

### 3.4 Differentiating Inverse Trig Functions

Calculus

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

**CA #2**

**Find the derivative of each expression.**

1.  $\frac{d}{dx} \sin^{-1}(8x)$

2.  $\frac{d}{dx} \sec^{-1}(x^2)$

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

4.  $\frac{d}{dx} \sin^{-1}(-x^2)$

5.  $\frac{d}{dx} \tan^{-1}(6x^3)$

**Find the tangent line equation of the curve at the given point.**

6.  $y = \arcsin(7x)$  at the point where  $x = \frac{\sqrt{2}}{14}$

7.  $y = \arccos(3x)$  at the point where  $x = -\frac{1}{6}$

8.  $y = \arctan(5x)$  at the point where  $x = -\frac{1}{5}$

1. $\frac{\sqrt{1-64x^2}}{8}$	2. $\frac{2x\sqrt{x^2-1}}{2}$	3. $-\frac{4x^2+1}{2}$	4. $\frac{\sqrt{1-x^2}}{2x}$	5. $\frac{36x^2}{18x^2+1}$	6. $y = \frac{7}{x} - \frac{7}{x^2}$	7. $y = \frac{3}{2x} - \frac{3}{x^2}$	8. $y = \frac{7}{x} + \frac{7}{x^2}$
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