
1. (1 pt) For the equation given below, evaluate $\frac{dy}{dx}$ at the point $(1, -1)$:

$$2y^2 - 5x^2 + 3 = 0.$$

$$\frac{dy}{dx} \text{ at } (1, -1) = \underline{\hspace{2cm}}$$

2. (1 pt) Use implicit differentiation to find the equation of the tangent line to the curve $xy^3 + xy = 2$ at the point $(1, 1)$.

The equation of this tangent line can be written in the form $y = mx + b$ where

$$m = \underline{\hspace{2cm}}$$

$$b = \underline{\hspace{2cm}}$$

3. (1 pt) Use implicit differentiation to find the slope of the tangent line to the curve

$$-3x^2 + 4xy + 2y^3 = -69$$

at the point $(1, -3)$.

$$m = \underline{\hspace{2cm}}$$

4. (1 pt) If $3x^2 + 3x + xy = 3$ and $y(3) = -11$, find $y'(3)$ by implicit differentiation.

$$\underline{\hspace{2cm}}$$