

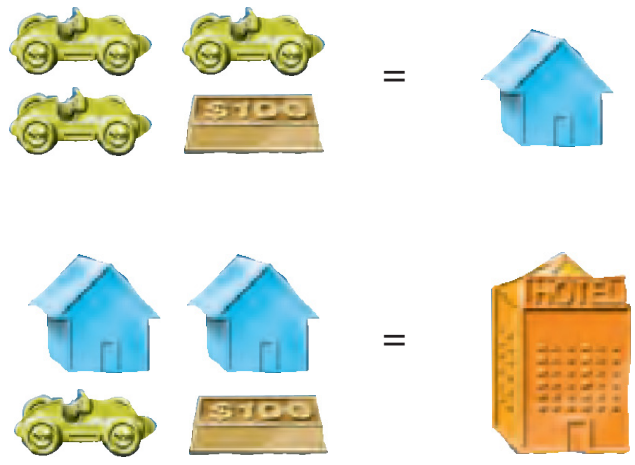
6-2

Solving Systems Using Substitution

OBJECTIVE: I can ve systems of equations using substitution

 **Warm-Up**

A board game allows players to trade game pieces of equal value. The diagram shows two fair trades. The hotel is worth \$2400. How much is a car worth? Explain your reasoning.



Essential Understanding

Essential Understanding Systems of equations can be solved in more than one way. When a system has at least one equation that can be solved quickly for a variable, the system can be solved efficiently using substitution.



Example

#1 Using Substitution



What is the solution of the system? Use substitution.

$$y = 3x$$

$$x + y = -32$$

Your Turn to Work it Out



1. What is the solution of the system? Use substitution.

Check your answer.

$$y = 2x + 7$$

$$y = x - 1$$

Example

#2 Solving for a Variable and Using Substitution



What is the solution of the system? Use substitution.

$$3y + 4x = 14$$

$$-2x + y = 3$$

Your Turn to Work it Out



2. a. What is the solution of the system? Use substitution.

$$6y + 5x = 8$$

$$x + 3y = -7$$

Example

#3 Using Systems of Equations



Snack Bar A snack bar sells two sizes of snack packs. A large snack pack is \$5, and a small snack pack is \$3. In one day, the snack bar sold 60 snack packs for a total of \$220. How many small snack packs did the snack bar sell?

Your Turn to Work it Out



3. You pay \$22 to rent 6 video games. The store charges \$4 for new games and \$2 for older games. How many new games did you rent?

Example

#4 Systems With Infinitely Many Solutions or No Solution



How many solutions does each system have?

A $x = -2y + 4$
 $3.5x + 7y = 14$

B $y = 3x - 11$
 $y - 3x = -13$

Your Turn to Work it Out



4. How many solutions does the system have?

$$6y + 5x = 8$$

$$2.5x + 3y = 4$$