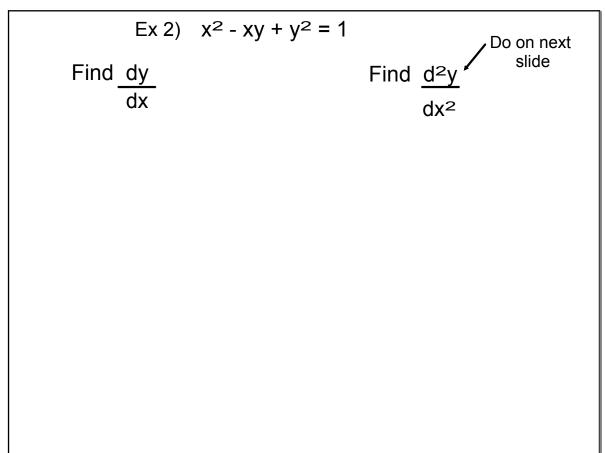
3.7 Implicit Differentiation Day 2

- 1. Differentiate both sides with respect to x.
- 2. Get all terms with dy/dx to one side of the equation.
- 3. Factor out dy/dx.
- 4. Solve for dy/dx

Ex 1) Find the slope of the tangent

to $y^2 - x^2 = 1$ at $(1, \sqrt{2})$



$$\frac{dy}{dx} = y' =$$

Now find
$$\frac{d^2y}{dx^2} = y''$$

Ex 3) $y^2 + 2x - 4y - 1 = 0$ Find the tangent and normal line at (-2, 1).

Ex 4) $x \sin 2y = y \cos 2x$

Find the tangent and normal line at $(\pi/4, \pi/2)$

Ex 5) $x^2 \cos^2 y - \sin y = 0$

Find the tangent and normal line at $(0, \pi)$