

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 .

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

$$m = \frac{-2 - 2}{3 - 1}$$

$$m = -2 \quad \text{Simplify.}$$

$$y = mx + b \quad \text{Slope-intercept form}$$

$$2 = -2(1) + b \quad \text{Replace } m \text{ with } -2, y \text{ with } 2, \text{ and } x \text{ with } 1.$$

$$2 = -2 + b \quad \text{Multiply.}$$

$$4 = b \quad \text{Add 2 to each side.}$$

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

USE EASIEST POINT

* All work on looseleaf.

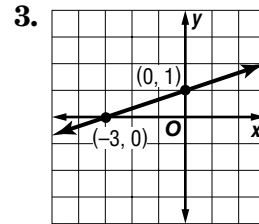
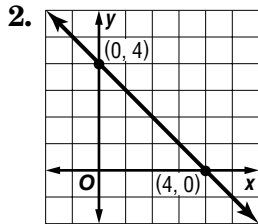
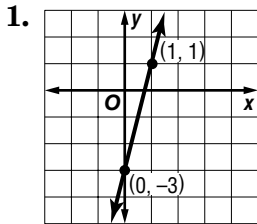
* For # 1 to 3, find m either by algebra (using the coordinates of the two points and the formula for m) OR by counting rise/run grid units. Then find b (the y -intercept) just by looking at the graph. Then write the EOL once you know m and b . Or you can do these the long way by using the " $y=mx+b$ twice" method which is how you have to do the rest of the problems.

* For # 10 and #11, recall the definition of the x and y intercepts to get the ordered PAIR for each intercept.

* Always assume the fish you eat has bones left in it. Mr. C.

Exercises

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



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 $(-10, 0)$.