

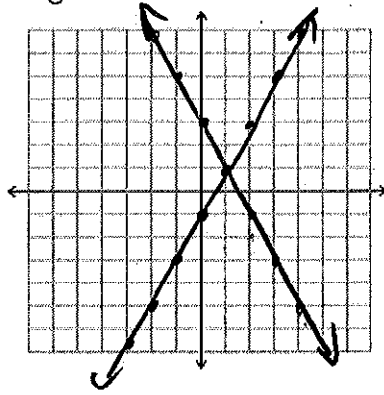
Unit 2: Systems of Equations Review

Name: KEY

Solve the system by graphing:

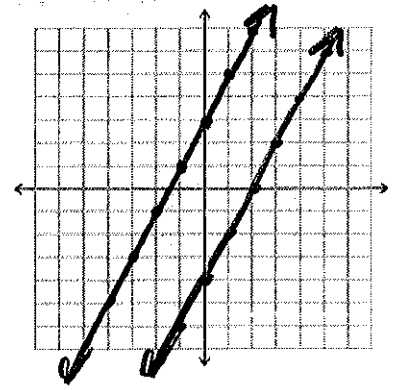
1. $y = 2x - 1$
 $y = -\frac{1}{2}x + 3$

(1, 1)



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

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



3. Solve using substitution: $2x + 2y = 8$
 $x = y$

$$\begin{array}{l} 2(y) + 2y = 8 \\ 4y = 8 \\ y = 2 \\ x = 2 \end{array} \quad (2, 2)$$

4. Solve using substitution: $x + 6y = 2$
 $y = 2 - x$

$$\begin{array}{l} y = 2 - 2 \\ y = 0 \end{array}$$

$$\begin{array}{l} x + 6(2 - x) = 2 \\ x + 12 - 6x = 2 \\ -5x + 12 = 2 \\ -12 \quad -12 \\ \hline -5x = -10 \\ x = 2 \end{array} \quad (2, 0)$$

5. What method would you use to solve the following? $4x - 2y = 1$ and $y = 2x - 7$

substitution

6. The sum of two numbers is 27 and the difference is 19. Find the 2 numbers.

$$\begin{array}{r} x + y = 27 \\ + (x - y = 19) \\ \hline 2x = 46 \\ x = 23 \end{array}$$

$$\begin{array}{r} 23 + y = 27 \\ -23 \quad -23 \\ \hline y = 4 \end{array}$$

7. Solve using elimination: $(4x + y = 14) \times 3$
 $(3x + 2y = 8) \times 4$

$$\begin{array}{r} 12x + 3(-2) = 42 \\ 12x - 6 = 42 \\ +6 \quad +6 \\ \hline 12x = 48 \\ x = 4 \end{array}$$

$$\begin{array}{r} 12x + 3y = 42 \\ + (-12x - 8y = -32) \\ \hline -5y = 10 \\ y = -2 \end{array}$$

(4, -2)

8. Choose any method to solve ; Then find the sum of x and y:

$$\begin{array}{r} 4x + y = -1 \\ + (-5x - y = 0) \\ \hline -1x = -1 \\ x = 1 \end{array}$$

$$\begin{array}{r} 4(1) + y = -1 \\ -4 \quad -4 \\ \hline y = -5 \end{array} \quad (1, -5)$$

9. How many solutions does the following have: $y = 3x - 2$ and $2x + 5y = 7$?

different slopes
one solution

$$\begin{array}{r} -2x \quad -2x \\ 5y = -2x + 7 \\ \hline 5 \quad 5 \\ y = -\frac{2}{5}x + \frac{7}{5} \end{array}$$

10. A student bought 3 boxes of pencils and 2 boxes of pens for \$6.00. He then bought 2 boxes of pencils and 4 boxes of pens for \$8.00 find the cost of each box.

\$1 $x = \text{pencils}$
\$1.50 $y = \text{pens}$

$$\begin{array}{r} (3x + 2y = 6) \cdot 2 \\ 2x + 4y = 8 \\ (-6x - 4y = -12) \\ \hline -4x = -4 \quad x = 1 \end{array}$$

$$\begin{array}{r} 3(1) + 2y = 6 \\ -3 \quad -3 \\ \hline 2y = 3 \\ \frac{2y}{2} = \frac{3}{2} \\ y = \$1.50 \end{array}$$

11. Margo is 4 more than twice her sisters age, if the sum of their ages is 46 how old is her sister?

$$m = 2s + 4$$

$$\begin{array}{r} m + s = 46 \\ 2s + 4 + s = 46 \\ 3s + 4 = 46 \\ \hline -4 \quad -4 \\ \hline 3s = 42 \end{array}$$

$$\begin{array}{r} 3s = 42 \\ \hline 3 \quad 3 \\ \hline s = 14 \end{array}$$

12. The perimeter of a rectangle is 96 m. If the length is 3 more than the width what are the dimensions of the rectangle?

$$2l + 2w = 96 \quad l = w + 3 \quad w = 22.5$$

$$\begin{array}{r} 2(w + 3) + 2w = 96 \\ 2w + 6 + 2w = 96 \\ 4w + 6 = 96 \\ \hline -6 \quad -6 \\ \hline 4w = 90 \\ \frac{4w}{4} = \frac{90}{4} \\ w = 22.5 \end{array}$$

$$l = 25.5$$

13. Use elimination to solve:

$$\begin{array}{r} (5x + 7y = 3) \cdot 2 \\ (2x + 3y = 1) \cdot (-5) \\ \hline 10x + 14y = 6 \\ + (-10x - 15y = -5) \\ \hline -y = 1 \end{array}$$

$$y = -1$$

$$\begin{array}{r} 10x + 14(-1) = 6 \\ 10x - 14 = 6 \\ +14 \quad +14 \\ \hline 10x = 20 \end{array}$$

$$x = 2$$

$$(2, -1)$$