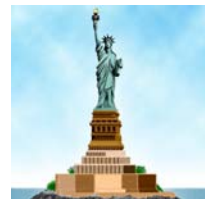


Warm-up 12-4

Solve the following systems of equations

1. $-28x - 14y = 98$
 $-20x + 14y = -50$

2. $4x + 4y = -14$
 $x + 2y = -6$



Complete Friday on your Week 1 and Monday on Week 2 Growth Mindset sheet.

Warm-up 12-4

Solve the following systems of equations

1. $-28x - 14y = 98$
 $-20x + 14y = -50$

2. $4x + 4y = -14$
 $x = -6 - 2y$



Arianna and Samantha go to the movie theater and purchase refreshments for their friends.

Arianna spends a total of \$118.75 on 10 drinks and 5 bags of popcorn.

Samantha spends a total of \$157.75 on 9 drinks and 10 bags of popcorn.

Write a system of equations that can be used to find the price of one drink and the price of one bag of popcorn.

Using these equations, determine and state the price of a drink, to the nearest cent.

$$\begin{array}{l}
 (118.75 = 10x + 5y) \cdot 2 \quad x = \text{drinks} \\
 157.75 = 9x + 10y \quad y = \text{popcorn} \\
 \hline
 157.75 = 9x + 10y \\
 -237.50 = -20x - 10y \\
 \hline
 -79.75 = -11x \\
 \frac{-79.75}{-11} = \frac{-11x}{-11} \\
 7.25 = x
 \end{array}$$

$$\begin{array}{l}
 157.75 = 9(7.25) + 10y \\
 157.75 = 65.25 + 10y \\
 -65.25 \quad -65.25 \\
 \hline
 92.5 = 10y \\
 \frac{92.5}{10} = \frac{10y}{10} \\
 9.25 = y
 \end{array}$$

Arianna and Samantha go to the movie theater and purchase refreshments for their friends.

Arianna spends a total of \$118.75 on 10 drinks and 5 bags of popcorn.

Samantha spends a total of \$157.75 on 9 drinks and 10 bags of popcorn.

Write a system of equations that can be used to find the price of one drink and the price of one bag of popcorn.

Using these equations, determine and state the price of a drink, to the nearest cent.

$$\begin{array}{r}
 -2(10d + 5p = 118.75) \\
 9d + 10p = 157.75 \\
 \hline
 9d + 10p = 157.75 \\
 -20d - 10p = -237.50 \\
 \hline
 -11d = -79.75 \\
 \frac{-11d}{-11} = \frac{-79.75}{-11}
 \end{array}$$

$$7.25$$

$$\begin{array}{r}
 9(7.25) + 10p = 157.75 \quad d = 7.25 \\
 65.25 + 10p = 157.75 \\
 \frac{-65.25}{10} \quad \frac{-65.25}{10} \\
 \hline
 10p = 92.50 \\
 \frac{10p}{10} = \frac{92.50}{10} \quad p = 9.25
 \end{array}$$

An animal shelter spends \$1.00 per day to care for each bird and \$3.00 per day to care for each cat. Logan noticed that the shelter spent \$52.00 caring for birds and cats on Friday. Logan found a record showing that there were a total of 28 birds and cats on Friday. How many birds were at the shelter on Friday?

Today's Goal

I can...

- **solve a system of Inequalities by graphing**

$$y \geq -2x - 1$$

$$1 \geq -2(-1) - 1$$

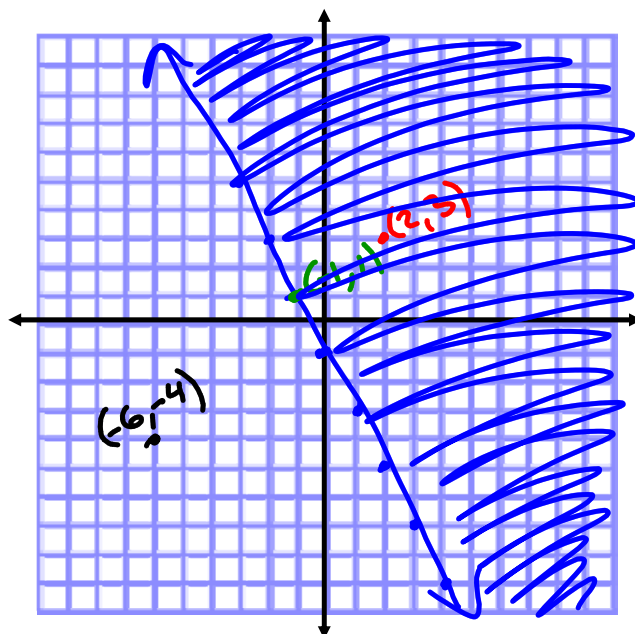
$$1 \geq 2 - 1$$

$$1 \geq 1 \checkmark$$

$$-4 \geq -2(-6) - 1$$

$$-4 \geq 12 - 1$$

$$-4 \geq 11 \quad \times$$



$$3 \geq -2(2) - 1$$

$$3 \geq -4 - 1$$

$$3 \geq -5 \checkmark$$

$>$ greater than (**dashed line, shade above**)

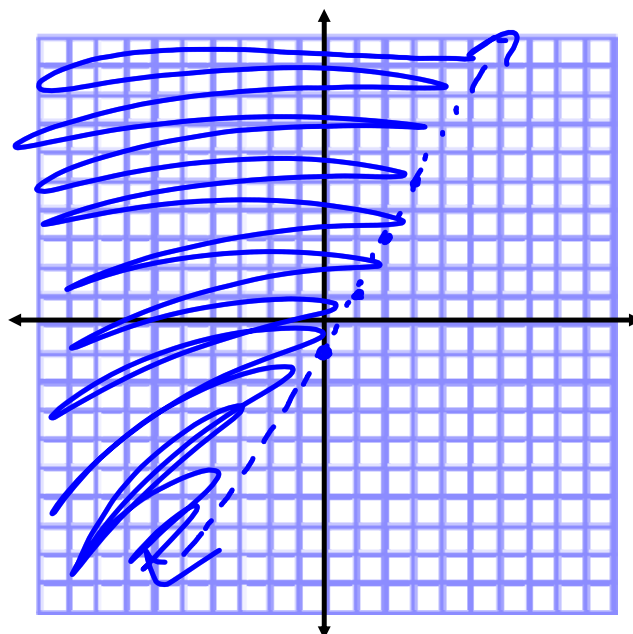
$<$ less than (**dashed line, shade below**)

\geq greater than or equal to (**solid line, shade above**)

\leq less than or equal to (**solid line, shade below**)

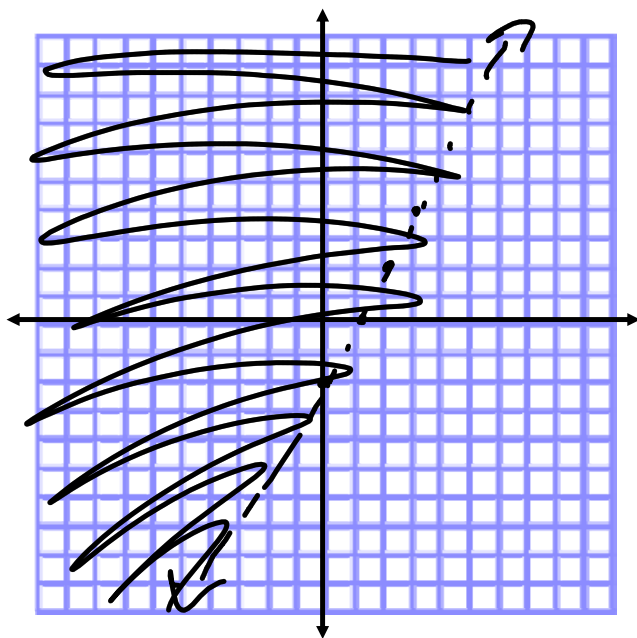
$$y > 2x - 1$$

1. Graph points as normal
2. Draw a solid or dashed line according to the sign.
3. Shade above or below the line according to the sign.

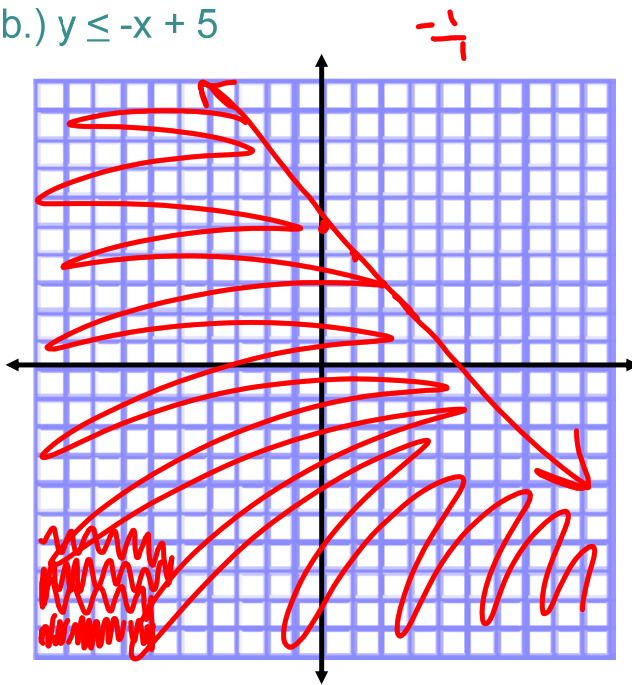


1. Graph the following inequalities.

a.) $y > 2x - 2$

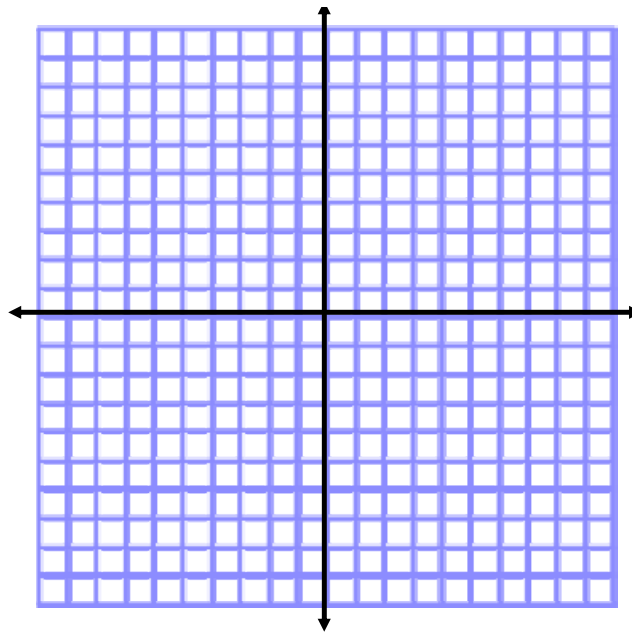


b.) $y \leq -x + 5$

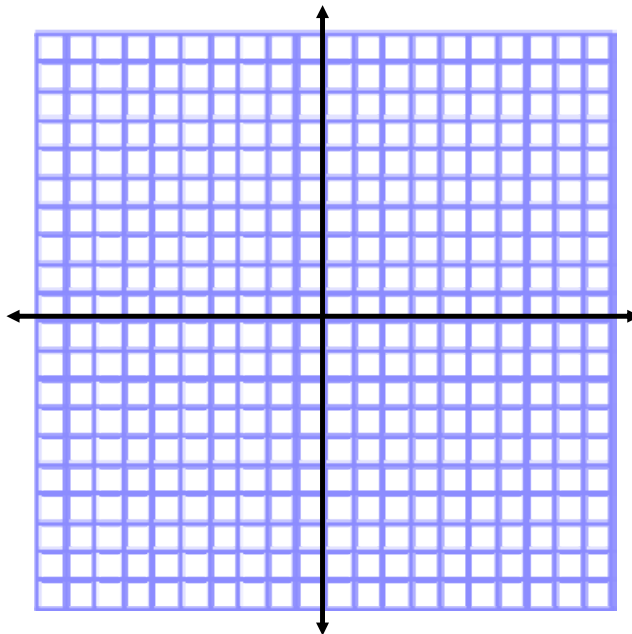


Try This One!

$$y \geq -3x + 4$$

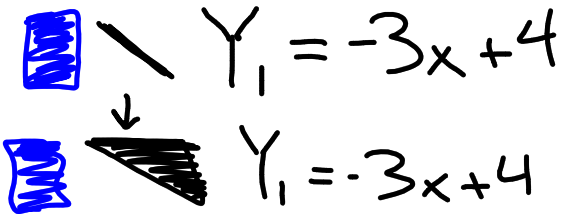


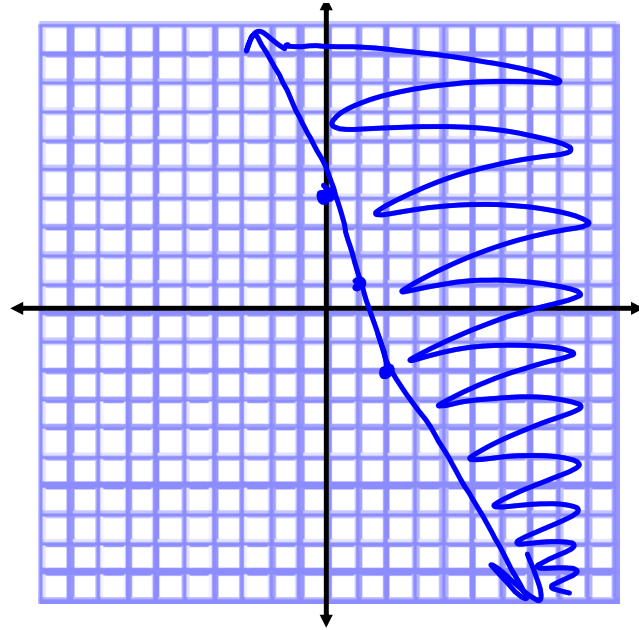
$$y < 4x + 3$$



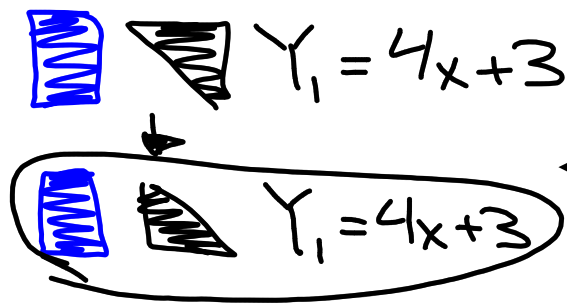
Try This One!

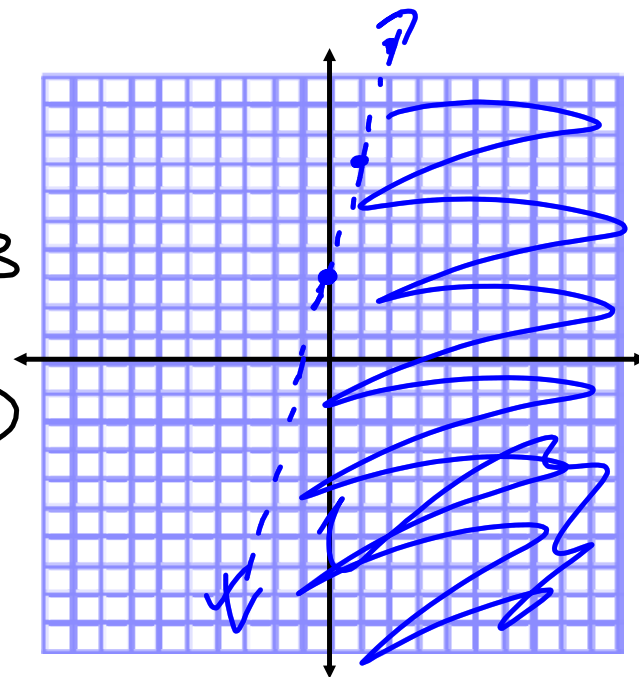
$$y \geq -3x + 4$$


 $Y_1 = -3x + 4$
 $Y_1 = -3x + 4$



$$y < 4x + 3$$


 $Y_1 = 4x + 3$
 $Y_1 = 4x + 3$



For each inequality below, describe the boundary line, solid or dashed, and state whether it should be shaded above or below.

1. $y < 2x + 1$ *solid or dashed; above or below*

2. $y \geq -3/5x - 2$ *solid or dashed; above or below*

3. $y \leq 6x - 3$ *solid or dashed; above or below*

4. $y > -3$ *solid or dashed; above or below*

For each inequality below, describe the boundary line, solid or dashed, and state whether it should be shaded above or below.

1. $y < 2x + 1$ *solid or dashed; above or below*
2. $y \geq -3/5x - 2$ *solid or dashed; above or below*
3. $y \leq 6x - 3$ *solid or dashed; above or below*
4. $y > -3$ *solid or dashed; above or below*

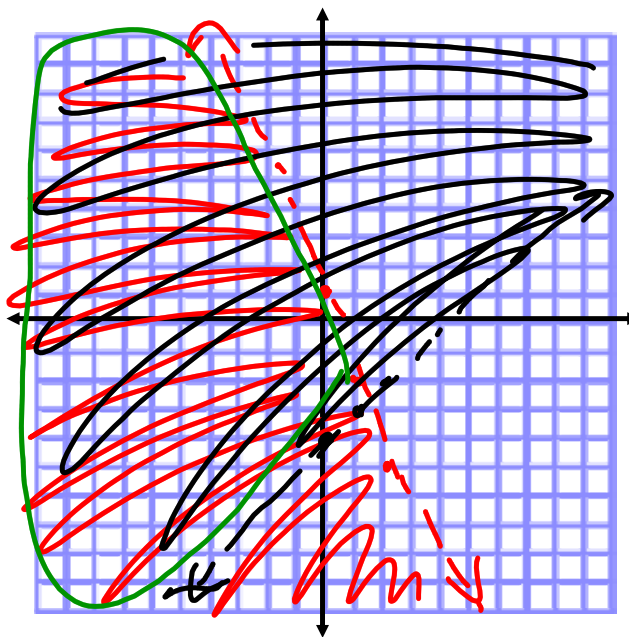
6.7: Solving Systems of Linear Inequalities

Systems of Linear Inequalities:

-2 or more linear inequalities graphed on the same coordinate plane where the common shaded region is the solution.

Example:

$$\begin{cases} y < -3x + 1 \\ y > x - 4 \end{cases}$$







6.7: Solving Systems of Linear Inequalities

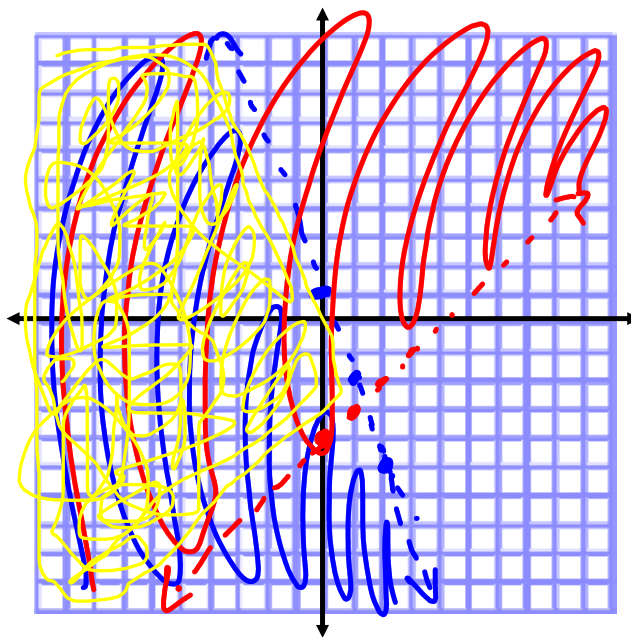
Systems of Linear Inequalities:

-2 or more linear inequalities graphed on the same coordinate plane where the common shaded region is the solution.

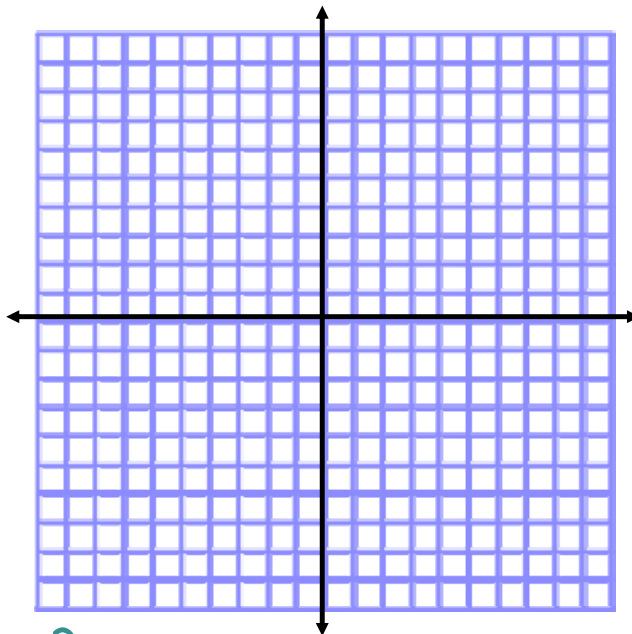
Example:

$$\begin{cases} y < -3x + 1 & m = -\frac{3}{1} \\ y > x - 4 & m = \frac{1}{1} \end{cases}$$

  $Y_1 = -3x + 1$
  $Y_2 = x - 4$

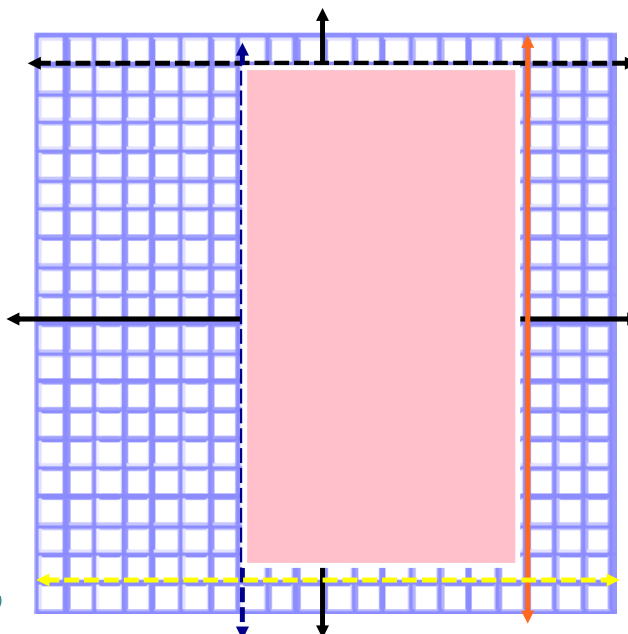


1.
$$\begin{cases} y \leq \frac{3}{2}x - 10 \\ y > -\frac{1}{3}x + 5 \end{cases}$$



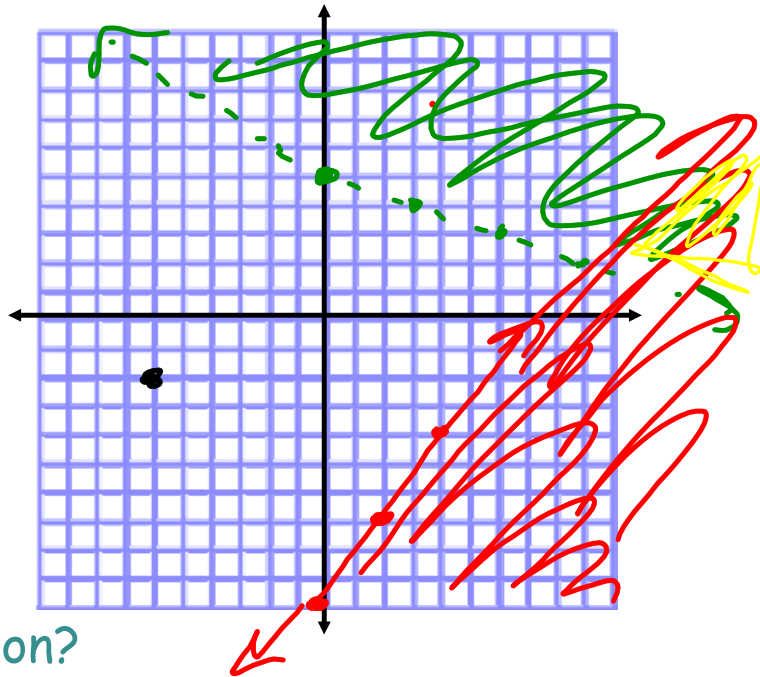
Is $(-6, -2)$ a solution?

2.
$$\begin{cases} y > -9 \\ x \leq 7 \\ x > -3 \\ y < 9 \end{cases}$$



Is $(0,0)$ a solution?

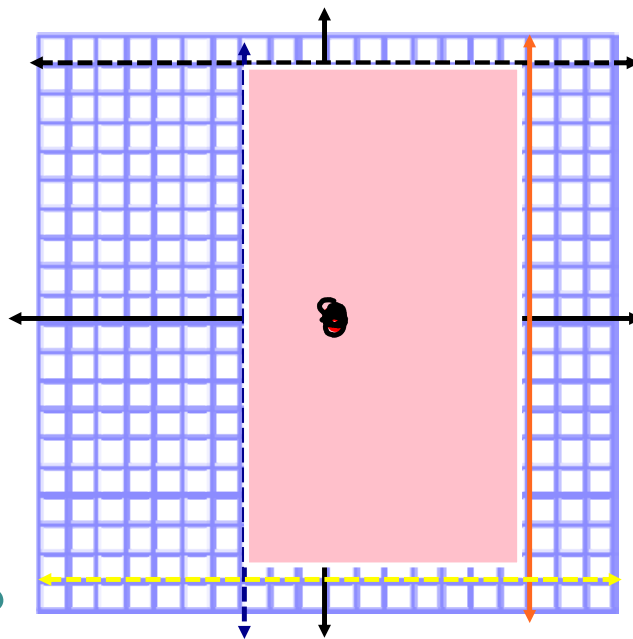
1.
$$\begin{cases} y \leq \frac{3}{2}x - 10 \\ y > -\frac{1}{3}x + 5 \end{cases}$$



Is $(-6, -2)$ a solution?

no

2.
$$\begin{cases} y > -9 \\ x \leq 7 \\ x > -3 \\ y < 9 \end{cases}$$



Is $(0, 0)$ a solution?

yes

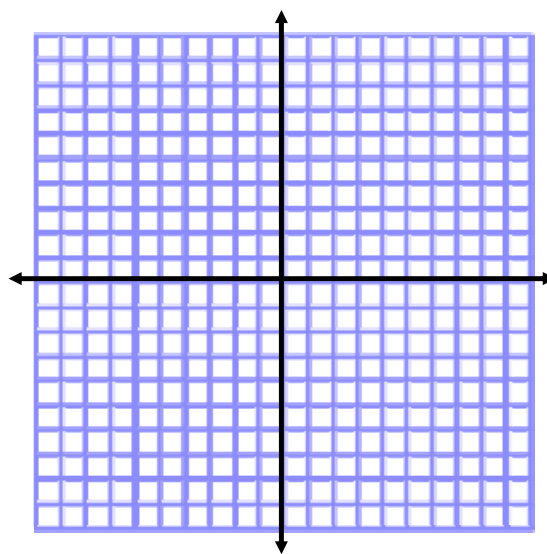
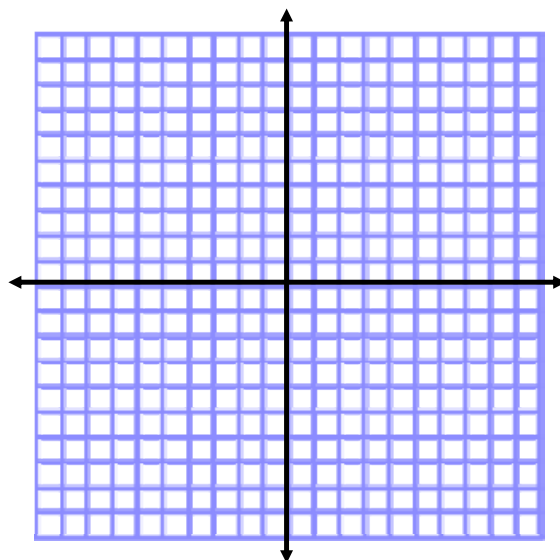
More Examples:

$$\begin{cases} y > 1/4x + 3 \\ y \leq 1/2x + 2 \end{cases}$$

Is $(2, -1)$ a solution?

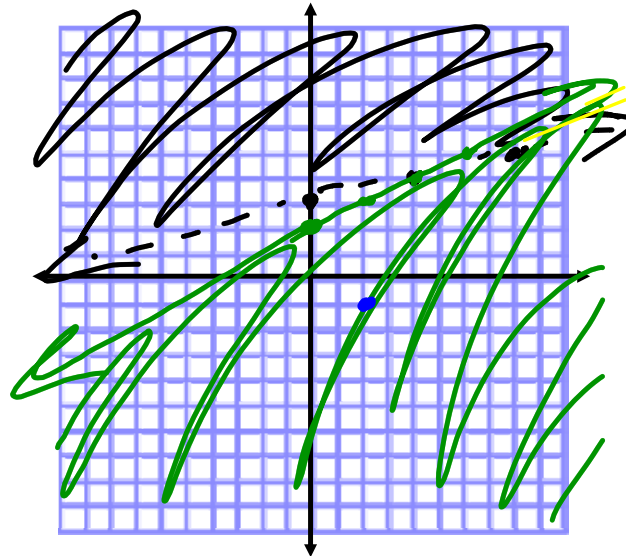
$$\begin{cases} y \geq 2x \\ y \geq -3x - 3 \\ y < 1/2x + 7 \end{cases}$$

Give an ordered pair that is a solution to this system.



More Examples:

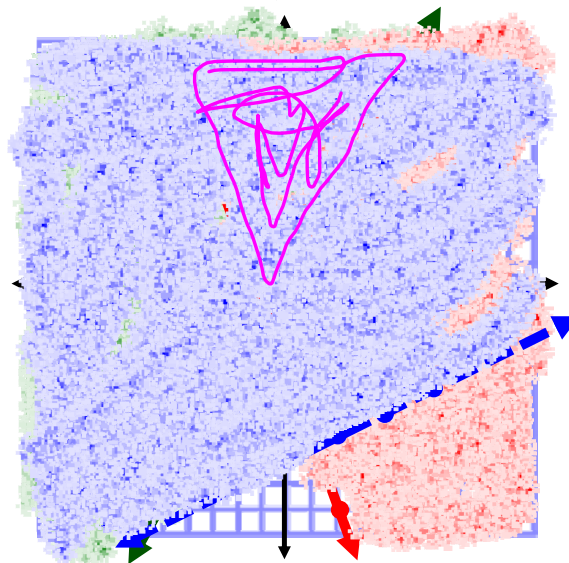
$$\begin{cases} y > 1/4x + 3 \\ y \leq 1/2x + 2 \end{cases}$$



Is (2, -1) a solution?

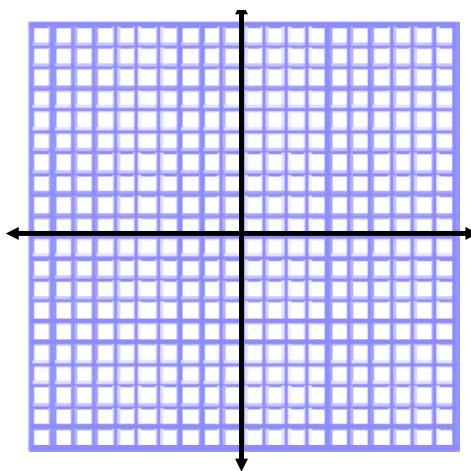
no

$$\begin{cases} y \geq 2x \\ y \geq -3x - 3 \\ y > 1/2x + 7 \end{cases}$$

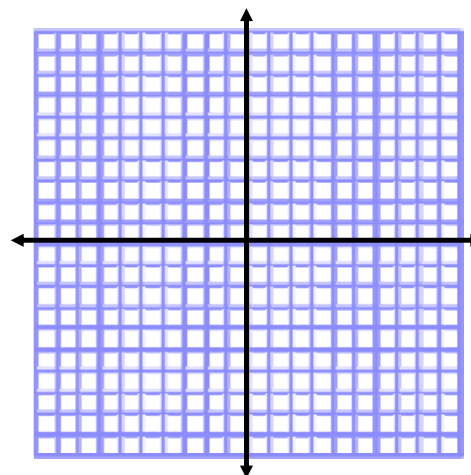


Give an ordered pair that is a solution to this system.

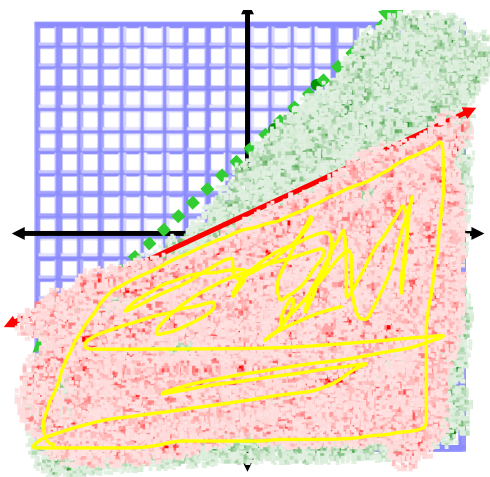
3.
$$\begin{cases} y \leq 1/2x + 1 \\ y < x + 3 \end{cases}$$



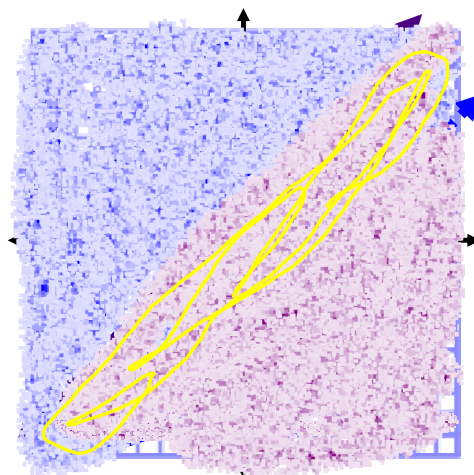
4.
$$\begin{cases} y > x - 4 \\ y < x + 2 \end{cases}$$



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



4.
$$\begin{cases} y > x - 4 \\ y < x + 2 \end{cases}$$



Kuta Software - Infinite Algebra 2

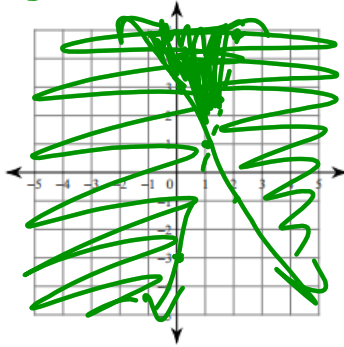
Name _____

Systems of Inequalities

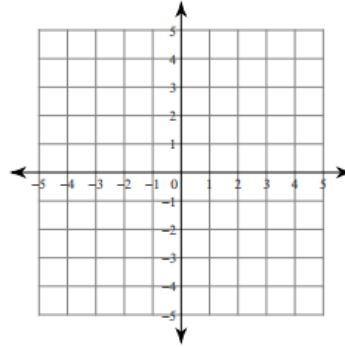
Date _____ Period _____

Sketch the solution to each system of inequalities.

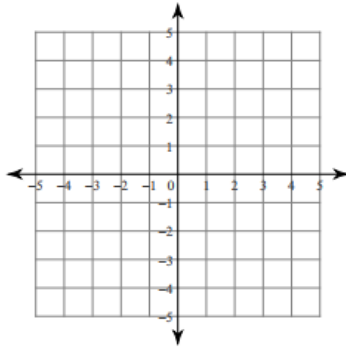
1) $y > 4x - 3$
 $y \geq -2x + 3$



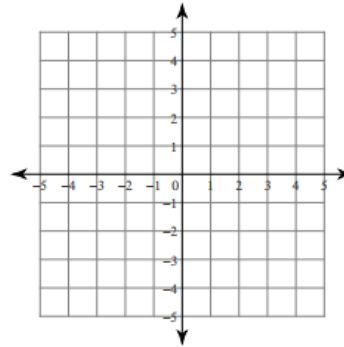
2) $y \geq -5x + 3$
 $y > -2$



3) $y < 3$
 $y \leq -x + 1$



4) $y \geq x - 3$
 $y \geq -x - 1$



5) $-2x - 9y = -25$
 $-4x - 9y = -23$

6) $8x + y = -16$
 $-3x + y = -5$

7) $-6x + 6y = 6$
 $-6x + 3y = -12$

8) $7x + 2y = 24$
 $8x + 2y = 30$

9) $5x + y = 9$
 $10x - 7y = -18$

10) $-4x + 9y = 9$
 $x - 3y = -6$

Kuta Software - Infinite Algebra 2

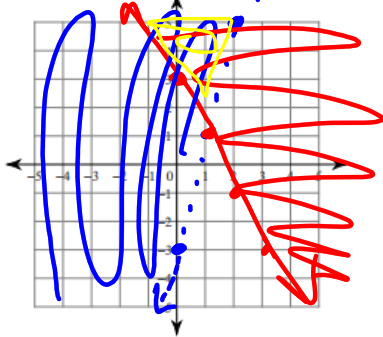
Name _____

Systems of Inequalities

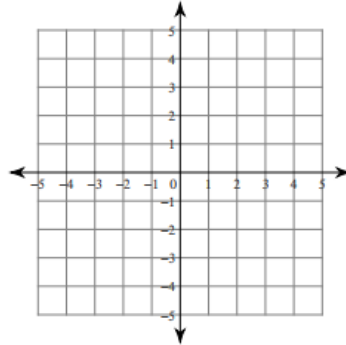
Date _____ Period _____

Sketch the solution to each system of inequalities.

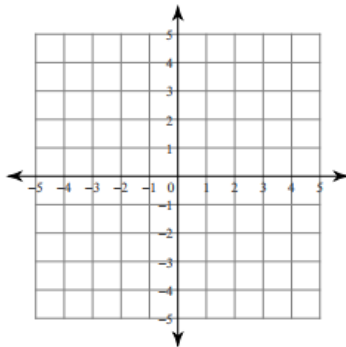
1) $y > 4x - 3$ $m = \frac{4}{1}$
 $y \geq -2x + 3$ $m = -\frac{2}{1}$



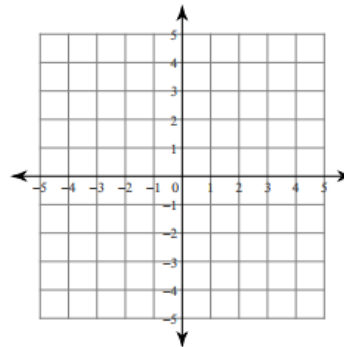
2) $y \geq -5x + 3$
 $y > -2$



3) $y < 3$
 $y \leq -x + 1$



4) $y \geq x - 3$
 $y \geq -x - 1$



5) $-2x - 9y = -25$
 $-4x - 9y = -23$

6) $8x + y = -16$
 $-3x + y = -5$

7) $-6x + 6y = 6$
 $-6x + 3y = -12$

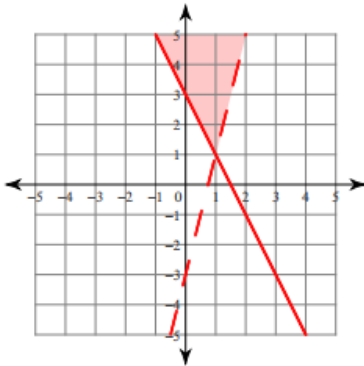
8) $7x + 2y = 24$
 $8x + 2y = 30$

9) $5x + y = 9$
 $10x - 7y = -18$

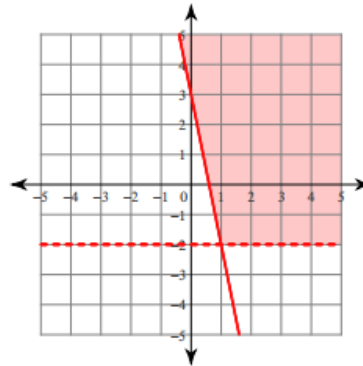
10) $-4x + 9y = 9$
 $x - 3y = -6$

Sketch the solution to each system of inequalities.

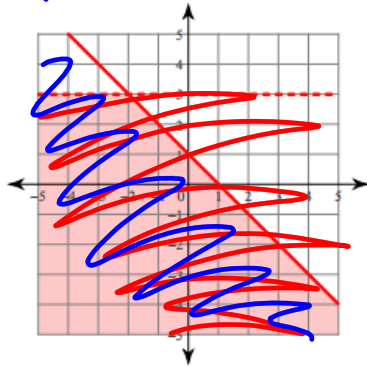
1) $y > 4x - 3$
 $y \geq -2x + 3$



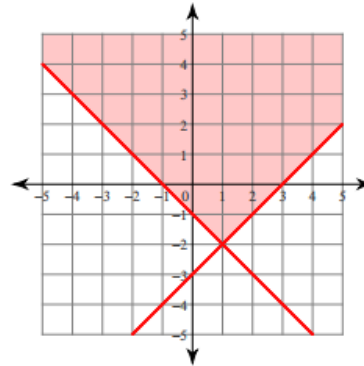
2) $y \geq -5x + 3$
 $y > -2$



3) $y < 3$
 $y \leq -x + 1$



4) $y \geq x - 3$
 $y \geq -x - 1$



5) $-2x - 9y = -25$
 $-4x - 9y = -23$

$(-1, 3)$

6) $8x + y = -16$
 $-3x + y = -5$

$(-1, -8)$

7) $-6x + 6y = 6$
 $-6x + 3y = -12$

$(5, 6)$

8) $7x + 2y = 24$
 $8x + 2y = 30$

$(6, -9)$

9) $5x + y = 9$
 $10x - 7y = -18$

$(1, 4)$

10) $-4x + 9y = 9$
 $x - 3y = -6$

$(9, 5)$

Homework

Worksheet

Kuta Software - Infinite Algebra 2

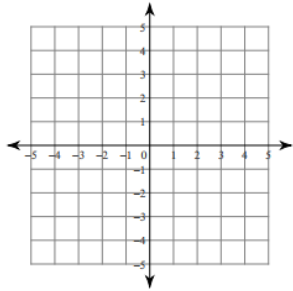
Name _____

Systems of Inequalities

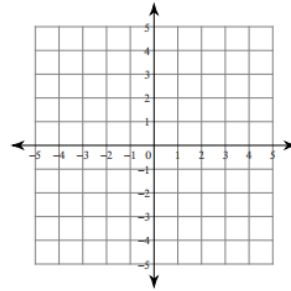
Date _____ Period _____

Sketch the solution to each system of inequalities.

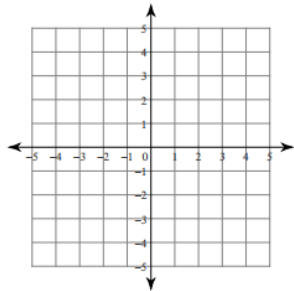
1) $y > 4x - 3$
 $y \geq -2x + 3$



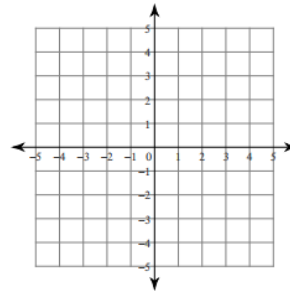
2) $y \geq -5x + 3$
 $y > -2$



3) $y < 3$
 $y \leq -x + 1$



4) $y \geq x - 3$
 $y \geq -x - 1$



Kuta Software - Infinite Algebra 2

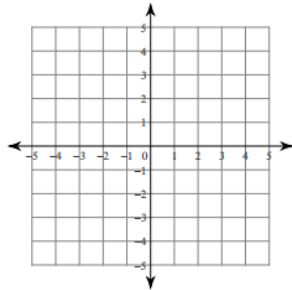
Name _____

Systems of Inequalities

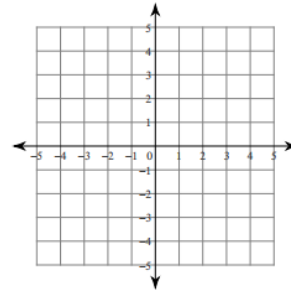
Date _____ Period _____

Sketch the solution to each system of inequalities.

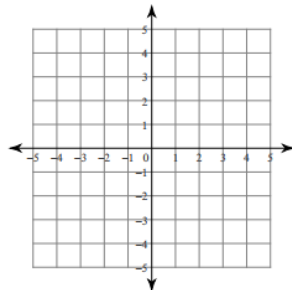
1) $y > 4x - 3$
 $y \geq -2x + 3$



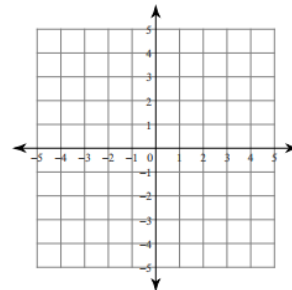
2) $y \geq -5x + 3$
 $y > -2$



3) $y < 3$
 $y \leq -x + 1$



4) $y \geq x - 3$
 $y \geq -x - 1$



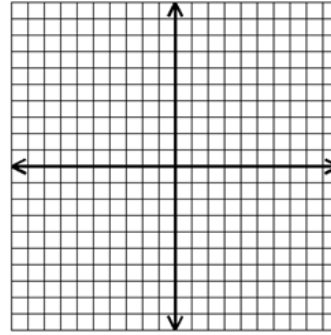
5.3 Elimination-Inequalities.notebook

December 14, 2018

Solving Systems of Equations Mixed Practice NAME _____

Determine if the ordered pair is a solution to the system. SHOW ALL WORK!

$$5. \begin{cases} 4x - 3y = 30 \\ 3x + 2y = 22 \end{cases} \quad (6, -2)$$



Solve by graphing, substitution, or elimination.

$$6. \begin{cases} 2x + y = 5 \\ -4x + 6y = 12 \end{cases}$$

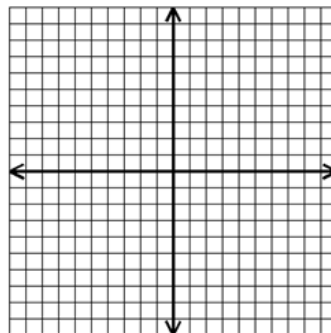
$$7. \begin{cases} 2x - 3y = -1 \\ 10x + y = 11 \end{cases}$$

$$8. \begin{cases} 3x - 4y = 4 \\ x - \frac{1}{2} = 3y \end{cases}$$

Solving Systems of Equations Mixed Practice NAME _____

Determine if the ordered pair is a solution to the system. SHOW ALL WORK!

$$5. \begin{cases} 4x - 3y = 30 \\ 3x + 2y = 22 \end{cases} \quad (6, -2)$$



Solve by graphing, substitution, or elimination.

$$6. \begin{cases} 2x + y = 5 \\ -4x + 6y = 12 \end{cases}$$

$$7. \begin{cases} 2x - 3y = -1 \\ 10x + y = 11 \end{cases}$$

$$8. \begin{cases} 3x - 4y = 4 \\ x - \frac{1}{2} = 3y \end{cases}$$

$$\begin{aligned} 5) \quad & -2x - 9y = -25 \\ & -4x - 9y = -23 \end{aligned}$$

$$\begin{aligned} 6) \quad & 8x + y = -16 \\ & -3x + y = -5 \end{aligned}$$

$$\begin{aligned} 7) \quad & -6x + 6y = 6 \\ & -6x + 3y = -12 \end{aligned}$$

$$\begin{aligned} 8) \quad & 7x + 2y = 24 \\ & 8x + 2y = 30 \end{aligned}$$

$$\begin{aligned} 9) \quad & 5x + y = 9 \\ & 10x - 7y = -18 \end{aligned}$$

$$\begin{aligned} 10) \quad & -4x + 9y = 9 \\ & x - 3y = -6 \end{aligned}$$

$$\begin{aligned} 5) \quad & -2x - 9y = -25 \\ & -4x - 9y = -23 \end{aligned}$$

$$\begin{aligned} 6) \quad & 8x + y = -16 \\ & -3x + y = -5 \end{aligned}$$

$$\begin{aligned} 7) \quad & -6x + 6y = 6 \\ & -6x + 3y = -12 \end{aligned}$$

$$\begin{aligned} 8) \quad & 7x + 2y = 24 \\ & 8x + 2y = 30 \end{aligned}$$

$$\begin{aligned} 9) \quad & 5x + y = 9 \\ & 10x - 7y = -18 \end{aligned}$$

$$\begin{aligned} 10) \quad & -4x + 9y = 9 \\ & x - 3y = -6 \end{aligned}$$