Name_____

Implicit Differentiation

Think of y as a function of x so that applying the chain rule(outside-inside) would give us these results:

a) $\frac{d}{dx}(y^2) = 2y\frac{dy}{dx}$

outside - inside

b) $\frac{d}{dx}(\sin y) = (\cos y)\frac{dy}{dx}$

outside - inside

1) Find the equation of the line tangent to the circle $x^2 + y^2 = 9$ at the point $(2, -\sqrt{5})$

Find y' (Remember $y' = \frac{dy}{dx}$)

2) $\sqrt{x} - \sqrt{y} = 5$

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

4) $x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}$ where a is a constant

5) $\sin^2 y = x^2 + 2$

6) $\sin(xy) = 2x + 5$

7) For #1, find $\frac{d^2y}{dx^2}$