

$$\begin{aligned} \$500 &= \$250 + \$15x \\ \$250 &= \$15x \\ \frac{\$250}{\$15} &= x \\ 16.667 &\approx x \end{aligned}$$

Since we can't invite a fraction of a person, we'll need to round. Rounding up will result in an amount higher than \$500, so we round down to 16. Therefore, Alex can invite 16 people (including herself).

5.R.4 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. The first step in solving $2x + 3 = 9$ is to add to both sides.
2. 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.
3. If an equation has no solution, it is called an identity.
4. The most general form of a linear equation is $ax + b = cx + d$.

Practice

Solve the following equation. Express your answer as an integer, simplified fraction, or decimal rounded to two decimal places.

5. $4x - 2 = -6$
6. $-10 = 4x - 14$

$$7. \frac{3}{8}z - \frac{8}{3}z - \frac{11}{3} = \frac{11}{12}$$

$$8. 8x - 1 = 5x + 11$$

$$9. -3 + (3n + 2) = -3(-3n + 9) + 2$$

$$10. 0.5u - 1.5 = 2.7u + 2.9$$

Determine if the following equation is a conditional equation, an identity, or a contradiction.

$$11. 6(x + 2) + 5x = -3(x - 4) + 14x$$

$$12. 3(x + 4) = 8(4 - 3x) + 27x$$

Applications

Solve.

13. The tickets for a figure skating performance sold out in hours. If there were 25,000 tickets sold, solve the equation $25,000 - 4x = 0$ to find the number of tickets sold per hour.

14. A rectangular shaped park is to have a perimeter of 900 yards. If the width must be 70 yards because of a building code, solve the equation $2l + 2(70) = 900$ to determine the length of the park.

