

Study Guide

Match the following systems to the number of solutions and explain your answer.

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

a. Infinitely Many Solutions

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

b. No Solution

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

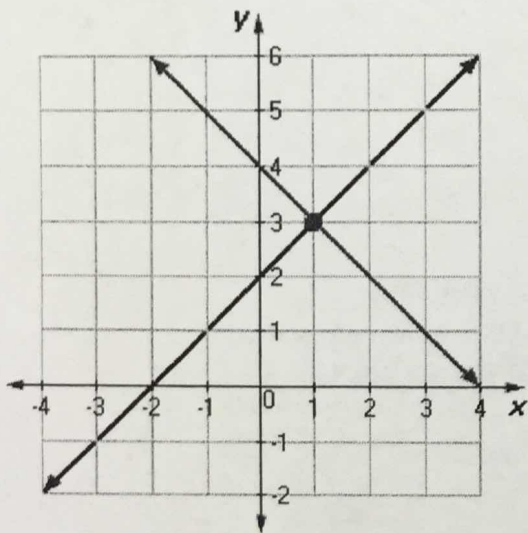
c. One solution

4. If $(-4, y)$ is the solution to this system of equations, determine the value of y .

$$2x + 4y = 4$$

$$3x + y = -9$$

5. Write the system of equations and the solution that is represented by the graph below.



6. There were 8 coins in a piggy bank with a total value of \$1.00. If all of the coins are either quarters or nickels, determine how many of each type of coin there are. Write a system of equations to represent the situation.
7. Meghan and Stefanie are training for the Peachtree Road Race. Meghan and Stefanie ran a total of 28 laps around the track. Meghan ran three times as many laps as Stefanie. Write and solve a system of equations to determine how many laps they each ran.

8. A system of linear equations was graphed on a graphing calculator. The table below represents values from the graph. Write a system to represent the table. What is the solution to the system of equations?

x	y_1	y_2
-2	9	4
-1	7	7
0	5	10
1	3	13
2	1	16

9. There are 264 8th grade students taking a trip to Washington, D.C. Some students will ride in vans that hold 8 students and other students are riding on buses that hold 25 students. There are a total of 16 vehicles being utilized. Assuming each vehicle is completely full, how many of each vehicle is being used?
10. A dog walking service has a membership plan in which a person pays a membership fee of \$12 plus \$1.00 for each time the dog was walked. Nonmembers pay \$5.00 for each time a dog is walked. How many times does a dog need to be walked for the membership plan to be a better plan?
11. Using the equation $y = 4x + 3$,
- write another equation to create a system with no solution.
 - write another equation to create a system with an infinitely many solutions.
 - write another equation to create a system with exactly one solution.