3.15 Writing the Equation of the Line through Two Given Points

• Example 1

Write the equation of the line that passes through the points $(-2, -1)$ and $(0, -5)$.

The slope of the line is given by

$$\frac{-5-(-1)}{0-(-2)} = \frac{-4}{2} = -2$$

The equation of the line is thus $y = -2x + b$ where we must find b. As the line passes through $(0, -5)$, we have

$$-5 = -2 \cdot 0 + b$$

$$-5 = b$$

Thus the equation of the line is

$$y = -2x - 5$$

CHECK YOURSELF 1

Write the equation of the line that passes through the points $(1, 4)$ and $(-5, -2)$.

CHECK YOURSELF ANSWER

1. $y = x + 3$.

3.15 Exercises

Name

Section Date

ANSWERS

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Write the equation of the line that passes through the given points.

1. (0, 6), (−2, −4)

2. (−6, −3), (−8, −7)

3. (1, 13), (2, 16)

4. (−12, 4), (0, 16)

5. (7, −7), (0, 0)

6. (−3, 15), (4, −13)

7. (54, 2), (36, −1)

8. (6, 23), (−1, −19)

9. (12, 5), (4, 9)

10. (−2, 6), (−4, 20)