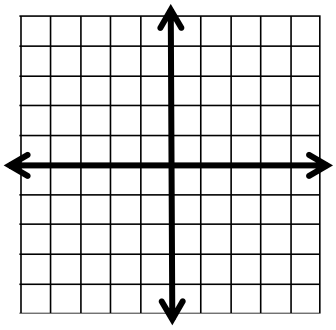
3RH System & Inequalities Review

Name: _____ Per: _____

SHOW YOUR WORK FOR FULL CREDIT. NO WORK IN PEN.

Given the equations, **graph** to **estimate the solution sets** and then **solve algebraically**. Explain your reasoning.

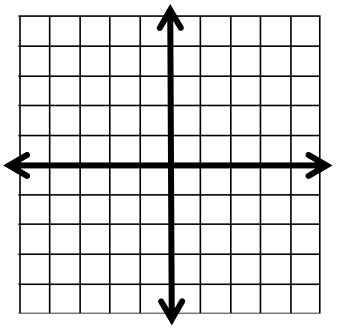
1. $\begin{cases} y = -2x + 3y - 4 \\ 5x - y = 4 \end{cases}$



What method did you choose: _____

Why?

2. $\begin{cases} 2y + 2 = \frac{1}{3}x \\ 3y + x = -x + 6 \end{cases}$



What method did you choose: _____

Why?

State **how many** solutions the following set of equations will have and **how you know.**

3. 2. $\begin{cases} y - 2(2x - 1) = 9 \\ y = 4x + 7 \end{cases}$

_____

_____

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

_____

_____

5. $\begin{cases} 2y + 3x = -24 \\ y = -\frac{3}{2}x + 1 \end{cases}$

_____

_____

Solve the following systems of equations by **ANY METHOD**. **CHECK** your answers!

6. $\begin{cases} y + 1 = 2x \\ 3y - 6x = 3 \end{cases}$

Solution: _____

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

Solution: _____

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

Solution: _____

9. $\begin{cases} -4x - 15y = -17 \\ -x + 5y = -13 \end{cases}$

Solution: _____

10. $\begin{cases} -2x + 6y = 6 \\ -7x + 8y = -5 \end{cases}$

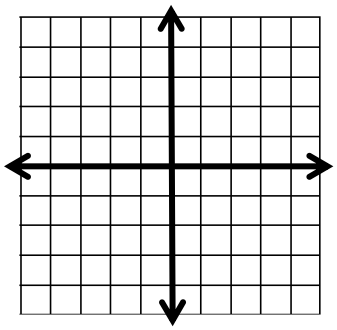
Solution: _____

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

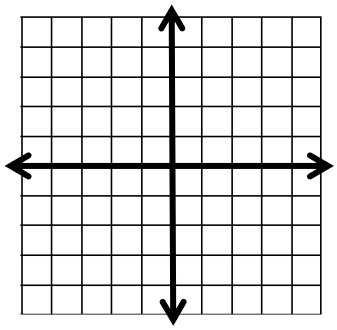
Solution: _____

Solve the following systems of inequalities by **graphing**. **Circle the solution set**.

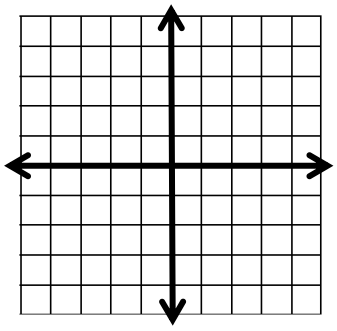
12. $\begin{cases} y < -x \\ y \geq \frac{1}{2}x + 3 \end{cases}$



13. $\begin{cases} y \leq -1 \\ x + 2y \geq -5 \end{cases}$



14. $\begin{cases} x + 2y > -5 \\ y - 2x \leq -x + 3 \end{cases}$



15. You and your friends are trick-or-treating on Halloween. You see a cluster of spiders each with one head and eight legs. You also see a group of black cats with four legs and two heads each. Altogether, you count *at least* 72 legs and *no more than* 30 heads.

a. Define your variables:

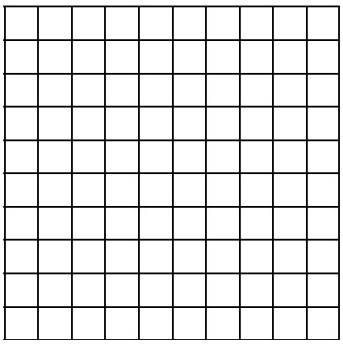
b. Write **two** <u>inequalities</u> and find the intercepts

Inequality about the number of heads: _____

Intercepts: (0, ____) and (____, 0)

Inequality about the number of legs: _____

Intercepts: (0, ____) and (___, 0)



c. Finish labeling the axes and scale the grid.

d. **Graph** them to see the possible solutions to how many cats and how many spiders you saw.

16. Kristin spent $131 on shirts. Fancy shirts cost $28 and plain shirts cost $15. If she bought a total of 7 of them, how many of each kind did she buy? Write a system of equations and solve.

17. A caterer's total cost for catering a party includes the fixed cost, which is the same for every party. In addition, the caterer charges a certain amount for each guest. If it costs $300 to serve 25 guests and $420 to serve 40 guests, find the fixed cost and the cost per guest. Write a system of equations and solve.

18. Cody and Abby are selling pies for a school fundraiser. Customers can buy blueberry pies and apple pies. Cody sold 10 blueberry pies and 2 apple pies for *at least* than $80. Abby sold 4 blueberry pies and 3 apple pies for *no more than* $72.

a. Write two inequalities

b. Using the intercepts, graph the system showing the possible solutions. (Have blueberry on the x-axis and apple on the y-axis)