

1. Write the slope-intercept form of the equation of the line. Do not guess the y-intercept!

$$m = \frac{0 - (-2)}{2 - (-1)} = \frac{2}{3}$$

$$y - 0 = \frac{2}{3}(x - 2)$$

$$y = \frac{2}{3}x - \frac{4}{3}$$

2. Write the equation of the line with slope undefined through the point $(-4, 2)$.

$$x = -4$$

3. Write the slope-intercept form of the equation of the line through $(-4, 2)$, parallel to $2x - y = 1$

$$2x - y = 1$$

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

$$y = 2x - 1$$

$$y - 2 = 2(x + 4)$$

$$y - 2 = 2x + 8$$

$$y = 2x + 10$$

4. Find the x- and y-intercepts of $-5x + 2y = 11$ as points.

| x | y |
|-----------------|----------------|
| 0 | $\frac{11}{2}$ |
| $-\frac{11}{5}$ | 0 |

$x = 0 \Rightarrow 2y = 11 \Rightarrow y = \frac{11}{2}$
 $y = 0 \Rightarrow -5x = 11 \Rightarrow x = -\frac{11}{5}$

x-intercept: $(-\frac{11}{5}, 0)$
 y-intercept: $(0, \frac{11}{2})$

5. Is the point $(-4, 2)$ the solution to the system of equations?

$x - y = -6$

$y = 2x + 6$

Do not solve—just check the answer!

$x - y = -6$

$y = 2x + 6$

$-4 - 2 = -6$

$2 = 2(-4) + 6$

$-6 = -6 \checkmark$

$2 = -8 + 6$

$2 = -2 \times$

no

(fails the second equation!)

6. Fill in the blank:

The solution to a system of equations is the point that solves

both equations

7. Suppose Paintball Jungle charges \$40 plus an additional \$5 per gun they rent out. Paintwar charges \$50 plus an additional \$4 per gun they rent out.

a) Write two equations from the problem described above. Then define your variables.

$$C = 40 + 5g$$

$$C = 50 + 4g$$

where $g = \# \text{ guns}$

$C = \text{cost in } \$$

b) Use substitution to solve for the number of guns you would have to rent out for the price to be the same. Then tell how much it would cost you if they were the same.

$$C = 40 + 5g$$

$$C = 50 + 4g$$

$$40 + 5g = 50 + 4g$$

$$40 + g = 50$$

$$g = 10$$

$$C = 40 + 5(10)$$
$$C = \$90$$

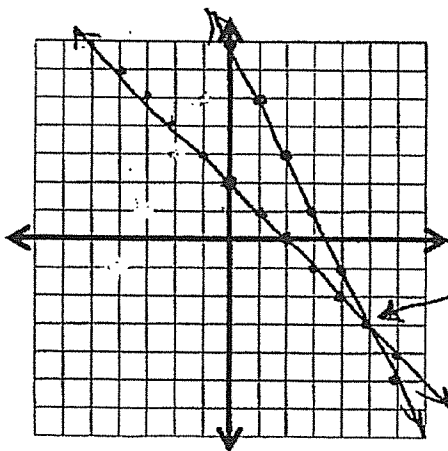
If they rent 10 guns, the price at both places will be \$90

8. Solve the system of equations by graphing.

$$y = -x + 2$$

$$2x + y = 7$$

$$y = -2x + 7$$



$(5, -3)$

9. Solve the system by graphing.

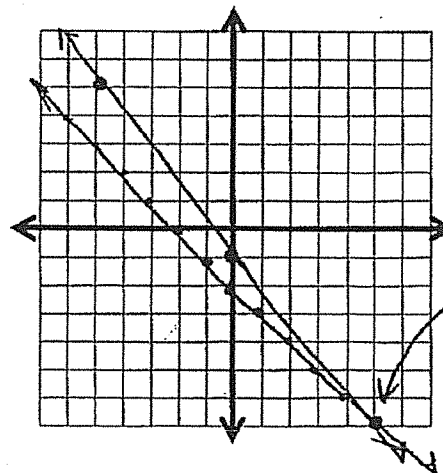
$$-x - y = 2$$

$$y = -\frac{6}{5}x - 1$$

$$-x - y = 2$$

$$-y = x + 2$$

$$y = -x - 2$$



$(5, -7)$

10. Write two equations for the word problem below, then solve the problem below using substitution.

The Giants football team scored a total of five times. They have 27 points. If they scored using only touchdowns (7 points) and field goals (3 points), how many of each type did they make?

$$t + f = 5 \quad \text{where } t = \# \text{ touchdowns}$$

$$7t + 3f = 27 \quad f = \# \text{ field goals}$$

They scored
3 touchdowns
and 2 field goals

$$t + f = 5$$

$$f = -t + 5$$

$$7t + 3(-t + 5) = 27$$

$$7t - 3t + 15 = 27$$

$$4t = 12$$

$$t = 3$$

$$3 + f = 5$$

$$f = 2$$

11. Solve the systems of equations by substitution.

a.

$$3x - y = -6$$

$$y = 2x + 4$$

$$3x - (2x + 4) = -6$$

$$3x - 2x - 4 = -6$$

$$x - 4 = -6$$

$$x = -2$$

$$y = 2(-2) + 4$$

$$y = 0$$

(-2, 0)

b.

$$3x + 9y = 36$$

$$x - 8y = -10$$

$$x - 8y = -10$$

$$+ 8y \quad + 8y$$

$$x = 8y - 10$$

$$3x + 9y = 36$$

$$3(8y - 10) + 9y = 36$$

$$24y + 30 + 9y = 36$$

$$33y + 30 = 36$$

$$33y = 6$$

$$y = \frac{6}{33} = \frac{2}{11}$$

$$x = 8\left(\frac{2}{11}\right) - 10$$

$$x = \frac{16}{11} - 10$$

$$x = -\frac{104}{11}$$

$$x = -9\frac{5}{11}$$

$$y = \frac{2}{11}$$

(-9, 2)

12. Solve the systems by elimination.

a.

$$x + 2y = 1$$

$$3x + y = 8$$

$$-3(x + 2y = 1) \rightarrow -3x - 6y = -3$$

$$\quad \quad \quad 3x + y = 8$$

$$-5y = 5$$

$$y = -1$$

$$x + 2(-1) = 1$$

$$x - 2 = 1$$

$$x = 3$$

(3, -1)

b.

$$2(2x + 3y = -4) \rightarrow 4x + 6y = -8$$

$$3(3x - 2y = 7) \rightarrow 9x - 6y = 21$$

$$13x = 13$$

$$x = 1$$

$$2x + 3y = -4$$

$$2(1) + 3y = -4$$

$$2 + 3y = -4$$

$$3y = -6$$

$$y = -2$$

(1, -2)