Differentiating inverse trigonometric functions

Examples

1. Show that if $y = \arcsin x$, then $\frac{dy}{dx} = \frac{1}{\sqrt{1-x^2}}$

2. Given that $y = \arcsin x^2$ find $\frac{dy}{dx}$

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

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

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

Test Your Understanding

1. Given that $y = \text{arcsec } 2x$, show that $y = \frac{1}{x\sqrt{4x^2-1}}$

2. Given that $y = \arctan\left(\frac{1-x}{1+x}\right)$, find $\frac{dy}{dx}$