Mathematica 11.3 Integration Test Results

on the problems in the test-suite directory "6 Hyperbolic functions\6.7 Miscellaneous"

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):

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

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):

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

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):

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

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):

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

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):

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

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):

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

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):

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

Problem 56: Result unnecessarily involves higher level functions.

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

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

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

Result (type 5, 97 leaves):

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

Problem 57: Result unnecessarily involves higher level functions.

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

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

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

Result (type 5, 80 leaves):

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

Problem 58: Result unnecessarily involves higher level functions.

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

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

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

Result (type 5, 87 leaves):

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

Problem 59: Result unnecessarily involves higher level functions.

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

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

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

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

Result (type 5, 85 leaves):

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

Problem 60: Result unnecessarily involves higher level functions.

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

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):

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

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):

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

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):

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

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):

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

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):

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

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):

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

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):

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

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.

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

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

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

Result (type 3, 73 leaves):

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

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):

$$\frac{1823\,\text{Coth}\left[\frac{x}{2}\right]}{80640}-\frac{1823\,\text{Coth}\left[\frac{x}{2}\right]\text{Csch}\left[\frac{x}{2}\right]^2}{161280}-\frac{463\,\text{Coth}\left[\frac{x}{2}\right]\text{Csch}\left[\frac{x}{2}\right]^4}{53760}-\frac{73\,\text{Coth}\left[\frac{x}{2}\right]\text{Csch}\left[\frac{x}{2}\right]^6}{32256}-\frac{\text{Coth}\left[\frac{x}{2}\right]\text{Csch}\left[\frac{x}{2}\right]^8}{4608}-$$
$$\frac{1823\,\text{Tanh}\left[\frac{x}{2}\right]}{80640}-\frac{1823\,\text{Sech}\left[\frac{x}{2}\right]^2\text{Tanh}\left[\frac{x}{2}\right]}{161280}+\frac{463\,\text{Sech}\left[\frac{x}{2}\right]^4\text{Tanh}\left[\frac{x}{2}\right]}{53760}-\frac{73\,\text{Sech}\left[\frac{x}{2}\right]^6\text{Tanh}\left[\frac{x}{2}\right]}{32256}+\frac{\text{Sech}\left[\frac{x}{2}\right]^8\text{Tanh}\left[\frac{x}{2}\right]}{4608}$$

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):

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

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):

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

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):

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

Problem 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):

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

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):

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

Problem 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):

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

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):

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

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):

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

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):

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

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):

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

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):

$$-\frac{2}{5}\text{ArcTan}\left[\text{Tanh}\left[\frac{x}{2}\right]\right]-\frac{1}{20}\text{RootSum}\Big[1-\#1^2+\#1^4-\#1^6+\#1^8\ \&,\ \Big(3x+6\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]-x\,\#1^2-2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^2-x\,\#1^4-2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^4+3x\,\#1^6+6\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^6\Big)\Big/\left(-\#1+2\#1^3-3\#1^5+4\#1^7\right)\ \&\Big]+\text{Sinh}[x]$$

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

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

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

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

Result (type 7, 397 leaves):

$$-\frac{1}{24\sqrt{2}}\Bigg(4\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]+4\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]+4\,\text{ArcTan}\left[\sqrt{2}\ \text{Sinh}[x]\right]-2\,i\,\text{Log}\left[\sqrt{2}-2\,\text{Cosh}[x]\right]-2\,i\,\text{Log}\left[\sqrt{2}+2\,\text{Cosh}[x]\right]+2\,i\,\text{Log}[\text{Cosh}[2x]]+\sqrt{2}\ \text{RootSum}\Big[1-\#1^4+\#1^8\ \&,\ \frac{1}{-\#1^3+2\#1^7}\Big(2x+4\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]-x\,\#1^2-2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^2-x\,\#1^4-2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^4+2x\,\#1^6+4\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^6\Big)\ \&\Big]-24\sqrt{2}\ \text{Sinh}[x]\Bigg)$$

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

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

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):

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

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):

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

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):

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

Result (type 3, 198 leaves):

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

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

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

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

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

Result (type 3, 155 leaves):

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

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

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

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):

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

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):

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

Result (type 7, 385 leaves):

$$\frac{1}{24\sqrt{2}}\Bigg(4\,i\,\text{ArcTan}\Big[\frac{\text{Cosh}\big[\frac{x}{2}\big]+\text{Sinh}\big[\frac{x}{2}\big]}{\big(1+\sqrt{2}\big)\text{Cosh}\big[\frac{x}{2}\big]-\big(-1+\sqrt{2}\big)\text{Sinh}\big[\frac{x}{2}\big]}\Big]-4\,i\,\text{ArcTan}\Big[\frac{\text{Cosh}\big[\frac{x}{2}\big]+\text{Sinh}\big[\frac{x}{2}\big]}{\big(-1+\sqrt{2}\big)\text{Cosh}\big[\frac{x}{2}\big]-\big(1+\sqrt{2}\big)\text{Sinh}\big[\frac{x}{2}\big]}\Big]+$$
$$8\,\text{ArcTanh}\Big[\sqrt{2}-i\,\text{Tanh}\big[\tfrac{x}{2}\big]\Big]-2\,\text{Log}\big[\sqrt{2}-2\,\text{Cosh}[x]\big]+2\,\text{Log}\big[\sqrt{2}+2\,\text{Cosh}[x]\big]+\sqrt{2}\,\text{RootSum}\Big[1-\#1^4+\#1^8\&,\ \frac{1}{-\#1^3+2\,\#1^7}$$
$$\Big(-x-2\,\text{Log}\big[-\text{Cosh}\big[\tfrac{x}{2}\big]-\text{Sinh}\big[\tfrac{x}{2}\big]+\text{Cosh}\big[\tfrac{x}{2}\big]\#1-\text{Sinh}\big[\tfrac{x}{2}\big]\#1\big]+x\,\#1^2+2\,\text{Log}\big[-\text{Cosh}\big[\tfrac{x}{2}\big]-\text{Sinh}\big[\tfrac{x}{2}\big]+\text{Cosh}\big[\tfrac{x}{2}\big]\#1-\text{Sinh}\big[\tfrac{x}{2}\big]\#1\big]\#1^2-x\,\#1^4-$$
$$2\,\text{Log}\big[-\text{Cosh}\big[\tfrac{x}{2}\big]-\text{Sinh}\big[\tfrac{x}{2}\big]+\text{Cosh}\big[\tfrac{x}{2}\big]\#1-\text{Sinh}\big[\tfrac{x}{2}\big]\#1\big]\#1^4+x\,\#1^6+2\,\text{Log}\big[-\text{Cosh}\big[\tfrac{x}{2}\big]-\text{Sinh}\big[\tfrac{x}{2}\big]+\text{Cosh}\big[\tfrac{x}{2}\big]\#1-\text{Sinh}\big[\tfrac{x}{2}\big]\#1\big]\#1^6\Big)\&\Big]\Bigg)$$

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):

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

Result (type 3, 172 leaves):

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

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):

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

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.

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

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

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

Result (type 7, 113 leaves):

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

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

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

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

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

Result (type 7, 249 leaves):

$$\text{Cosh}[x]+\frac{1}{4}\,\text{RootSum}\Big[1-\#1^2+\#1^4-\#1^6+\#1^8\,\&,$$
$$\Big(-x-2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big]-\text{Sinh}\Big[\frac{x}{2}\Big]+\text{Cosh}\Big[\frac{x}{2}\Big]\#1-\text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]+x\,\#1^2+2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big]-\text{Sinh}\Big[\frac{x}{2}\Big]+\text{Cosh}\Big[\frac{x}{2}\Big]\#1-\text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^2-$$
$$x\,\#1^4-2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big]-\text{Sinh}\Big[\frac{x}{2}\Big]+\text{Cosh}\Big[\frac{x}{2}\Big]\#1-\text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^4+x\,\#1^6+$$
$$2\,\text{Log}\Big[-\text{Cosh}\Big[\frac{x}{2}\Big]-\text{Sinh}\Big[\frac{x}{2}\Big]+\text{Cosh}\Big[\frac{x}{2}\Big]\#1-\text{Sinh}\Big[\frac{x}{2}\Big]\#1\Big]\#1^6\Big)\Big/\left(-\#1+2\,\#1^3-3\,\#1^5+4\,\#1^7\right)\,\&\Big]$$

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):

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

Result (type 7, 395 leaves):

$$\frac{1}{24\sqrt{2}}\left(-4\,i\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]+4\,i\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]-\right.$$
$$8\,\text{ArcTanh}\left[\sqrt{2}-i\,\text{Tanh}\left[\frac{x}{2}\right]\right]+24\sqrt{2}\ \text{Cosh}[x]+2\,\text{Log}\left[\sqrt{2}-2\,\text{Cosh}[x]\right]-2\,\text{Log}\left[\sqrt{2}+2\,\text{Cosh}[x]\right]+\sqrt{2}\ \text{RootSum}\left[1-\#1^4+\#1^8\,\&,\ \frac{1}{-\#1^3+2\,\#1^7}\right.$$
$$\left(-2\,x-4\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]-x\,\#1^2-2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^2+x\,\#1^4+\right.$$
$$\left.\left.2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^4+2\,x\,\#1^6+4\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^6\right)\&\right]\right)$$

Problem 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):

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

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

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

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

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

Result (type 3, 192 leaves):

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

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

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

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

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

Result (type 3, 95 leaves):

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

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

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

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

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

Result (type 5, 156 leaves):

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

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

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

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

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

Result (type 3, 156 leaves):

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

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

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

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):

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

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

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

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):

$$\frac{1}{24\sqrt{2}}\left(-4\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]-4\,\text{ArcTan}\left[\frac{\text{Cosh}\left[\frac{x}{2}\right]+\text{Sinh}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cosh}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sinh}\left[\frac{x}{2}\right]}\right]-4\,\text{ArcTan}\left[\sqrt{2}\ \text{Sinh}[x]\right]+\right.$$
$$2\,i\,\text{Log}\left[\sqrt{2}-2\,\text{Cosh}[x]\right]+2\,i\,\text{Log}\left[\sqrt{2}+2\,\text{Cosh}[x]\right]-2\,i\,\text{Log}[\text{Cosh}[2\,x]]+\sqrt{2}\ \text{RootSum}\left[1-\#1^4+\#1^8\,\&,\ \frac{1}{-\#1^3+2\,\#1^7}\right.$$
$$\left(x+2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]+x\,\#1^2+2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^2+x\,\#1^4+\right.$$
$$\left.\left.\left.2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^4+x\,\#1^6+2\,\text{Log}\left[-\text{Cosh}\left[\frac{x}{2}\right]-\text{Sinh}\left[\frac{x}{2}\right]+\text{Cosh}\left[\frac{x}{2}\right]\#1-\text{Sinh}\left[\frac{x}{2}\right]\#1\right]\#1^6\right)\&\right]\right)$$

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

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

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.

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

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):

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

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

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

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):

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

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

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

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

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

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):

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

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):

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

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):

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

Result (type 4, 212 leaves):

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

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

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

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

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

Result (type 4, 213 leaves):

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

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

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

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

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

Result (type 4, 232 leaves):

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

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

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

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, 148 leaves):

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

Problem 420: Result unnecessarily involves imaginary or complex numbers.

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

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

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

Result (type 4, 94 leaves):

$$\frac{1}{16}\left(2\,i\,\pi^3-16\,x^3+6\,x^4-3\,\text{Cosh}[2\,x]-6\,x^2\,\text{Cosh}[2\,x]-16\,x^3\,\text{Coth}[x]+48\,x^2\,\text{Log}\left[1-e^{2\,x}\right]+48\,x\,\text{PolyLog}\left[2,\,e^{2\,x}\right]-24\,\text{PolyLog}\left[3,\,e^{2\,x}\right]+6\,x\,\text{Sinh}[2\,x]+4\,x^3\,\text{Sinh}[2\,x]\right)$$

Problem 422: Result unnecessarily involves imaginary or complex numbers.

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

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

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

Result (type 4, 98 leaves):

$$\frac{i\,\pi^3}{12}-\frac{2\,x^3}{3}+\frac{1}{8}\,\text{Cosh}[2\,x]+\frac{1}{4}\,x^2\,\text{Cosh}[2\,x]-x\,\text{Coth}[x]-\frac{1}{2}\,x^2\,\text{Csch}[x]^2+2\,x^2\,\text{Log}\left[1-e^{2\,x}\right]+\text{Log}[\text{Sinh}[x]]+2\,x\,\text{PolyLog}\left[2,\,e^{2\,x}\right]-\text{PolyLog}\left[3,\,e^{2\,x}\right]-\frac{1}{4}\,x\,\text{Sinh}[2\,x]$$

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

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

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

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

Result (type 4, 133 leaves):

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

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

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

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.

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

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

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

Result (type 4, 211 leaves):

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

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

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

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

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

Result (type 4, 230 leaves):

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

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):

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

Problem 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):

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

Result (type 4, 228 leaves):

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

Problem 456: 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):

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

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

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

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

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

Result (type 4, 232 leaves):

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

Problem 470: 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 485: Attempted integration timed out after 120 seconds.

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

Optimal (type 9, 20 leaves, 0 steps):

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

Result (type 1, 1 leaves):

???

Problem 491: 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 505: Attempted integration timed out after 120 seconds.

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

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

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

Result (type 1, 1 leaves):

???

Problem 512: Attempted integration timed out after 120 seconds.

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

Optimal (type 9, 20 leaves, 0 steps):

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

Result (type 1, 1 leaves):

???

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

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

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

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

Result (type 4, 425 leaves):

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

Problem 519: Attempted integration timed out after 120 seconds.

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

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

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

Result (type 1, 1 leaves):

???

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

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

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

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

Result (type 5, 142 leaves):

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

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

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

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

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

Result (type 5, 109 leaves):

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

Problem 540: Result unnecessarily involves higher level functions.

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

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

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

Result (type 5, 100 leaves):

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

Problem 542: Result unnecessarily involves higher level functions.

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

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

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

Result (type 5, 125 leaves):

$$\frac{1}{100 b^2} e^{-3 (a+b x)} \left(\left(1+e^{2 (a+b x)}\right) \left(2+5 b x+2 e^{2 (a+b x)} (-12+5 b x)+e^{4 (a+b x)} (-2+5 b x)\right)+48 e^{2 (a+b x)} \sqrt{1+e^{2 (a+b x)}} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2 (a+b x)}\right]\right) \sqrt{\operatorname{Sech}[a+b x]}$$

Problem 545: Result unnecessarily involves higher level functions.

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

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

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

Result (type 5, 143 leaves):

$$\left(e^{-3 (a+b x)} \left(\left(-1+e^{2 (a+b x)}\right) \left(2+5 b x+e^{2 (a+b x)} (24-10 b x)+e^{4 (a+b x)} (-2+5 b x)\right)+48 e^{2 (a+b x)} \sqrt{1-e^{2 (a+b x)}} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, e^{2 (a+b x)}\right]\right)\right) \Big/ \left(50 \sqrt{2} b^2 \sqrt{-e^{-a-b x}+e^{a+b x}}\right)$$

Problem 547: Result unnecessarily involves higher level functions.

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

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

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

Result (type 5, 115 leaves):

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

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):

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

Result (type 5, 100 leaves):

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

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):

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

Result (type 5, 111 leaves):

$$\frac{1}{50\,b^2\,\sqrt{\text{Csch}[a+b\,x]}}e^{-2\,(a+b\,x)}\left(2+5\,b\,x+e^{2\,(a+b\,x)}\,(24-10\,b\,x)+e^{4\,(a+b\,x)}\,(-2+5\,b\,x)-\frac{48\,e^{2\,(a+b\,x)}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},e^{2\,(a+b\,x)}\right]}{\sqrt{1-e^{2\,(a+b\,x)}}}\right)$$

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.

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

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

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

Result (type 3, 133 leaves):

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

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):

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

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

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

Problem 591: Result unnecessarily involves higher level functions.

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

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

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

Result (type 5, 92 leaves):

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

$$\left.a\,\text{Sinh}[x]\right)\sqrt{a\,\text{Cosh}[x]+b\,\text{Sinh}[x]}$$

Problem 592: Result unnecessarily involves higher level functions.

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

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

$$\frac{2}{5}(b\,\text{Cosh}[x]+a\,\text{Sinh}[x])(a\,\text{Cosh}[x]+b\,\text{Sinh}[x])^{3/2}-\frac{6\,i\left(a^2-b^2\right)\text{EllipticE}\left[\frac{1}{2}\left(i\,x-\text{ArcTan}[a,-i\,b]\right),2\right]\sqrt{a\,\text{Cosh}[x]+b\,\text{Sinh}[x]}}{5\sqrt{\frac{a\,\text{Cosh}[x]+b\,\text{Sinh}[x]}{\sqrt{a^2-b^2}}}}$$

Result (type 5, 193 leaves):

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

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

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

Problem 593: Result unnecessarily involves higher level functions.

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

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

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

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):

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

Result (type 5, 148 leaves):

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

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):

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

Result (type 5, 133 leaves):

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

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.

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

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.

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

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):

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

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.

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

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

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

Result (type 3, 54 leaves):

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

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

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

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

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

Result (type 3, 40 leaves):

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

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

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

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

$$-\frac{a\left(2 a^2+3 b^2-3 c^2\right) \operatorname{ArcTanh}\left[\frac{c-(a-b) \operatorname{Tanh}\left[\frac{x}{2}\right]}{\sqrt{a^2-b^2+c^2}}\right]}{\left(a^2-b^2+c^2\right)^{7/2}}-\frac{c \operatorname{Cosh}[x]+b \operatorname{Sinh}[x]}{3\left(a^2-b^2+c^2\right)\left(a+b \operatorname{Cosh}[x]+c \operatorname{Sinh}[x]\right)^3}-\frac{5\left(a c \operatorname{Cosh}[x]+a b \operatorname{Sinh}[x]\right)}{6\left(a^2-b^2+c^2\right)^2\left(a+b \operatorname{Cosh}[x]+c \operatorname{Sinh}[x]\right)^2}-\frac{c\left(11 a^2+4 b^2-4 c^2\right) \operatorname{Cosh}[x]+b\left(11 a^2+4 b^2-4 c^2\right) \operatorname{Sinh}[x]}{6\left(a^2-b^2+c^2\right)^3\left(a+b \operatorname{Cosh}[x]+c \operatorname{Sinh}[x]\right)}$$

Result (type 3, 488 leaves):

$$-\frac{a\left(2 a^2+3 b^2-3 c^2\right) \operatorname{ArcTan}\left[\frac{c+(-a+b) \operatorname{Tanh}\left[\frac{x}{2}\right]}{\sqrt{-a^2+b^2-c^2}}\right]}{\left(-a^2+b^2-c^2\right)^{7/2}}-\frac{1}{24 b\left(a^2-b^2+c^2\right)^3\left(a+b \operatorname{Cosh}[x]+c \operatorname{Sinh}[x]\right)^3}\left(-44 a^5 c-82 a^3 b^2 c-24 a b^4 c+82 a^3 c^3+48 a b^2 c^3-24 a c^5-30 a^2 b c\left(2 a^2+3 b^2-3 c^2\right) \operatorname{Cosh}[x]-6 a c\left(a^2\left(-7 b^2+11 c^2\right)+2\left(b^4+b^2 c^2-2 c^4\right)\right) \operatorname{Cosh}[2 x]+22 a^2 b^3 c \operatorname{Cosh}[3 x]+8 b^5 c \operatorname{Cosh}[3 x]-22 a^2 b c^3 \operatorname{Cosh}[3 x]-16 b^3 c^3 \operatorname{Cosh}[3 x]+8 b c^5 \operatorname{Cosh}[3 x]+72 a^4 b^2 \operatorname{Sinh}[x]-9 a^2 b^4 \operatorname{Sinh}[x]+12 b^6 \operatorname{Sinh}[x]-132 a^4 c^2 \operatorname{Sinh}[x]-72 a^2 b^2 c^2 \operatorname{Sinh}[x]-36 b^4 c^2 \operatorname{Sinh}[x]+81 a^2 c^4 \operatorname{Sinh}[x]+36 b^2 c^4 \operatorname{Sinh}[x]-12 c^6 \operatorname{Sinh}[x]+54 a^3 b^3 \operatorname{Sinh}[2 x]+6 a b^5 \operatorname{Sinh}[2 x]-78 a^3 b c^2 \operatorname{Sinh}[2 x]-48 a b^3 c^2 \operatorname{Sinh}[2 x]+42 a b c^4 \operatorname{Sinh}[2 x]+11 a^2 b^4 \operatorname{Sinh}[3 x]+4 b^6 \operatorname{Sinh}[3 x]-4 b^4 c^2 \operatorname{Sinh}[3 x]-11 a^2 c^4 \operatorname{Sinh}[3 x]-4 b^2 c^4 \operatorname{Sinh}[3 x]+4 c^6 \operatorname{Sinh}[3 x]\right)$$

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

$$\int \frac{1}{a+a \operatorname{Cosh}[x]+c \operatorname{Sinh}[x]} \, dx$$

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

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

Result (type 3, 35 leaves):

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

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

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

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

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

Result (type 3, 87 leaves):

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

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

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

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

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

Result (type 3, 300 leaves):

$$\frac{1}{384\,c^7}\left(192\,(-5\,a^3 + 3\,a\,c^2)\,\text{Log}\left[\text{Cosh}\left[\frac{x}{2}\right]\right] + 192\,a\,(5\,a^2 - 3\,c^2)\,\text{Log}\left[a\,\text{Cosh}\left[\frac{x}{2}\right] + c\,\text{Sinh}\left[\frac{x}{2}\right]\right] - \frac{1}{a\left(a + c\,\text{Tanh}\left[\frac{x}{2}\right]\right)^3}\,c\,\text{Sech}\left[\frac{x}{2}\right]^6\left(-150\,a^5\,c + 130\,a^3\,c^3 - 24\,a\,c^5 + (-75\,a^5\,c + 75\,a^3\,c^3 + 12\,a\,c^5)\,\text{Cosh}[x] + 6\,a\,c\,(25\,a^4 - 15\,a^2\,c^2 + 4\,c^4)\,\text{Cosh}[2\,x] + 75\,a^5\,c\,\text{Cosh}[3\,x] - 35\,a^3\,c^3\,\text{Cosh}[3\,x] + 4\,a\,c^5\,\text{Cosh}[3\,x] + 150\,a^6\,\text{Sinh}[x] - 255\,a^4\,c^2\,\text{Sinh}[x] + 129\,a^2\,c^4\,\text{Sinh}[x] - 12\,c^6\,\text{Sinh}[x] + 120\,a^6\,\text{Sinh}[2\,x] - 72\,a^4\,c^2\,\text{Sinh}[2\,x] + 36\,a^2\,c^4\,\text{Sinh}[2\,x] + 30\,a^6\,\text{Sinh}[3\,x] + 37\,a^4\,c^2\,\text{Sinh}[3\,x] - 27\,a^2\,c^4\,\text{Sinh}[3\,x] + 4\,c^6\,\text{Sinh}[3\,x]\right)\right)$$

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

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

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

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

Result (type 3, 425 leaves):

$$-\frac{1}{1120 (b-c) c (b+c) \left(c \operatorname{Cosh}[x]+b \operatorname{Sinh}[x]\right)^7}$$
$$\Big(-832 b^4 c \sqrt{b^2-c^2}+1664 b^2 c^3 \sqrt{b^2-c^2}-832 c^5 \sqrt{b^2-c^2}+1190 b c \left(b^2-c^2\right)^2 \operatorname{Cosh}[x]+448 c \sqrt{b^2-c^2} \left(-b^4+c^4\right) \operatorname{Cosh}[2 x]+$$
$$112 b^5 c \operatorname{Cosh}[3 x]+56 b^3 c^3 \operatorname{Cosh}[3 x]-168 b c^5 \operatorname{Cosh}[3 x]-28 b^5 c \operatorname{Cosh}[5 x]+28 b c^5 \operatorname{Cosh}[5 x]+6 b^5 c \operatorname{Cosh}[7 x]+20 b^3 c^3 \operatorname{Cosh}[7 x]+$$
$$6 b c^5 \operatorname{Cosh}[7 x]-35 b^6 \operatorname{Sinh}[x]+1295 b^4 c^2 \operatorname{Sinh}[x]-2485 b^2 c^4 \operatorname{Sinh}[x]+1225 c^6 \operatorname{Sinh}[x]-896 b^3 c^2 \sqrt{b^2-c^2} \operatorname{Sinh}[2 x]+$$
$$896 b c^4 \sqrt{b^2-c^2} \operatorname{Sinh}[2 x]+21 b^6 \operatorname{Sinh}[3 x]+189 b^4 c^2 \operatorname{Sinh}[3 x]-161 b^2 c^4 \operatorname{Sinh}[3 x]-49 c^6 \operatorname{Sinh}[3 x]-7 b^6 \operatorname{Sinh}[5 x]-$$
$$35 b^4 c^2 \operatorname{Sinh}[5 x]+35 b^2 c^4 \operatorname{Sinh}[5 x]+7 c^6 \operatorname{Sinh}[5 x]+b^6 \operatorname{Sinh}[7 x]+15 b^4 c^2 \operatorname{Sinh}[7 x]+15 b^2 c^4 \operatorname{Sinh}[7 x]+c^6 \operatorname{Sinh}[7 x]\Big)$$

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

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

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

$$\frac{16}{15}\left(a\,c\,\text{Cosh}[x]+a\,b\,\text{Sinh}[x]\right)\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}+\frac{2}{5}\left(c\,\text{Cosh}[x]+b\,\text{Sinh}[x]\right)\left(a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]\right)^{3/2}-$$

$$\frac{2\,i\left(23\,a^2+9\,b^2-9\,c^2\right)\text{EllipticE}\left[\frac{1}{2}\left(i\,x-\text{ArcTan}[b,-i\,c]\right),\frac{2\sqrt{b^2-c^2}}{a+\sqrt{b^2-c^2}}\right]\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}{15\sqrt{\frac{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{a+\sqrt{b^2-c^2}}}}+$$

$$\frac{16\,i\,a\left(a^2-b^2+c^2\right)\text{EllipticF}\left[\frac{1}{2}\left(i\,x-\text{ArcTan}[b,-i\,c]\right),\frac{2\sqrt{b^2-c^2}}{a+\sqrt{b^2-c^2}}\right]\sqrt{\frac{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{a+\sqrt{b^2-c^2}}}}{15\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}$$

Result (type 6, 3775 leaves):

$$\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}\left(\frac{2\,b\left(23\,a^2+9\,b^2-9\,c^2\right)}{15\,c}+\frac{22}{15}\,a\,c\,\text{Cosh}[x]+\frac{2}{5}\,b\,c\,\text{Cosh}[2\,x]+\frac{22}{15}\,a\,b\,\text{Sinh}[x]+\frac{1}{5}\left(b^2+c^2\right)\text{Sinh}[2\,x]\right)+$$

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

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

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

$$\left(34\,a\,b^2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{i\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(1-\frac{i\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c},-\frac{i\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(-1-\frac{i\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c}\right]\text{Sech}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right.$$

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

$$\left.\sqrt{a+c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\right)\Big/\left(15\sqrt{1-\frac{b^2}{c^2}}\,c\sqrt{i\left(i+\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right)-$$

$$\left(34\,a\,c\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{i\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(1-\frac{i\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c},-\frac{i\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(-1-\frac{i\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c}\right]\text{Sech}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right.$$

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

$$\left.\sqrt{a+c\sqrt{\frac{-b^2+c^2}{c^2}}\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\right)\Big/\left(15\sqrt{1-\frac{b^2}{c^2}}\sqrt{i\left(i+\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right)-\frac{1}{15\,c}$$

$$23\,a^2\,b^2\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)\Big/\right.$$

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

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

$$3\,b^4\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)\Big/\right.$$

$$\left(b\sqrt{1-\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}}-b\sqrt{\frac{b^2-c^2}{b^2}}\ \mathrm{Cosh}\left[x+\mathrm{ArcTanh}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2-c^2}{b^2}}}}\ \sqrt{a+b\sqrt{\frac{b^2-c^2}{b^2}}\ \mathrm{Cosh}\left[x+\mathrm{ArcTanh}\left[\frac{c}{b}\right]\right]}\right.$$

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

$$\frac{23}{15}a^2 c\left(\left(c\ \mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\ \mathrm{Cosh}\left[x+\mathrm{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\ \mathrm{Cosh}\left[x+\mathrm{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{c}{b}\right]\right]\right)\right/$$

$$\left(b\sqrt{1-\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}}-b\sqrt{\frac{b^2-c^2}{b^2}}\ \mathrm{Cosh}\left[x+\mathrm{ArcTanh}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2-c^2}{b^2}}}}\ \sqrt{a+b\sqrt{\frac{b^2-c^2}{b^2}}\ \mathrm{Cosh}\left[x+\mathrm{ArcTanh}\left[\frac{c}{b}\right]\right]}\right.$$

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

$$\frac{6}{5} b^2 c \left(\left(c\,\text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a+b\sqrt{1-\frac{c^2}{b^2}}\ \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}, \frac{a+b\sqrt{1-\frac{c^2}{b^2}}\ \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right] \text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right) \Big/\right.$$

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

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

$$\frac{3}{5} c^3 \left(\left(c\,\text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a+b\sqrt{1-\frac{c^2}{b^2}}\ \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}, \frac{a+b\sqrt{1-\frac{c^2}{b^2}}\ \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right] \text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right) \Big/\right.$$

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

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

Problem 762: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 249 leaves, 6 steps):

$$\frac{2}{3}(c\,\text{Cosh}[x]+b\,\text{Sinh}[x])\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}-\frac{8\,i\,a\,\text{EllipticE}\left[\frac{1}{2}\left(i\,x-\text{ArcTan}[b,-i\,c]\right),\frac{2\sqrt{b^2-c^2}}{a+\sqrt{b^2-c^2}}\right]\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}{3\sqrt{\frac{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{a+\sqrt{b^2-c^2}}}}+$$

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

Result (type 6, 2292 leaves):

$$\left(\frac{8\,a\,b}{3\,c}+\frac{2}{3}c\,\text{Cosh}[x]+\frac{2}{3}b\,\text{Sinh}[x]\right)\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}+$$

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

$$\sqrt{-1+i\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}-i\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}{i\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}+i\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}{-i\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

$$\left.\sqrt{a+c\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}\right)\Bigg/\left(\sqrt{1-\frac{b^2}{c^2}}\,c\sqrt{i\left(i+\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right)+$$

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

$$\sqrt{-1+i\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}-i\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}{i\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}+i\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}{-i\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

$$\left.\sqrt{a+c\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}\right)\Bigg/\left(3\sqrt{1-\frac{b^2}{c^2}}\,c\sqrt{i\left(i+\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right)-$$

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

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

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

$$4\,a\,b^2\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\;\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\;\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)\Big/\right.$$

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

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

$$\frac{4}{3}a\,c\,\Bigg(\Bigg(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\;\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\;\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\Bigg)\Big/$$

$$\Bigg(b\sqrt{1-\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}}-b\sqrt{\frac{b^2-c^2}{b^2}}\;\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2-c^2}{b^2}}}}\;\sqrt{a+b\sqrt{\frac{b^2-c^2}{b^2}}\;\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}$$

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

Problem 763: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 102 leaves, 2 steps):

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

Result (type 6, 1401 leaves):

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

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

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

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

$$b^2\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)\Big/\right.$$

$$\Bigg(b\sqrt{1-\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}}-b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\Big[x+\text{ArcTanh}\Big[\frac{c}{b}\Big]\Big]}{a+b\sqrt{\frac{b^2-c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\Big[x+\text{ArcTanh}\Big[\frac{c}{b}\Big]\Big]}$$

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

$$c\Bigg(\Bigg(c\,\text{AppellF1}\Bigg[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\Bigg]\,\text{Sinh}\Big[x+\text{ArcTanh}\Big[\frac{c}{b}\Big]\Big]\Bigg)\Bigg/$$

$$\Bigg(b\sqrt{1-\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}}-b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\Big[x+\text{ArcTanh}\Big[\frac{c}{b}\Big]\Big]}{a+b\sqrt{\frac{b^2-c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\Big[x+\text{ArcTanh}\Big[\frac{c}{b}\Big]\Big]}$$

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

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):

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

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):

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

Result (type 6, 1522 leaves):

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

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

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

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

$$b^2\Bigg(\Bigg(c\,\text{AppellF1}\Big[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\Big]\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/$$

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

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

$$c\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)\right/$$

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

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

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):

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

$$\frac{8\,i\,a\,\text{EllipticE}\left[\frac{1}{2}\,(i\,x-\text{ArcTan}[b,-i\,c]),\frac{2\sqrt{b^2-c^2}}{a+\sqrt{b^2-c^2}}\right]\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}{3\,(a^2-b^2+c^2)^2\sqrt{\frac{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{a+\sqrt{b^2-c^2}}}}+$$

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

Result (type 6, 2492 leaves) :

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

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

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

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

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

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

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

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

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

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

$$4\,a\,b^2\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\ \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\ \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)\Bigg/\right.$$

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

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

$$4\,a\,c\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\ \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\ \text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)\Bigg/\right.$$

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

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

Problem 767: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x])^{7/2}}\,dx$$

Optimal (type 4, 411 leaves, 8 steps):

$$-\frac{2\,(c\,\text{Cosh}[x]+b\,\text{Sinh}[x])}{5\,(a^2-b^2+c^2)\,(a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x])^{5/2}}-\frac{16\,(a\,c\,\text{Cosh}[x]+a\,b\,\text{Sinh}[x])}{15\,(a^2-b^2+c^2)^2\,(a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x])^{3/2}}-$$

$$\frac{2\,i\,(23\,a^2+9\,b^2-9\,c^2)\,\text{EllipticE}\left[\frac{1}{2}\,(i\,x-\text{ArcTan}[b,-i\,c]),\frac{2\sqrt{b^2-c^2}}{a+\sqrt{b^2-c^2}}\right]\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}{15\,(a^2-b^2+c^2)^3\sqrt{\frac{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{a+\sqrt{b^2-c^2}}}}+$$

$$\frac{16\,i\,a\,\text{EllipticF}\left[\frac{1}{2}\,(i\,x-\text{ArcTan}[b,-i\,c]),\frac{2\sqrt{b^2-c^2}}{a+\sqrt{b^2-c^2}}\right]\sqrt{\frac{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{a+\sqrt{b^2-c^2}}}}{15\,(a^2-b^2+c^2)^2\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}-\frac{2\,(c\,(23\,a^2+9\,b^2-9\,c^2)\,\text{Cosh}[x]+b\,(23\,a^2+9\,b^2-9\,c^2)\,\text{Sinh}[x])}{15\,(a^2-b^2+c^2)^3\sqrt{a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}$$

Result (type 6, 4093 leaves):

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

$$\left(-\frac{2\,(23\,a^2+9\,b^2-9\,c^2)\,(b^2-c^2)}{15\,b\,c\,(-a^2+b^2-c^2)^3}-\frac{2\,(a\,c-b^2\,\text{Sinh}[x]+c^2\,\text{Sinh}[x])}{5\,b\,(-a^2+b^2-c^2)\,(a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x])^3}-\frac{2\,(-5\,a^2\,c-3\,b^2\,c+3\,c^3+8\,a\,b^2\,\text{Sinh}[x]-8\,a\,c^2\,\text{Sinh}[x])}{15\,b\,(-a^2+b^2-c^2)^2\,(a+b\,\text{Cosh}[x]+c\,\text{Sinh}[x])^2}+\right.$$

$$\left(2\left(-15\,a^3\,c-17\,a\,b^2\,c+17\,a\,c^3+23\,a^2\,b^2\,\mathrm{Sinh}[x]+9\,b^4\,\mathrm{Sinh}[x]-23\,a^2\,c^2\,\mathrm{Sinh}[x]-18\,b^2\,c^2\,\mathrm{Sinh}[x]+9\,c^4\,\mathrm{Sinh}[x]\right)\right)\Big/$$

$$\left(15\,b\left(-a^2+b^2-c^2\right)^3\left(a+b\,\mathrm{Cosh}[x]+c\,\mathrm{Sinh}[x]\right)\right)\Bigg)+$$

$$\Bigg(2\,a^3\,\mathrm{AppellF1}\Big[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{\mathrm{i}\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(1-\frac{\mathrm{i}\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c},-\frac{\mathrm{i}\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(-1-\frac{\mathrm{i}\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c}\Big]\,\mathrm{Sech}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{-1+\mathrm{i}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}\,\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}-\mathrm{i}\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}{\mathrm{i}\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}\,\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}+\mathrm{i}\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}{-\mathrm{i}\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

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

$$\Bigg(34\,a\,b^2\,\mathrm{AppellF1}\Big[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{\mathrm{i}\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(1-\frac{\mathrm{i}\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c},-\frac{\mathrm{i}\left(a+\sqrt{1-\frac{b^2}{c^2}}\,c\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(-1-\frac{\mathrm{i}\,a}{\sqrt{1-\frac{b^2}{c^2}}\,c}\right)c}\Big]\,\mathrm{Sech}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{-1+\mathrm{i}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}\,\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}-\mathrm{i}\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}{\mathrm{i}\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}\,\sqrt{\frac{c\sqrt{\frac{-b^2+c^2}{c^2}}+\mathrm{i}\,c\sqrt{\frac{-b^2+c^2}{c^2}}\,\mathrm{Sinh}\left[x+\mathrm{ArcTanh}\left[\frac{b}{c}\right]\right]}{-\mathrm{i}\,a+c\sqrt{\frac{-b^2+c^2}{c^2}}}}$$

$$\left.\sqrt{a+c\sqrt{\frac{-b^2+c^2}{c^2}}\ \text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]}\right)\Bigg/\left(15\sqrt{1-\frac{b^2}{c^2}}\ c\ \left(a^2-b^2+c^2\right)^3\sqrt{\text{i}\left(\text{i}+\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right)-$$

$$\left(34\,a\,c\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{\text{i}\left(a+\sqrt{1-\frac{b^2}{c^2}}\ c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(1-\frac{\text{i}\,a}{\sqrt{1-\frac{b^2}{c^2}}\ c}\right)c},-\frac{\text{i}\left(a+\sqrt{1-\frac{b^2}{c^2}}\ c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}{\sqrt{1-\frac{b^2}{c^2}}\left(-1-\frac{\text{i}\,a}{\sqrt{1-\frac{b^2}{c^2}}\ c}\right)c}\right]\right.$$

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

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

$$\left(15\sqrt{1-\frac{b^2}{c^2}}\ \left(a^2-b^2+c^2\right)^3\sqrt{\text{i}\left(\text{i}+\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{b}{c}\right]\right]\right)}\right)-\frac{1}{15\,c\,\left(a^2-b^2+c^2\right)^3}$$

$$23\, a^2\, b^2 \left(\left(c\, \text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a + b\sqrt{1-\frac{c^2}{b^2}}\, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1 + \frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}, \frac{a + b\sqrt{1-\frac{c^2}{b^2}}\, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1 + \frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right] \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]\right) \Big/ \right.$$

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

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

$$3\, b^4 \left(\left(c\, \text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{a + b\sqrt{1-\frac{c^2}{b^2}}\, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1 + \frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}, \frac{a + b\sqrt{1-\frac{c^2}{b^2}}\, \text{Cosh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1 + \frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right] \text{Sinh}\left[x + \text{ArcTanh}\left[\frac{c}{b}\right]\right]\right) \Big/ \right.$$

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

$$\sqrt{\frac{b\sqrt{\frac{b^2-c^2}{b^2}}+b\sqrt{\frac{b^2-c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2-c^2}{b^2}}}}\right)-\frac{-\frac{2b\left(a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)}{b^2-c^2}+\frac{c\,\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}}\right)+\frac{1}{15\left(a^2-b^2+c^2\right)^3}$$

$$23\,a^2\,c\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)\right/$$

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

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

$$6\,b^2\,c\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)},\frac{a+b\sqrt{1-\frac{c^2}{b^2}}\,\text{Cosh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]}{b\sqrt{1-\frac{c^2}{b^2}}\left(-1+\frac{a}{b\sqrt{1-\frac{c^2}{b^2}}}\right)}\right]\text{Sinh}\left[x+\text{ArcTanh}\left[\frac{c}{b}\right]\right]\right)\right/$$

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

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

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

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

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

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):

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

$$\sqrt{\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}\left(\frac{44\,b\left(b^2-c^2\right)}{15\,c}+\frac{2}{15}c\sqrt{b^2-c^2}\,\text{Cosh}[x]+\frac{2}{5}b\,c\,\text{Cosh}[2\,x]+\frac{2}{15}b\sqrt{b^2-c^2}\,\text{Sinh}[x]+\frac{1}{5}\left(b^2+c^2\right)\text{Sinh}[2\,x]\right)+$$

$$\Bigg(256\,b\left(-b+c\right)\left(b+c\right)^2\sqrt{b^2-c^2}$$

$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,\text{EllipticPi}\left[-1,\text{ArcSin}\left[\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

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

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

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

$$\frac{1}{15\,c\,(1+\text{Cosh}[x])\sqrt{\frac{\sqrt{(b-c)\,(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{(1+\text{Cosh}[x])^2}}}\;64\,(b-c)^2\,(b+c)^2\sqrt{\sqrt{(b-c)\,(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}$$

$$\left(\left(\left(b-c\,\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-b-\sqrt{b^2-c^2}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]-b\,\text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{b^2-c^2}\,\text{Tanh}\left[\frac{x}{2}\right]^2}\right.\right.$$

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

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

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

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

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

$$\left.\text{EllipticPi}\left[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)$$

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\Bigg(\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+\Bigg(8\,b^3\Bigg(\left(-b+c+\sqrt{b^2-c^2}\right)$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\Bigg(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

$$\Bigg(8\,b^2\sqrt{b^2-c^2}\Bigg(\left(-b+c+\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c$$

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

$$\Bigg(8\,b^4\sqrt{b^2-c^2}\Bigg(\left(-b+c+\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c$$

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

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

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

$$\left(-1+\tanh\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\tanh\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\tanh\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\tanh\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\right.$$

$$\left.\sqrt{\left(\left(-1+\tanh\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\tanh\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\tanh\left[\frac{x}{2}\right]^2\right)\right)}\right)-$$

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

$$\left.\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\tanh\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\tanh\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

$$\left(-1+\tanh\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\tanh\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\tanh\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\tanh\left[\frac{x}{2}\right]\right)\Bigg/$$

$$\left(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\right.$$

$$\left.\sqrt{\left(\left(-1+\tanh\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\tanh\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\tanh\left[\frac{x}{2}\right]^2\right)\right)}\right)+$$

$$\left(8\,b^3\left(\left(-b+c-\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\tanh\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\tanh\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\tanh\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\tanh\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)\left(-1+\tanh\left[\frac{x}{2}\right]\right)$$

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/\Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)$$

$$\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg) \Bigg/ \Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)$$

$$\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg) -$$

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

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg) \Bigg/ \Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)$$

$$\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg) +$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg) \Bigg/$$

$$\left(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\right.$$

$$\left.\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\ (b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\ (b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)-$$

$$\left(2\,b^3\left(-1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\right.$$

$$\left.\sqrt{\frac{\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/\left(c\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

$$\left.\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\ (b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\ (b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)+$$

$$\left(2\,b\,c\left(-1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\right.$$

$$\left.\sqrt{\frac{\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/\left(\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

$$\left.\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\ (b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\ (b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)+$$

$$\left(2\,b^2\sqrt{b^2-c^2}\left(-1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\right.$$

$$\sqrt{\frac{\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\left(c\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

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

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

$$\frac{c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}+\frac{2\,c\,\text{EllipticPi}\left[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}\Bigg)$$

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

$$\left.\text{Tanh}\left[\frac{x}{2}\right]\right)^2\Bigg)\Bigg)\Bigg/\left(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)-$$

$$
\begin{aligned}
&\Bigg(c\sqrt{b^2-c^2}\,\Bigg(2\,\Bigg(\frac{1}{2}\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\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]- \\
&\qquad\frac{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]}{\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}+\frac{2\,c\,\text{EllipticPi}\left[\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(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}\Bigg) \\
&\qquad\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}}+\right. \\
&\qquad\left.\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)\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)\Bigg/ \\
&\Bigg((b-c)(b+c)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\sqrt{-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} \\
&\qquad\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)-b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)}\Bigg)
\end{aligned}
$$

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):

$$\frac{8\sqrt{b^2-c^2}\,(c\,\text{Cosh}[x]+b\,\text{Sinh}[x])}{3\sqrt{\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}+\frac{2}{3}\,(c\,\text{Cosh}[x]+b\,\text{Sinh}[x])\,\sqrt{\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}$$

Result (type 4, 10141 leaves):

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

$$\left(\frac{2\,b\,\sqrt{b^2-c^2}}{3\,c}+\frac{2}{3}\,c\,\text{Cosh}[x]+\frac{2}{3}\,b\,\text{Sinh}[x]\right)\sqrt{\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}+\Bigg(32\,b\,(-b+c)\,(b+c)^2$$

$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,\text{EllipticPi}\left[-1,\text{ArcSin}\left[\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

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

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

$$\sqrt{\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\,\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)-b\,\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

$$\frac{1}{3\,c\,\left(1+\text{Cosh}[x]\right)\sqrt{\frac{\sqrt{(b-c)\,(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{(1+\text{Cosh}[x])^2}}}\,8\,(b-c)\,(b+c)\,\sqrt{b^2-c^2}\,\sqrt{\sqrt{(b-c)\,(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}$$

$$\Bigg(\Bigg(\left(b-c\,\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-b-\sqrt{b^2-c^2}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]-b\,\text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{b^2-c^2}\,\text{Tanh}\left[\frac{x}{2}\right]^2}$$

$$\sqrt{\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)-b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)\Big/$$

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

$$\Bigg(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]-b\,\text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{(b-c)\,(b+c)}\,\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}$$

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

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

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\Bigg(\Bigg(\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\Bigg(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\Bigg)}\Bigg)+\Bigg(8\,b^3\,\Bigg(\left(-b+c+\sqrt{b^2-c^2}\right)$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c\,\text{EllipticPi}\Bigg[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},$$

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

$$\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\Bigg(\Bigg(b-c-\sqrt{b^2-c^2}\Bigg)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\Bigg(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\Bigg)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

$$\Bigg(8\,b^2\sqrt{b^2-c^2}\Bigg(\left(-b+c+\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c$$

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

$$\left.\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/$$

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\right.$$

$$\left.\sqrt{\left(\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\operatorname{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)+$$

$$\left(8\,b^4\sqrt{b^2-c^2}\left(\left(-b+c+\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

$$\left.\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/$$

$$\left(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\right.$$

$$\left.\sqrt{\left(\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\operatorname{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)+$$

$$\left(4\,b\left(b^2-c^2\right)\left(\left(-b+c+\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

$$\Bigg(8\,b^3\Bigg(\left(-b+c-\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\left(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

$$\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\left(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\right.$$

$$\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

$$\Bigg(4\,b\,c^2\,\Bigg(\left(-b+c-\sqrt{b^2-c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c$$

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\Bigg(\Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)$$

$$\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\Bigg(\Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)$$

$$\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\left(c^2 \left(-b-c-\sqrt{b^2-c^2}\right) \left(b-c+\sqrt{b^2-c^2}\right) \left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right) \left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\right.$$

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

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

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

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

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

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

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

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

$$\sqrt{\frac{\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\;\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\left(c\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\right.$$

$$\left.\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)+$$

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

$$\frac{c\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}+\frac{2\,c\,\mathrm{EllipticPi}\left[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}\Bigg)$$

$$\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\;\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)+\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\right.$$

$$\left.\mathrm{Tanh}\left[\frac{x}{2}\right]\right)^2\Bigg)\Bigg)\Bigg/\left(\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)-$$

$$\left(c\sqrt{b^2-c^2}\left(2\left(\frac{1}{2}\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-\right.\right.\right.$$

$$\left.\frac{c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}+\frac{2\,c\,\text{EllipticPi}\left[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}\right)$$

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

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

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

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

Problem 770: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \sqrt{\sqrt{b^2-c^2}+b \operatorname{Cosh}[x]+c \operatorname{Sinh}[x]}\, dx$$

Optimal (type 3, 37 leaves, 1 step):

$$\frac{2\,(c \operatorname{Cosh}[x]+b \operatorname{Sinh}[x])}{\sqrt{\sqrt{b^2-c^2}+b \operatorname{Cosh}[x]+c \operatorname{Sinh}[x]}}$$

Result (type 4, 10 054 leaves):

$$\frac{2\,b\,\sqrt{\sqrt{b^2-c^2}+b \operatorname{Cosh}[x]+c \operatorname{Sinh}[x]}}{c}-\Bigg(8\,b\,(b+c)\,\sqrt{b^2-c^2}$$

$$\left(\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\operatorname{EllipticPi}\left[-1,\operatorname{ArcSin}\left[\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

$$\sqrt{\sqrt{(b-c)\,(b+c)}+b \operatorname{Cosh}[x]+c \operatorname{Sinh}[x]}\,\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(-b-c+\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(-c+\left(-b+\sqrt{b^2-c^2}\right)\operatorname{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\left(\left(b+c-\sqrt{b^2-c^2}\right)^2\left(b+c+\sqrt{b^2-c^2}\right)(1+\operatorname{Cosh}[x])\sqrt{\frac{\sqrt{(b-c)\,(b+c)}+b \operatorname{Cosh}[x]+c \operatorname{Sinh}[x]}{(1+\operatorname{Cosh}[x])^2}}\right.$$

$$\left.\sqrt{\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-2\,c\operatorname{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)-b\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)-$$

$$\frac{1}{c\,(1+\operatorname{Cosh}[x])\sqrt{\frac{\sqrt{(b-c)\,(b+c)}+b \operatorname{Cosh}[x]+c \operatorname{Sinh}[x]}{(1+\operatorname{Cosh}[x])^2}}}\,2\,(b-c)\,(b+c)\,\sqrt{\sqrt{(b-c)\,(b+c)}+b \operatorname{Cosh}[x]+c \operatorname{Sinh}[x]}$$

$$\Bigg(\Big(\big(b - c\,\text{Tanh}\big[\tfrac{x}{2}\big]\big)\sqrt{-b-\sqrt{b^2-c^2}-2\,c\,\text{Tanh}\big[\tfrac{x}{2}\big]-b\,\text{Tanh}\big[\tfrac{x}{2}\big]^2+\sqrt{b^2-c^2}\,\text{Tanh}\big[\tfrac{x}{2}\big]^2}$$

$$\sqrt{\big(-1+\text{Tanh}\big[\tfrac{x}{2}\big]^2\big)\Big(-2\,c\,\text{Tanh}\big[\tfrac{x}{2}\big]+\sqrt{b^2-c^2}\,\big(-1+\text{Tanh}\big[\tfrac{x}{2}\big]^2\big)-b\,\big(1+\text{Tanh}\big[\tfrac{x}{2}\big]^2\big)\Big)}\Big)\Big/$$

$$\Big(\big(-b^2+c^2\big)\big(-1+\text{Tanh}\big[\tfrac{x}{2}\big]^2\big)\sqrt{-2\,c\,\text{Tanh}\big[\tfrac{x}{2}\big]+\sqrt{b^2-c^2}\,\big(-1+\text{Tanh}\big[\tfrac{x}{2}\big]^2\big)-b\,\big(1+\text{Tanh}\big[\tfrac{x}{2}\big]^2\big)}\Big)+$$

$$\Bigg(\sqrt{\Big(\big(-1+\text{Tanh}\big[\tfrac{x}{2}\big]^2\big)\Big(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\big[\tfrac{x}{2}\big]-b\,\text{Tanh}\big[\tfrac{x}{2}\big]^2+\sqrt{(b-c)\,(b+c)}\,\text{Tanh}\big[\tfrac{x}{2}\big]^2\Big)\Big)}$$

$$\sqrt{\big(-1+\text{Tanh}\big[\tfrac{x}{2}\big]^2\big)\Big(-2\,c\,\text{Tanh}\big[\tfrac{x}{2}\big]+\sqrt{b^2-c^2}\,\big(-1+\text{Tanh}\big[\tfrac{x}{2}\big]^2\big)-b\,\big(1+\text{Tanh}\big[\tfrac{x}{2}\big]^2\big)\Big)}$$

$$\Bigg(2\,c^2\Big(-1-\frac{c}{-b+\sqrt{b^2-c^2}}\Big)\Bigg(-\text{EllipticF}\Bigg[\text{ArcSin}\Bigg[\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\big)\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\big)\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\Bigg],1\Bigg]+2$$

$$\text{EllipticPi}\Bigg[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\text{ArcSin}\Bigg[\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\big)\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\big)\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\Bigg],1\Bigg]\Bigg)\Big(-1+\text{Tanh}\big[\tfrac{x}{2}\big]\Big)$$

$$\sqrt{\frac{\big(b+c-\sqrt{b^2-c^2}\big)\big(1+\text{Tanh}\big[\frac{x}{2}\big]\big)}{\big(-b+c+\sqrt{b^2-c^2}\big)\big(-1+\text{Tanh}\big[\frac{x}{2}\big]\big)}}\Big(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\big[\tfrac{x}{2}\big]\Big)\Bigg)\Bigg/\Bigg(\Big(1-\frac{c}{-b+\sqrt{b^2-c^2}}\Big)\Big(1+\frac{c}{-b+\sqrt{b^2-c^2}}\Big)$$

$$\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\,+$$

$$\left(8\,b^3\left(\left(-b+c+\sqrt{b^2-c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

$$\left.\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/$$

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\right.$$

$$\left.\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)-$$

$$\left(4\,b^5\left(\left(-b+c+\sqrt{b^2-c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

$$\left.\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/$$

$$\left(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\right.$$

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

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

$$\left.\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

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

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\right.$$

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

$$\left(8\,b^2\sqrt{b^2-c^2}\left(\left(-b+c+\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

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

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\right.$$

$$\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^{2}\right)\left(-b-\sqrt{(b-c)\ (b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\ (b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^{2}\right)\right)}\ +$$

$$\left(8\,b^{4}\sqrt{b^{2}-c^{2}}\left(\left(-b+c+\sqrt{b^{2}-c^{2}}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^{2}-c^{2}}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^{2}-c^{2}}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\ \right],1\right]-2\,c\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^{2}-c^{2}}\right)\left(1+\frac{c}{-b+\sqrt{b^{2}-c^{2}}}\right)}{\left(b-c-\sqrt{b^{2}-c^{2}}\right)\left(-1+\frac{c}{-b+\sqrt{b^{2}-c^{2}}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^{2}-c^{2}}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^{2}-c^{2}}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\ \right],1\right]\right)$$

$$\left.\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^{2}-c^{2}}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^{2}-c^{2}}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\ \left(-\frac{c}{-b+\sqrt{b^{2}-c^{2}}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/$$

$$\left(c^{2}\left(b-c-\sqrt{b^{2}-c^{2}}\right)\left(-b-c+\sqrt{b^{2}-c^{2}}\right)\left(1-\frac{c}{-b+\sqrt{b^{2}-c^{2}}}\right)\left(-\frac{-b-\sqrt{b^{2}-c^{2}}}{c}+\frac{-b+\sqrt{b^{2}-c^{2}}}{c}\right)\right.$$

$$\left.\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^{2}\right)\left(-b-\sqrt{(b-c)\ (b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\ (b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^{2}\right)\right)}\right)\ +$$

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

$$\left.\mathrm{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^{2}-c^{2}}\right)\left(1+\frac{c}{-b+\sqrt{b^{2}-c^{2}}}\right)}{\left(b-c-\sqrt{b^{2}-c^{2}}\right)\left(-1+\frac{c}{-b+\sqrt{b^{2}-c^{2}}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^{2}-c^{2}}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^{2}-c^{2}}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\ \right],1\right]\right)$$

$$\left.\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^{2}-c^{2}}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^{2}-c^{2}}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\ \left(-\frac{c}{-b+\sqrt{b^{2}-c^{2}}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/$$

$$\left(\left(b-c-\sqrt{b^{2}-c^{2}}\right)\left(-b-c+\sqrt{b^{2}-c^{2}}\right)\left(1-\frac{c}{-b+\sqrt{b^{2}-c^{2}}}\right)\left(-\frac{-b-\sqrt{b^{2}-c^{2}}}{c}+\frac{-b+\sqrt{b^{2}-c^{2}}}{c}\right)\right.$$

$$\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\;\Bigg)\;-$$

$$\Bigg(4\,b^3\left(b^2-c^2\right)\Bigg(\left(-b+c+\sqrt{b^2-c^2}\right)\mathtt{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right],1\right]-2\,c$$

$$\mathtt{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right],1\right]\Bigg)$$

$$\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\;\Bigg)\;+$$

$$\Bigg(8\,b^3\Bigg(\left(-b+c-\sqrt{b^2-c^2}\right)\mathtt{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right],1\right]-2\,c$$

$$\mathtt{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right],1\right]\Bigg)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)$$

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/\Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)$$

$$\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\;\Bigg)\;-$$

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

$$\texttt{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}, \texttt{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\texttt{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\texttt{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-1+\texttt{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\texttt{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\texttt{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\texttt{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\texttt{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\texttt{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\texttt{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg) -$$

$$\Bigg(4\,b\,c^2 \Bigg(\left(-b+c-\sqrt{b^2-c^2}\right) \texttt{EllipticF}\left[\texttt{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\texttt{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\texttt{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right] - 2\,c$$

$$\texttt{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}, \texttt{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\texttt{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\texttt{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\Bigg)\left(-1+\texttt{Tanh}\left[\frac{x}{2}\right]\right)$$

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\texttt{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\texttt{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\texttt{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/\Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)$$

$$\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\sqrt{\left(\left(-1+\texttt{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\texttt{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\texttt{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg) -$$

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

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

$$\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)$$

$$\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(-\frac{c}{-b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\Bigg(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{-b+\sqrt{b^2-c^2}}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(-b-\sqrt{(b-c)\,(b+c)}-2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(-b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

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

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

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

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

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

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

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

$$\left(b\,c\left(2\left(\frac{1}{2}\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-\right.\right.\right.$$

$$\left.\frac{c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}+\frac{2\,c\,\text{EllipticPi}\left[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}\right)$$

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

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

$$\left(c\sqrt{b^2-c^2}\left(2\left(\frac{1}{2}\left(1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-\right.\right.\right.$$

$$\left.\frac{c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}+\frac{2\,c\,\text{EllipticPi}\left[\frac{1+\frac{c}{-b+\sqrt{b^2-c^2}}}{-1+\frac{c}{-b+\sqrt{b^2-c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(-b+c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(-b+\sqrt{b^2-c^2}\right)\left(-1+\frac{c}{-b+\sqrt{b^2-c^2}}\right)}\right)$$

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

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

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

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

Problem 771: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 99 leaves, 3 steps) :

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

Result (type 4, 211 leaves):

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

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

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):

$$\frac{\text{ArcTan}\left[\frac{\left(b^2-c^2\right)^{1/4}\,\text{Sinh}[x+i\,\text{ArcTan}[b,-i\,c]]}{\sqrt{2}\,\sqrt{\sqrt{b^2-c^2}+\sqrt{b^2-c^2}\,\text{Cosh}[x+i\,\text{ArcTan}[b,-i\,c]]}}\right]}{2\,\sqrt{2}\,\left(b^2-c^2\right)^{3/4}}+\frac{c\,\text{Cosh}[x]+b\,\text{Sinh}[x]}{2\,\sqrt{b^2-c^2}\,\left(\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]\right)^{3/2}}$$

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):

$$\frac{3\,\text{ArcTan}\left[\frac{(b^2-c^2)^{1/4}\,\text{Sinh}[x+i\,\text{ArcTan}[b,-i\,c]]}{\sqrt{2}\,\sqrt{\sqrt{b^2-c^2}+\sqrt{b^2-c^2}\,\text{Cosh}[x+i\,\text{ArcTan}[b,-i\,c]]}}\right]}{16\sqrt{2}\,(b^2-c^2)^{5/4}}+\frac{c\,\text{Cosh}[x]+b\,\text{Sinh}[x]}{4\sqrt{b^2-c^2}\,\left(\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]\right)^{5/2}}+\frac{3\,(c\,\text{Cosh}[x]+b\,\text{Sinh}[x])}{16\,(b^2-c^2)\,\left(\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]\right)^{3/2}}$$

Result (type 1, 1 leaves):

???

Problem 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):

$$\frac{64\,(b^2-c^2)\,(c\,\text{Cosh}[x]+b\,\text{Sinh}[x])}{15\sqrt{-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}-\frac{16}{15}\sqrt{b^2-c^2}\,(c\,\text{Cosh}[x]+b\,\text{Sinh}[x])\,\sqrt{-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}+\frac{2}{5}\,(c\,\text{Cosh}[x]+b\,\text{Sinh}[x])\left(-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]\right)^{3/2}$$

Result (type 4, 9943 leaves):

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

$$\sqrt{-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}\left(\frac{44\,b\,(b^2-c^2)}{15\,c}-\frac{2}{15}\,c\sqrt{b^2-c^2}\,\text{Cosh}[x]+\frac{2}{5}\,b\,c\,\text{Cosh}[2\,x]-\frac{2}{15}\,b\sqrt{b^2-c^2}\,\text{Sinh}[x]+\frac{1}{5}\,(b^2+c^2)\,\text{Sinh}[2\,x]\right)+$$

$$\Bigg(256\,b\,c\,(-b+c)\,(b+c)\,\sqrt{b^2-c^2}\,(-b^2+c^2)\,\Bigg(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-$$

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\left(-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}\right)^{3/2}\left(c+\left(b+\sqrt{b^2-c^2}\right)\text{Tanh}\left[\frac{x}{2}\right]\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\Bigg)\Big/$$

$$\Bigg(15\left(b+c+\sqrt{b^2-c^2}\right)^3\left(-b^2+c^2+b\sqrt{b^2-c^2}\right)(1+\text{Cosh}[x])\sqrt{\frac{-\sqrt{(b-c)\,(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{(1+\text{Cosh}[x])^2}}$$

$$\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)^2\sqrt{-\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)+b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

$$\frac{1}{15\,c\,(1+\text{Cosh}[x])\sqrt{\frac{-\sqrt{(b-c)\,(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}{(1+\text{Cosh}[x])^2}}}\,64\,(b-c)^2\,(b+c)^2\sqrt{-\sqrt{(b-c)\,(b+c)}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}$$

$$\Bigg(\Bigg(\left(b-c\,\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{b-\sqrt{b^2-c^2}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+b\,\text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{b^2-c^2}\,\text{Tanh}\left[\frac{x}{2}\right]^2}$$

$$\sqrt{-\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)+b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)\Big/$$

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

$$\Bigg(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\ (b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+b\,\text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{(b-c)\ (b+c)}\ \text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}$$

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

$$\Bigg(\left(2\,c^2\left(-1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(-\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]+2\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{1-\frac{c}{b+\sqrt{b^2-c^2}}}{-1-\frac{c}{b+\sqrt{b^2-c^2}}},\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)$$

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

$$\left.\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\ (b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\ (b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)+\Bigg(8\,b^3\ \Bigg(\left(-b+c+\sqrt{b^2-c^2}\right)$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\right.$$

$$\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\left(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

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

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

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

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\Bigg(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\ (b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\ (b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

$$\Bigg(8\,b^3\Bigg(\left(-b+c-\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c$$

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\ (b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\ (b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

$$\Bigg(8\,b^2\sqrt{b^2-c^2}\Bigg(\left(-b+c-\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c$$

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\ (b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\ (b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

$$\Bigg(8\,b^4\sqrt{b^2-c^2}\ \Bigg(\left(-b+c-\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\ 1\right]-2\,c$$

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\Bigg(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\ (b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\ (b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

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

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

$$\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)(b+c)}+2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

$$\Bigg(4\,b^3\left(b^2-c^2\right)\Bigg(\left(-b+c-\sqrt{b^2-c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],\ 1\right]-2\,c$$

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

$$\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)(b+c)}+2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

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

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

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

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

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

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

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\;+$$

$$\left(b\,c\left(2\left(\frac{1}{2}\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]+\right.\right.\right.$$

$$\left.\frac{c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}-\frac{2\,c\,\text{EllipticPi}\left[\frac{1-\frac{c}{b+\sqrt{b^2-c^2}}}{-1-\frac{c}{b+\sqrt{b^2-c^2}}},\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}\right)$$

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

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

$$\left(c\sqrt{b^2-c^2}\left(2\left(\frac{1}{2}\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]+\right.\right.\right.$$

$$\frac{c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}-\frac{2\,c\,\text{EllipticPi}\left[\frac{1-\frac{c}{b+\sqrt{b^2-c^2}}}{-1-\frac{c}{b+\sqrt{b^2-c^2}}},\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}\Bigg)$$

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

$$\left.\left.\left.\text{Tanh}\left[\frac{x}{2}\right]\right)^2\right)\right)\Bigg/\left(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)\right)\Bigg/$$

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

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

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):

$$-\frac{8\sqrt{b^2-c^2}\,(c\,\text{Cosh}[x]+b\,\text{Sinh}[x])}{3\sqrt{-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}+\frac{2}{3}\,(c\,\text{Cosh}[x]+b\,\text{Sinh}[x])\sqrt{-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}$$

Result (type 4, 9861 leaves) :

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

$$\left(-\frac{2\,b\sqrt{b^2-c^2}}{3\,c}+\frac{2}{3}\,c\,\text{Cosh}[x]+\frac{2}{3}\,b\,\text{Sinh}[x]\right)\sqrt{-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}-\Bigg(32\,b\,c\,(-b+c)\,(b+c)\,(-b^2+c^2)$$

$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,\text{EllipticPi}\left[-1,\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

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

$$\left(-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}\right)^{3/2}\left(c+\left(b+\sqrt{b^2-c^2}\right)\text{Tanh}\left[\frac{x}{2}\right]\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\Bigg)\Bigg/$$

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

$$\sqrt{-\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)+b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

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

$$\left(\left(\left(b - c\,\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{b-\sqrt{b^2-c^2}+2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+b\,\mathrm{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{b^2-c^2}\;\mathrm{Tanh}\left[\frac{x}{2}\right]^2}\right.\right.$$

$$\left.\sqrt{-\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)+b\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)\Big/$$

$$\left(\left(-b^2+c^2\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\sqrt{2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)+b\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)}\right)-$$

$$\left(\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+b\,\mathrm{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{(b-c)\,(b+c)}\;\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right.$$

$$\sqrt{-\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)+b\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}$$

$$\left(\left(2\,c^2\left(-1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(-\mathtt{EllipticF}\left[\mathtt{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]+2\right.\right.\right.$$

$$\left.\mathtt{EllipticPi}\left[\frac{1-\frac{c}{b+\sqrt{b^2-c^2}}}{-1-\frac{c}{b+\sqrt{b^2-c^2}}},\mathtt{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)$$

$$\left.\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/\left(\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

$$\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)(b+c)}+2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)\Bigg)+\Bigg(8\,b^3\,\Bigg(\left(-b+c+\sqrt{b^2-c^2}\right)$$

$$\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c\,\mathrm{EllipticPi}\Bigg[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},$$

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

$$\left(\frac{c}{b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\Bigg(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)(b+c)}+2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\Bigg(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\;-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)\;-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\;+$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)\;+$$

$$\Bigg(8\,b^3\Bigg(\left(-b+c-\sqrt{b^2-c^2}\right)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right],1\right]-2\,c$$

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

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

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

$$\texttt{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\ \text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\ \left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\left(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

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

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

$$\texttt{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\ \text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\ \left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\left(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

$$\sqrt{\Big(\Big(-1+\text{Tanh}\Big[\frac{x}{2}\Big]^{2}\Big)\Big(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\Big[\frac{x}{2}\Big]+\Big(b+\sqrt{(b-c)\,(b+c)}\Big)\,\text{Tanh}\Big[\frac{x}{2}\Big]^{2}\Big)\Big)}\;\Big)\;+$$

$$\Bigg(8\,b^{2}\sqrt{b^{2}-c^{2}}\;\Bigg(\Big(-b+c-\sqrt{b^{2}-c^{2}}\Big)\,\text{EllipticF}\Bigg[\text{ArcSin}\Bigg[\sqrt{-\frac{\big(b+c+\sqrt{b^{2}-c^{2}}\big)\,\big(1+\text{Tanh}[\frac{x}{2}]\big)}{\big(b-c+\sqrt{b^{2}-c^{2}}\big)\,\big(-1+\text{Tanh}[\frac{x}{2}]\big)}}\;\Bigg],1\Bigg]-2\,c$$

$$\text{EllipticPi}\Bigg[\frac{\big(b+c+\sqrt{b^{2}-c^{2}}\big)\,\Big(1-\frac{c}{b+\sqrt{b^{2}-c^{2}}}\Big)}{\big(b-c+\sqrt{b^{2}-c^{2}}\big)\,\Big(-1-\frac{c}{b+\sqrt{b^{2}-c^{2}}}\Big)},\,\text{ArcSin}\Bigg[\sqrt{-\frac{\big(b+c+\sqrt{b^{2}-c^{2}}\big)\,\big(1+\text{Tanh}[\frac{x}{2}]\big)}{\big(b-c+\sqrt{b^{2}-c^{2}}\big)\,\big(-1+\text{Tanh}[\frac{x}{2}]\big)}}\;\Bigg],1\Bigg]\Bigg)$$

$$\Big(-1+\text{Tanh}\Big[\frac{x}{2}\Big]\Big)\sqrt{-\frac{\big(b+c+\sqrt{b^{2}-c^{2}}\big)\,\big(1+\text{Tanh}[\frac{x}{2}]\big)}{\big(b-c+\sqrt{b^{2}-c^{2}}\big)\,\big(-1+\text{Tanh}[\frac{x}{2}]\big)}}\;\Bigg(\frac{c}{b+\sqrt{b^{2}-c^{2}}}+\text{Tanh}\Big[\frac{x}{2}\Big]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\Big(-b-c-\sqrt{b^{2}-c^{2}}\Big)\,\Big(b-c+\sqrt{b^{2}-c^{2}}\Big)\,\Bigg(\frac{-b-\sqrt{b^{2}-c^{2}}}{c}-\frac{-b+\sqrt{b^{2}-c^{2}}}{c}\Bigg)\,\Bigg(1+\frac{c}{b+\sqrt{b^{2}-c^{2}}}\Bigg)$$

$$\sqrt{\Big(\Big(-1+\text{Tanh}\Big[\frac{x}{2}\Big]^{2}\Big)\Big(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\Big[\frac{x}{2}\Big]+\Big(b+\sqrt{(b-c)\,(b+c)}\Big)\,\text{Tanh}\Big[\frac{x}{2}\Big]^{2}\Big)\Big)}\;\Big)\;-$$

$$\Bigg(8\,b^{4}\sqrt{b^{2}-c^{2}}\;\Bigg(\Big(-b+c-\sqrt{b^{2}-c^{2}}\Big)\,\text{EllipticF}\Bigg[\text{ArcSin}\Bigg[\sqrt{-\frac{\big(b+c+\sqrt{b^{2}-c^{2}}\big)\,\big(1+\text{Tanh}[\frac{x}{2}]\big)}{\big(b-c+\sqrt{b^{2}-c^{2}}\big)\,\big(-1+\text{Tanh}[\frac{x}{2}]\big)}}\;\Bigg],1\Bigg]-2\,c$$

$$\text{EllipticPi}\Bigg[\frac{\big(b+c+\sqrt{b^{2}-c^{2}}\big)\,\Big(1-\frac{c}{b+\sqrt{b^{2}-c^{2}}}\Big)}{\big(b-c+\sqrt{b^{2}-c^{2}}\big)\,\Big(-1-\frac{c}{b+\sqrt{b^{2}-c^{2}}}\Big)},\,\text{ArcSin}\Bigg[\sqrt{-\frac{\big(b+c+\sqrt{b^{2}-c^{2}}\big)\,\big(1+\text{Tanh}[\frac{x}{2}]\big)}{\big(b-c+\sqrt{b^{2}-c^{2}}\big)\,\big(-1+\text{Tanh}[\frac{x}{2}]\big)}}\;\Bigg],1\Bigg]\Bigg)$$

$$\Big(-1+\text{Tanh}\Big[\frac{x}{2}\Big]\Big)\sqrt{-\frac{\big(b+c+\sqrt{b^{2}-c^{2}}\big)\,\big(1+\text{Tanh}[\frac{x}{2}]\big)}{\big(b-c+\sqrt{b^{2}-c^{2}}\big)\,\big(-1+\text{Tanh}[\frac{x}{2}]\big)}}\;\Bigg(\frac{c}{b+\sqrt{b^{2}-c^{2}}}+\text{Tanh}\Big[\frac{x}{2}\Big]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(c^{2}\,\Big(-b-c-\sqrt{b^{2}-c^{2}}\Big)\,\Big(b-c+\sqrt{b^{2}-c^{2}}\Big)\,\Bigg(\frac{-b-\sqrt{b^{2}-c^{2}}}{c}-\frac{-b+\sqrt{b^{2}-c^{2}}}{c}\Bigg)\,\Bigg(1+\frac{c}{b+\sqrt{b^{2}-c^{2}}}\Bigg)$$

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

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

$$\left.\text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

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

$$\left(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

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

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

$$\left.\text{EllipticPi}\left[\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

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

$$\left(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\;-$$

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

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

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

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

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

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

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

$$\sqrt{\frac{\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/\Bigg(c\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

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

$$\frac{c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}-\frac{2\,c\,\text{EllipticPi}\left[\frac{1-\frac{c}{b+\sqrt{b^2-c^2}}}{-1-\frac{c}{b+\sqrt{b^2-c^2}}},\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}\Bigg)$$

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)+\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg(\frac{c}{b+\sqrt{b^2-c^2}}+$$

$$\text{Tanh}\left[\frac{x}{2}\right]\Bigg)^2\Bigg)\Bigg)\Big/\left(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)+$$

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

$$\frac{c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right],1\right]}{\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}-\frac{2\,c\,\text{EllipticPi}\left[\frac{1-\frac{c}{b+\sqrt{b^2-c^2}}}{-1-\frac{c}{b+\sqrt{b^2-c^2}}},\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right],1\right]}{\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}\Bigg)$$

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\,\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)+\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg(\frac{c}{b+\sqrt{b^2-c^2}}+$$

$$\text{Tanh}\left[\frac{x}{2}\right]\Bigg)^2\Bigg)\Bigg)\Bigg/\left(\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)\Bigg)\Bigg/$$

$$\Bigg((b-c)\,(b+c)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\sqrt{b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+b\,\text{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{(b-c)\,(b+c)}\,\text{Tanh}\left[\frac{x}{2}\right]^2}$$

$$\sqrt{2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)+b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)}\,\Bigg)$$

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):

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

Result (type 4, 9771 leaves):

$$\frac{2\,b\,\sqrt{-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]}}{c}-\Bigg(8\,b\,c\,\sqrt{b^2-c^2}\,(-b^2+c^2)$$

$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,\text{EllipticPi}\left[-1,\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

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

$$\left(-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}\right)^{3/2}\left(c+\left(b+\sqrt{b^2-c^2}\right)\text{Tanh}\left[\frac{x}{2}\right]\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\Bigg)\Bigg/$$

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

$$\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)^2\sqrt{-\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\,\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)+b\,\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

$$\Bigg(\Bigg(\left(b-c\,\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{b-\sqrt{b^2-c^2}+2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+b\,\mathrm{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{b^2-c^2}\,\mathrm{Tanh}\left[\frac{x}{2}\right]^2}$$

$$\sqrt{-\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)+b\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)\Bigg/$$

$$\left(\left(-b^2+c^2\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\sqrt{2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)+b\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)}\right)-$$

$$\Bigg(\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+b\,\mathrm{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{(b-c)\,(b+c)}\,\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}$$

$$\sqrt{-\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)+b\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}$$

$$\Bigg(\left(2\,c^2\left(-1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(-\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right],1\right]+2\right.\right.$$

$$\left.\left.\mathrm{EllipticPi}\left[\frac{1-\frac{c}{b+\sqrt{b^2-c^2}}}{-1-\frac{c}{b+\sqrt{b^2-c^2}}},\mathrm{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\,\right],1\right]\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\right.$$

$$\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\;\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\Bigg(\Bigg(\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)\Bigg)+\Bigg(8\,b^3\,\Bigg(\left(-b+c+\sqrt{b^2-c^2}\right)$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c\,\text{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\right.$$

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

$$\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/\Bigg(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)$$

$$\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left.\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/$$

$$\left(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

$$\left.\sqrt{\left(\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\operatorname{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)-$$

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

$$\left.\operatorname{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\operatorname{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

$$\left.\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)\right)\Big/$$

$$\left(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

$$\left.\sqrt{\left(\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\operatorname{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\operatorname{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)-$$

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

$$\left.\operatorname{EllipticPi}\left[\frac{\left(b+c-\sqrt{b^2-c^2}\right)\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}{\left(b-c-\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)},\operatorname{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\operatorname{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]\right)$$

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-c-\sqrt{b^2-c^2}\right)\left(-b-c+\sqrt{b^2-c^2}\right)\left(-\frac{-b-\sqrt{b^2-c^2}}{c}+\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

$$\Bigg(8\,b^3\Bigg(\left(-b+c-\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c$$

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\text{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\left(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

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

$$\Bigg(8\,b^2\sqrt{b^2-c^2}\,\Bigg(\left(-b+c-\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c$$

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Bigg/$$

$$\left(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

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

$$\Bigg(8\,b^4\sqrt{b^2-c^2}\,\Bigg(\left(-b+c-\sqrt{b^2-c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]-2\,c$$

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

$$\left(-1+\tanh\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\tanh\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\tanh\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\tanh\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\tanh\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)(b+c)}+2c\tanh\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\tanh\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)+$$

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

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

$$\left(-1+\tanh\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\tanh\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\tanh\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\tanh\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)$$

$$\sqrt{\left(\left(-1+\tanh\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)(b+c)}+2c\tanh\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)(b+c)}\right)\tanh\left[\frac{x}{2}\right]^2\right)\right)}\Bigg)-$$

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

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

$$\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\text{Tanh}\left[\frac{x}{2}\right]\right)\Bigg)\Big/$$

$$\left(c^2\left(-b-c-\sqrt{b^2-c^2}\right)\left(b-c+\sqrt{b^2-c^2}\right)\left(\frac{-b-\sqrt{b^2-c^2}}{c}-\frac{-b+\sqrt{b^2-c^2}}{c}\right)\left(1+\frac{c}{b+\sqrt{b^2-c^2}}\right)\right.$$

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

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

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

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

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

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

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

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

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

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

$$\left(b\,c\left(2\left(\frac{1}{2}\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]+\right.\right.\right.$$

$$\left.\frac{c\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}-\frac{2\,c\,\text{EllipticPi}\left[\frac{1-\frac{c}{b+\sqrt{b^2-c^2}}}{-1-\frac{c}{b+\sqrt{b^2-c^2}}},\text{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\text{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\text{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}\right)$$

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

$$\left.\left.\mathrm{Tanh}\left[\frac{x}{2}\right]\right)^2\right)\right) \Big/ \left(\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)+$$

$$\left(c\,\sqrt{b^2-c^2}\left(2\left(\frac{1}{2}\left(1-\frac{c}{b+\sqrt{b^2-c^2}}\right)\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]+\right.\right.\right.$$

$$\left.\frac{c\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}-\frac{2\,c\,\mathrm{EllipticPi}\left[\frac{1-\frac{c}{b+\sqrt{b^2-c^2}}}{-1-\frac{c}{b+\sqrt{b^2-c^2}}},\mathrm{ArcSin}\left[\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2-c^2}\right)\left(-1-\frac{c}{b+\sqrt{b^2-c^2}}\right)}\right)$$

$$\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\sqrt{-\frac{\left(b+c+\sqrt{b^2-c^2}\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}{\left(b-c+\sqrt{b^2-c^2}\right)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)}}\left(\frac{c}{b+\sqrt{b^2-c^2}}+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\left(1+\mathrm{Tanh}\left[\frac{x}{2}\right]\right)\left(\frac{c}{b+\sqrt{b^2-c^2}}+\right.$$

$$\left.\left.\left.\mathrm{Tanh}\left[\frac{x}{2}\right]\right)^2\right)\right) \Big/ \left(\sqrt{\left(\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\left(b-\sqrt{(b-c)\,(b+c)}+2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+\left(b+\sqrt{(b-c)\,(b+c)}\right)\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\right)}\right)\right)\right) \Big/$$

$$\left((b-c)\,(b+c)\left(-1+\mathrm{Tanh}\left[\frac{x}{2}\right]^2\right)\sqrt{b-\sqrt{(b-c)\,(b+c)}+2\,c\,\mathrm{Tanh}\left[\frac{x}{2}\right]+b\,\mathrm{Tanh}\left[\frac{x}{2}\right]^2+\sqrt{(b-c)\,(b+c)}\,\mathrm{Tanh}\left[\frac{x}{2}\right]^2}\right.$$

$$\sqrt{2\,c\,\text{Tanh}\left[\frac{x}{2}\right]+\sqrt{b^2-c^2}\left(-1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)+b\left(1+\text{Tanh}\left[\frac{x}{2}\right]^2\right)}\,\Bigg)\Bigg)$$

Problem 777: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 102 leaves, 3 steps):

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

Result (type 4, 52 609 leaves): Display of huge result suppressed!

Problem 778: Attempted integration timed out after 120 seconds.

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

Optimal (type 3, 159 leaves, 4 steps):

$$\frac{\text{ArcTanh}\left[\frac{\left(b^2-c^2\right)^{1/4}\,\text{Sinh}[x+i\,\text{ArcTan}[b,-i\,c]]}{\sqrt{2}\,\sqrt{-\sqrt{b^2-c^2}+\sqrt{b^2-c^2}\,\text{Cosh}[x+i\,\text{ArcTan}[b,-i\,c]]}}\right]}{2\,\sqrt{2}\,\left(b^2-c^2\right)^{3/4}}-\frac{c\,\text{Cosh}[x]+b\,\text{Sinh}[x]}{2\,\sqrt{b^2-c^2}\,\left(-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]\right)^{3/2}}$$

Result (type 1, 1 leaves):

???

Problem 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):

$$-\frac{3\,\text{ArcTanh}\left[\frac{\left(b^2-c^2\right)^{1/4}\text{Sinh}[x+i\,\text{ArcTan}[b,-i\,c]]}{\sqrt{2}\,\sqrt{-\sqrt{b^2-c^2}+\sqrt{b^2-c^2}\,\text{Cosh}[x+i\,\text{ArcTan}[b,-i\,c]]}}\right]}{16\,\sqrt{2}\,\left(b^2-c^2\right)^{5/4}}-\frac{c\,\text{Cosh}[x]+b\,\text{Sinh}[x]}{4\,\sqrt{b^2-c^2}\,\left(-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]\right)^{5/2}}+\frac{3\,\left(c\,\text{Cosh}[x]+b\,\text{Sinh}[x]\right)}{16\,\left(b^2-c^2\right)\,\left(-\sqrt{b^2-c^2}+b\,\text{Cosh}[x]+c\,\text{Sinh}[x]\right)^{3/2}}$$

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):

$$\frac{\left(i\,\pi^3-8\,x^3+24\,x^2\,\text{Log}\left[1-e^{2x}\right]+24\,x\,\text{PolyLog}\left[2,\,e^{2x}\right]-12\,\text{PolyLog}\left[3,\,e^{2x}\right]\right)\,\text{Sech}[x]^2}{24\,\sqrt{a\,\text{Sech}[x]^4}}$$

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):

$$\frac{1}{2} x^2 \text{Cosh}[x]^2 \sqrt{a\,\text{Sech}[x]^4} - 2 x^2 \text{ArcTanh}\left[e^{2x}\right] \text{Cosh}[x]^2 \sqrt{a\,\text{Sech}[x]^4} + \text{Cosh}[x]^2 \text{Log}[\text{Cosh}[x]] \sqrt{a\,\text{Sech}[x]^4} - x\,\text{Cosh}[x]^2 \text{PolyLog}\left[2, -e^{2x}\right] \sqrt{a\,\text{Sech}[x]^4} + x\,\text{Cosh}[x]^2 \text{PolyLog}\left[2, e^{2x}\right] \sqrt{a\,\text{Sech}[x]^4} + \frac{1}{2} \text{Cosh}[x]^2 \text{PolyLog}\left[3, -e^{2x}\right] \sqrt{a\,\text{Sech}[x]^4} - \frac{1}{2} \text{Cosh}[x]^2 \text{PolyLog}\left[3, e^{2x}\right] \sqrt{a\,\text{Sech}[x]^4} - x\,\text{Cosh}[x] \sqrt{a\,\text{Sech}[x]^4}\,\text{Sinh}[x] - \frac{1}{2} x^2 \sqrt{a\,\text{Sech}[x]^4}\,\text{Sinh}[x]^2$$

Result (type 4, 120 leaves):

$$\frac{1}{24} \text{Cosh}[x]^2 \sqrt{a\,\text{Sech}[x]^4} \left(i\,\pi^3 - 16 x^3 - 24 x^2 \text{Log}\left[1 + e^{-2x}\right] + 24 x^2 \text{Log}\left[1 - e^{2x}\right] + 24 \text{Log}[\text{Cosh}[x]] + 24 x\,\text{PolyLog}\left[2, -e^{-2x}\right] + 24 x\,\text{PolyLog}\left[2, e^{2x}\right] + 12 \text{PolyLog}\left[3, -e^{-2x}\right] - 12 \text{PolyLog}\left[3, e^{2x}\right] + 12 x^2 \text{Sech}[x]^2 - 24 x\,\text{Tanh}[x]\right)$$

Problem 869: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 186 leaves, 9 steps):

$$\frac{x\,\text{Log}\left[1 + \frac{b\,e^{2x}}{2a - \sqrt{4a^2 + b^2}}\right]}{\sqrt{4a^2 + b^2}} - \frac{x\,\text{Log}\left[1 + \frac{b\,e^{2x}}{2a + \sqrt{4a^2 + b^2}}\right]}{\sqrt{4a^2 + b^2}} + \frac{\text{PolyLog}\left[2, -\frac{b\,e^{2x}}{2a - \sqrt{4a^2 + b^2}}\right]}{2\sqrt{4a^2 + b^2}} - \frac{\text{PolyLog}\left[2, -\frac{b\,e^{2x}}{2a + \sqrt{4a^2 + b^2}}\right]}{2\sqrt{4a^2 + b^2}}$$

Result (type 4, 960 leaves):

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

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

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

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

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

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

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

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

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

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):

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

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) :

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

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) :

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

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) :

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

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.

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

Optimal (type 5, 61 leaves, 2 steps) :

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

Result (type 5, 213 leaves):

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

Problem 900: Result more than twice size of optimal antiderivative.

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

Optimal (type 5, 151 leaves, 3 steps):

$$\frac{2\, e^{d+e\,x}\, F^{c\,(a+b\,x)}\, \text{Hypergeometric2F1}\left[2,\, 1+\frac{b\,c\,\text{Log}[F]}{e},\, 2+\frac{b\,c\,\text{Log}[F]}{e},\, -e^{d+e\,x}\right]\,(e-b\,c\,\text{Log}[F])}{3\,e^2\,f^2}+\frac{b\,c\,F^{c\,(a+b\,x)}\,\text{Log}[F]\,\text{Sech}\left[\frac{d}{2}+\frac{e\,x}{2}\right]^2}{6\,e^2\,f^2}+\frac{F^{c\,(a+b\,x)}\,\text{Sech}\left[\frac{d}{2}+\frac{e\,x}{2}\right]^2\,\text{Tanh}\left[\frac{d}{2}+\frac{e\,x}{2}\right]}{6\,e\,f^2}$$

Result (type 5, 712 leaves):

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

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

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

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

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):

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

Result (type 7, 48 leaves):

$$-\frac{e^{3\,x}}{1+e^{4\,x}}-\frac{1}{4}\,\text{RootSum}\left[1+\#1^4\,\&,\frac{x-\text{Log}\left[e^x-\#1\right]}{\#1}\,\&\right]$$

Problem 938: Result is not expressed in closed-form.

$$\int e^x \operatorname{Sech}[2x]^2 \operatorname{Tanh}[2x] \, dx$$

Optimal (type 3, 129 leaves, 13 steps):

$$-\frac{e^{5x}}{\left(1+e^{4x}\right)^2}-\frac{e^x}{4\left(1+e^{4x}\right)}-\frac{\operatorname{ArcTan}\left[1-\sqrt{2}\,e^x\right]}{8\sqrt{2}}+\frac{\operatorname{ArcTan}\left[1+\sqrt{2}\,e^x\right]}{8\sqrt{2}}-\frac{\operatorname{Log}\left[1-\sqrt{2}\,e^x+e^{2x}\right]}{16\sqrt{2}}+\frac{\operatorname{Log}\left[1+\sqrt{2}\,e^x+e^{2x}\right]}{16\sqrt{2}}$$

Result (type 7, 57 leaves):

$$-\frac{e^x\left(1+5e^{4x}\right)}{4\left(1+e^{4x}\right)^2}-\frac{1}{16}\operatorname{RootSum}\left[1+\#1^4\,\&,\ \frac{x-\operatorname{Log}\left[e^x-\#1\right]}{\#1^3}\,\&\right]$$

Problem 939: Result is not expressed in closed-form.

$$\int e^x \operatorname{Sech}[2x] \operatorname{Tanh}[2x]^2 \, dx$$

Optimal (type 3, 130 leaves, 13 steps):

$$\frac{e^{3x}}{\left(1+e^{4x}\right)^2}-\frac{3e^{3x}}{4\left(1+e^{4x}\right)}-\frac{5\operatorname{ArcTan}\left[1-\sqrt{2}\,e^x\right]}{8\sqrt{2}}+\frac{5\operatorname{ArcTan}\left[1+\sqrt{2}\,e^x\right]}{8\sqrt{2}}+\frac{5\operatorname{Log}\left[1-\sqrt{2}\,e^x+e^{2x}\right]}{16\sqrt{2}}-\frac{5\operatorname{Log}\left[1+\sqrt{2}\,e^x+e^{2x}\right]}{16\sqrt{2}}$$

Result (type 7, 58 leaves):

$$\frac{e^{3x}-3e^{7x}}{4\left(1+e^{4x}\right)^2}-\frac{5}{16}\operatorname{RootSum}\left[1+\#1^4\,\&,\ \frac{x-\operatorname{Log}\left[e^x-\#1\right]}{\#1}\,\&\right]$$

Problem 940: Result is not expressed in closed-form.

$$\int e^x \operatorname{Sech}[2x]^2 \operatorname{Tanh}[2x]^2 \, dx$$

Optimal (type 3, 149 leaves, 14 steps):

$$\frac{4e^{5x}}{3\left(1+e^{4x}\right)^3}-\frac{5e^{5x}}{6\left(1+e^{4x}\right)^2}-\frac{3e^x}{8\left(1+e^{4x}\right)}-\frac{3\operatorname{ArcTan}\left[1-\sqrt{2}\,e^x\right]}{16\sqrt{2}}+\frac{3\operatorname{ArcTan}\left[1+\sqrt{2}\,e^x\right]}{16\sqrt{2}}-\frac{3\operatorname{Log}\left[1-\sqrt{2}\,e^x+e^{2x}\right]}{32\sqrt{2}}+\frac{3\operatorname{Log}\left[1+\sqrt{2}\,e^x+e^{2x}\right]}{32\sqrt{2}}$$

Result (type 7, 64 leaves):

$$\frac{1}{96}\left(-\frac{4\,e^x\left(9+6\,e^{4x}+29\,e^{8x}\right)}{\left(1+e^{4x}\right)^3}-9\,\text{RootSum}\left[1+\#1^4\,\&,\,\frac{x-\text{Log}\left[e^x-\#1\right]}{\#1^3}\,\&\right]\right)$$

Problem 949: Result more than twice size of optimal antiderivative.

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

Optimal (type 5, 53 leaves, 4 steps):

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

Result (type 5, 120 leaves):

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

Problem 985: Result more than twice size of optimal antiderivative.

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

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

$$\text{ArcTan}[1+\text{Tanh}[x]]$$

Result (type 3, 23 leaves):

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

Problem 994: Result more than twice size of optimal antiderivative.

$$\int \text{Sech}[x]^2\,\text{Tanh}[x]^6\,\left(1-\text{Tanh}[x]^2\right)^3\,dx$$

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.

$$\int \sqrt{1+\text{Coth}[x]^2}\;\text{Sech}[x]^2\,dx$$

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.

$$\int \text{Sech}[x]^2\sqrt{1+\text{Tanh}[x]^2}\,dx$$

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):

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

Problem 1026: Result more than twice size of optimal antiderivative.

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

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):

$$\frac{1}{32}\Big(12\,a^2\,b\,\text{Cosh}[x]^4+8\,a\,b^2\,\text{Cosh}[x]^6+2\,b^3\,\text{Cosh}[x]^8+4\,a^3\,\text{Cosh}[2x]+4\,a^2\,b\,\text{Cosh}[x]^3\,\text{Cosh}[3x]+a^3\,\text{Cosh}[4x]+\frac{1}{32}\,a\,b^2\left(48\,\text{Cosh}[2x]+36\,\text{Cosh}[4x]+16\,\text{Cosh}[6x]+3\,\text{Cosh}[8x]\right)+\frac{1}{320}\,b^3\left(140\,\text{Cosh}[2x]+100\,\text{Cosh}[4x]+50\,\text{Cosh}[6x]+15\,\text{Cosh}[8x]+2\,\text{Cosh}[10x]\right)\Big)$$

Problem 1027: Result more than twice size of optimal antiderivative.

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

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):

$$\frac{1}{10\,240}\Big(-20\left(64\,a^3+24\,a\,b^2-7\,b^3\right)\text{Cosh}[2x]+20\left(16\,a^3+18\,a\,b^2-5\,b^3\right)\text{Cosh}[4x]+b\Big(-10\left(16\,a-5\,b\right)b\,\text{Cosh}[6x]+15\left(2\,a-b\right)b\,\text{Cosh}[8x]+2\,b^2\,\text{Cosh}[10x]+320\left(\left(-4\,a+b\right)^2-b^2\,\text{Cosh}[2x]\right)\text{Sinh}[x]^6\Big)\Big)$$

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):

$$-\frac{1}{2\,b}\left(\text{Cosh}[2\,a]\ \text{RootSum}\left[1+6\,e^{4\,a}\,\#1^2+e^{8\,a}\,\#1^4\ \&,\ \frac{2\,b\,x-\text{Log}\left[e^{2\,b\,x}-\#1\right]+2\,b\,x\,\#1^2-\text{Log}\left[e^{2\,b\,x}-\#1\right]\,\#1^2}{3\,\#1+e^{4\,a}\,\#1^3}\ \&\right]+\right.$$
$$\left.\text{RootSum}\left[1+6\,e^{4\,a}\,\#1^2+e^{8\,a}\,\#1^4\ \&,\ \frac{-2\,b\,x+\text{Log}\left[e^{2\,b\,x}-\#1\right]+2\,b\,x\,\#1^2-\text{Log}\left[e^{2\,b\,x}-\#1\right]\,\#1^2}{3\,\#1+e^{4\,a}\,\#1^3}\ \&\right]\ \text{Sinh}[2\,a]\right)$$

Problem 1053: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 47 leaves, 5 steps):

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

Result (type 3, 115 leaves):

$$\frac{1}{18\,b}\left(-\text{Cosh}[a+b\,x]+\text{Sinh}[a+b\,x]\right)\left(\left(3+8\,\sqrt{3}\ \text{ArcTan}\left[\frac{\text{Sech}[b\,x]\,\left(\text{Cosh}[2\,a+b\,x]-2\,\text{Sinh}[2\,a+b\,x]\right)}{\sqrt{3}}\right]\right)\text{Cosh}[a+b\,x]+\right.$$
$$\left.\left(-3+8\,\sqrt{3}\ \text{ArcTan}\left[\frac{\text{Sech}[b\,x]\,\left(\text{Cosh}[2\,a+b\,x]-2\,\text{Sinh}[2\,a+b\,x]\right)}{\sqrt{3}}\right]\right)\text{Sinh}[a+b\,x]\right)$$

Problem 1055: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 22 leaves, 1 step):

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

Result (type 3, 65 leaves):

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

Problem 1056: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 14 leaves, 2 steps):

$$\frac{1}{b\ (1+\text{Tanh}[a+b x])}$$

Result (type 3, 65 leaves):

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

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):

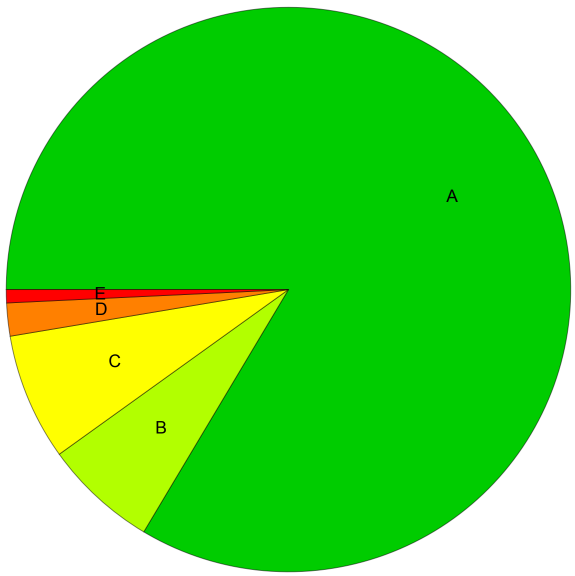
$$\frac{\text{ArcTan}\left[1-\sqrt{2}\ \text{Tanh}[a+b x]\right]}{\sqrt{2}\ b}-\frac{\text{ArcTan}\left[1+\sqrt{2}\ \text{Tanh}[a+b x]\right]}{\sqrt{2}\ b}$$

Result (type 7, 194 leaves):

$$\frac{1}{2 b}\left(\text{Cosh}[2 a]\ \text{RootSum}\left[1+6\, e^{4 a}\, \#1^2+e^{8 a}\, \#1^4\ \&,\ \frac{2 b x-\text{Log}\left[e^{2 b x}-\#1\right]+2 b x\, \#1^2-\text{Log}\left[e^{2 b x}-\#1\right]\, \#1^2}{3\, \#1+e^{4 a}\, \#1^3}\ \&\right]+\right.$$
$$\left.\text{RootSum}\left[1+6\, e^{4 a}\, \#1^2+e^{8 a}\, \#1^4\ \&,\ \frac{-2 b x+\text{Log}\left[e^{2 b x}-\#1\right]+2 b x\, \#1^2-\text{Log}\left[e^{2 b x}-\#1\right]\, \#1^2}{3\, \#1+e^{4 a}\, \#1^3}\ \&\right]\ \text{Sinh}[2 a]\right)$$

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