

- Evaluate inverse trig expressions
- solve equations involving inverse trig
- take derivatives of inverse trig functions
- write a tangent line for inverse trig funct.

$$(03.) y = 2 \arcsin x \quad \left( \frac{1}{2}, \frac{\pi}{3} \right)$$

$$y' = 2 \cdot \frac{1}{\sqrt{1-x^2}}$$

$$y' \left( \frac{1}{2} \right) = \frac{2}{\sqrt{1-\frac{1}{4}}} = \frac{2}{\sqrt{\frac{3}{4}}} = \frac{2}{\frac{\sqrt{3}}{2}} = 2 \cdot \frac{2}{\sqrt{3}} = \frac{4}{\sqrt{3}}$$

$$y - \frac{\pi}{3} = \frac{4}{\sqrt{3}} \left( x - \frac{1}{2} \right)$$

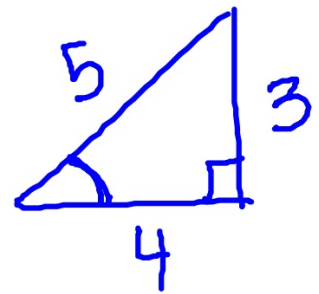
$$44. \quad f'(t) = \frac{2t}{\sqrt{1-t^4}}$$

$$46. \quad f'(x) = \frac{1}{|x|\sqrt{4x^2-1}}$$

$$48. \quad f'(x) = \frac{1}{2\sqrt{x}(1+x)}$$

17a.)  $\underline{\underline{\sin(\arctan \frac{3}{4})}}$

$$\frac{3}{5}$$



Evaluate.

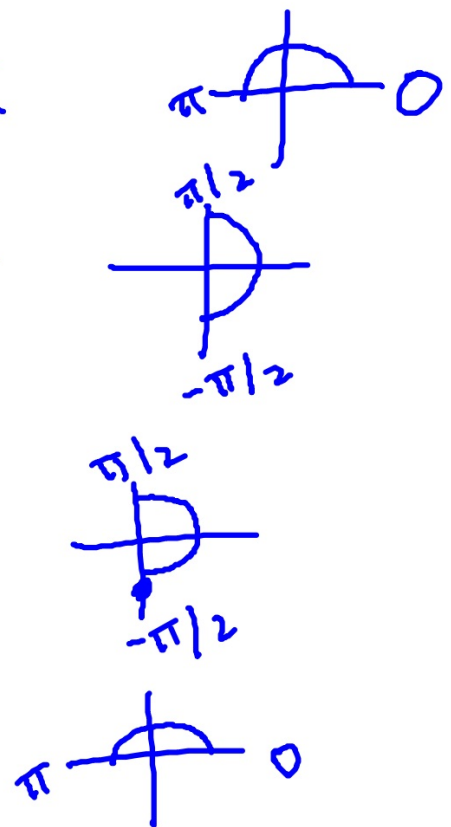
$$1. \arccos\left(-\frac{1}{2}\right) = \frac{2\pi}{3}$$

$$2. \arctan(-\sqrt{3}) = -\frac{\pi}{3}$$

$$3. \arcsin\left(\frac{\sqrt{3}}{2}\right) = \frac{\pi}{3}$$

$$4. \operatorname{arccsc}(-1) = -\frac{\pi}{2}$$

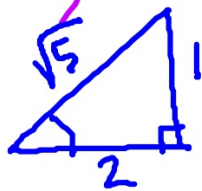
$$5. \operatorname{arcsec}(-\sqrt{2}) = \frac{3\pi}{4}$$



Evaluate.

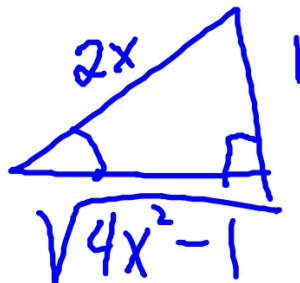
6.  $\sec(\arctan \frac{1}{2})$

$$\frac{\sqrt{5}}{2}$$



7.  $\cos(\operatorname{arccsc} 2x)$

$$\frac{\sqrt{4x^2 - 1}}{2x}$$



Solve.

8.

$$\sin(\operatorname{arcsin}(x-4)) = \frac{\pi}{6}$$

$$x-4 = \frac{1}{2}$$

$$x = 4.5$$

Find the derivative.

p. 376

$$\textcircled{9} y = \arccos(x^3)$$

$$\textcircled{11} y = \operatorname{arcsec}(4x)$$

$$\textcircled{10} y = \arctan \frac{x}{7}$$

$$\textcircled{12} y = 2 \arcsin \sqrt{x}$$

Find the derivative.

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$$\textcircled{9} y = \arccos(x^3)$$

$$y' = \frac{-3x^2}{\sqrt{1-x^6}}$$

$$\textcircled{11} y = \operatorname{arcsec}(4x)$$

$$y' = \frac{4}{|4x|\sqrt{16x^2-1}} = \frac{1}{|x|\sqrt{16x^2-1}}$$

$$\textcircled{10} y = \arctan \frac{x}{7}$$

$$y' = \frac{\frac{1}{7}}{1 + \frac{x^2}{49}} = \frac{7}{49+x^2}$$

$$\textcircled{12} y = 2 \arcsin \sqrt{x}$$

$$y' = \frac{2 \cdot \left(\frac{1}{2\sqrt{x}}\right)}{\sqrt{1-x}} = \frac{1}{\sqrt{x}\sqrt{1-x}}$$

Write the equation of a tangent line to the given point.

$$13.) y = \operatorname{arccot}(2x) \quad \left(\frac{1}{2}, \frac{\pi}{4}\right)$$

$$y' = \frac{-2}{1+4x^2}$$

$$\begin{aligned} y'\left(\frac{1}{2}\right) &= \frac{-2}{1+1} \\ &= -1 \end{aligned}$$

$$y - \frac{\pi}{4} = -1\left(x - \frac{1}{2}\right)$$