

Calculus BC : More Practice 3.6-3.8
Chain Rule/ Implicit Differentiation/Inverses

Name: _____

For #'s 1-4, Find $\frac{dy}{dx}$

1) $xy + 2x + 3y = 1$

2) $y = \tan^2(3 - x^2)$

3) $\sqrt{xy} = x + y$

4) $y = \sin(x^2)\sqrt{2x+1}$

5) Find $\frac{d^2y}{dx^2}$ if $y^3 + y = 2 \cos x$

6. Find $\frac{d^2y}{dx^2}$ if $4x^3y = \sin^2(x) + \cos^2(x)$

7) Find the equations for the a) tangent and b) normal lines to the curve $y = \sqrt{x^2 - 2x}$ at the point $x = 3$.

Find the derivative of y with respect to the appropriate variable.

8. $y = \sec^{-1}(2v + 1)$

9. $y = \frac{1}{\sin^{-1}(2x)}$

10. $y = x\sqrt{1-x^2} + \cos^{-1} x$

11. $y = \pi \csc^{-1}\left(\frac{x}{2}\right)$

12. Given $f(x) = -2x^3 + 2x - 1$, and $f^{-1}(-13) = 2$, find $(f^{-1}(-13))'$