

## LESSON

## 6-2

## One-Step Equations with Rational Coefficients

## Practice and Problem Solving: A/B

Solve by adding or subtracting.

1.  $\frac{1}{3}n - 6 = -2$

\_\_\_\_\_

$n =$  \_\_\_\_\_

2.  $y + 0.4 = 2$

\_\_\_\_\_

$y =$  \_\_\_\_\_

3.  $7 = 0.5a - 5$

\_\_\_\_\_

$a =$  \_\_\_\_\_

4.  $0 = \frac{1}{3}v + 1$

\_\_\_\_\_

$v =$  \_\_\_\_\_

Solve by multiplying or dividing.

5.  $15.5z = -77.5$

\_\_\_\_\_

$z =$  \_\_\_\_\_

6.  $\frac{t}{-11} = 11$

\_\_\_\_\_

$t =$  \_\_\_\_\_

7.  $0.5m = 0.75$

\_\_\_\_\_

$m =$  \_\_\_\_\_

8.  $\frac{r}{4} = 250$

\_\_\_\_\_

$r =$  \_\_\_\_\_

Write each sentence as an equation.

9. Eight less than  $\frac{1}{3}$  a number  $n$  is  $-13$ .

\_\_\_\_\_

10. A number  $f$  multiplied by  $-12.3$  is  $-73.8$ .

\_\_\_\_\_

Write an equation. Then, solve.

11. During unusually cold weather, the temperature in Miami Beach was  $10^{\circ}\text{C}$ . This was 12 degrees more than in Tallahassee. What is the temperature in Tallahassee?

\_\_\_\_\_

12. A swimmer swam 48 kilometers in  $d$  days. What is the value of  $d$  if the swimmer swam an average of 3.2 kilometers daily?

\_\_\_\_\_

13. Fifteen tickets cost \$193.75. What is the average cost of each ticket?

\_\_\_\_\_

14. A student walks  $\frac{1}{4}$  mile from her home to the store on her way to a friend's house. If the store is  $\frac{1}{3}$  of the way to her friend's house, how far is her friend's house from her home?

\_\_\_\_\_

**LESSON**  
**6-2****One-Step Equations with Rational Coefficients****Practice and Problem Solving: C**

Solve using addition, subtraction, multiplication, or division.

1.  $0.6x = 3.2$   
\_\_\_\_\_

2.  $m + 2.3 = 9.4$   
\_\_\_\_\_

3.  $\frac{y}{0.23} = 12$   
\_\_\_\_\_

4.  $z - 2.3 = 0.46$   
\_\_\_\_\_

5.  $s + \frac{3}{7} = 6$   
\_\_\_\_\_

6.  $\frac{5}{6}r = 4\frac{3}{5}$   
\_\_\_\_\_

7.  $f - \frac{3}{4} = 1\frac{1}{2}$   
\_\_\_\_\_

8.  $\frac{3m}{2} = 7\frac{1}{3}$   
\_\_\_\_\_

Answer the questions.

9. a. A painter works 37.5 hours one week. If she worked 5 days, how many hours did she work on average per day?
- 
- \_\_\_\_\_

- b. At \$15.75 per hour, how much did she make per day?
- 
- \_\_\_\_\_

10. A recipe calls for
- $3\frac{2}{3}$
- cups of flour. Earl used
- $7\frac{1}{3}$
- cups. By how much did he increase the recipe?
- 
- \_\_\_\_\_

11. Explain how you could use either of two operations to solve Exercise 10.
- 
- \_\_\_\_\_
- 
- \_\_\_\_\_

12. A bottle of fruit juice holds 1.89L. If Shakira bought almost 6L of fruit juice, how many bottles did she buy?
- 
- \_\_\_\_\_

13. Eric had 15.3 feet of fishing line. He cut off a piece and had 38.4 inches left. How long was the piece he cut?
- 
- \_\_\_\_\_

**LESSON**  
**6-2**

# One-Step Equations with Rational Coefficients

## Reteach

### Using Addition to Undo Subtraction

Addition "undoes" subtraction. Adding the same number to both sides of an equation keeps the equation balanced.

$$\begin{aligned}x - 5 &= -6.3 \\x - 5 + 5 &= -6.3 + 5 \\x &= -1.3\end{aligned}$$

### Using Subtraction to Undo Addition

Subtraction "undoes" addition. Subtracting a number from both sides of an equation keeps the equation balanced.

$$\begin{aligned}n + \frac{3}{4} &= -15 \\n + \frac{3}{4} - \frac{3}{4} &= -15 - \frac{3}{4} \\n &= -15\frac{3}{4}\end{aligned}$$

Be careful to identify the correct number that is to be added or subtracted from both sides of an equation. The numbers and variables can move around, as the problems show.

Solve using addition or subtraction.

1.  $6 = m - \frac{7}{8}$

2.  $3.9 + t = 4.5$

3.  $10 = -3.1 + j$

### Multiplication Undoes Division

To "undo" division, multiply both sides of an equation by the number in the denominator of a problem like this one.

$$\begin{aligned}\frac{m}{3} &= 6 \\3 \times \frac{m}{3} &= 3 \times 6 \\m &= 18\end{aligned}$$

### Division Undoes Multiplication

To "undo" multiplication, divide both sides of an equation by the number that is multiplied by the variable as shown in this problem.

$$\begin{aligned}4.5p &= 18 \\ \frac{4.5p}{4.5} &= \frac{18}{4.5} = 4\end{aligned}$$

Notice that decimals and fractions can be handled this way, too.

Solve using division or multiplication.

4.  $\frac{y}{2.4} = 5$

5.  $0.35w = -7$

6.  $-\frac{a}{6} = 1$

# One-Step Equations with Rational Coefficients

*Reading Strategies: Use a Table*

The procedure for solving a one-step equation can be shown in a table. As the lesson title suggests, there is **one step** to do before you write the answer. That step is the middle row below.

<b>Problem</b> $a - 8 = -5.3$	<b>Problem</b> $6 = b + 11.2$	<b>Problem</b> $0.4c = 220$	<b>Problem</b> $10.4 = \frac{d}{2}$
<b>One Step</b> Add 8: $a - 8 + 8 = -5.3 + 8$	<b>One Step</b> Subtract 11.2: $6 - 11.2 =$ $b + 11.2 - 11.2$	<b>One Step</b> Divide by 0.4: $\frac{0.4c}{0.4} = \frac{220}{0.4}$	<b>One Step</b> Multiply by 2: $2 \times 10.4 = 2 \times \frac{d}{2}$
<b>Answer</b> $a = 2.7$	<b>Answer</b> $-5.2 = b$ or $b = -5.2$	<b>Answer</b> $c = 550$	<b>Answer</b> $20.4 = d$ or $d = 20.4$

Use the table to solve each equation.

1. Problem:  $\frac{p}{8} = -2$

One Step:

\_\_\_\_\_

Answer:  $p =$  \_\_\_\_\_

2. Problem:  $1.5 + q = -0.6$

One Step:

\_\_\_\_\_

Answer:  $q =$  \_\_\_\_\_

3. Problem:  $-9.5a = -38$

One Step:

\_\_\_\_\_

Answer:  $a =$  \_\_\_\_\_

Write the equation for "Problem." Then, fill in the blanks.

4. A cat owner paid the vet a fee of \$269.50 for a year's worth of visits. He made 14 visits that year. What was the average cost per visit?

Problem: \_\_\_\_\_

One Step: \_\_\_\_\_

Answer: \_\_\_\_\_

5. A soccer team won three fourths of its games. The team won 18 games. How many games did the team play?

Problem: \_\_\_\_\_

One Step: \_\_\_\_\_

Answer: \_\_\_\_\_