3.4 Differentiating Inverse Trig Functions

Calculus   Name: _____

Find the derivative of each expression.

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

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

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

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

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

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

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

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

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