NAME _____ DATE _____ PERIOD _____

2-4 Skills Practice

Writing Linear Equations

Write an equation in slope-intercept form for the line described.

1. slope 3, y-intercept at –4

$y = 3x - 4$

2. perpendicular to $y = \frac{1}{2} - 1$, x-intercept at 4

$y = -2x + 8$

3. parallel to $y = \frac{2}{3}x + 6$, passes through (6, 7)

$y = \frac{2}{3}x + 3$

4. parallel to $y = -\frac{1}{4}x - 2$, x-intercept at 4

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

5. perpendicular to $y = -4x + 1$, passes through (–8, –1)

$y = \frac{1}{4}x + 1$

6. slope $\frac{3}{5}$, x-intercept at –10

$y = \frac{3}{5}x + 6$

7. parallel to $y = 9x + 3$, y-intercept at –2

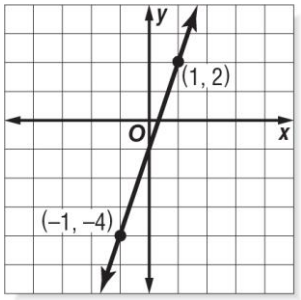
$y = 9x - 2$

8. slope $\frac{5}{6}$, passes through (12, 4)

$y = \frac{5}{6}x - 6$

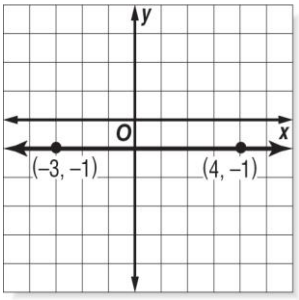
Write an equation in slope-intercept form for each graph.

9.



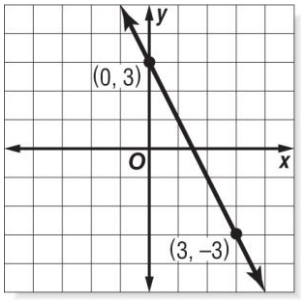
$y = 3x - 1$

10.



$y = -1$

11.



$y = -2x + 3$

Write an equation in slope-intercept form for the line that satisfies each set of conditions.

12. slope 3, passes through (1, –3)

$y = 3x - 6$

13. slope –1, passes through (0, 0)

$y = -x$

14. slope –2, passes through (0, –5)

$y = -2x - 5$

15. slope 3, passes through (2, 0)

$y = 3x - 6$

16. passes through (–1, –2) and (–3, 1)

$y = -\frac{3}{2}x - \frac{7}{2}$

17. passes through (–2, –4) and (1, 8)

$y = 4x + 4$

18. passes through (2, 0) and (0, –6)

$y = 3x - 6$

19. passes through (2.5, 0) and (0, 5)

$y = -2x + 5$

20. passes through (3, –1), perpendicular to the graph of $y = -\frac{1}{3}x - 4$. $y = 3x - 10$

NAME _____ DATE _____ PERIOD _____

2-4 Word Problem Practice

Writing Linear Equations

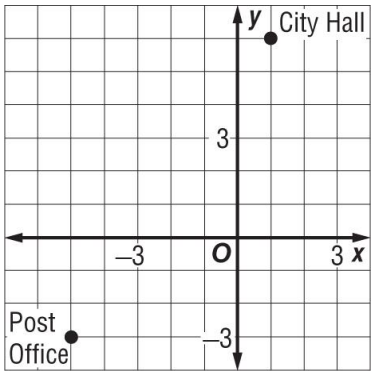
1. HIKING Tim began a hike near Big Bear Lake, California at the base of the mountain that is 7000 feet above sea level. He is hiking at a steady rate of 5 more feet above sea level per minute. Let A be his altitude above sea level in feet and let t be the number of minutes he has been hiking. Write an equation in slope-intercept form that represents how many feet above sea level Tim has hiked.

$A = 5t + 7000$

2. CHARITY By midnight, a charity had collected 83 shirts. Every hour after that, it collected 20 more shirts. Let h be the number of hours since midnight and n be the number of shirts. Write a linear equation in slope- intercept form that relates the number of shirts collected and the number of hours since midnight.

$n = 20h + 83$

3. MAPS The post office and city hall are marked on a coordinate plane. Write the equation of the line in slope- intercept form that passes through these two points.

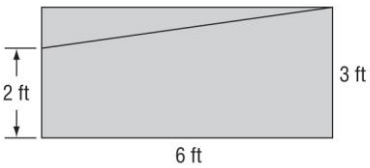


$y = \frac{3}{2}x + 4.5$

4. RIGHT TRIANGLES The line containing the base of a right triangle has the equation $y = 3x + 4$. The leg perpendicular to the base has an endpoint at (6, 1). What is the slope-intercept form of the equation of the line containing the leg?

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

5. DECORATING A group of students is decorating a bulletin board that measures 3 feet by 6 feet. They want to put a line that stretches from the upper right corner to a point 2 feet up along the left edge as shown in the figure.



a. Using the lower left corner of the bulletin board as the origin, what is the equation of the line in slope-intercept form?

$y = \frac{1}{6}x + 2$

b. The students change their mind and decide that the line should be lowered by 1 foot on the left edge. What is the equation of the lowered line in slope-intercept form?

$y = \frac{1}{3}x + 1$

c. What are the coordinates of the center of the bulletin board? Does the lowered line pass through the center? Explain.

(3, 1.5); No, it does not satisfy the equation of the lowered line.