

AP Calculus Implicit Differentiation Review

Find  $\frac{dy}{dx}$  for each.

1.  $x^3 + y^3 - 9xy = 8$

2.  $2y = x^2 + \sin y$

3. Find  $\frac{d^2y}{dx^2}$ :  $2x^3 - 3y^2 = 8$

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