

NMSI Calculus

Computing Derivatives Part 5

Implicit Differentiation

Examples

1. $x^2 + y^2 = 25$

2. Write an equation of the line tangent to $3y^2 - 2x^2 = 6 - 2xy$ at the point $(3, 2)$.

3.

5. Consider the curve given by $xy^2 - x^3y = 6$.

(a) Show that $\frac{dy}{dx} = \frac{3x^2y - y^2}{2xy - x^3}$.

(b) Find all points on the curve whose x -coordinate is 1, and write an equation for the tangent line at each of these points.

(c) Find the x -coordinate of each point on the curve where the tangent line is vertical.

