NAME _____ DATE _____

Module 8 Writing Linear Equations of Two Variables
Lesson 3 Writing Equations of Lines, Given a Point and the Slope or Two Points

independent practice

Write the equation in slope-intercept form of the line that passes through the given point with the given slope.

1. Passes through: (3, –1) Slope: $-\frac{1}{2}$

2. Passes through: (6, –3) Slope: $-\frac{1}{3}$

3. Passes through: (–2, 1) Slope: $\frac{8}{9}$

4. Passes through: (3, –7) Slope: $\frac{2}{7}$

5. Passes through: (–3, 6) Slope: $-\frac{2}{3}$

6. Passes through: (–5, –2) Slope: $\frac{2}{5}$

7. Passes through: (2, –8) Slope: 4

8. Passes through: (–2, –2) Slope: undefined

Write the equation in slope-intercept form of the line that passes through the given points.

9. (2, –1) and (2, 3)

10. (7, –3) and (–1, 5)

11. (9, 3) and (3, 2)

12. (–5, 8) and (–2, –1)

Write the slope-intercept form of the equation of the line described.

13. Parallel to the line $y = \frac{3}{4}x + 7$ and passes through the point (1, 8).

14. Perpendicular to the line $y = -\frac{1}{5}x + 2$ and passes through the point (–4, –1).

15. Perpendicular to line containing the points (4, 2) and (–1, 9) and passes through the point (0, –1).

16. Parallel to line containing the points (–7, 2) and (–5, 1) and passes through the point (2, –6).

Journal

1. Explain how to find the slope-intercept form of the equation of the line passing through (3, 5) and (5, –3).
2. Suppose that a certain type of bird chirps five times per minute when the temperature is 0°C. Suppose that with each increase of one degree in temperature the bird chirps four more times per minute. Write a linear equation in slope-intercept form that can be used to find the number of chirps at a given temperature.
3. 212°F is equal to 100°C and 32°F is equal to 0°C. Use these values to write a linear equation for converting temperatures from Fahrenheit to Celsius. Justify your answer.
4. Explain how to determine the equation of a line ℓ in slope-intercept form given:
   - a point on the line ℓ
   - the equation of a line that is perpendicular to line ℓ.
5. Explain how to find the equation of a horizontal line that passes through point (1, 4).

Cumulative Review

Solve each equation using the given information.

1. $2y = |x|$ when $x = 2$

2. $|y| + 3 = x$ when $y = -3$

3. $|-y| - 3 = 4 + x$ when $y = -1$

4. $-|-x| = y - 7$ when $x = 5$

5. $|3 - y| + 4 = x$ when $y = 6$

6. $|x + 4| = y$ when $x = 2$

7. $|x - 5| - 3 = y$ when $x = -1$

8. $|y - 5| + |4 - y| = x$ when $y = 10$

9. $|x - 4| - |7 + x - 3| = y$ when $x = 4$

10. $|y - x| + x|y| = z$ when $x = -2$, $y = 3$