Name _____ Date _____ Class _____

LESSON 11-1

Writing Equations to Represent Situations

Reteach

An **equation** is a mathematical sentence that says that two quantities are equal.

Some equations contain variables. A **solution** for an equation is a value for a variable that makes the statement true.

You can write related facts using addition and subtraction.

$7 + 6 = 13$ $13 - 6 = 7$

You can write related facts using multiplication and division.

$3 \bullet 4 = 12$ $\frac{12}{4} = 3$

You can use related facts to find solutions for equations. If the related fact matches the value for the variable, then that value is a solution.

A. $x + 5 = 9$; $x = 3$

Think: $9 - 5 = x$

$4 = x$

$4 \neq 3$

3 is **not** a solution of $x + 5 = 9$.

B. $x - 7 = 5$; $x = 12$

Think: $5 + 7 = x$

$12 = x$

$12 = 12$

12 is a solution of $x - 7 = 5$.

C. $2x = 14$; $x = 9$

Think: $14 \div 2 = x$

$7 = x$

$7 \neq 9$

9 is **not** a solution of $2x = 14$.

D. $\frac{x}{5} = 3$; $x = 15$

Think: $3 \bullet 5 = x$

$15 = x$

$15 = 15$

15 is a solution of $x \div 5 = 3$.

Use related facts to determine whether the given value is a solution for each equation.

1. $x + 6 = 14$; $x = 8$ _____

2. $\frac{s}{4} = 5$; $s = 24$ _____

3. $g - 3 = 7$; $g = 11$ _____

4. $3a = 18$; $a = 6$ _____

5. $26 = y - 9$; $y = 35$ _____

6. $b \bullet 5 = 20$; $b = 3$ _____

7. $15 = \frac{v}{3}$; $v = 45$ _____

8. $11 = p + 6$; $p = 5$ _____

9. $6k = 78$; $k = 12$ _____

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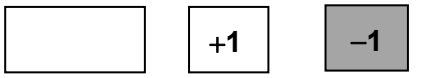
LESSON 11-2

Addition and Subtraction Equations

Reteach

To solve an equation, you need to get the variable alone on one side of the equal sign.

You can use tiles to help you solve subtraction equations.

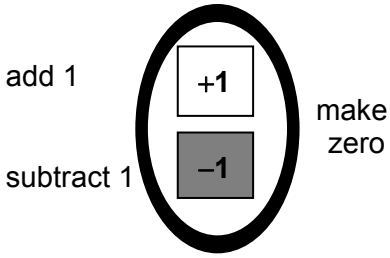


Variable add 1 subtract 1

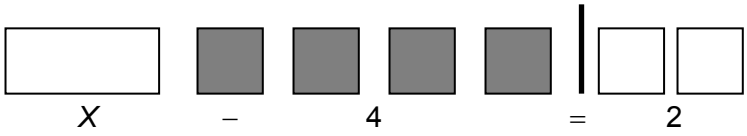
Addition undoes subtraction, so you can use addition to solve subtraction equations.

One positive tile and one negative tile make a **zero pair**.

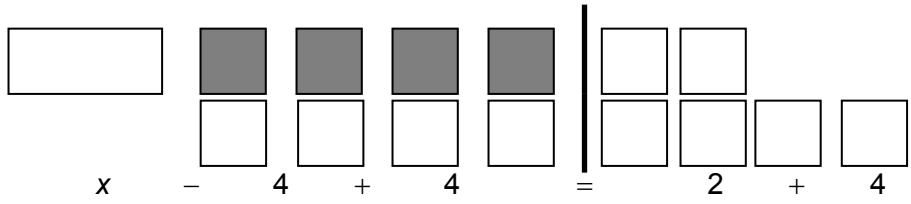
Zero pair: $+1 + (-1) = 0$



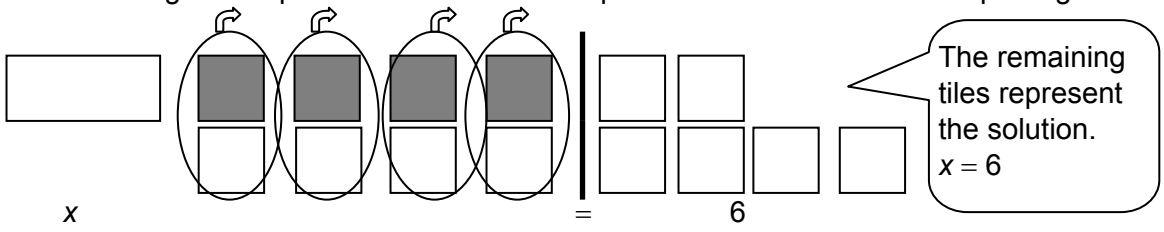
To solve $x - 4 = 2$, first use tiles to model the equation.



To get the variable alone, you have to add positive tiles. Remember to add the same number of positive tiles to each side of the equation.



Then remove the greatest possible number of zero pairs from each side of the equal sign.



Use tiles to solve each equation.

1. $x - 5 = 3$

   $x =$ ____

2. $x - 2 = 7$

   $x =$ ____

3. $x - 1 = 4$

   $x =$ ____

4. $x - 8 = 1$

   $x =$ ____

5. $x - 3 = 3$

   $x =$ ____

6. $x - 6 = 2$

   $x =$ ____