



Reteaching

5.4 The Slope-Intercept Form

◆ **Skill A** Writing an equation of a line in slope-intercept form

Recall The slope-intercept form of a line is $y = mx + b$.

\uparrow \uparrow
 slope y -intercept

◆ **Example**

Write an equation for each line.

- a. containing (0, 1) and with a slope of -2
- b. containing (3, -4) and (9, 0)

◆ **Solution**

a. The slope, m , is given as -2. The line contains (0, 1), so this point is the y -intercept, or b is 1. Substituting these numbers into the equation gives $y = -2x + 1$.

b. First find the slope. $m = \frac{-4 - 0}{3 - 9} = \frac{-4}{-6} = \frac{2}{3}$

Then substitute the coordinates of one of the given points into the equation and solve for b .

For the point (9, 0): $0 = \frac{2}{3}(9) + b$

$$0 = 6 + b$$

$$b = -6$$

Substituting this number for b and $\frac{2}{3}$ for m into the equation $y = mx + b$ gives the equation $y = \frac{2}{3}x - 6$.

For each equation, find the slope and the y -intercept.

1. $y = 3x - 1$ _____ 2. $y = \frac{1}{2}x + 2$ _____ 3. $y = -x + \frac{1}{2}$ _____

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

4. with a slope of 2 and a y -intercept of -1 _____
5. containing (0, -3) and with a slope of $\frac{1}{3}$ _____

Write an equation in slope-intercept form for the line that contains each pair of points.

6. (1, 1) and (3, 5) _____ 7. (2, -4) and (-1, 5) _____
8. (2, 4) and (-4, 1) _____ 9. (1, 0) and (3, 2) _____



Practice

5.4 The Slope-Intercept Form

Give the coordinates of the point where each line crosses the y -axis.

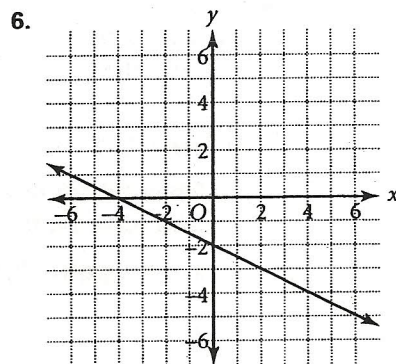
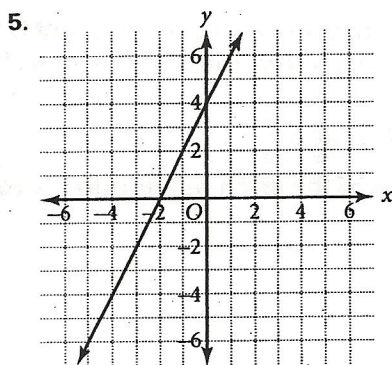
1. $y = 3x + 4$ _____

2. $y = 2x - 3$ _____

3. $y = \frac{1}{2}x$ _____

4. $y = 2 - x$ _____

Write an equation for the graph of each line.



Write an equation for each line.

7. with a slope of 2 and a y -intercept of 4 _____

8. with a slope of -3 and a y -intercept of 1 _____

9. through $(0, -4)$ and with a slope of 2 _____

10. through $(0, 6)$ and with a slope of $\frac{1}{2}$ _____

11. with a slope of $-\frac{3}{4}$ and a y -intercept of -3 _____

12. through $(0, 1)$ and with a slope of 1.5 _____

Write an equation for the line containing each pair of points.

13. $(3, 8), (2, 6)$ _____

14. $(0, -6), (-3, 3)$ _____

15. $(-2, -4), (5, -1)$ _____

16. $(-1, -2), (-3, -4)$ _____