

WS On Implicit Differentiation

Name _____

Find the implicit derivative:

1. $x^2 + y^2 = \sqrt{7}$

2. $x^2 + xy - y^3 = xy^2$

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

4. $\sqrt{x} + \sqrt{y} = 25$

5. $\cos^2 y + \sin^2 y = y + 2$

6. $ax^2 - by = c^2$

7. $\sqrt{x} = 5\sqrt{y}$

8. $\sin(xy) = 2x + 5$

Write the equation of the tangent line to the following curves at the indicated point.

1. $xy^2 = 1$ at $(1, -1)$

2. $\frac{x^2}{xy - 4} = y^2$ at $(4, 2)$

3. $y = \frac{x}{y + a}$ at $(0, 0)$

Find the second derivative y'' or $\frac{d^2y}{dx^2}$

1. $x^{\frac{2}{3}} + y^{\frac{2}{3}} = 1$

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