

Student Name: _____

Score: _____

Derivatives of Implicit Functions

Find the derivatives of implicit functions:

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

$$x^3 + y^3 = 4$$

$$y^3 - x^2 =$$

$$+ y - 1$$

$$x^2 y^3 + x^3$$

$$\sqrt{2 + y^2}$$

$$y^4 = 4x^3 -$$

$$- e^{5y}$$

$$x = \cos(xy)$$

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

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Answer key

Derivatives of Implicit Functions

$$\frac{dy}{dx} = \frac{-x}{y}$$

$$\frac{dy}{dx} = \frac{-x^2}{y^2}$$

$$\frac{dy}{dx} = \frac{2x}{3y^2}$$

$$\frac{dy}{dx} = -\frac{2xy}{3x^2}$$

$$\frac{dy}{dx} = \frac{12x^2 + 4y^3 + 5e^{5y}}{4y^3 + 5e^{5y}}$$

$$\frac{dy}{dx} = -\left(\frac{1}{x}\right) (y + \csc xy)$$

$$\frac{dy}{dx} = \frac{2}{\sec(2x+5)-5}$$

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