

Derivatives of Inverse Trig Functions

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$$\frac{d}{dx} (\arcsin u) = \frac{u'}{\sqrt{1-u^2}}$$

$$\frac{d}{dx} (\arccos u) = \frac{-u'}{\sqrt{1-u^2}}$$

$$\frac{d}{dx} (\arctan u) = \frac{u'}{1+u^2}$$

$$\frac{d}{dx} (\text{arccot } u) = \frac{-u'}{1+u^2}$$

$$\frac{d}{dx} (\text{arcsec } u) = \frac{u'}{|u|\sqrt{u^2-1}}$$

$$\frac{d}{dx} (\text{arccsc } u) = \frac{-u'}{|u|\sqrt{u^2-1}}$$

Simplify.

1. $\frac{d}{dx} (\arcsin x^2) =$

2. $\frac{d}{dx} (\cot^{-1} \sqrt{x}) =$

**3. If $y = \text{Arctan}(\cos x)$, then $\frac{dy}{dx} =$

**4. What is the slope of the line tangent to the curve $y = \arctan(4x)$ at the point at which $x = 1/4$?