Lesson 3 Reteach

Solve Equations with Rational Coefficents

> **Multiplicative inverses**, or **reciprocals**, are two numbers whose product is 1. To solve an equation in which the coefficient is a fraction, multiply each side of the equation by the reciprocal of the coefficient.

Example 1

Solve $15 = 0.5n$. Check the solution.

$$15 = 0.5n \qquad \text{Write the equation.}$$

$$\frac{15}{0.5} = \frac{0.5n}{0.5} \qquad \text{Division Property of Equality}$$

$$30 = n \qquad \text{Simplify.}$$

Example 2

Solve $\frac{4}{5}x = 8$. Check your solution.

$$\frac{4}{5}x = 8 \qquad \text{Write the equation.}$$

$$\left(\frac{5}{4}\right)\frac{4}{5}x = \left(\frac{5}{4}\right)8 \qquad \text{Multiply each side by the reciprocal of } \frac{4}{5}, \frac{5}{4}.$$

$$x = 10 \qquad \text{Simplify.}$$

The solution is 10.

Exercises

Solve each equation. Check your solution.

1. $4.9 = 0.7m$ **7**

2. $-\frac{1}{2} = -\frac{6}{18}h$ **$1\frac{1}{2}$**

3. $-2.8 = 4b$ **0.7**

4. $\frac{3}{5}x = 12$ **20**

5. $16 = \frac{10}{3}a$ **$4\frac{4}{5}$**

6. $9 = 0.3n$ **30**

7. $\frac{15}{7}y = 3$ **$1\frac{2}{5}$**

8. $21 = 0.75a$ **28**

9. $\frac{14}{3} = -\frac{7}{9}b$ **−6**

Lesson 3 Skills Practice

Solve Equations with Rational Coefficients

Solve each equation. Check your solution.

1. $3.4a = 57.8$ **17**

2. $-2 = 0.8n$ **−2.5**

3. $\frac{5}{6}k = -20$ **−24**

4. $12 = 0.9a$ **$13\frac{1}{3}$**

5. $\frac{3}{4}c = -12$ **−16**

6. $0.36y = 18$ **50**

7. $\frac{3}{5}y = 6$ **10**

8. $-15 = \frac{3}{7}b$ **−35**

9. $\frac{6}{7}c = 18$ **21**

10. $\frac{7}{3}x = \frac{2}{3}$ **$\frac{2}{7}$**

11. $\frac{11}{12} = \frac{3}{4}h$ **$1\frac{2}{9}$**

12. $\frac{9}{14}y = \frac{3}{7}$ **$\frac{2}{3}$**

13. $\frac{m}{26} = -\frac{1}{2}$ **−13**

14. $0.6 = \frac{n}{5}$ **3**

15. $1.5r = -5.07$ **−3.38**

16. $-4.3 = 0.5n$ **−8.6**

17. $1.5x = 9$ **6**

18. $\frac{3}{8}x = 21$ **56**

19. $-14 = \frac{7}{9}m$ **−18**

20. $3.2 = \frac{t}{8}$ **25.6**

21. $\frac{m}{18} = -\frac{1}{9}$ **−2**