1. False

2. One way to define the solution to a system is the (x,y) ordered pair where two of 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.

   Economey $\left\{ \begin{array}{c} \text{Supply} \\ \text{Demand} \end{array} \right\}$

   Baseball Team $\left\{ \begin{array}{c} \text{wins} \\ \text{losses} \end{array} \right\}$

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

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

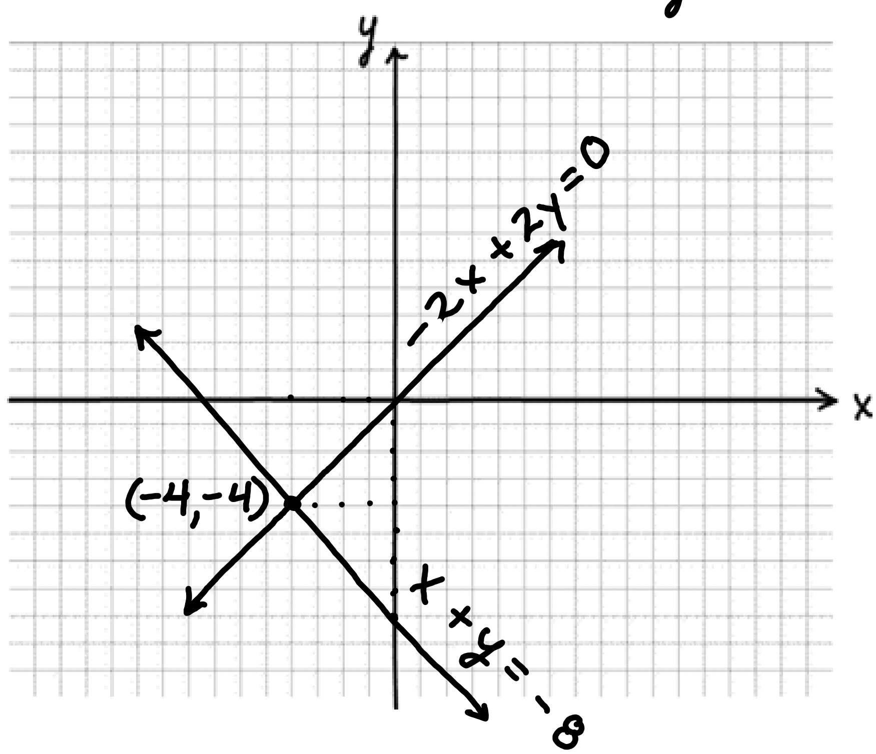
$$\begin{cases} 3x+2y=8 \\ 6x-9y=10 \end{cases}$$

$$3(2)+2(-3)=8$$
$$6+-6=8$$
$$0=8 \quad \text{False -}$$

$(2,-3)$ not the solution

7. $(-4,-4)$

$y=-x-8$



8. $(1,3)$

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

$$-x + (3x) = 2$$
$$2x = 2$$
$$x = 1 \qquad (1,3)$$
$$y = 3x$$
$$y = 3(1) = 3$$

9. $(2,-7)$

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

$$y = -4x + 1$$

$$-6x - 2(-4x + 1) = 2$$
$$-6x + 8x - 2 = 2$$
$$2x = 4$$
$$x = 2 \qquad (2,-7)$$
$$y = -4x + 1$$
$$y = -4(2) + 1 = -7$$

10. $(3,6)$

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

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

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

$$\begin{array}{r} 3x - y = 3 \\ 3(3) - y = 3 \\ 9 - y = 3 \\ y = 6 \end{array}$$

$(3,6)$

11. $(5,1)$

$$2x + 4y = 14$$
$$4(3x - y = 14)$$

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

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

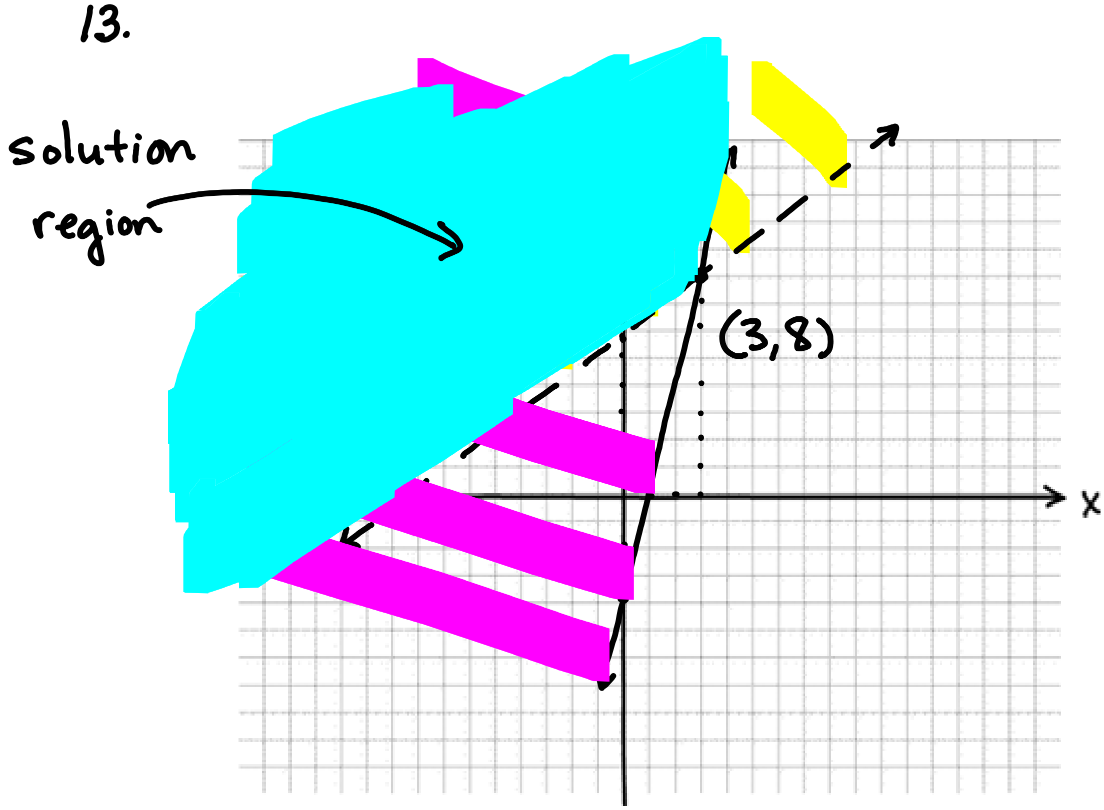
12. $\left(\frac{1}{2}, 5\right)$

$$2(8x - y = -1)$$
$$-10x + 2y = 5$$

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

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

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   Sum is 32

$x - y = 8$ $x + y = 32$

solve for x, y
by a system

$$\left\{ \begin{array}{l} x - y = 8 \\ x + y = 32 \end{array} \right\}$$

$2x = 40$
$x = 20$

$20 + y = 32$
$y = 12$