

## 3.R.6 Exercises

### Concept Check

**True/False.** Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

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1. If an equation of the form  $ax + b = c$  uses decimal or fractional coefficients, the addition and multiplication principles of equality cannot be used.
2. The first step in solving  $2x + 3 = 9$  is to add 3 to both sides.
3. To solve an equation that has been simplified to  $4x = 12$ , you need to multiply both sides by  $\frac{1}{4}$ , or divide both sides by 4.
4. When solving a linear equation with decimal coefficients, one approach is to multiply both sides in such a way to give integer coefficients before solving.

### Practice

Solve each equation.

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5.  $3x + 11 = 2$

6.  $-5x + 2.9 = 3.5$

7.  $\frac{2}{5} - \frac{1}{2}x = \frac{7}{4}$

8.  $\frac{y}{3} - \frac{2}{3} = 7$

## Applications

Solve.

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9. **Music:** The tickets for a concert featuring the new hit band, Flying Sailor, sold out in 2.5 hours. If there were 35,000 tickets sold, solve the equation  $35,000 - 2.5x = 0$  to find the number of tickets sold per hour.
10. **Movies:** All snacks (candy, popcorn, and soda) cost \$3.50 each at the local movie theater. Admission tickets cost \$7.50 each. After a long week, Carlos treats himself to a night at the movies. His movie night budget is \$25 and he spends all his movie money. Solve the equation  $\$3.50x + \$7.50 = \$25.00$  to determine how many snacks Carlos can buy.

**Writing & Thinking**

11. Find the error(s) made in solving each equation and give the correct solution.

a.  $\frac{1}{3}x + 4 = 9$

$$3 \cdot \frac{1}{3}x + 4 = 3 \cdot 9$$

$$x + 4 = 27$$

$$x + 4 - 4 = 27 - 4$$

$$x = 23$$

b.  $5x + 3 = 11$

$$(5x - 3) + (3 - 3) = 11 - 3$$

$$2x + 0 = 8$$

$$\frac{2x}{2} = \frac{8}{2}$$

$$x = 4$$