Rubi 3 Test Suite Results

Indefinite Integration Problems Involving Inverse Hyperbolic Functions

Unable to integrate:

$$\left\{\frac{x}{\sqrt{-1+x}\ \sqrt{1+x}\ \text{ArcCosh}[x]},\ x,\ -3,\ 3\right\}$$

CoshIntegral[ArcCosh[x]]

$$2\,\text{Subst}\left[\text{Int}\left[\frac{1}{\sqrt{2+x^2}\ \text{ArcCosh}\left[1+x^2\right]},\ x\right],\ x,\ \sqrt{-1+x}\ \right]+2\,\text{Subst}\left[\text{Int}\left[\frac{x^2}{\sqrt{2+x^2}\ \text{ArcCosh}\left[1+x^2\right]},\ x\right],\ x,\ \sqrt{-1+x}\ \right]$$

Unable to integrate:

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

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

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

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

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

$$-\text{Subst}\left[\text{Int}\left[\frac{x^2\,\text{Sech}[x]^2}{a-\text{Tanh}[x]},\ x\right],\ x,\ \text{ArcTanh}[a+b\,x]\right]$$

Unable to integrate:

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

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

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

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

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

$$-\text{Subst}\left[\text{Int}\left[\frac{x^2\,\text{Csch}[x]^2}{-a+\text{Coth}[x]},x\right],x,\text{ArcCoth}[a+b\,x]\right]$$