

Find  $\frac{dy}{dx}$  by implicit differentiation

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

2)  $x^3 - y^3 = 7xy$

3)  $\frac{1}{y} + \frac{1}{x^2} = 4$

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

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

Use implicit differentiation to find the slope of the tangent line to the given curve, at the specified point.

6)  $x^2y - 5xy^2 + 6 = 0$  @  $(3, 1)$

7)  $x^{2/3} - y^{2/3} - y = 1$  @  $(1, -1)$

8)  $\sin xy = y$  @  $(\frac{\pi}{2}, 1)$

Write the equation of the line tangent to the given curve at the specified point.

9)  $x^2 + y^2 = 1$   $(3, 5)$

10)  $y^2 - 3xy + 2x^2 = 4$   $(3, 2)$