

Objectives

- Solve systems of equations by using graphs and tables.
- Classify systems of equations, and determine the number of solutions.

Vocabulary

System of equations-

Linear system-

Consistent system-

Inconsistent system-

Independent system-

Dependent system-

Example 1

Use substitution to determine if the ordered pair is an element of the solution set for the systems of equations.

a) $(2,4); \begin{cases} x - 2y = -6 \\ 2x + y = 8 \end{cases}$

b) $(3,2); \begin{cases} 2x + 3y = 12 \\ 8x - 6y = 24 \end{cases}$

Try It!

a) $(4,3); \begin{cases} x + 2y = 10 \\ 3x - y = 9 \end{cases}$

b) $(5,3); \begin{cases} 6x - 7y = 1 \\ 3x + 7y = 5 \end{cases}$

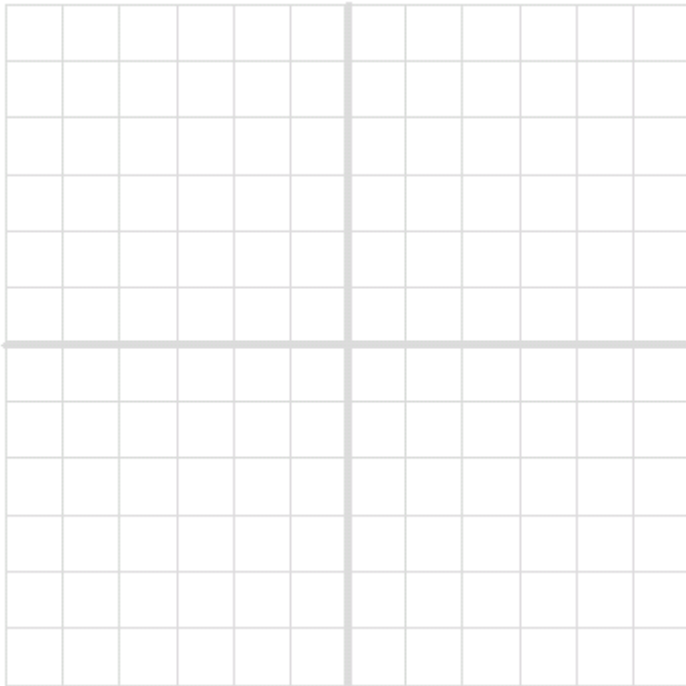
Example 2

Use a graph and a table to solve each system. Check your answer.

a)
$$\begin{cases} x + y = 4 \\ 2y + 4 = x \end{cases}$$



b)
$$\begin{cases} x + y = 4 \\ 2y + 4 = x \end{cases}$$



Try it!

Use a graph and a table to solve each system. Check your answer.

a)
$$\begin{cases} 4x = 3 + y \\ 2y + 6 = x \end{cases}$$



b)
$$\begin{cases} x + y = 8 \\ 2x - y = 4 \end{cases}$$



Example 3**Classify each system and determine the number of solutions.**

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

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

Try it!**Classify each system and determine the number of solutions.**

a)
$$\begin{cases} 7x - y = -11 \\ 3y = 21x + 33 \end{cases}$$

b)
$$\begin{cases} x + 4 = y \\ 5y = 5x + 35 \end{cases}$$

Example 4

Big Dog Snowboard Co. charges \$15 for equipment rental plus \$35 an hour for snowboard lessons. Half-Pipe Snowboard Inc. charges \$40 for equipment rental plus \$25 an hour for snowboard lessons. For what number of hours is the cost of equipment and lessons the same for each company?

Try it!

Ravi is comparing the costs of long distance calling cards. To use card A, it costs \$0.50 to connect and then \$0.05 per minute. To use card B, it costs \$0.20 to connect and then \$0.08 per minute. For what number of minutes does it cost the same amount to use each card for a single call?