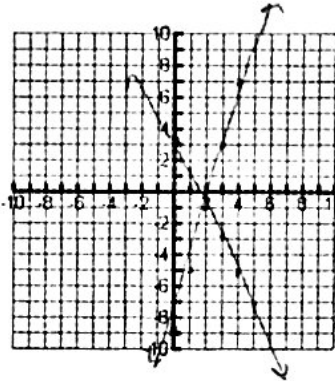


Solve the following systems of equations by graphing:

1) $y = -2x + 3$
 $y = 4x - 9$

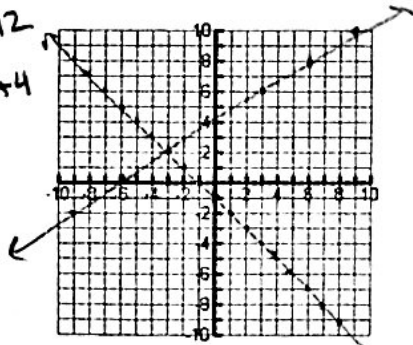
$(2, -1)$



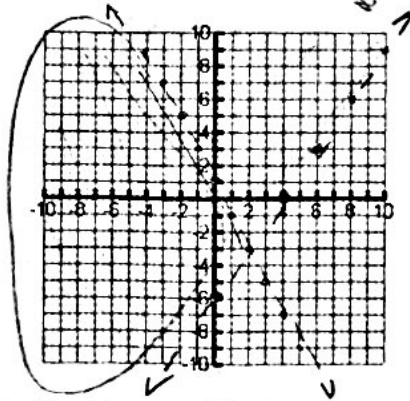
2) $2x - 3y = -12$
 $x + y = -1$

$(-3, 2)$

$-3y = -2x - 12$
 $y = \frac{2}{3}x + 4$
 $y = -x - 1$



3) $y < -2x + 1$
 $y > \frac{3}{2}x - 6$



Solve the following using the substitution method.

4) $y = x + 8$
 $x + y = 2$

$y = -3 + 8$
 $y = 5$

$x + x + 8 = 2$
 $2x + 8 = 2$
 $2x = -6$
 $x = -3$

$(-3, 5)$

5) $-2x + y = 1$ $y = 2x + 1$
 $2x - y = -2$ or $-y = -2x - 2$

$y = 2x + 2$
// lines

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

$1 = -2$

No Solution

$$6) \begin{cases} x = 5y + 2 \\ 2x + 2y = 4 \end{cases}$$

$$\begin{aligned} 2(5y + 2) + 2y &= 4 \\ 10y + 4 + 2y &= 4 \\ 12y + 4 &= 4 \\ 12y &= 0 \\ y &= 0 \end{aligned}$$

$$x = 5(0) + 2 \\ x = 2 \quad (2, 0)$$

$$7) \begin{cases} 2x - y = 4 \\ -2x + y = -4 \end{cases} \quad y = 2x - 4$$

$$\begin{aligned} 2x - (2x - 4) &= 4 \\ 2x - 2x + 4 &= 4 \\ 4 &= 4 \end{aligned}$$

Infininitely Many Soln

Solve the following using the elimination method.

$$8) \begin{cases} 8x + 3y = -9 \\ -8x + y = 29 \end{cases} \quad \begin{cases} 8x + 3(5) = -9 \\ 8x + 15 = -9 \\ 8x = -24 \\ x = -3 \end{cases}$$

$$4y = 20 \\ y = 5 \\ (-3, 5)$$

$$9) \begin{cases} 5x + 6y = 4 \\ -7x + 6y = 8 \end{cases} \quad \begin{cases} 5x + 6y = 4 \\ -7x - 6y = -8 \\ -2x = -4 \\ x = 2 \end{cases}$$

$$10 + 6y = 4 \\ 6y = -6 \\ y = -1 \\ (2, -1)$$

$$10) \begin{cases} -2(2x + y = -9) \\ 4x + 11y = 9 \end{cases} \quad \begin{cases} -4x - 2y = 18 \\ 4x + 11y = 9 \\ 9y = 27 \\ y = 3 \end{cases} \quad (6, 3)$$

$$11) \begin{cases} 5(3x - 7y = 5) \\ 3(-5x + 9y = 5) \end{cases} \quad \begin{cases} 15x - 35y = 25 \\ -15x + 27y = 15 \\ -8y = 40 \\ y = -5 \end{cases}$$

$$3x - 7(-5) = 5 \\ 3x + 35 = 5 \\ 3x = -30 \\ x = -10 \\ (-10, -5)$$

12) Mr. Alvarado bought a total of 20 pounds of grass seed at the nursery for \$168. He paid \$9 per pound for Kentucky bluegrass and \$6 per pound for Tall Fescue. Use a system of equations to find how many pounds of each type of grass seed he bought. Declare your variables.

16x = bluegrass
y = fescue

$$\begin{cases} x + y = 20 \\ 9x + 6y = 168 \end{cases} \quad \begin{cases} y = -x + 20 \\ 9x + 6(-x + 20) = 168 \\ 9x - 6x + 120 = 168 \\ 3x = 48 \\ x = 16 \end{cases} \quad \begin{cases} x + y = 20 \\ x = 16 \\ y = 4 \end{cases}$$

13) You pay \$24.50 for 10 gallons of gasoline and 1 quart of oil at a gas station. Your friend pays \$22 for 8 gallons of the same gasoline and 2 quarts of the same oil. Use a system of equations to find the cost of 1 gallon of gasoline and 1 quart of oil. Declare your variables.

2.25x = gas
2.00y = oil

$$\begin{cases} -2(10x + 1y = 24.50) \\ 8x + 2y = 22 \end{cases} \quad \begin{cases} -20x - 2y = -49 \\ 8x + 2y = 22 \\ -12x = -27 \\ x = 2.25 \end{cases}$$

$$\begin{cases} 10(2.25) + 1y = 24.50 \\ 22.50 + y = 24.50 \\ y = 2.00 \end{cases}$$

$$\begin{array}{r} 24.50 \\ 2 \\ \hline 49.00 \\ 2.25 \\ \hline 12270 \\ 24 \\ \hline 30 \end{array}$$

• Study quiz and Linear Programming (do #8 on page 25)!!