5-6 **Practice**

Form G

Write an equation of the line that passes through the given point and is parallel to the graph of the given equation.

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

2. $(-4, 1); y = 2x + 14$

3. $(-8, 6); y = -\dfrac{1}{4}x + 5$

4. $(6, 2); y = \dfrac{2}{3}x + 19$

5. $(10, -5); y = \dfrac{3}{2}x - 7$

6. $(-3, 4); y = 2$

Determine whether the graphs of the given equations are *parallel*, *perpendicular*, or *neither*. Explain.

7. $y = -4x + 5$

$4x + y = -13$

8. $y = \dfrac{7}{9}x - 7$

$y = -\dfrac{7}{9}x + 3$

9. $y = \dfrac{7}{8}$

$x = -4$

10. $y = -6x - 8$

$-x + 6y = 12$

11. $3x + 6y = 12$

$y - 4 = -\dfrac{1}{2}(x + 2)$

12. $y = 4x + 12$

$x + 4y = 32$

Determine whether each statement is *always*, *sometimes*, or *never* true. Explain.

13. Two lines with different slopes are perpendicular.

14. The slopes of vertical lines and horizontal lines are negative reciprocals.

15. A vertical line is perpendicular to the *x*-axis.

5-6

Practice (continued)   *Form G*

Write an equation of the line that passes through the given point and is
perpendicular to the graph of the given equation.

16. $(2, -1); y = -2x + 1$

17. $(5, 7); y = \dfrac{1}{3}x + 2$

18. $(3, -6); x + y = -4$

19. $(-9, 3); 3x + y = 5$

20. $(-8, 3); y + 4 = -\dfrac{2}{3}(x - 2)$

21. $(0, -5); x - 6y = -2$

22. Open-Ended Write the equations of three lines whose graphs are parallel to one
another.

23. Open-Ended Write the equations of two lines whose graphs are
perpendicular to one another.

24. What is the slope of a line that is parallel to the *x*-axis?

25. What is the slope of a line that is perpendicular to the *x*-axis?

26. What is the slope of a line that is parallel to the *y*-axis?

27. What is the slope of a line that is perpendicular to the *y*-axis?

28. On a map, Sandusky St. passes through coordinates $(2, -1)$ and $(4, 8)$.
Pennsylvania Ave. intersects Sandusky St. and passes through coordinates
$(1, 3)$ and $(6, 2)$. Are these streets perpendicular? Explain.

29. Writing Explain how you can determine if the graphs of two lines are parallel
or perpendicular without graphing the lines.