

### 3.4 Differentiating Inverse Trig Functions

Calculus

Name: \_\_\_\_\_

**CA #1**

**Find the derivative of each expression.**

1. $\frac{d}{dx} \tan^{-1}(\sqrt{x})$	2. $\frac{d}{dx} \tan(e^x)$	3. $\frac{d}{dx} \sec^{-1}(3 \ln x)$
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4. $\frac{d}{dx} \sin^{-1}(2x)$	5. $\frac{d}{dx} \cos^{-1}(2x^5)$
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**Find the tangent line equation of the curve at the given point.**

6. $y = \arcsin(2x)$ at the point where $x = \frac{1}{4}$	7. $y = \arccos(3x)$ at the point where $x = -\frac{\sqrt{3}}{6}$
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8. $y = \arctan(\sqrt{x})$ at the point where $x = 3$
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1. $\frac{1}{2\sqrt{x(x+1)}}$	2. $e^x \sec^2 e^x$	3. $\frac{x  \ln x  \sqrt{9(\ln x)^2 - 1}}{1}$	4. $\frac{\sqrt{1-4x^2}}{2}$	5. $-\frac{\sqrt{1-4x^{10}}}{10x^4}$
6. $y - \frac{6}{\pi} = \frac{6}{4} \left( x - \frac{1}{4} \right)$	7. $y - \frac{6}{5\pi} = -\frac{6}{\sqrt{3}} \left( x + \frac{6}{\sqrt{3}} \right)$	8. $y - \frac{3}{\pi} = \frac{3}{8\sqrt{3}} (x - 3)$		