Name: _____ Date: _____

AP Calculus AB: Implicit Differentiation Ms. Loughran

Do Now:

1. Find the equation of the tangent line to $x^2 + y^2 = 25$ at $(3, -4)$.

Implicit Differentiation:

Implicit differentiation allows you to find the slope of a tangent line when the equation cannot be solved for *y*.

1. Find the slope of the tangent line to the graph of $x^2 + 3xy - 2y^2 = -4$ at the point $(1, -1)$.

2. Find the slope(s) of the tangent line(s) to the graph of $4x + xy - 3y^2 = 6$ at $x = 3$.

Homework

For 1-2, find $\frac{dy}{dx}$.

1. $x^2 + y^2 = 100$

2. $x^2 y + 3xy^3 - x = 3$

3. Find the slope of the tangent line to the curve $x^2 + y^2 = 1$ at $\left(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$ and at $\left(\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}\right)$.