Section 7.4 Extra Practice

1. For a line with each slope, state the slope of a line parallel to it. What is the slope of a line perpendicular to it?

a)
$$m = 3$$

b)
$$m = -4$$

c)
$$m = \frac{1}{3}$$

d)
$$m = 0.4$$

2. State the slopes of lines that are parallel to and lines that are perpendicular to each linear equation.

a)
$$y = 2x - 5$$

b)
$$3x - 4y - 3 = 0$$

c)
$$y = -\frac{1}{4}x + 3$$

d)
$$2x + 5y - 1 = 0$$

3. For each pair of slopes, what is the value of *k* if the lines are parallel? What is the value of *k* if the lines are perpendicular?

a)
$$\frac{k}{3}$$
, 4

c) 2,
$$\frac{5}{k}$$

d)
$$\frac{3}{5}, \frac{k}{15}$$

4. Identify whether the lines in each pair are parallel, perpendicular, or neither. Explain how you know.

a)
$$2x + 4y = 5$$
 and $-2x - 4y = 1$

b)
$$3x + y - 4 = 0$$
 and $0 = 3x - y - 2$

c)
$$y-7=4(x-3)$$
 and $y+3=4(x-1)$

d)
$$2x + 3y - 6 = 0$$
 and $3x - 2y - 8 = 0$

5. Determine an equation of a line in the form y = mx + b that is parallel to each line and passes through the given point.

a)
$$y = 4x - 3$$
, $(2, -3)$

b)
$$2x + 3y + 9 = 0$$
, (-3, 4)

c)
$$x = 0, (4, 5)$$

6. Write an equation of a line in the form y = mx + b that is perpendicular to each line and passes through the given point.

a)
$$y = 3x + 1$$
, (1, 4)

b)
$$4x + 2y - 3 = 0$$
, $(0, 5)$

c)
$$y = 0, (-1, 3)$$

- 7. Determine an equation in general form, Ax + By + C = 0, representing each line.
 - a) parallel to the x-axis and through (-3, 5)
 - **b)** perpendicular to the *x*-axis and through (1, 7)
 - c) parallel to 3x 4y + 4 = 0 with the same x-intercept as $y = \frac{1}{2}x - 4$
 - **d)** perpendicular to $y = -\frac{1}{3}x + \frac{2}{3}$ with the same y-intercept as 2x y 10 = 0
- **8.** The four vertices of a quadrilateral are A(-6, 1), B(-1, 3), C(3, -7), and D(-2, -9).
 - **a)** Is the quadrilateral a rectangle, a parallelogram, or a trapezoid? Justify your answer.
 - **b)** Determine the equations of the four sides of the quadrilateral. Write the equations in the form y = mx + b.