

# 2.10

## Solving a Linear Equation with Several Occurrences of the Variable: Problem Type 2

### • Example 1

Solve

$$\frac{x}{2} - \frac{1}{3} = \frac{2x + 3}{6}$$

The LCD for  $\frac{x}{2}$ ,  $\frac{1}{3}$ , and  $\frac{2x + 3}{6}$  is 6. Multiply *each* term by 6.

$$6 \cdot \frac{x}{2} - 6 \cdot \frac{1}{3} = 6 \left( \frac{2x + 3}{6} \right) \quad \text{or} \quad 3x - 2 = 2x + 3$$

Solving for  $x$ , we have

$$3x - 2x = 3 + 2 \quad \text{or} \quad x = 5$$

To check, substitute 5 for  $x$  in the *original* equation. We get

$$\frac{5}{2} - \frac{1}{3} = \frac{13}{6} = \frac{2 \cdot 5 + 3}{6}$$

### ● ● ● CHECK YOURSELF 1

Solve and check.

$$\frac{x}{4} - \frac{1}{6} = \frac{4x - 5}{12}$$


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### ● ● ● CHECK YOURSELF ANSWER

1. 3.

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# 2.10 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

Solve each of the following equations for  $x$ .

1.  $\frac{x}{2} + 3 = 6$

2.  $\frac{x}{3} - 2 = 1$

3.  $\frac{x}{2} - \frac{x}{3} = 2$

4.  $\frac{x}{6} - \frac{x}{8} = 1$

5.  $\frac{x}{5} - \frac{1}{3} = \frac{x-7}{3}$

6.  $\frac{x}{6} + \frac{3}{4} = \frac{x-1}{4}$

7.  $\frac{x}{4} - \frac{1}{5} = \frac{4x+3}{20}$

8.  $\frac{x}{12} - \frac{1}{6} = \frac{2x-7}{12}$

9.  $\frac{x}{4} - \frac{x}{5} = 2$

10.  $\frac{x}{3} - \frac{x}{4} = 3$