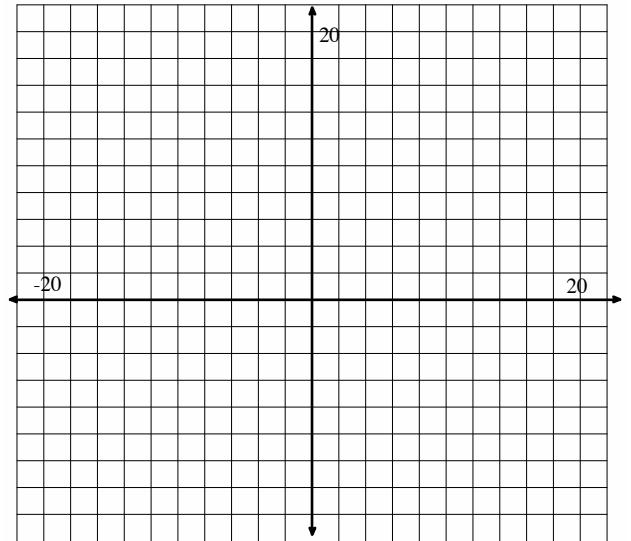# Mod 5 Review –2018

Name_____   Period_____

1. What does the solution set to a system of an equations look like?

2. How many solutions are there to a system of equations?

3. How many solutions are there to a system of inequalities?

4. What does the solution set to a system of inequalities look like?

5. Solve the following system of equations using **substitution** and by **graphing**:
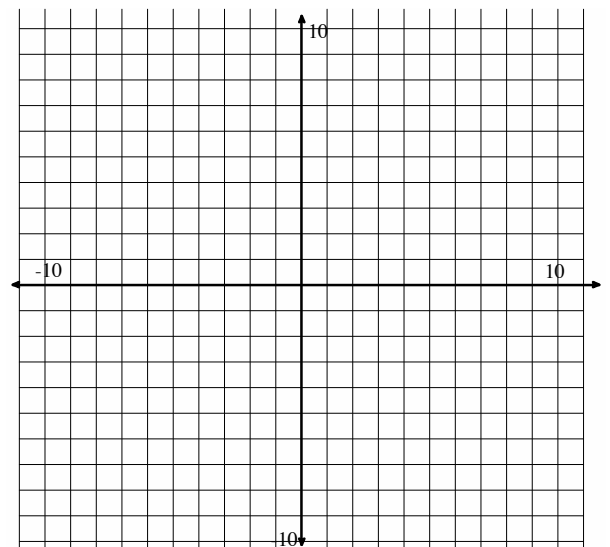$$\begin{cases} y = 16 - x \\ x - y = 9 \end{cases}$$

Show work for substitution below:

6. Solve the following system of equations using **elimination** and by **graphing**:
$$\begin{cases} 3x + 5y = 7 \\ 2x - 3y = 11 \end{cases}$$

Show work for elimination below

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Solve the following systems of equations by **using a method other than graphing**. Use whatever method is most efficient for the given system. Write your answer as a coordinate point.

7. $\begin{cases} -7x - 2y = -13 \\ x - 2y = 11 \end{cases}$	8. $\begin{cases} y = -x + 2 \\ y = 3x - 6 \end{cases}$
9. $\begin{cases} 3x + 2y = -4 \\ 2x - 2y = -6 \end{cases}$	10. $\begin{cases} x = y - 1 \\ -3x + 2y = -1 \end{cases}$

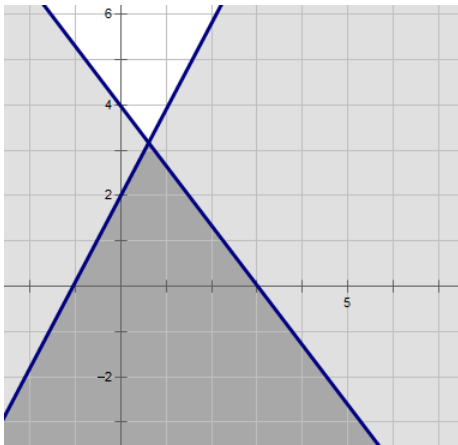11. Write a system of equations to represent the following situation:

Julie spent $200 on clothes. Shirts cost $20 and pants cost $30. She bought a total of 8 clothing items.

Solve the following systems of inequalities:

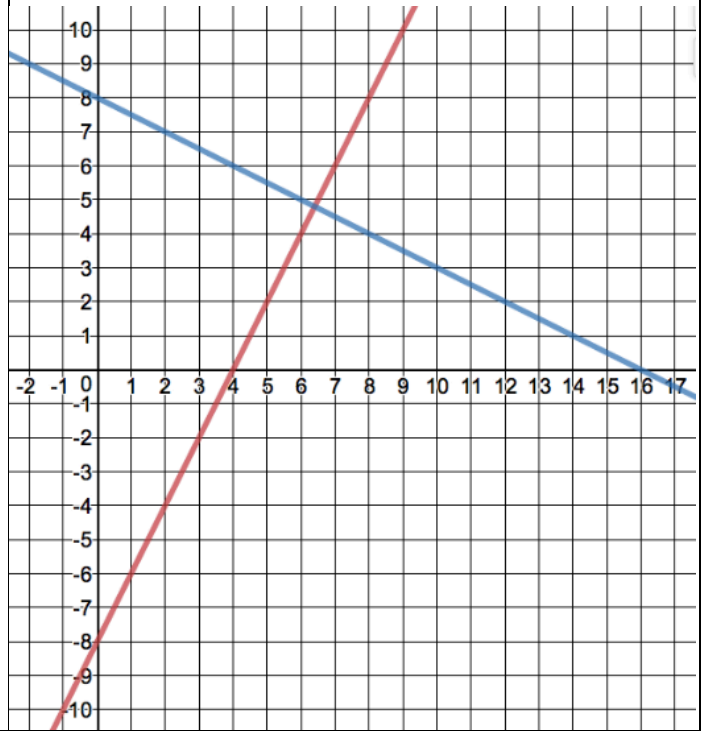|	
12. $\begin{cases} y \leq \frac{3}{4}x - 5 \\ y > -2x + 1 \end{cases}$	13. $\begin{cases} 4x + 3y \leq 24 \\ 6x - 9y \leq 18 \end{cases}$

14. Write the system of inequalities that matches the following graph (hint: using slope intercept form is typically the easiest)	15. Show **all** the solutions to the system of inequalities on the graph below $\begin{cases} x + 2y > 16 \\ y \le 2x - 8 \end{cases}$

16. When graphing an inequality what does a dotted line mean?

Circle all the points that are solutions to the system of inequalities.

17. $\begin{cases} x + y > 4 \\ 2x + 3y \le 12 \end{cases}$

a. (0,4)
b. (4,1)
c. (2,1)

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

a. (-2,2)
b. (2,1)
c. (0,-3)

19. You are shopping at Walmart for popsicles. You want to get blue-raspberry and cherry flavors. The blue-raspberry are bigger, so they cost $1.50 each while the cherry are only $1. Walmart is having a special and you get a free gift if you spend **over** $25. You want to find all of the different combinations of popsicles that you could buy and get a free gift.

a) Write an inequality for the situation above in **standard form**.

b) Write an inequality for the situation above in **slope intercept form.**

20. Joe is playing his favorite video game "Fort Day". In this game you have to build buildings and save people.

Game time: Joe can build a building in 5 minutes and he can save a person in 3 minutes. His mom will only let him play for **up to** 1 hour each day.

Points: In this game you get 4 points every time you build a building and 8 points every time you save a person. Your goal is to earn **at least** 80 points each day.

a) Write a system of inequalities that represent the two constraints above.

b) What does x and y in your inequalities above mean in your story?

c) Graph the system of inequalities you wrote in part (a).

d) Plot a point on the graph and label it with coordinates that would satisfy BOTH of the constraints of this situation.

e) Provide a combination of buildings built and people saved that would give you enough points but that you wouldn't have enough time to complete.

f) Provide a combination of buildings built and people saved that would give you would have enough time to complete but wouldn't earn you enough points.

g) Why would you not look at the negative values in this situation?