Accelerated 65-95, HW 1 Blitzer 4.1 Name: ______________________________

Concept and Vocabulary:

1. A solution to a system of linear equations in two variables is an ordered pair that ____

2. When solving a system of linear equations by graphing, the system's solution is determined by using ____________________________________

3. A system of linear equations that has no solution is called a/an __________________ system. If you attempt to solve such a system by graphing, you will obtain two lines that are __________________.

4. The equations in a system of two linear equations with infinitely many solutions are called __________________ equations. If you attempt to solve such a system by graphing, you will obtain two lines that ________________________.

Practice Exercises:

In Exercises 1 - 9 odd, determine whether the given ordered pair is a solution of the system. State your conclusion using a complete sentence.

1.
$$(2, -3)$$
$$2x + 3y = -5$$
$$7x - 3y = 23$$

3.
$$\left(\frac{2}{3}, \frac{1}{9}\right)$$
$$x + 3y = 1$$
$$4x + 3y = 3$$

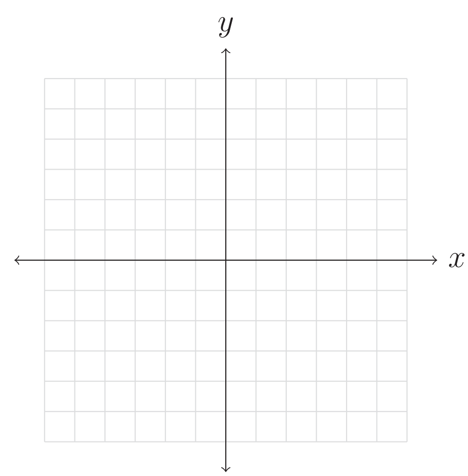
5.
$$(-5, 9)$$
$$5x + 3y = 2$$
$$x + 4y = 14$$

7.
$$(1400, 450)$$
$$x - 2y = 500$$
$$0.03x + 0.02y = 51$$

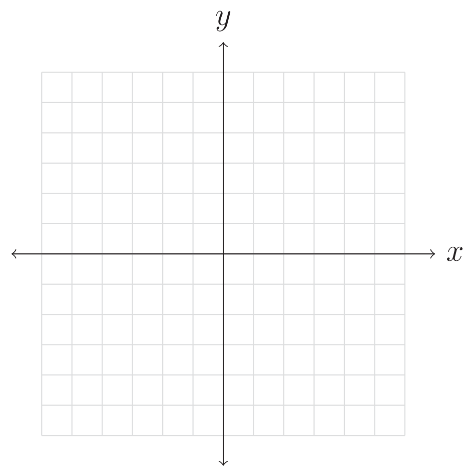
9.
$$(8, 5)$$
$$5x - 4y = 20$$
$$3y = 2x + 1$$

In exercises 11 - 39 odd, determine the y-intercept and slope of each equation and use this information to draw the graph of each equation. Use the graphs to determine the set of solutions to the system of equations. If there is no solution, or an infinite number of solutions, so state. Use set notation to express solution sets.

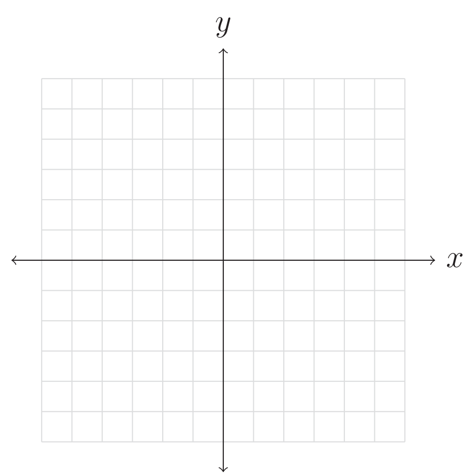
11. $x + y = 6$ $\qquad$ $x - y = 2$



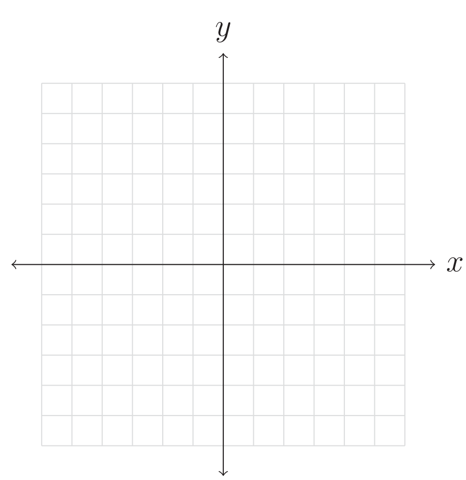
13. $x + y = 1$ $y - x = 3$



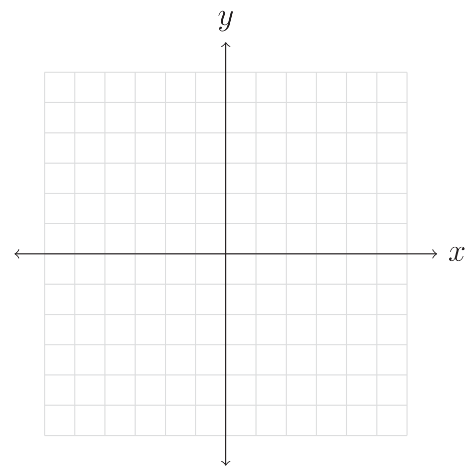
15. $2x - 3y = 6$ $4x + 3y = 12$



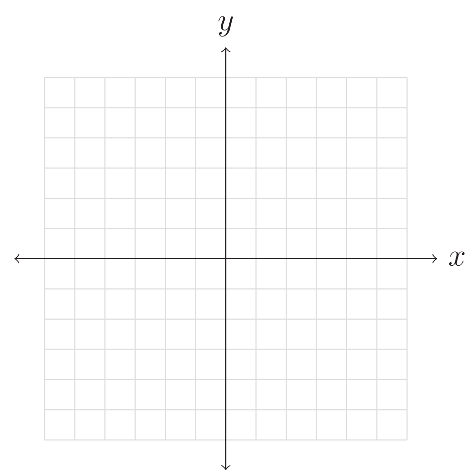
17. $4x + y = 4$ $3x - y = 3$



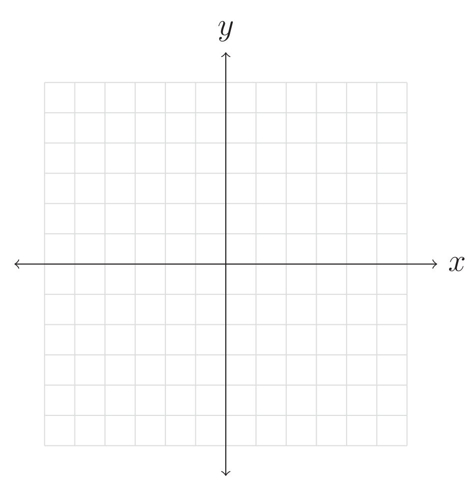
19. $y = x + 5$ $\qquad$ $y = -x + 3$



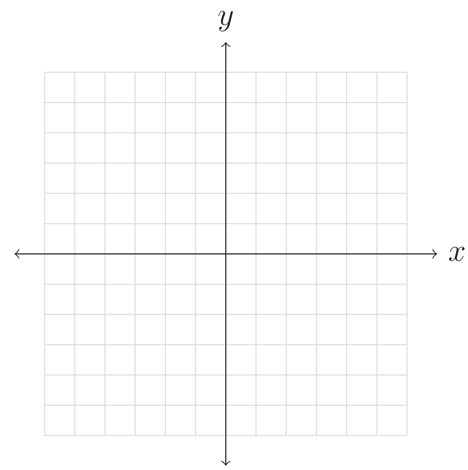
21. $y = 2x$ $\qquad$ $y = -x + 6$



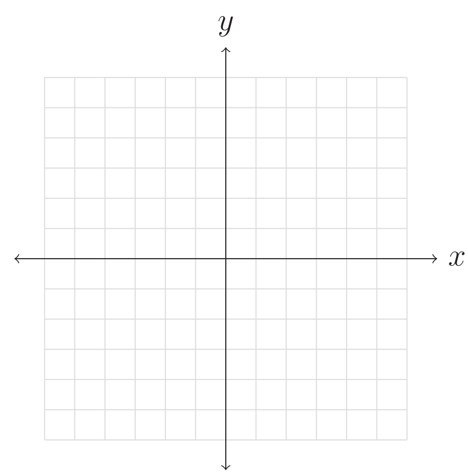
23. $y = -2x + 3$ $\qquad$ $y = -x + 1$



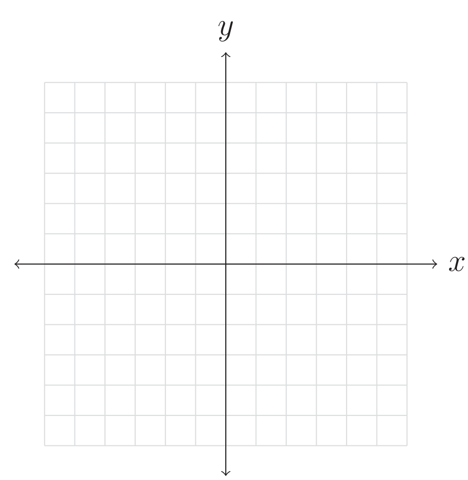
25. $y = 2x - 1$ $y = 2x + 1$



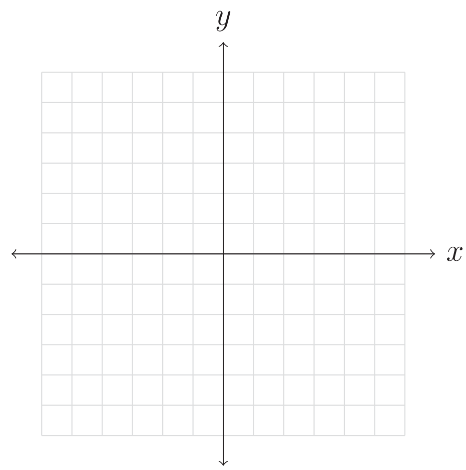
27. $x + y = 4$ $x = -2$



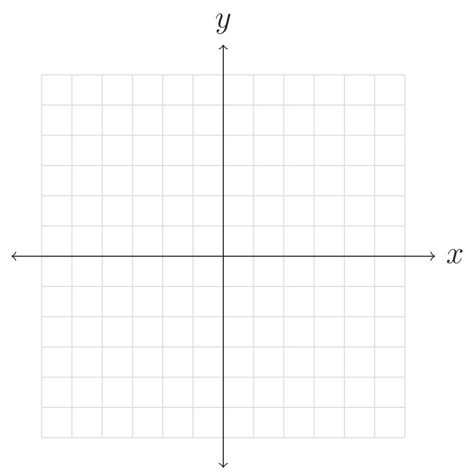
29. $x - 2y = 4$ $2x - 4y = 8$



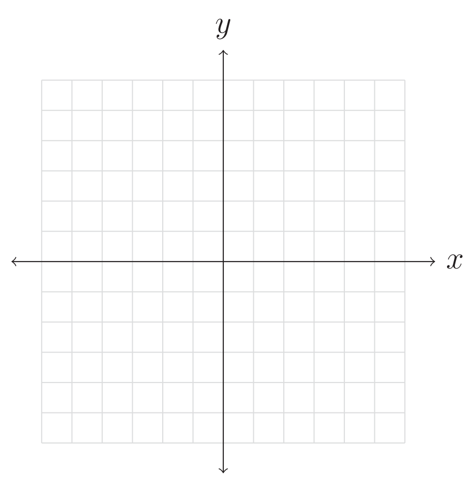
31. $y = 2x - 1$ $x - 2y = -4$



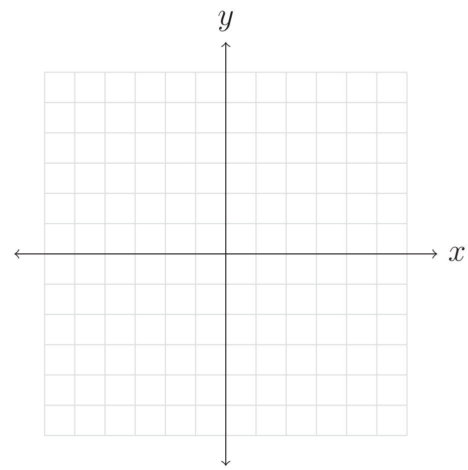
33. $x + y = 5$ $2x + 2y = 12$



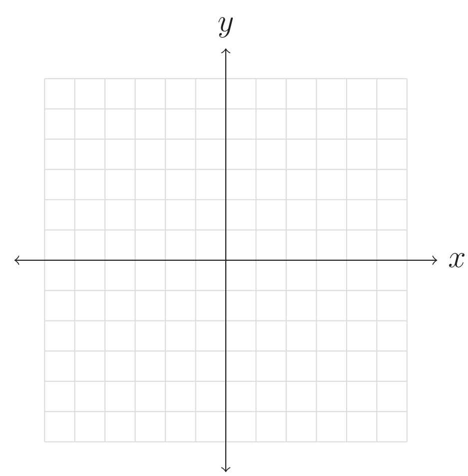
35. $x - y = 0$ $y = x$



37. $x = 2$ $y = 4$



39. $x = 2$ $x = -1$



In Exercises 43 - 47 odd, find the slope and y-intercept for the graph of each equation in the given system. Use this information (and not the equations' graphs) to determine if the system has no solution, one solution or an infinite number of solutions.

43. $y = \frac{1}{2}x - 3$ $y = \frac{1}{2}x - 5$

45. $y = -\frac{1}{2}x + 4$ $\qquad$ $3x - y = -4$

47. $3x - y = 6$ $\qquad$ $x = \frac{y}{3} + 2$

Applications:

51. A rental company charges \$40.00 a day plus \$0.35 per mile to rent a moving truck. The total cost, y, for a day's rental if x miles are driven is described by $y = 0.35x + 40$. A second company charges \$36.00 a day plus \$0.45 per mile, so the daily cost, y, if x miles are driven is described by $y = 0.45x + 36$. The graphs of the two equations are shown in the same rectangular coordinate system on page 298 of your book.

  a. What is the x-coordinate of the intersection point of the graphs? Describe what this x-coordinate means in practical terms.

  b. What is a reasonable estimate for the y-coordinate of the intersection point?

  c. Substitute the x-coordinate of the intersection point into each of the equations and find the corresponding value for y. Describe what this value represents in practical terms. How close is this value to your estimate from part (b)?

53. You plan to start taking an aerobics class. Nonmembers pay \$4 per class. Members pay a \$10 monthly fee plus an additional \$2 per class. The monthly cost, y, of taking x classes can be modeled by the linear system

$$
\begin{aligned}
y &= 4x \text{ Nonmembers} \\
y &= 2x + 10 \text{ Members}
\end{aligned}
$$

a. Use graphing to solve the system.

b. Interpret the coordinates of the solution in practical terms.