3.13 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

$2 = 2 + b$ 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. $y = 3x - 8.$

3.13 Exercises

Name

Section Date

ANSWERS

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