

Set 012 Implicit Derivatives

Find $\frac{dy}{dx}$

[1] $x^2 - 5xy + 2y^2 = 1$

[2] $x^2 + y^2 = \frac{x+y}{x-y}$

[3] $x \sin y + y \cos x = y^2$

[4] $e^y - xy = xy^2$

[5] $\sin(x+y) - x^2y^2 = x$

[6] $x^3 + x^2y - xy^3 + y^4 = 1$

[7] Consider the relation $x^2 - xy + y^2 = 3$

[a] Evaluate $B^2 - 4AC$ to predict which conic section is represented by the equation.

[b] Find $\frac{dy}{dx}$.

[c] Find all points for which the tangent line is horizontal.

[d] Find all points for which the tangent line is vertical.

[e] Find all points for which the tangent line has a slope of 1.

[f] Find all points for which the tangent line has a slope of -1.

[g] Use all the preceding information to sketch
 $x^2 - xy + y^2 = 3$

