;\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\Big[\frac{x}{2}\Big]\right)\Big)\Big/$$

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

$$\left(1 + \frac{c}{b + \sqrt{b^2 - c^2}}\right)\sqrt{\left(\left(-1 + \text{Tanh}\Big[\frac{x}{2}\Big]^2\right)\right)}$$

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

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

$$\left.1\right] - 2\,c\,\text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\,\right)\,\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\,\right)\,\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\,\right)\,\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\,\right)\,\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/$$

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

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

$$\left.2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\,\right)\,\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right) + \left(8\,b^2\,\sqrt{b^2-c^2}\right.$$

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

$$\left.1\right] - 2\,c\,\text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\,\right)\,\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\,\right)\,\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\ \left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

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

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

$$\left.\left.\left.2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right)-\Bigg(8\,b^4\sqrt{b^2-c^2}$$

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

$$1\Bigg]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\ \left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

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

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

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

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

$$\left.1\right] - 2\,c\,\text{EllipticPi}\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}} \left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\right) \Bigg/$$

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

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

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

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

$$\left.1\right] - 2\,c\,\text{EllipticPi}\left[\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)},\right.$$

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

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

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

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

$$\left.\left.\left(b - \sqrt{(b - c)(b + c)} + 2\,c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{(b - c)(b + c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) -$$

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

$$\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

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

$$\left.\left.\left(b - \sqrt{(b - c)(b + c)} + 2\,c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{(b - c)(b + c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) +$$

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

$$\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg/$$

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

$$2 c \operatorname{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{(b-c)(b+c)}\right) \operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\right) - \left(2 b^2 \sqrt{b^2 - c^2}\right.$$

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

$$\left(-1 + \operatorname{Tanh}\left[\frac{x}{2}\right]\right) \sqrt{\frac{\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\left(1 + \operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\left(-1 + \operatorname{Tanh}\left[\frac{x}{2}\right]\right)}} \left(\frac{c}{b + \sqrt{b^2 - c^2}} + \operatorname{Tanh}\left[\frac{x}{2}\right]\right)\right) /$$

$$\left(c\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right) \sqrt{\left(\left(-1 + \operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}$$

$$\left(b - \sqrt{(b-c)(b+c)} + 2 c \operatorname{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{(b-c)(b+c)}\right) \operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\right) +$$

$$\left(b c\left(2\left(\frac{1}{2}\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right) \operatorname{EllipticE}\left[\operatorname{ArcSin}\left[\right.\right.\right.\right.$$

$$\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\right], 1\right] +$$

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

$$\left(\left(b + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\right)\right) - \left(2 c \operatorname{EllipticPi}\left[\frac{1 - \frac{c}{b + \sqrt{b^2 - c^2}}}{-1 - \frac{c}{b + \sqrt{b^2 - c^2}}},\right.\right.$$

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

$$\left(\left(b + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\right)\right)\left(-1 + \operatorname{Tanh}\left[\frac{x}{2}\right]\right)$$

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

$$\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)^2\Bigg)\Bigg/ \left(\sqrt{\left(\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}\right.$$

$$\left(b - \sqrt{(b-c)\,(b+c)} + 2\,c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\Bigg)\Bigg) +$$

$$\left(c\,\sqrt{b^2 - c^2}\left(2\left(\frac{1}{2}\left(1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\right)\text{EllipticE}\left[\text{ArcSin}\left[\right.\right.\right.\right.$$

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

$$\left(c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b + c + \sqrt{b^2 - c^2}\right)\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b - c + \sqrt{b^2 - c^2}\right)\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right], 1\right]\right)\Bigg/$$

$$\left(\left(b + \sqrt{b^2 - c^2}\right)\left(-1 - \frac{c}{b + \sqrt{b^2 - c^2}}\right)\right) - \left(2\,c\,\text{EllipticPi}\left[\frac{1 - \frac{c}{b + \sqrt{b^2 - c^2}}}{-1 - \frac{c}{b + \sqrt{b^2 - c^2}}},\right.\right.$$

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

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

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

$$\left(1 + \text{Tanh}\left[\frac{x}{2}\right]\right)\left(\frac{c}{b + \sqrt{b^2 - c^2}} + \text{Tanh}\left[\frac{x}{2}\right]\right)^2\Bigg)\Bigg/ \left(\sqrt{\left(\left(-1 + \text{Tanh}\left[\frac{x}{2}\right]^2\right)\right.}\right.$$

$$\left(b - \sqrt{(b-c)\ (b+c)} + 2\,c\,\text{Tanh}\left[\frac{x}{2}\right] + \left(b + \sqrt{(b-c)\ (b+c)}\right)\,\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)\right) \Bigg/$$

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

$$\left. b\,\text{Tanh}\left[\frac{x}{2}\right]^2 + \sqrt{(b-c)\ (b+c)}\ \text{Tanh}\left[\frac{x}{2}\right]^2\right)$$

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

Problem 777: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{-\sqrt{b^2 - c^2} + b\,\text{Cosh}[x] + c\,\text{Sinh}[x]}}\ \mathbb{d}x$$

Optimal (type 3, 102 leaves, 3 steps) :

$$-\frac{\sqrt{2}\ \text{ArcTanh}\left[\frac{(b^2 - c^2)^{1/4}\ \text{Sinh}[x + i\,\text{ArcTan}[b, -i\,c]]}{\sqrt{2}\ \sqrt{-\sqrt{b^2 - c^2} + \sqrt{b^2 - c^2}\ \text{Cosh}[x + i\,\text{ArcTan}[b, -i\,c]]}}\right]}{(b^2 - c^2)^{1/4}}$$

Result (type 4, 52 609 leaves) : Display of huge result suppressed!

Problem 778: Attempted integration timed out after 120 seconds.

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

Optimal (type 3, 159 leaves, 4 steps) :

$$\frac{\text{ArcTanh}\left[\frac{(b^2 - c^2)^{1/4}\ \text{Sinh}[x + i\,\text{ArcTan}[b, -i\,c]]}{\sqrt{2}\ \sqrt{-\sqrt{b^2 - c^2} + \sqrt{b^2 - c^2}\ \text{Cosh}[x + i\,\text{ArcTan}[b, -i\,c]]}}\right]}{2\sqrt{2}\ (b^2 - c^2)^{3/4}} -$$

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

Result (type 1, 1 leaves) :

???

Problem 779: Attempted integration timed out after 120 seconds.

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

Optimal (type 3, 211 leaves, 5 steps):

$$-\frac{3\,\text{ArcTanh}\left[\frac{(b^2-c^2)^{1/4}\,\text{Sinh}[x+i\,\text{ArcTan}[b,-i\,c]]}{\sqrt{2}\,\sqrt{-\sqrt{b^2-c^2}+\sqrt{b^2-c^2}\,\text{Cosh}[x+i\,\text{ArcTan}[b,-i\,c]]}}\right]}{16\,\sqrt{2}\,\left(b^2-c^2\right)^{5/4}} -$$

$$\frac{c\,\text{Cosh}[x] + b\,\text{Sinh}[x]}{4\,\sqrt{b^2-c^2}\,\left(-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]\right)^{5/2}} +$$

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

Result (type 1, 1 leaves):
???

Problem 846: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{x^2\,\text{Csch}[x]\,\text{Sech}[x]}{\sqrt{a\,\text{Sech}[x]^4}}\,dx$$

Optimal (type 4, 98 leaves, 6 steps):

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

$$\frac{x\,\text{PolyLog}\left[2,\,e^{2x}\right]\,\text{Sech}[x]^2}{\sqrt{a\,\text{Sech}[x]^4}} - \frac{\text{PolyLog}\left[3,\,e^{2x}\right]\,\text{Sech}[x]^2}{2\,\sqrt{a\,\text{Sech}[x]^4}}$$

Result (type 4, 65 leaves):

$$\frac{1}{24\,\sqrt{a\,\text{Sech}[x]^4}}$$
$$\left(i\,\pi^3 - 8\,x^3 + 24\,x^2\,\text{Log}\left[1 - e^{2x}\right] + 24\,x\,\text{PolyLog}\left[2,\,e^{2x}\right] - 12\,\text{PolyLog}\left[3,\,e^{2x}\right]\right)\,\text{Sech}[x]^2$$

Problem 852: Result unnecessarily involves imaginary or complex numbers.

$$\int x^2\,\text{Csch}[x]\,\text{Sech}[x]\,\sqrt{a\,\text{Sech}[x]^4}\,dx$$

Optimal (type 4, 204 leaves, 16 steps) :

$$\frac{1}{2}\, x^2 \operatorname{Cosh}[x]^2 \sqrt{a \operatorname{Sech}[x]^4} - 2\, x^2 \operatorname{ArcTanh}\left[\mathbb{e}^{2x}\right] \operatorname{Cosh}[x]^2 \sqrt{a \operatorname{Sech}[x]^4} +$$

$$\operatorname{Cosh}[x]^2 \operatorname{Log}[\operatorname{Cosh}[x]] \sqrt{a \operatorname{Sech}[x]^4} - x \operatorname{Cosh}[x]^2 \operatorname{PolyLog}\left[2,\, -\mathbb{e}^{2x}\right] \sqrt{a \operatorname{Sech}[x]^4} +$$

$$x \operatorname{Cosh}[x]^2 \operatorname{PolyLog}\left[2,\, \mathbb{e}^{2x}\right] \sqrt{a \operatorname{Sech}[x]^4} + \frac{1}{2}\, \operatorname{Cosh}[x]^2 \operatorname{PolyLog}\left[3,\, -\mathbb{e}^{2x}\right] \sqrt{a \operatorname{Sech}[x]^4} -$$

$$\frac{1}{2}\, \operatorname{Cosh}[x]^2 \operatorname{PolyLog}\left[3,\, \mathbb{e}^{2x}\right] \sqrt{a \operatorname{Sech}[x]^4} -$$

$$x \operatorname{Cosh}[x] \sqrt{a \operatorname{Sech}[x]^4} \operatorname{Sinh}[x] - \frac{1}{2}\, x^2 \sqrt{a \operatorname{Sech}[x]^4} \operatorname{Sinh}[x]^2$$

Result (type 4, 120 leaves) :

$$\frac{1}{24}\, \operatorname{Cosh}[x]^2 \sqrt{a \operatorname{Sech}[x]^4} \left(\mathbb{i}\, \pi^3 - 16\, x^3 - 24\, x^2 \operatorname{Log}\left[1 + \mathbb{e}^{-2x}\right] + \right.$$
$$24\, x^2 \operatorname{Log}\left[1 - \mathbb{e}^{2x}\right] + 24\, \operatorname{Log}[\operatorname{Cosh}[x]] + 24\, x \operatorname{PolyLog}\left[2,\, -\mathbb{e}^{-2x}\right] + 24\, x \operatorname{PolyLog}\left[2,\, \mathbb{e}^{2x}\right] +$$
$$\left. 12\, \operatorname{PolyLog}\left[3,\, -\mathbb{e}^{-2x}\right] - 12\, \operatorname{PolyLog}\left[3,\, \mathbb{e}^{2x}\right] + 12\, x^2 \operatorname{Sech}[x]^2 - 24\, x \operatorname{Tanh}[x] \right)$$

Problem 869: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{x}{a + b \operatorname{Cosh}[x] \operatorname{Sinh}[x]}\, \mathbb{d}x$$

Optimal (type 4, 186 leaves, 9 steps) :

$$\frac{x \operatorname{Log}\left[1 + \frac{b\, \mathbb{e}^{2x}}{2a - \sqrt{4a^2 + b^2}}\right]}{\sqrt{4a^2 + b^2}} - \frac{x \operatorname{Log}\left[1 + \frac{b\, \mathbb{e}^{2x}}{2a + \sqrt{4a^2 + b^2}}\right]}{\sqrt{4a^2 + b^2}} +$$

$$\frac{\operatorname{PolyLog}\left[2,\, -\frac{b\, \mathbb{e}^{2x}}{2a - \sqrt{4a^2 + b^2}}\right]}{2\sqrt{4a^2 + b^2}} - \frac{\operatorname{PolyLog}\left[2,\, -\frac{b\, \mathbb{e}^{2x}}{2a + \sqrt{4a^2 + b^2}}\right]}{2\sqrt{4a^2 + b^2}}$$

Result (type 4, 960 leaves) :

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

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

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

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

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

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

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

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

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

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

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

$$\left.\left.\text{ArcTanh}\left[\frac{(2\,a-i\,b)\,\text{Tan}\left[\frac{1}{4}\,(\pi+4\,i\,x)\right]}{\sqrt{-4\,a^2-b^2}}\right]\right)\right)\text{Log}\left[\frac{(-1)^{1/4}\,\sqrt{-4\,a^2-b^2}\;e^{x}}{2\,\sqrt{-i\,b}\,\sqrt{a+b\,\text{Cosh}[x]\,\text{Sinh}[x]}}\right]+$$

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

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

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

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

Problem 871: Unable to integrate problem.

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

Optimal (type 5, 95 leaves, 2 steps):

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

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

Result (type 8, 20 leaves):

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

Problem 882: Result more than twice size of optimal antiderivative.

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

Optimal (type 5, 54 leaves, 1 step):

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

Result (type 5, 133 leaves):

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

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

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

Problem 884: Unable to integrate problem.

$$\int F^{c\,(a+b\,x)}\,\text{Cosh}[d+e\,x]^{n}\,dx$$

Optimal (type 5, 95 leaves, 2 steps):

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

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

Result (type 8, 20 leaves):

$$\int F^{c\,(a+b\,x)}\,\text{Cosh}[d+e\,x]^{n}\,dx$$

Problem 889: Result more than twice size of optimal antiderivative.

$$\int e^{a+b\,x}\,\text{Sech}[c+d\,x]^2\,dx$$

Optimal (type 5, 56 leaves, 1 step):

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

Result (type 5, 138 leaves):

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

Problem 891: Unable to integrate problem.

$$\int F^{c\,(a+b\,x)}\,\text{Sech}[d+e\,x]^n\,dx$$

Optimal (type 5, 90 leaves, 2 steps):

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

Result (type 8, 20 leaves):

$$\int F^{c\,(a+b\,x)}\,\text{Sech}[d+e\,x]^n\,dx$$

Problem 892: Unable to integrate problem.

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

Optimal (type 5, 91 leaves, 2 steps):

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

Result (type 8, 20 leaves):

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

Problem 899: Result more than twice size of optimal antiderivative.

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

Optimal (type 5, 61 leaves, 2 steps):

$$\left(2\, e^{d+e\,x}\, F^{c\,(a+b\,x)}\, Hypergeometric2F1\left[2,\, 1 + \frac{b\,c\,Log[F]}{e},\, 2 + \frac{b\,c\,Log[F]}{e},\, -e^{d+e\,x}\right]\right) \Big/$$
$$\left(f\,\left(e + b\,c\,Log[F]\right)\right)$$

Result (type 5, 213 leaves):

$$\frac{1}{e\,f\,\left(1 + Cosh[d + e\,x]\right)\,\left(e + b\,c\,Log[F]\right)}$$

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

$$Hypergeometric2F1\left[1,\, 1 + \frac{b\,c\,Log[F]}{e},\, 2 + \frac{b\,c\,Log[F]}{e},\, -e^{d+e\,x}\right]\, Log[F] +$$

$$F^{c\,\left(a+b\,\left(\frac{d}{e}+x\right)\right)}\, Cosh\left[\frac{1}{2}\,(d+e\,x)\right]\, Hypergeometric2F1\left[1,\, \frac{b\,c\,Log[F]}{e},\, 1 + \frac{b\,c\,Log[F]}{e},\, -e^{d+e\,x}\right]$$

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

Problem 900: Result more than twice size of optimal antiderivative.

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

Optimal (type 5, 151 leaves, 3 steps):

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

$$\left(e - b\,c\,Log[F]\right) + \frac{b\,c\,F^{c\,(a+b\,x)}\,Log[F]\, Sech\left[\frac{d}{2} + \frac{e\,x}{2}\right]^2}{6\,e^2\,f^2} + \frac{F^{c\,(a+b\,x)}\, Sech\left[\frac{d}{2} + \frac{e\,x}{2}\right]^2\, Tanh\left[\frac{d}{2} + \frac{e\,x}{2}\right]}{6\,e\,f^2}$$

Result (type 5, 712 leaves):

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

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

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

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

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

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

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

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

Problem 937: Result is not expressed in closed-form.

$$\int e^x\,\text{Sech}[2\,x]\,\text{Tanh}[2\,x]\,dx$$

Optimal (type 3, 113 leaves, 12 steps):

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

Result (type 7, 48 leaves):

$$-\frac{e^{3x}}{1+e^{4x}} - \frac{1}{4}\,\text{RootSum}\left[1+\#1^4\ \&,\ \frac{x-\text{Log}\left[e^x-\#1\right]}{\#1}\ \&\right]$$

Problem 938: Result is not expressed in closed-form.

$$\int e^x\,\text{Sech}[2x]^2\,\text{Tanh}[2x]\,dx$$

Optimal (type 3, 129 leaves, 13 steps):

$$-\frac{e^{5x}}{\left(1+e^{4x}\right)^2} - \frac{e^x}{4\left(1+e^{4x}\right)} - \frac{\text{ArcTan}\left[1-\sqrt{2}\ e^x\right]}{8\sqrt{2}} +$$
$$\frac{\text{ArcTan}\left[1+\sqrt{2}\ e^x\right]}{8\sqrt{2}} - \frac{\text{Log}\left[1-\sqrt{2}\ e^x+e^{2x}\right]}{16\sqrt{2}} + \frac{\text{Log}\left[1+\sqrt{2}\ e^x+e^{2x}\right]}{16\sqrt{2}}$$

Result (type 7, 57 leaves):

$$-\frac{e^x\left(1+5\,e^{4x}\right)}{4\left(1+e^{4x}\right)^2} - \frac{1}{16}\,\text{RootSum}\left[1+\#1^4\ \&,\ \frac{x-\text{Log}\left[e^x-\#1\right]}{\#1^3}\ \&\right]$$

Problem 939: Result is not expressed in closed-form.

$$\int e^x\,\text{Sech}[2x]\,\text{Tanh}[2x]^2\,dx$$

Optimal (type 3, 130 leaves, 13 steps):

$$\frac{e^{3x}}{\left(1+e^{4x}\right)^2} - \frac{3\,e^{3x}}{4\left(1+e^{4x}\right)} - \frac{5\,\text{ArcTan}\left[1-\sqrt{2}\ e^x\right]}{8\sqrt{2}} +$$
$$\frac{5\,\text{ArcTan}\left[1+\sqrt{2}\ e^x\right]}{8\sqrt{2}} + \frac{5\,\text{Log}\left[1-\sqrt{2}\ e^x+e^{2x}\right]}{16\sqrt{2}} - \frac{5\,\text{Log}\left[1+\sqrt{2}\ e^x+e^{2x}\right]}{16\sqrt{2}}$$

Result (type 7, 58 leaves):

$$\frac{e^{3x}-3\,e^{7x}}{4\left(1+e^{4x}\right)^2} - \frac{5}{16}\,\text{RootSum}\left[1+\#1^4\ \&,\ \frac{x-\text{Log}\left[e^x-\#1\right]}{\#1}\ \&\right]$$

Problem 940: Result is not expressed in closed-form.

$$\int e^x\,\text{Sech}[2x]^2\,\text{Tanh}[2x]^2\,dx$$

Optimal (type 3, 149 leaves, 14 steps):

$$\frac{4\,e^{5x}}{3\,\left(1+e^{4x}\right)^3} - \frac{5\,e^{5x}}{6\,\left(1+e^{4x}\right)^2} - \frac{3\,e^x}{8\,\left(1+e^{4x}\right)} - \frac{3\,ArcTan\left[1-\sqrt{2}\ e^x\right]}{16\,\sqrt{2}} +$$

$$\frac{3\,ArcTan\left[1+\sqrt{2}\ e^x\right]}{16\,\sqrt{2}} - \frac{3\,Log\left[1-\sqrt{2}\ e^x+e^{2x}\right]}{32\,\sqrt{2}} + \frac{3\,Log\left[1+\sqrt{2}\ e^x+e^{2x}\right]}{32\,\sqrt{2}}$$

Result (type 7, 64 leaves):

$$\frac{1}{96}\left(-\frac{4\,e^x\left(9+6\,e^{4x}+29\,e^{8x}\right)}{\left(1+e^{4x}\right)^3} - 9\,RootSum\left[1+\#1^4\ \&,\ \frac{x-Log\left[e^x-\#1\right]}{\#1^3}\ \&\right]\right)$$

Problem 949: Result more than twice size of optimal antiderivative.

$$\int e^{c+d\,x}\,Coth\left[a+b\,x\right]\,dx$$

Optimal (type 5, 53 leaves, 4 steps):

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

Result (type 5, 120 leaves):

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

Problem 985: Result more than twice size of optimal antiderivative.

$$\int \frac{Sech\left[x\right]^2}{2+2\,Tanh\left[x\right]+Tanh\left[x\right]^2}\,dx$$

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

$$ArcTan\left[1+Tanh\left[x\right]\right]$$

Result (type 3, 23 leaves):

$$\frac{1}{2}\left(-ArcTan\left[Cosh\left[x\right]\,\left(Cosh\left[x\right]-Sinh\left[x\right]\right)\right] + ArcTan\left[1+Tanh\left[x\right]\right]\right)$$

Problem 994: Result more than twice size of optimal antiderivative.

$$\int Sech\left[x\right]^2\,Tanh\left[x\right]^6\,\left(1-Tanh\left[x\right]^2\right)^3\,dx$$

Optimal (type 3, 33 leaves, 4 steps):

$$\frac{\text{Tanh}[x]^7}{7} - \frac{\text{Tanh}[x]^9}{3} + \frac{3\,\text{Tanh}[x]^{11}}{11} - \frac{\text{Tanh}[x]^{13}}{13}$$

Result (type 3, 67 leaves):

$$\frac{16\,\text{Tanh}[x]}{3003} + \frac{8\,\text{Sech}[x]^2\,\text{Tanh}[x]}{3003} + \frac{2\,\text{Sech}[x]^4\,\text{Tanh}[x]}{1001} + \frac{5\,\text{Sech}[x]^6\,\text{Tanh}[x]}{3003} -$$

$$\frac{53}{429}\,\text{Sech}[x]^8\,\text{Tanh}[x] + \frac{27}{143}\,\text{Sech}[x]^{10}\,\text{Tanh}[x] - \frac{1}{13}\,\text{Sech}[x]^{12}\,\text{Tanh}[x]$$

Problem 998: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sech}[x]^2}{\sqrt{4 - \text{Sech}[x]^2}}\,dx$$

Optimal (type 3, 9 leaves, 2 steps):

$$\text{ArcSinh}\left[\frac{\text{Tanh}[x]}{\sqrt{3}}\right]$$

Result (type 3, 43 leaves):

$$\frac{\text{ArcTanh}\left[\frac{\text{Sinh}[x]}{\sqrt{1+2\,\text{Cosh}[2\,x]}}\right]\sqrt{1 + 2\,\text{Cosh}[2\,x]}\ \text{Sech}[x]}{\sqrt{4 - \text{Sech}[x]^2}}$$

Problem 999: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sech}[x]^2}{\sqrt{1 - 4\,\text{Tanh}[x]^2}}\,dx$$

Optimal (type 3, 9 leaves, 2 steps):

$$\frac{1}{2}\,\text{ArcSin}[2\,\text{Tanh}[x]]$$

Result (type 3, 52 leaves):

$$\frac{\text{ArcTanh}\left[\frac{2\sqrt{2}\,\text{Sinh}[x]}{\sqrt{-5+3\,\text{Cosh}[2\,x]}}\right]\sqrt{-5 + 3\,\text{Cosh}[2\,x]}\ \text{Sech}[x]}{2\sqrt{2 - 8\,\text{Tanh}[x]^2}}$$

Problem 1000: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sech}[x]^2}{\sqrt{-4 + \text{Tanh}[x]^2}}\,dx$$

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

$$\text{ArcTanh}\left[\frac{\text{Tanh}[x]}{\sqrt{-4+\text{Tanh}[x]^2}}\right]$$

Result (type 3, 51 leaves) :

$$\frac{\text{ArcTan}\left[\frac{\sqrt{2}\ \text{Sinh}[x]}{\sqrt{5+3\,\text{Cosh}[2\,x]}}\right]\sqrt{5+3\,\text{Cosh}[2\,x]}\ \text{Sech}[x]}{\sqrt{2}\ \sqrt{-4+\text{Tanh}[x]^2}}$$

Problem 1001: Result more than twice size of optimal antiderivative.

$$\int \sqrt{1+\text{Coth}[x]^2}\ \text{Sech}[x]^2\,\mathbb{d}x$$

Optimal (type 3, 19 leaves, 3 steps) :

$$-\text{ArcSinh}[\text{Coth}[x]]+\sqrt{1+\text{Coth}[x]^2}\ \text{Tanh}[x]$$

Result (type 3, 51 leaves) :

$$\sqrt{1+\text{Coth}[x]^2}\ \text{Sech}[2\,x]\,\text{Sinh}[x]$$
$$\left(\text{Cosh}[x]-\text{ArcTan}\left[\frac{\text{Cosh}[x]}{\sqrt{-\text{Cosh}[2\,x]}}\right]\sqrt{-\text{Cosh}[2\,x]}+\text{Sinh}[x]\,\text{Tanh}[x]\right)$$

Problem 1002: Result more than twice size of optimal antiderivative.

$$\int \text{Sech}[x]^2\sqrt{1+\text{Tanh}[x]^2}\ \mathbb{d}x$$

Optimal (type 3, 24 leaves, 3 steps) :

$$\frac{1}{2}\,\text{ArcSinh}[\text{Tanh}[x]]+\frac{1}{2}\,\text{Tanh}[x]\sqrt{1+\text{Tanh}[x]^2}$$

Result (type 3, 49 leaves) :

$$\frac{\left(\text{ArcTanh}\left[\frac{\text{Sinh}[x]}{\sqrt{\text{Cosh}[2\,x]}}\right]\text{Cosh}[x]+\sqrt{\text{Cosh}[2\,x]}\ \text{Tanh}[x]\right)\sqrt{1+\text{Tanh}[x]^2}}{2\sqrt{\text{Cosh}[2\,x]}}$$

Problem 1026: Result more than twice size of optimal antiderivative.

$$\int \text{Cosh}[x]^3\left(a+b\,\text{Cosh}[x]^2\right)^3\text{Sinh}[x]\,\mathbb{d}x$$

Optimal (type 3, 36 leaves, 4 steps) :

$$-\frac{a\left(a+b\,\text{Cosh}[x]^2\right)^4}{8\,b^2}+\frac{\left(a+b\,\text{Cosh}[x]^2\right)^5}{10\,b^2}$$

Result (type 3, 136 leaves) :

$$\frac{1}{32} \left(12\,a^2\,b\,\text{Cosh}[x]^4 + 8\,a\,b^2\,\text{Cosh}[x]^6 + 2\,b^3\,\text{Cosh}[x]^8 + 4\,a^3\,\text{Cosh}[2\,x] + 4\,a^2\,b\,\text{Cosh}[x]^3\,\text{Cosh}[3\,x] + \right.$$

$$a^3\,\text{Cosh}[4\,x] + \frac{1}{32}\,a\,b^2 \left(48\,\text{Cosh}[2\,x] + 36\,\text{Cosh}[4\,x] + 16\,\text{Cosh}[6\,x] + 3\,\text{Cosh}[8\,x] \right) +$$

$$\left. \frac{1}{320}\,b^3 \left(140\,\text{Cosh}[2\,x] + 100\,\text{Cosh}[4\,x] + 50\,\text{Cosh}[6\,x] + 15\,\text{Cosh}[8\,x] + 2\,\text{Cosh}[10\,x] \right) \right)$$

Problem 1027: Result more than twice size of optimal antiderivative.

$$\int \text{Cosh}[x]\,\text{Sinh}[x]^3 \left(a + b\,\text{Sinh}[x]^2 \right)^3 \, dx$$

Optimal (type 3, 36 leaves, 4 steps):

$$-\frac{a \left(a + b\,\text{Sinh}[x]^2 \right)^4}{8\,b^2} + \frac{\left(a + b\,\text{Sinh}[x]^2 \right)^5}{10\,b^2}$$

Result (type 3, 114 leaves):

$$\frac{1}{10\,240} \left(-20 \left(64\,a^3 + 24\,a\,b^2 - 7\,b^3 \right) \text{Cosh}[2\,x] + \right.$$

$$20 \left(16\,a^3 + 18\,a\,b^2 - 5\,b^3 \right) \text{Cosh}[4\,x] + b \left(-10 \left(16\,a - 5\,b \right) b\,\text{Cosh}[6\,x] + \right.$$

$$\left. \left. 15 \left(2\,a - b \right) b\,\text{Cosh}[8\,x] + 2\,b^2\,\text{Cosh}[10\,x] + 320 \left(\left(-4\,a + b \right)^2 - b^2\,\text{Cosh}[2\,x] \right) \text{Sinh}[x]^6 \right) \right)$$

Problem 1052: Result is not expressed in closed-form.

$$\int \frac{\text{Cosh}[a + b\,x]^4 - \text{Sinh}[a + b\,x]^4}{\text{Cosh}[a + b\,x]^4 + \text{Sinh}[a + b\,x]^4} \, dx$$

Optimal (type 3, 51 leaves, 6 steps):

$$-\frac{\text{ArcTan}\left[1 - \sqrt{2}\,\text{Tanh}[a + b\,x] \right]}{\sqrt{2}\,b} + \frac{\text{ArcTan}\left[1 + \sqrt{2}\,\text{Tanh}[a + b\,x] \right]}{\sqrt{2}\,b}$$

Result (type 7, 194 leaves):

$$-\frac{1}{2\,b} \left(\text{Cosh}[2\,a] \right.$$

$$\text{RootSum}\left[1 + 6\,e^{4\,a}\,\#1^2 + e^{8\,a}\,\#1^4\, \&,\, \frac{2\,b\,x - \text{Log}\left[e^{2\,b\,x} - \#1 \right] + 2\,b\,x\,\#1^2 - \text{Log}\left[e^{2\,b\,x} - \#1 \right] \#1^2}{3\,\#1 + e^{4\,a}\,\#1^3}\, \& \right] +$$

$$\text{RootSum}\left[1 + 6\,e^{4\,a}\,\#1^2 + e^{8\,a}\,\#1^4\, \&,\, \frac{-2\,b\,x + \text{Log}\left[e^{2\,b\,x} - \#1 \right] + 2\,b\,x\,\#1^2 - \text{Log}\left[e^{2\,b\,x} - \#1 \right] \#1^2}{3\,\#1 + e^{4\,a}\,\#1^3}\, \& \right]$$

$$\left. \text{Sinh}[2\,a] \right)$$

Problem 1053: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cosh}[a+bx]^3 - \text{Sinh}[a+bx]^3}{\text{Cosh}[a+bx]^3 + \text{Sinh}[a+bx]^3} \, dx$$

Optimal (type 3, 47 leaves, 5 steps):

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

Result (type 3, 115 leaves):

$$\frac{1}{18\,b}\left(-\text{Cosh}[a+bx]+\text{Sinh}[a+bx]\right)$$

$$\left(\left(3 + 8\sqrt{3}\,\text{ArcTan}\left[\frac{\text{Sech}[bx]\,(\text{Cosh}[2a+bx]-2\,\text{Sinh}[2a+bx])}{\sqrt{3}}\right]\right)\text{Cosh}[a+bx] + \right.$$

$$\left.\left(-3 + 8\sqrt{3}\,\text{ArcTan}\left[\frac{\text{Sech}[bx]\,(\text{Cosh}[2a+bx]-2\,\text{Sinh}[2a+bx])}{\sqrt{3}}\right]\right)\text{Sinh}[a+bx]\right)$$

Problem 1055: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cosh}[a+bx] - \text{Sinh}[a+bx]}{\text{Cosh}[a+bx] + \text{Sinh}[a+bx]} \, dx$$

Optimal (type 3, 22 leaves, 1 step):

$$-\frac{1}{2\,b\,(\text{Cosh}[a+bx]+\text{Sinh}[a+bx])^2}$$

Result (type 3, 65 leaves):

$$-\frac{\text{Cosh}[2a]\,\text{Cosh}[2bx]}{2\,b} + \frac{\text{Cosh}[2bx]\,\text{Sinh}[2a]}{2\,b} + \frac{\text{Cosh}[2a]\,\text{Sinh}[2bx]}{2\,b} - \frac{\text{Sinh}[2a]\,\text{Sinh}[2bx]}{2\,b}$$

Problem 1056: Result more than twice size of optimal antiderivative.

$$\int \frac{-\text{Csch}[a+bx] + \text{Sech}[a+bx]}{\text{Csch}[a+bx] + \text{Sech}[a+bx]} \, dx$$

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

$$\frac{1}{b\,(1+\text{Tanh}[a+bx])}$$

Result (type 3, 65 leaves):

$$\frac{\text{Cosh}[2a]\,\text{Cosh}[2bx]}{2\,b} - \frac{\text{Cosh}[2bx]\,\text{Sinh}[2a]}{2\,b} - \frac{\text{Cosh}[2a]\,\text{Sinh}[2bx]}{2\,b} + \frac{\text{Sinh}[2a]\,\text{Sinh}[2bx]}{2\,b}$$

Problem 1059: Result is not expressed in closed-form.

$$\int \frac{-\text{Csch}[a+b\,x]^4 + \text{Sech}[a+b\,x]^4}{\text{Csch}[a+b\,x]^4 + \text{Sech}[a+b\,x]^4}\, dx$$

Optimal (type 3, 51 leaves, 6 steps):

$$\frac{\text{ArcTan}\left[1 - \sqrt{2}\ \text{Tanh}[a+b\,x]\right]}{\sqrt{2}\ b} - \frac{\text{ArcTan}\left[1 + \sqrt{2}\ \text{Tanh}[a+b\,x]\right]}{\sqrt{2}\ b}$$

Result (type 7, 194 leaves):

$$\frac{1}{2\,b}\left(\text{Cosh}[2\,a]\right.$$

$$\text{RootSum}\left[1 + 6\,e^{4\,a}\,\#1^2 + e^{8\,a}\,\#1^4\ \&,\ \frac{2\,b\,x - \text{Log}\left[e^{2\,b\,x} - \#1\right] + 2\,b\,x\,\#1^2 - \text{Log}\left[e^{2\,b\,x} - \#1\right]\,\#1^2}{3\,\#1 + e^{4\,a}\,\#1^3}\ \&\right] +$$

$$\text{RootSum}\left[1 + 6\,e^{4\,a}\,\#1^2 + e^{8\,a}\,\#1^4\ \&,\ \frac{-2\,b\,x + \text{Log}\left[e^{2\,b\,x} - \#1\right] + 2\,b\,x\,\#1^2 - \text{Log}\left[e^{2\,b\,x} - \#1\right]\,\#1^2}{3\,\#1 + e^{4\,a}\,\#1^3}\ \&\right]$$

$$\left.\text{Sinh}[2\,a]\right)$$

Summary of Integration Test Results

1059 integration problems
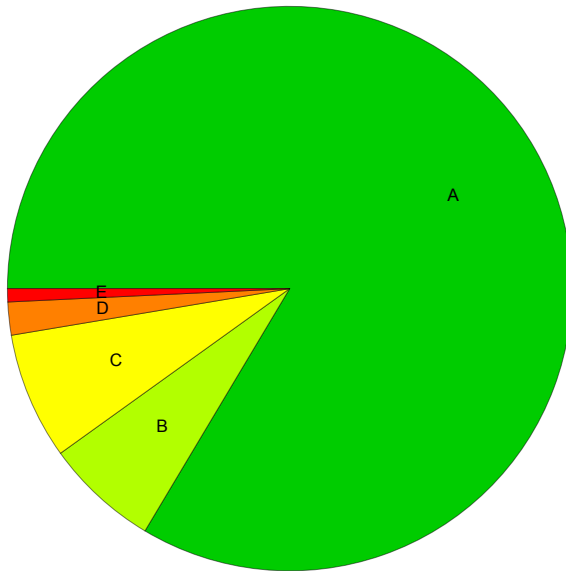
A - 885 optimal antiderivatives

B - 69 more than twice size of optimal antiderivatives

C - 77 unnecessarily complex antiderivatives

D - 20 unable to integrate problems

E - 8 integration timeouts