

**LESSON**  
**5-5 Practice C**  
**Slope-Intercept Form**

Write the equation that describes each line in slope-intercept form.

1. slope =  $-\frac{3}{2}$ ; y-intercept = 1

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2. slope =  $-3$ ,  $(-3, 4)$  is on the line.

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3. slope = 0; y-intercept =  $-8$

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4. slope =  $-\frac{4}{7}$ ;  $(7, -8)$  is on the line.

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5. The line that passes through  $(1, 5)$  and  $(4, -4)$ . (*Hint:* Find the slope first.) \_\_\_\_\_

Write each equation in slope-intercept form. Then graph the line described by the equation.

6.  $y - 2 = -3x$

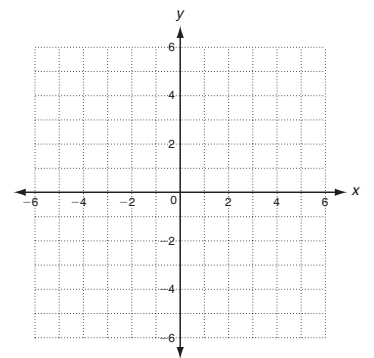
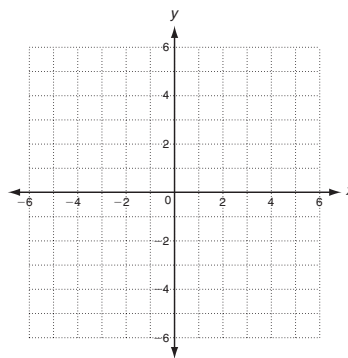
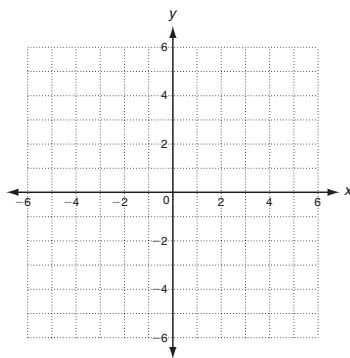
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7.  $x - y = 2$

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8.  $-2y = 3x - 4$

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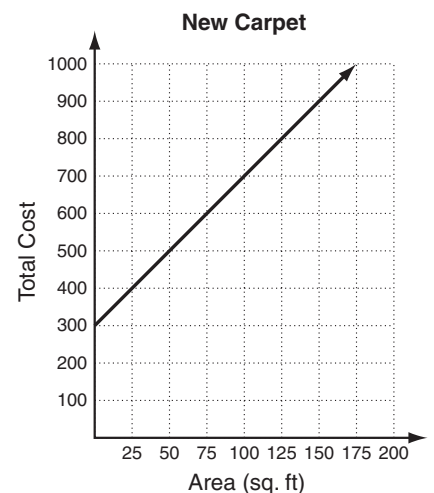


9. The Johnsons are putting new carpet in their home. Installation is \$300 and the carpeting costs \$4 per square foot. The total price of the job as a function of area is shown in the graph.

a. Write an equation that represents the total price as a function of area. \_\_\_\_\_

b. Identify the slope and y-intercept and describe their meanings. \_\_\_\_\_  
\_\_\_\_\_

c. Find the total cost if the area is 375 square feet.  
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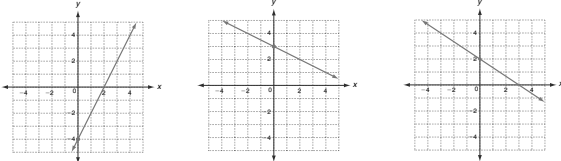
**LESSON Practice A**  
**5-5 Slope-Intercept Form**

Write the equation that describes each line in slope-intercept form.

1. slope =  $\frac{2}{3}$ ; y-intercept = 2  
 $y = \frac{2}{3}x + 2$
2. slope = -1; y-intercept = -8  
 $y = -1x - 8$
3. slope = -2; (3, 5) is on the line.  
 Find the y-intercept:  $y = mx + b$   
 $5 = (-2)(3) + b$   
 $5 = -6 + b$   
 $+ 6 \quad + 6$   
 $11 = b$   
 Write the equation:  $y = -2x + 11$

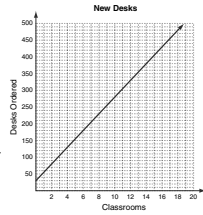
Write each equation in slope-intercept form. Then graph the line.

4.  $y - 2x = -4$       5.  $y - 3 = -\frac{1}{2}x$       6.  $2x + 3y = 6$   
 $y = 2x - 4$        $y = -\frac{1}{2}x + 3$        $y = -\frac{2}{3}x + 2$



7. A school orders 25 desks for each classroom, plus 30 spare desks. The total number ordered as a function of the number of classrooms is shown in the graph.

- a. Write the equation represented by the graph.  
 $y = 25x + 30$
- b. Identify the slope and y-intercept and describe their meanings. slope: 25; number of desks per classroom; y-int: 30; number of spare desks
- c. Find the total number of desks ordered if there are 24 classrooms.



630

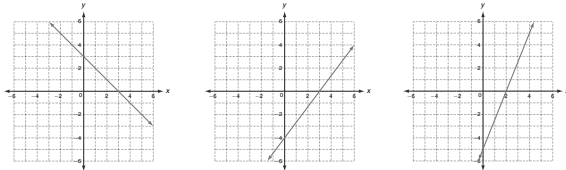
**LESSON Practice B**  
**5-5 Slope-Intercept Form**

Write the equation that describes each line in slope-intercept form.

1. slope = 4; y-intercept = -3  
 $y = 4x - 3$
2. slope = -2; y-intercept = 0  
 $y = -2x$
3. slope =  $-\frac{1}{3}$ ; y-intercept = 6  
 $y = -\frac{1}{3}x + 6$
4. slope =  $\frac{2}{5}$ ; (10, 3) is on the line.  
 Find the y-intercept:  $y = mx + b$   
 $3 = (\frac{2}{5})(10) + b$   
 $3 = 4 + b$   
 $-1 = b$   
 Write the equation:  $y = \frac{2}{5}x - 1$

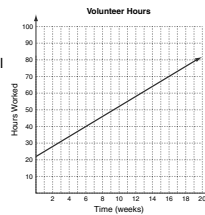
Write each equation in slope-intercept form. Then graph the line described by the equation.

5.  $y + x = 3$       6.  $y + 4 = \frac{4}{3}x$       7.  $5x - 2y = 10$   
 $y = -x + 3$        $y = \frac{4}{3}x - 4$        $y = \frac{5}{2}x - 5$



8. Daniel works as a volunteer in a homeless shelter. So far, he has worked 22 hours, and he plans to continue working 3 hours per week. His hours worked as a function of time is shown in the graph.

- a. Write an equation that represents the hours Daniel will work as a function of time.  $y = 3x + 22$
- b. Identify the slope and y-intercept and describe their meanings. slope: 3; number of hours per week; y-int: 22; hours already worked
- c. Find the number of hours worked after 16 weeks.



70 hours

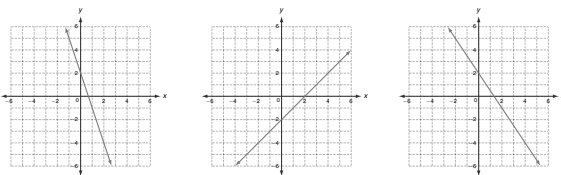
**LESSON Practice C**  
**5-5 Slope-Intercept Form**

Write the equation that describes each line in slope-intercept form.

1. slope =  $-\frac{3}{2}$ ; y-intercept = 1  
 $y = -\frac{3}{2}x + 1$
2. slope = -3; (-3, 4) is on the line.  
 $y = -3x - 5$
3. slope = 0; y-intercept = -8  
 $y = -8$
4. slope =  $-\frac{4}{7}$ ; (7, -8) is on the line.  
 $y = -\frac{4}{7}x - 4$
5. The line that passes through (1, 5) and (4, -4). (Hint: Find the slope first.)  $y = -3x + 8$

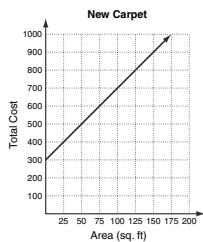
Write each equation in slope-intercept form. Then graph the line described by the equation.

6.  $y - 2 = -3x$       7.  $x - y = 2$       8.  $-2y = 3x - 4$   
 $y = -3x + 2$        $y = x - 2$        $y = -\frac{3}{2}x + 2$



9. The Johnsons are putting new carpet in their home. Installation is \$300 and the carpeting costs \$4 per square foot. The total price of the job as a function of area is shown in the graph.

- a. Write an equation that represents the total price as a function of area.  $y = 4x + 300$
- b. Identify the slope and y-intercept and describe their meanings. slope: 4; cost per square foot; y-int: 300; cost of installation
- c. Find the total cost if the area is 375 square feet.



\$1800

**LESSON Review for Mastery**  
**5-5 Slope-Intercept Form**

An equation is in slope-intercept form if it is written as:

$$y = mx + b$$

m is the slope.  
b is the y-intercept.

A line has a slope of -4 and a y-intercept of 3. Write the equation in slope-intercept form.

$y = mx + b$       Substitute the given values for m and b.  
 $y = -4x + 3$

A line has a slope of 2. The ordered pair (3, 1) is on the line. Write the equation in slope-intercept form.

**Step 1:** Find the y-intercept.  
 $y = mx + b$   
 $y = 2x + b$       Substitute the given value for m.  
 $1 = 2(3) + b$       Substitute the given values for x and y.  
 $1 = 6 + b$       Solve for b.  
 $-6 \quad -6$   
 $-5 = b$

**Step 2:** Write the equation.

$y = mx + b$   
 $y = 2x - 5$       Substitute the given value for m and the value you found for b.

Write the equation that describes each line in slope-intercept form.

1. slope =  $\frac{1}{4}$ ; y-intercept = 3       $y = \frac{1}{4}x + 3$
2. slope = -5; y-intercept = 0       $y = -5x$
3. slope = 7; y-intercept = -2       $y = 7x - 2$
4. slope is 3; (4, 6) is on the line.       $y = 3x - 6$
5. slope is  $\frac{1}{2}$ ; (-2, 8) is on the line.       $y = \frac{1}{2}x + 9$
6. slope is -1; (5, -2) is on the line.       $y = -x + 3$