

1. False
2. One way to define the solution to a system is the (x,y) ordered pair where two or more lines of the system intersect.
3. Graphing, Substitution Method, Elimination/Combination Method
4. Systems have 3 possible outcomes
 - one solution
 - no solution
 - infinite solutions
5. Any example that uses two or more variables to describe something - ex.

Economy { Supply }
 { Demand }

Baseball Team { wins }
 { losses }

6. $(2, -3)$
not solution

plug in $(2, -3)$ and
check

$$\begin{cases} 3x + 2y = 8 \\ 6x - 9y = 10 \end{cases}$$

$$3(2) + 2(-3) = 8$$

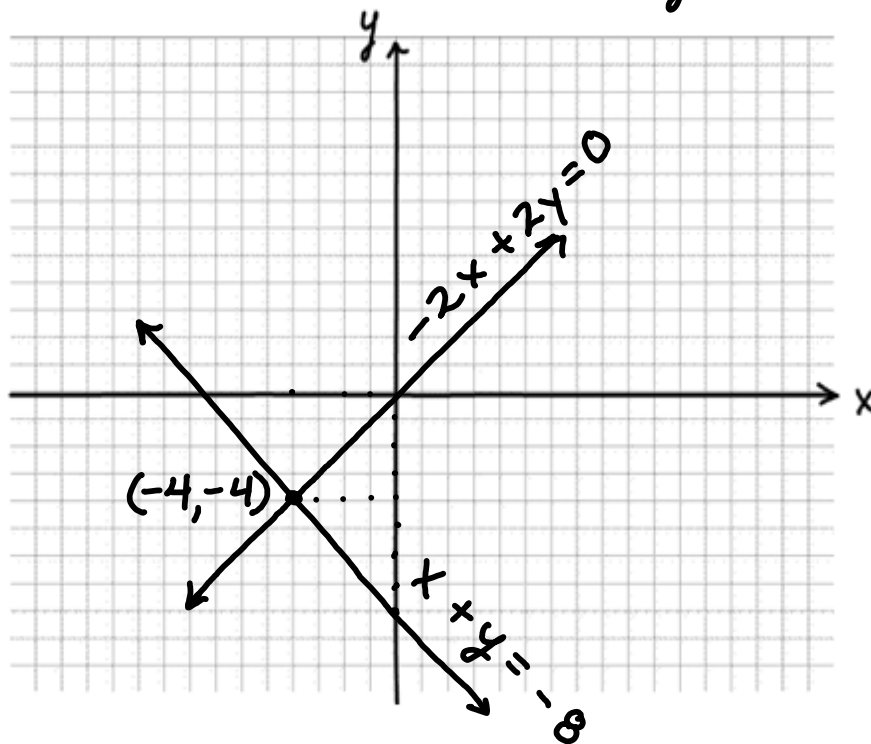
$$6 + -6 = 8$$

$$0 = 8 \text{ False}$$

$(2, -3)$ not the solution

7. $(-4, -4)$

$$y = -x - 8$$



8. $(1, 3)$

$$\begin{cases} -x + y = 2 \\ y = 3x \end{cases}$$

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

$$2x = 2$$

$$x = 1$$

$$(1, 3)$$

$$y = 3x$$

$$y = 3(1) = 3$$

9. $(2, -7)$

$$\begin{cases} -6x - 2y = 2 \\ 4x + y = 1 \end{cases}$$

$$y = -4x + 1$$

$$-6x - 2(-4x + 1) = 2$$

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

$$2x = 4$$

$$x = 2$$

$$(2, -7)$$

$$y = -4x + 1$$

$$y = -4(2) + 1 = -7$$

10. $(3, 6)$

$$\begin{cases} -2x + 2y = 6 \\ 3x - y = 3 \end{cases}$$

$$\begin{aligned} -2x + 2y &= 6 \\ 2(3x - y) &= 6 \end{aligned}$$

$$\begin{array}{r} -2x + 2y = 6 \\ 6x - 2y = 6 \\ \hline 4x = 12 \\ x = 3 \end{array}$$

$$\begin{aligned} 3x - y &= 3 && (3, 6) \\ 3(3) - y &= 3 \\ 9 - y &= 3 \\ y &= 6 \end{aligned}$$

11. $(5, 1)$

$$\begin{aligned} 2x + 4y &= 14 \\ 4(3x - y) &= 14 \end{aligned}$$

$$\begin{aligned} 3x - y &= 14 \\ 3(5) - y &= 14 \\ 15 - y &= 14 \\ y &= 1 \end{aligned}$$

$$\begin{array}{r} 2x + 4y = 14 \\ 12x - 4y = 56 \\ \hline 14x = 70 \\ x = 5 \end{array}$$

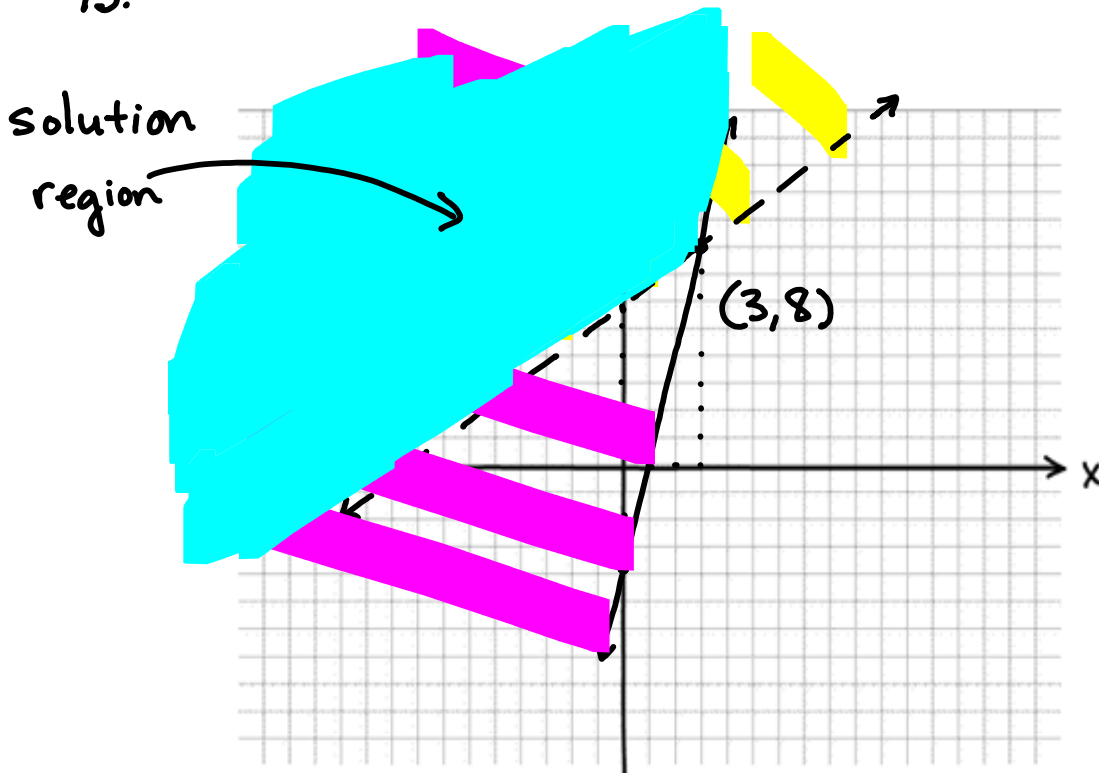
12. $(\frac{1}{2}, 5)$

$$\begin{aligned} 2(8x - y &= -1) \\ -10x + 2y &= 5 \end{aligned}$$

$$\begin{aligned} 8x - y &= -1 \\ 8(\frac{1}{2}) - y &= -1 \\ 4 - y &= -1 \\ y &= 5 \end{aligned}$$

$$\begin{aligned} 16x - 2y &= -2 \\ -10x + 2y &= 5 \\ \hline 6x &= 3 \\ x &= \frac{1}{2} \end{aligned}$$

13.



- 14.
1. Graph all equations/inequalities that model the problem
 2. Find the vertex ordered pairs of all the equations/inequalities
 3. Take each (x,y) vertex and evaluate the constraint function
 4. The vertex (x,y) that produces the maximum/minimum value is the solution.

15. 20, 12

let $x =$ one number
let $y =$ another number

The difference is 8

$$x - y = 8$$

Sum is 32

$$x + y = 32$$



solve for x, y
by a system

$$\begin{cases} x - y = 8 \\ x + y = 32 \end{cases}$$

$$\begin{aligned} 2x &= 40 \\ x &= 20 \end{aligned}$$

$$\begin{aligned} 20 + y &= 32 \\ y &= 12 \end{aligned}$$