

## ACTIVITY 3.1

### Developing Concepts

#### GROUP ACTIVITY

Work with a partner.

#### MATERIALS

algebra tiles

#### STUDENT HELP

**Look Back**  
For help with zero pairs, see p. 78.

Group Activity for use with Lesson 3.1

## Modeling One-Step Equations

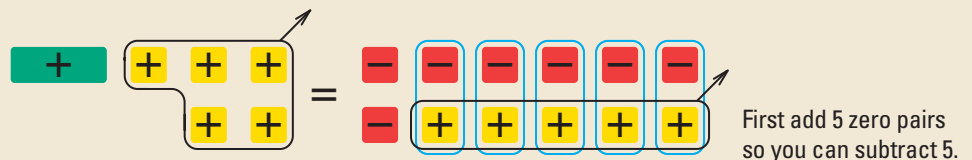
**QUESTION** How can you use algebra tiles to solve one-step equations?

**EXPLORING THE CONCEPT: SOLVING  $x + 5 = -2$**

**1** Model the equation  $x + 5 = -2$ . A  represents the unknown value  $x$ .



**2** To find the value of  $x$ , get the  $x$ -tile by itself on the left side of the equation. You can undo the addition by subtracting 5. Be sure to subtract the same amount on each side of the equation, so that the two sides stay equal.



First add 5 zero pairs so you can subtract 5.

**3** The resulting equation shows the value of  $x$ . So,  $x = \underline{\quad ? \quad}$ .



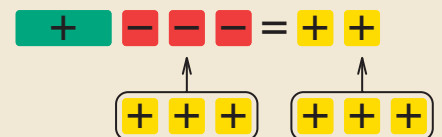
**EXPLORING THE CONCEPT: SOLVING  $x - 3 = 2$**

**4** Model the equation  $x - 3 = 2$ .



You can model the subtraction with  $-1$ -tiles because  $x - 3 = x + (-3)$ .

**5** To get the  $x$ -tile by itself, add 3 to each side to undo the subtraction.



**6** Group positive and negative tiles to make zero pairs. What are the remaining tiles on each side of the equation? So,  $x = \underline{\quad ? \quad}$ .

**DRAWING CONCLUSIONS**

Use algebra tiles to model and solve the equation. Sketch each step you use.

1.  $x + 4 = 6$
2.  $x + 5 = 3$
3.  $x + 6 = -1$
4.  $x + 3 = -3$
5.  $x - 1 = 5$
6.  $x - 6 = 2$
7.  $x - 7 = -4$
8.  $x - 5 = -5$

9. What operation do you use to solve an addition equation? to solve a subtraction equation?

10. A student solved the equation  $x + 3 = -4$  by subtracting 3 on the left side of the equation and got  $x = -4$ . Is this the correct solution? Explain.