Solution

This situation can be modeled by the equation $\$60 = \$7.50x$, where x is the number of 4-packs of cupcakes purchased. To determine how many 4-packs of cupcakes he can buy, we solve for x.

$$\begin{aligned} \$60 &= \$7.50x \\ \frac{\$60}{\$7.50} &= x \\ 8 &= x \end{aligned}$$

Therefore, Gareth can buy 8 packs of cupcakes.

5.R.3 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.)

1. When an algebraic expression is added to both sides of an equation, the new equation has the same solutions as the original equation.

2. The process of finding the solution set to an equation is called simplifying the equation.

3. A linear equation in x is also called a first-degree equation in x.

4. Equations with the same solutions are said to be equivalent equations.

Practice

Determine whether the given number is a solution to the given equation by substituting and then evaluating.

5. $y + (-5) = -3; y = 2$

6. $-1 - |y| = -8; y = -7$

Solve the linear equation using equivalent equations to isolate the variable. Express your solution as an integer, as a simplified fraction, or as a decimal number.

7. $w + 11 = 4$

8. $9.4 - 7.3 = 7.8a - 6.8a - 7.5$

9. $-6 = 2u$

10. $-\frac{6}{5}y + \frac{2}{5}y = \frac{2}{3} - \frac{1}{3}$

Applications

Solve.

11. An office supply company offers a number of different packages to help save their customers money. One of the packages includes dry erase markers, 22 boxes of paper clips, and 22 boxes of printer ink. If the total number of boxes in the package is 67, use the formula $x + 2(22) = 67$ to find the number of boxes of dry erase markers that come in the package.

12. Janice lives 154 miles away from her cousin. The distance between Janice's house and her cousin's house is 9 times farther than the distance between Janice's house and her best friend's house. Solve the equation $9x = 154$ to find the number of miles between Janice's house and her best friend's house.

Express your answer as an integer, as a simplified fraction, or as a decimal number rounded to two places.

Writing & Thinking

13. a. Is the expression $6 + 3 = 9$ an equation? Explain.

b. Is $x = 4$ a solution to the equation $5 + x = 10$? Explain.