

## Supplemental Exercises for Section 3.6

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

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

2.  $x^2y + y^3 = 1$

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

Find an equation for the line tangent to the graph of the given equation at the given point.

4.  $xy + y^2 = 2$ ,  $(1, 1)$

5.  $xy^2 - 2y^3 = -4$ ,  $(-2, 1)$

6.  $x^2y - 3y^3 = -1$ ,  $(2, -1)$

7.  $y^3 + 2x^2y - y = 10$ ,  $(-1, 2)$

8.  $xy^3 + xy + 4 = 0$ ,  $(2, -1)$

Selected Answers

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

3.  $-\frac{3x^2 + 4y^2}{8xy - 9y^2}$

5.  $10y - x = 12$

7.  $13y - 8x - 34 = 0$