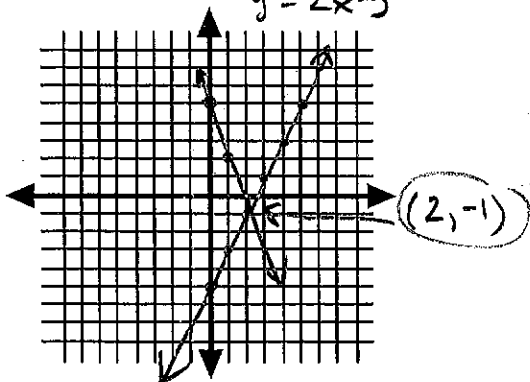


Solve the system by GRAPHING. Write the solution on the line provided.

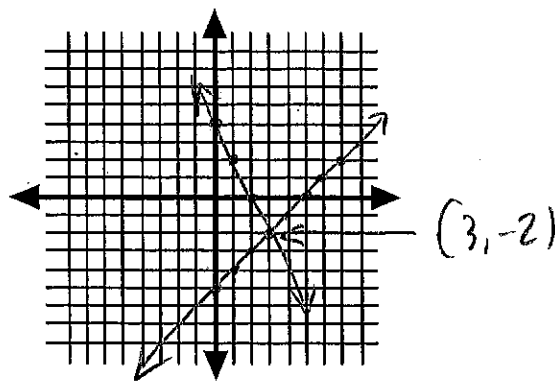
$$\begin{aligned}
 8. \quad 2x - y &= 5 \\
 y &= -3x + 5
 \end{aligned}$$

$$\begin{aligned}
 &\rightarrow 2x - y = 5 \\
 &\quad +y \quad +4 \\
 2x &= 5 + y \\
 -5 &\quad -5 \\
 2x - 5 &= 4 \\
 2x - 5 &= 4 \\
 y &= 2x - 5
 \end{aligned}$$



$$\begin{aligned}
 9. \quad y &= x - 5 \\
 2x + y &= 4
 \end{aligned}$$

$$\begin{aligned}
 -2x &\quad -2x \\
 y &= -2x + 4
 \end{aligned}$$



8. $(2, -1)$

9. $(3, -2)$

Solve the system by SUBSTITUTION. Write the solution on the line provided.

$$\begin{aligned}
 10. \quad 4x - 3y &= 5 \\
 y &= 2x - 3
 \end{aligned}$$

$$\begin{aligned}
 4x - 3(2x - 3) &= 5 & y &= 2(2) - 3 \\
 4x - 6x + 9 &= 5 & y &= 4 - 3 \\
 -2x + 9 &= 5 & y &= 1 \\
 -2x &= -4 & & \\
 \frac{-2x}{-2} &= \frac{-4}{-2} & & \\
 x &= 2 & & \\
 & & & \textcircled{(2, 1)}
 \end{aligned}$$

$$\begin{aligned}
 11. \quad 5x + 3y &= 8 \\
 -3x + y &= 8
 \end{aligned}$$

$$\begin{aligned}
 -3x &\quad -3y \\
 y &= -3x + 8
 \end{aligned}$$

$$\begin{aligned}
 5x + 3(-3x + 8) &= 8 & 3(4) + y &= 8 \\
 5x - 9x + 24 &= 8 & 12 + y &= 8 \\
 -4x + 24 &= 8 & -12 &\quad -12 \\
 -4x &= -16 & y &= -4 \\
 \frac{-4x}{-4} &= \frac{-16}{-4} & x &= 4
 \end{aligned}$$

10. $(2, 1)$

11. $(4, -4)$

$$\begin{aligned}
 12. \quad x + 5y &= 4 \\
 2x + 10y &= 8
 \end{aligned}$$

$$\begin{aligned}
 x + 5y &= 4 \\
 -5y &\quad -5y \\
 x &= -5y + 4
 \end{aligned}$$

$$\begin{aligned}
 2(-5y + 4) + 10y &= 8 \\
 -10y + 8 + 10y &= 8 \\
 8 &= 8
 \end{aligned}$$

$$\begin{aligned}
 13. \quad 3x - y &= 4 \\
 2x - 3y &= -9
 \end{aligned}$$

$$\begin{aligned}
 3x - y &= 4 \\
 +y &\quad +y \\
 3x &= 4 + y \\
 -4 &\quad -4 \\
 3x - 4 &= y
 \end{aligned}$$

$$\begin{aligned}
 2x - 3(3x - 4) &= -9 \\
 2x - 9x + 12 &= -9 \\
 -7x + 12 &= -9 \\
 -7x &= -21 \\
 \frac{-7x}{-7} &= \frac{-21}{-7} \\
 x &= 3
 \end{aligned}$$

12. Infinite Many Solutions

13. $(3, 5)$

$$\begin{aligned}
 3(3) - y &= 4 \\
 9 - y &= 4 \\
 -9 &\quad -9 \\
 -y &= -5 \\
 \frac{-y}{-1} &= \frac{-5}{-1} \\
 y &= 5
 \end{aligned}$$

Solve the system by ELIMINATION. Write the solution on the line provided.

$$14. \begin{cases} x + 2y = 6 \\ x - 2y = 2 \end{cases}$$

$$\begin{array}{r} 2x = 8 \\ x = 4 \end{array}$$

$$\begin{array}{r} 4 + 2y = 6 \\ -4 \quad -4 \end{array}$$

$$\begin{array}{r} 2y = 2 \\ y = 1 \end{array}$$

$$15. \begin{cases} 3x + 4y = 19 \\ 3x + 6y = 33 \end{cases}$$

$$\begin{array}{r} -3x - 4y = -19 \\ \hline 2y = 14 \\ y = 7 \end{array}$$

$$3x + 4(7) = 19$$

$$\begin{array}{r} 3x + 28 = 19 \\ -28 \quad -28 \end{array}$$

$$\frac{3x}{3} = \frac{-9}{3} \quad x = -3$$

$$14. \underline{(4, 1)}$$

$$15. \underline{(-3, 7)}$$

$$16. \begin{cases} 9x - 6y = -12 \\ -2x + 3y = -4 \end{cases}$$

$$\begin{array}{r} -4x + 6y = -8 \\ + 9x - 6y = -12 \\ \hline 5x = -20 \\ x = -4 \end{array}$$

$$\begin{array}{r} -2(-4) + 3y = -4 \\ 8 + 3y = -4 \\ -8 \quad -8 \\ \hline 3y = -12 \\ y = -4 \end{array}$$

$$17. \begin{cases} 3x + 4y = 16 \\ 2x - 3y = 22 \end{cases}$$

$$\begin{array}{r} 9x + 12y = 48 \\ + 8x - 12y = 88 \\ \hline 17x = 136 \\ x = 8 \end{array}$$

$$16. \underline{(-4, -4)}$$

$$17. \underline{(8, -2)}$$

$$\begin{array}{r} 2(8) - 3y = 22 \\ 16 - 3y = 22 \\ -16 \quad -16 \end{array}$$

$$\begin{array}{r} -3y = 6 \\ -3 \quad -3 \\ \hline y = -2 \end{array}$$

Solve each system of equation using the METHOD OF YOUR CHOICE.

$$18. \begin{cases} 4x - 3y = 1 \\ 2x + y = 3 \end{cases}$$

$$\begin{array}{r} 6x + 3y = 9 \\ + 4x - 3y = 1 \\ \hline 10x = 10 \end{array}$$

$$x = 1$$

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

$$\begin{array}{r} 2 + y = 3 \\ -2 \quad -2 \end{array}$$

$$y = 1$$

$$19. \begin{cases} 6x - 2y = 6 \\ x + 4y = 14 \end{cases}$$

$$\begin{array}{r} 12x - 4y = 12 \\ + x + 4y = 14 \\ \hline 13x = 26 \\ x = 2 \end{array}$$

$$x = 2$$

$$\begin{array}{r} 2 + 4y = 14 \\ -2 \quad -2 \end{array}$$

$$\frac{4y}{4} = \frac{12}{4} \quad y = 3$$

$$18. \underline{(1, 1)}$$

$$19. \underline{(2, 3)}$$

Elim

$$\begin{array}{r} -3(5x+2y=7) \\ 20.(3x+7y=10) \\ \hline -15x-6y=-21 \\ +15x+35y=50 \\ \hline 29y=29 \\ \frac{29}{29} = \frac{29}{29} \\ y=1 \end{array}$$

$$\begin{array}{l} 3x+7(1)=10 \\ 3x+7=10 \\ \quad -7 \quad -7 \\ \hline 3x=3 \\ x=1 \end{array}$$

Elim

$$\begin{array}{r} 5(2x-7y=3) \\ 21.(5x-4y=-6) \\ \hline 10x-35y=15 \\ -10x+8y=12 \\ \hline -27y=27 \\ \frac{-27}{-27} = \frac{27}{-27} \\ y=-1 \end{array}$$

$$\begin{array}{l} 2x-7(-1)=3 \\ 2x+7=3 \\ \quad -7 \quad -7 \\ \hline 2x=-4 \\ \frac{2x}{2} = \frac{-4}{2} \\ x=-2 \end{array}$$

$$\begin{array}{l} 20. (1,1) \\ 21. (-2,-1) \end{array}$$

Set up a system of equations that represents each situation. Then solve using the method of your choice.

22. A bicycle store costs \$2400 per month to operate. The store pays an average of \$60 per bike. The average selling price of each bicycle is \$120. How many bicycles must the store sell each month to break even?

Profit = $120x - 60x$

Break even = 2400

$y = 120x - 60x$

$2400 = 120x - 60x$

$\frac{2400}{60} = \frac{60x}{60}$

$x = 40$

40 bikes

23. The sum of two numbers is 27. The larger number is three more than the smaller number. What are the two numbers?

$$\begin{cases} x+y=27 \\ x=3y \end{cases}$$

$$\begin{array}{l} x+y=27 \\ x=3y \\ \hline 3y+y=27 \\ 4y=27 \\ \frac{4y}{4} = \frac{27}{4} \end{array}$$

$$\begin{array}{l} y=6.75 \\ x=20.25 \end{array}$$

24. You have \$6000 to invest in two stock funds. The first fund pays 5% annual interest and the second account pays 9% annual interest. If after a year you have made \$380 in interest, how much money did you invest in each account?

$$6000 = x + y \rightarrow x = 6000 - y$$

$380 = 0.05x + 0.09y$

$380 = 0.05(6000 - y) + 0.09y$

$$\begin{array}{r} 380 = 300 - 0.05y + 0.09y \\ -300 \quad -300 \\ \hline 80 = -0.05y + 0.09y \end{array}$$

$80 = -0.05y + 0.09y$

$\frac{80}{0.04} = \frac{0.04y}{0.04}$

$y = 2000$

$x = 4000$

\$4000 in the 5% and \$2000 in the 9%.