



Name \_\_\_\_\_ Date \_\_\_\_\_

# Solving Division and Multiplication Equations

(Pages 21–25)

You can use the properties of algebra to find the solution to an equation.

<b>Division Property of Equality</b>	<p>If you divide each side of an equation by the same number, then the two sides remain equal.</p> <p><b>Arithmetic</b></p> $8 = 8$ $8 \div 2 = 8 \div 2$ $4 = 4$ <p><b>Algebra</b></p> $a = b$ $\frac{a}{c} = \frac{b}{c}, c \neq 0$
<b>Multiplication Property of Equality</b>	<p>If you multiply each side of an equation by the same number, then the two sides remain equal.</p> <p><b>Arithmetic</b></p> $8 = 8$ $8 \cdot 2 = 8 \cdot 2$ $16 = 16$ <p><b>Algebra</b></p> $a = b$ $ac = bc$

To solve an equation in which the variable is multiplied or divided by a number, you can use the opposite, or **inverse**, operation. Multiplication and division are inverse operations.

## EXAMPLES

**A** Solve  $4x = 20$ .

$$4x = 20$$

$$\frac{4x}{4} = \frac{20}{4}$$

$$x = 5$$

Use the division property of equality. Then check your solution.

The solution to the equation is 5.

**B** Solve  $\frac{z}{9} = 5$ .

$$\frac{z}{9} = 5$$

$$\frac{z}{9} \cdot 9 = 5 \cdot 9$$

$$z = 45$$

Use the multiplication property of equality. Then check your solution.

The solution to the equation is 45.

## Try These Together

**Solve each equation. Check your solution.**

1.  $56 = 8y$

2.  $30 = 6p$

3.  $m \div 9 = 4$

4.  $14x = 126$

*HINT: Use the inverse operation to solve each equation.*

## PRACTICE

**Solve each equation. Check your solution.**

5.  $r \div 9 = 9$

6.  $54 = 6s$

7.  $13f = 65$

8.  $\frac{n}{3} = 25$

9.  $\frac{j}{50} = 5$

10.  $\frac{k}{8} = 9$



**11. Standardized Test Practice** Jeremiah's family pays \$35.00 a month for 70 cable television channels. Use the equation  $\$35.00 = 70y$  to find out how much they pay per channel.

**A** \$0.55

**B** \$0.45

**C** \$0.60

**D** \$0.50

Answers: 1. 7 2. 5 3. 36 4. 9 5. 81 6. 9 7. 5 8. 75 9. 250 10. 72 11. D