Rubi 3 Test Suite Results

Indefinite Integration Problems Involving Inverse Trig Functions

Unable to integrate:

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

$$\frac{1}{8}\,\mathrm{i}\,(\pi-2\,\text{ArcSin}[a+b\,x])^2-2\,\mathrm{i}\,\text{ArcTanh}\left[\frac{(1+a)\left(-1+a+b\,x-\mathrm{i}\sqrt{1-(a+b\,x)^2}\right)}{\sqrt{-1+a^2}\left(1+a+b\,x-\mathrm{i}\sqrt{1-(a+b\,x)^2}\right)}\right]\left(\text{Log}[2]-2\,\text{Log}\left[\mathrm{i}\sqrt{1-a}+\sqrt{1+a}\right]\right)+$$
$$\frac{1}{2}\,\pi\,\text{Log}[b\,x]-\left(\text{ArcCos}[a+b\,x]-\mathrm{i}\left(\text{Log}[2]-2\,\text{Log}\left[\mathrm{i}\sqrt{1-a}+\sqrt{1+a}\right]\right)\right)\text{Log}\left[1+\left(-a+\sqrt{-1+a^2}\right)\left(a+b\,x+\mathrm{i}\sqrt{1-(a+b\,x)^2}\right)\right]-$$
$$\left(\text{ArcCos}[a+b\,x]+\mathrm{i}\left(\text{Log}[2]-2\,\text{Log}\left[\mathrm{i}\sqrt{1-a}+\sqrt{1+a}\right]\right)\right)\text{Log}\left[1-\left(a+\sqrt{-1+a^2}\right)\left(a+b\,x+\mathrm{i}\sqrt{1-(a+b\,x)^2}\right)\right]+$$
$$\mathrm{i}\,\text{PolyLog}\left[2,\ \left(a-\sqrt{-1+a^2}\right)\left(a+b\,x+\mathrm{i}\sqrt{1-(a+b\,x)^2}\right)\right]+\mathrm{i}\,\text{PolyLog}\left[2,\ \left(a+\sqrt{-1+a^2}\right)\left(a+b\,x+\mathrm{i}\sqrt{1-(a+b\,x)^2}\right)\right]$$

$$\text{Subst}\left[\text{Int}\left[\frac{x\,\text{Cos}[x]}{-a+\text{Sin}[x]},\ x\right],\ x,\ \text{ArcSin}[a+b\,x]\right]$$

Unable to integrate:

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

$$-\frac{1}{8}\,\mathrm{i}\,(\pi-2\,\text{ArcSin}[a+b\,x])^2+2\,\mathrm{i}\,\text{ArcTanh}\left[\frac{(1+a)\left(-1+a+b\,x-\mathrm{i}\sqrt{1-(a+b\,x)^2}\right)}{\sqrt{-1+a^2}\left(1+a+b\,x-\mathrm{i}\sqrt{1-(a+b\,x)^2}\right)}\right]\left(\text{Log}[2]-2\,\text{Log}\left[\mathrm{i}\sqrt{1-a}+\sqrt{1+a}\right]\right)+$$
$$\left(\text{ArcCos}[a+b\,x]-\mathrm{i}\left(\text{Log}[2]-2\,\text{Log}\left[\mathrm{i}\sqrt{1-a}+\sqrt{1+a}\right]\right)\right)\text{Log}\left[1+\left(-a+\sqrt{-1+a^2}\right)\left(a+b\,x+\mathrm{i}\sqrt{1-(a+b\,x)^2}\right)\right]+$$
$$\left(\text{ArcCos}[a+b\,x]+\mathrm{i}\left(\text{Log}[2]-2\,\text{Log}\left[\mathrm{i}\sqrt{1-a}+\sqrt{1+a}\right]\right)\right)\text{Log}\left[1-\left(a+\sqrt{-1+a^2}\right)\left(a+b\,x+\mathrm{i}\sqrt{1-(a+b\,x)^2}\right)\right]-$$
$$\mathrm{i}\,\text{PolyLog}\left[2,\ \left(a-\sqrt{-1+a^2}\right)\left(a+b\,x+\mathrm{i}\sqrt{1-(a+b\,x)^2}\right)\right]-\mathrm{i}\,\text{PolyLog}\left[2,\ \left(a+\sqrt{-1+a^2}\right)\left(a+b\,x+\mathrm{i}\sqrt{1-(a+b\,x)^2}\right)\right]$$

$$-\text{Subst}\left[\text{Int}\left[\frac{x\,\text{Sin}[x]}{-a+\text{Cos}[x]},\ x\right],\ x,\ \text{ArcCos}[a+b\,x]\right]$$

Unable to integrate:

$$\left\{\frac{\text{ArcTan}\left[\frac{\sqrt{1-a\,x}}{\sqrt{1+a\,x}}\right]}{1-a^2\,x^2},\ x,\ -5,\ 5\right\}$$

$$-\frac{\mathrm{i}\,\text{PolyLog}\left[2,\ -\frac{\mathrm{i}\sqrt{1-a\,x}}{\sqrt{1+a\,x}}\right]}{2\,a}+\frac{\mathrm{i}\,\text{PolyLog}\left[2,\ \frac{\mathrm{i}\sqrt{1-a\,x}}{\sqrt{1+a\,x}}\right]}{2\,a}$$

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

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

Valid but unnecessarily complicated antiderivative:

$$\left\{\text{ArcCot}\left[a+b\,f^{c+d\,x}\right],x,-15,15\right\}$$

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

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

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