

3.14

Writing the Equation of a Line Given the Slope and a Point

• Example 1

Write the equation of a line with slope -2 and passing through the point $(-1, 2)$.

We have to find a number b such that

$$y = -2x + b.$$

Moreover, the point $(-1, 2)$ is on the line representing the equation.

Thus we must have

$$2 = -2 \cdot (-1) + b.$$

Solving for b we have

$$2 = 2 + b \text{ or}$$

$$b = 0$$

Thus the equation of the line is

$$y = -2x$$

● ● ● CHECK YOURSELF 1

Write the equation of a line with the slope 3 and passing through the point $(5, 7)$.

● ● ● CHECK YOURSELF ANSWER

1. $y = 3x - 8$.

3.14 Exercises

Name _____

Section _____

Date _____

A N S W E R S

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

Write the equation of the line with slope m and containing the indicated point.

1. $m = -1; (-2, -3)$

2. $m = 4; (0, 7)$

3. $m = -5; (4, -13)$

4. $m = 0; (-5, -5)$

5. $m = -\frac{1}{2}; \left(1, \frac{3}{2}\right)$

6. $m = 1; (7, 4)$

7. $m = 2; (6, 3)$

8. $m = -3; (4, -4)$

9. $m = \frac{1}{3}; (18, -1)$

10. $m = -\frac{1}{9}; (63, -3)$