

# 3-1 Practice

## Solving Systems Using Tables and Graphs

Form G

Solve each system by graphing or using a table. Check your answers.

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

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

3. 
$$\begin{cases} x - 2y = 10 \\ y = x - 11 \end{cases}$$

4. 
$$\begin{cases} 5x + y = 11 \\ x - y = 1 \end{cases}$$

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

6. 
$$\begin{cases} x - y = -1 \\ 2x + 2y = 10 \end{cases}$$

7. 
$$\begin{cases} 4x + 3y = -16 \\ -x + y = 4 \end{cases}$$

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

9. 
$$\begin{cases} y = \frac{2}{3}x - 5 \\ y = -\frac{2}{3}x - 3 \end{cases}$$

10. 
$$\begin{cases} y = \frac{1}{2}x + 3 \\ y = -\frac{1}{4}x - 3 \end{cases}$$

11. 
$$\begin{cases} 2x - 4y = -4 \\ 3x - y = 4 \end{cases}$$

12. 
$$\begin{cases} x + y = 6 \\ x - y = 4 \end{cases}$$

Write and solve a system of equations for each situation. Check your answers.

13. Your school sells tickets for its winter concert. Student tickets are \$5 and adult tickets are \$10. If your school sells 85 tickets and makes \$600, how many of each ticket did they sell?
14. A grocery store has small bags of apples for \$5 and large bags of apples for \$8. If you buy 6 bags and spend \$45, how many of each size bag did you buy?
15. The spreadsheet below shows the monthly income and expenses for a new business.
- Use your graphing calculator to find linear models for income and expenses as functions of the number of the month.
  - In what month will income equal expenses?

	A	B	C
	Month	Income	Expenses
1	May	\$1500	\$21,400
2	June	\$3500	\$18,800
3	July	\$5500	\$16,200
4	August	\$7500	\$13,600

## 3-1

**Practice** (continued)

Form G

## Solving Systems Using Tables and Graphs

Without graphing, classify each system as *independent*, *dependent*, or *inconsistent*

16. 
$$\begin{cases} x + y = 3 \\ y = 2x - 3 \end{cases}$$

17. 
$$\begin{cases} 2x + y = 3 \\ y = -2x - 1 \end{cases}$$

18. 
$$\begin{cases} x + 3y = 9 \\ -2x - 6y = -18 \end{cases}$$

19. 
$$\begin{cases} x + y = 4 \\ y = 2x + 1 \end{cases}$$

20. 
$$\begin{cases} x + 3y = 9 \\ 9y + 3x = 27 \end{cases}$$

21. 
$$\begin{cases} x + 2y = 5 \\ 2x + 3y = 9 \end{cases}$$

22. 
$$\begin{cases} 3x + 2y = 7 \\ 3x - 15 = -6y \end{cases}$$

23. 
$$\begin{cases} x + y = 6 \\ 3x + 3y = 3 \end{cases}$$

24. 
$$\begin{cases} x + y = 11 \\ y = x - 5 \end{cases}$$

25. 
$$\begin{cases} x + 2y = 13 \\ 2y = 7 - x \end{cases}$$

26. 
$$\begin{cases} y = 12 - 5x \\ x - 4y = -6 \end{cases}$$

27. 
$$\begin{cases} 25x - 10y = 0 \\ 2y = 5x \end{cases}$$

28. You and your business partner are mailing advertising flyers to your customers. You address 6 flyers each minute and have already done 80. Your partner addresses 4 flyers each minute and has already done 100. Graph and solve a system of equations to find when the two of you will have addressed equal numbers of flyers.
29. You are going on vacation and leaving your dog in a kennel. Kennel A charges \$25 per day which includes a one-time grooming treatment. Kennel B charges \$20 per day and a one-time fee of \$30 for grooming.
- Write a system of equations to represent the cost  $c$  for  $d$  days that your dog will stay at the kennel.
  - If your vacation is 7 days long, which kennel should you choose? Explain.

**Open-Ended** Write a second equation for each system so that the system will have the indicated number of solutions.

30. one

$$\begin{cases} y = 5x - 3 \\ ? \end{cases}$$

31. none

$$\begin{cases} y = -x + 3 \\ ? \end{cases}$$

32. an infinite number

$$\begin{cases} y = 3x - 2 \\ ? \end{cases}$$

33. **Multiple Choice** Which ordered pair of numbers is the solution of the system?

$$\begin{cases} x + y = -3 \\ x - 2y = 0 \end{cases}$$

A  $(-6, -3)$ B  $(-2, -1)$ C  $(6, -3)$ D  $(2, 1)$