



GUIDED PRACTICE

Solve each system by substitution.

SEE EXAMPLE 1

$$1. \begin{cases} y = 5x - 10 \\ y = 3x + 8 \end{cases}$$

$$2. \begin{cases} 3x + y = 2 \\ 4x + y = 20 \end{cases}$$

$$3. \begin{cases} y = x + 5 \\ 4x + y = 20 \end{cases}$$

SEE EXAMPLE 2

$$4. \begin{cases} x - 2y = 10 \\ \frac{1}{2}x - 2y = 4 \end{cases}$$

$$5. \begin{cases} y - 4x = 3 \\ 2x - 3y = 21 \end{cases}$$

$$6. \begin{cases} x = y - 8 \\ -x - y = 0 \end{cases}$$

SEE EXAMPLE 3

7. **Consumer Economics** The Strauss family is deciding between two lawn-care services. Green Lawn charges a \$49 startup fee, plus \$29 per month. Grass Team charges a \$25 startup fee, plus \$37 per month.
- In how many months will both lawn-care services cost the same? What will that cost be?
 - If the family will use the service for only 6 months, which is the better option? Explain.

PRACTICE AND PROBLEM SOLVING

Independent Practice

For Exercises	See Example
8–10	1
11–16	2
17	3

Solve each system by substitution.

$$8. \begin{cases} y = x + 3 \\ y = 2x + 4 \end{cases}$$

$$9. \begin{cases} y = 2x + 10 \\ y = -2x - 6 \end{cases}$$

$$10. \begin{cases} x + 2y = 8 \\ x + 3y = 12 \end{cases}$$

$$11. \begin{cases} 2x + 2y = 2 \\ -4x + 4y = 12 \end{cases}$$

$$12. \begin{cases} y = 0.5x + 2 \\ -y = -2x + 4 \end{cases}$$

$$13. \begin{cases} -x + y = 4 \\ 3x - 2y = -7 \end{cases}$$

$$14. \begin{cases} 3x + y = -8 \\ -2x - y = 6 \end{cases}$$

$$15. \begin{cases} x + 2y = -1 \\ 4x - 4y = 20 \end{cases}$$

$$16. \begin{cases} 4x = y - 1 \\ 6x - 2y = -3 \end{cases}$$

17. **Recreation** Casey wants to buy a gym membership. One gym has a \$150 joining fee and costs \$35 per month. Another gym has no joining fee and costs \$60 per month.

- In how many months will both gym memberships cost the same? What will that cost be?
- If Casey plans to cancel in 5 months, which is the better option for him? Explain.

Solve each system by substitution. Check your answer.

$$18. \begin{cases} x = 5 \\ x + y = 8 \end{cases}$$

$$19. \begin{cases} y = -3x + 4 \\ x = 2y + 6 \end{cases}$$

$$20. \begin{cases} 3x - y = 11 \\ 5y - 7x = 1 \end{cases}$$

$$21. \begin{cases} \frac{1}{2}x + \frac{1}{3}y = 6 \\ x - y = 2 \end{cases}$$

$$22. \begin{cases} x = 7 - 2y \\ 2x + y = 5 \end{cases}$$

$$23. \begin{cases} y = 1.2x - 4 \\ 2.2x + 5 = y \end{cases}$$

24. The sum of two numbers is 50. The first number is 43 less than twice the second number. Write and solve a system of equations to find the two numbers.

25. **Money** A jar contains n nickels and d dimes. There are 20 coins in the jar, and the total value of the coins is \$1.40. How many nickels and how many dimes are in the jar? (*Hint:* Nickels are worth \$0.05 and dimes are worth \$0.10.)

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