

# 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  $(-5, -2)$ .

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### • • • CHECK YOURSELF ANSWER

1.  $y = x + 3$ .

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# 3.15 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 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.  $(-2, 6), (-4, 20)$