

Lesson 6-2 Multiplication and Division Equations

$$5 + \boxed{-5} = 0$$

$$-3 + \boxed{3} = 0$$

$$3(5) = 15$$
$$\frac{15}{5} = 3$$

$$y + 2 = -6$$
$$-2 \quad -2$$
$$y = -8$$

$-8 + 2 = -6$
 $-6 = -6$

COEFFICIENT

$$\frac{2x}{2} = \frac{-10}{2}$$
$$x = -5$$

$2(-5) = -10$
 $-10 = -10$ ✓

$$\frac{5}{1} \cdot \frac{x}{5} = 4 \cdot 5$$
$$x = 20$$

$\frac{20}{5} = 4$
 $4 = 4$ ✓

Lesson 6-2 Multiplication and Division Equations

Use the Division Property of Equality to solve multiplication equations and the Multiplication Property of Equality to solve division equations.

The **Division Property of Equality** states that if you divide each side of an equation by the same nonzero number, the two sides remain equal.

The **Multiplication Property of Equality** states that if you multiply each side of an equation by the same number, the two sides remain equal.

Example 1

Solve $30 = 6x$.

$$30 = 6x$$

Write the equation.

$$\frac{30}{6} = \frac{6x}{6}$$

Divide each side of the equation by 6.

$$5 = x$$

$$30 \div 6 = 5.$$

The solution is 5.

Example 2

Solve $\frac{x}{-5} = -2$.

$$\frac{x}{-5} = -2$$

Write the equation.

$$\frac{x}{-5}(-5) = -2(-5)$$

Multiply each side of the equation by -5 .

$$x = 10$$

$$-2(-5) = 10.$$

The solution is 10.

Exercises

Solve each equation. Check your solution.

1. $3x = 12$
 $\frac{3x}{3} = \frac{12}{3}$
 $x = 4$
 Check: $3(4) = 12$
 $12 = 12$

$\frac{36}{9} = 4$ $\frac{360}{9} = 40$

2. $9k = -360$
 $\frac{9k}{9} = \frac{-360}{9}$
 $k = -40$
 Check: $9(-40) = -360$
 $-360 = -360$

5. $\frac{x}{5} = 12$
 $\frac{5}{1} \cdot \frac{x}{5} = 12 \cdot 5$
 $\frac{5x}{5} = 60$
 $x = 60$
 Check: $\frac{60}{5} = 12$
 $12 = 12$

8. $-7y = 42$

9. $\frac{m}{6} = -4$
 $\frac{6}{1} \cdot \frac{m}{6} = -4 \cdot 6$
 $m = -24$
 Check: $\frac{-24}{6} = -4$
 $-4 = -4$

10. $-2 = \frac{b}{-9}$

$4(6) = 24$

Copyright © The McGraw-Hill Companies, Inc. Permission is granted to reproduce for classroom use.

Lesson 2 Skills Practice

Multiplication and Division Equations

Solve each equation. Check your solution.

1. $7a = 56$

2. $-5b = -20$

5. $\frac{k}{12} = 2$

6. $\frac{m}{6} = -10$

9. $-15 = \frac{z}{-8}$

10. $-3z = 93$

13. $-8 = \frac{t}{9}$

14. $3c = 15$

17. $18 = -9b$

18. $-13c = -52$