NAME _____ DATE _____ PERIOD _____

5-4 Study Guide and Intervention *(continued)*

Writing Equations in Slope-Intercept Form

Write an Equation Given Two Points

Example **Write an equation of the line that passes through (1, 2) and (3, −2).**

Find the slope m. To find the y-intercept, replace m with its computed value and (x, y) with (1, 2) in the slope-intercept form. Then solve for b.

$m = \frac{y_2 - y_1}{x_2 - x_1}$ Slope formula

$m = \frac{-2 - 2}{3 - 1}$ $y_2 = -2$, $y_1 = 2$, $x_2 = 3$, $x_1 = 1$

$m = -2$ Simplify.

$y = mx + b$ Slope-intercept form

$2 = -2(1) + b$ Replace m with -2, y with 2, and x with 1.

$2 = -2 + b$ Multiply.

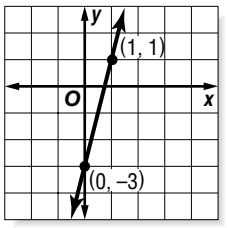
$4 = b$ Add 2 to each side.

Therefore, the equation is $y = -2x + 4$.

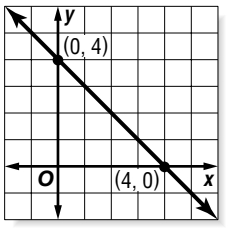
Exercises

Write an equation of the line that passes through each pair of points.

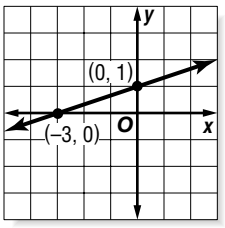
1.



2.



3.



4. (−1, 6), (7, −10)

5. (0, 2), (1, 7)

6. (6, −25), (−1, 3)

7. (−2, −1), (2, 11)

8. (10, −1), (4, 2)

9. (−14, −2), (7, 7)

10. Write an equation of a line that passes through the x-intercept 4 and y-intercept -2.

11. Write an equation of a line that passes through the x-intercept -3 and y-intercept 5.

12. Write an equation of a line that passes through (0, 16) and (−10, 0).