

4.6-Inverse Trig Functions and their Derivatives

sin, cos tan and one-to-one functions:

$y = \sin^{-1} x$ (or $\arcsin x$) if and only if

$y = \cos^{-1} x$ if and only if

$y = \tan^{-1} x$ if and only if

Derivative of \sin^{-1} :

$$\frac{d}{dx} \cos^{-1} x =$$

$$\frac{d}{dx} \tan^{-1} x =$$

$$\frac{d}{dx} \sec^{-1} x =$$

Examples:

Find the exact value of $\cos^{-1} \left(-\frac{1}{2} \right)$

Compute $\cot(\sin^{-1}(\frac{4}{5}))$

Compute $\lim_{x \rightarrow 0} \tan^{-1}\left(\frac{1-x}{2x^2}\right)$

Find the derivative of $f(x) = \arcsin\left(\frac{1}{x}\right)$