Practice worksheet | Rates of change and differential equations

Implicit differentiation

Name: _____ Date: _____

6 questions | 12 marks

1. Find $\frac{dy}{dx}$ for $x^2 + 3y^2 = 12$. [2 marks]

2. Find $\frac{dy}{dx}$ for $x^3 + y^3 = 9$. [2 marks]

3. Find the tangent to $x^2 + y^2 = 10$ at $(1, 3)$. [2 marks]

4. Differentiate $x^2 + xy + y^2 = 7$ implicitly. [2 marks]

5. For $x^2 + y^2 = 9$, identify points where the tangent is vertical. [2 marks]

6. Find the gradient of $\sin y = x$ at $(0, 0)$. [2 marks]