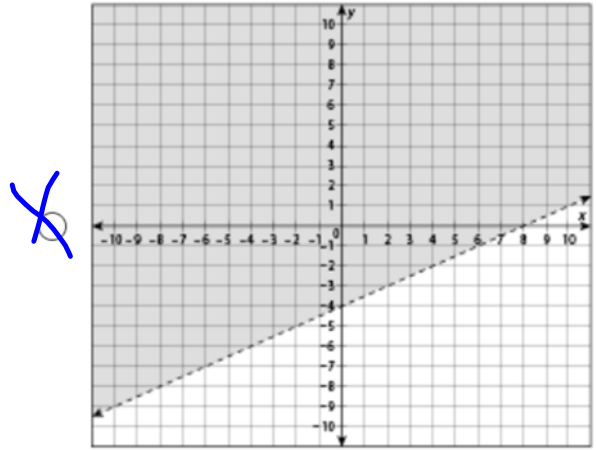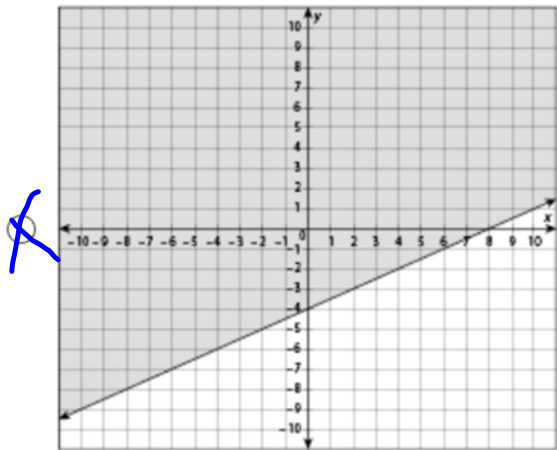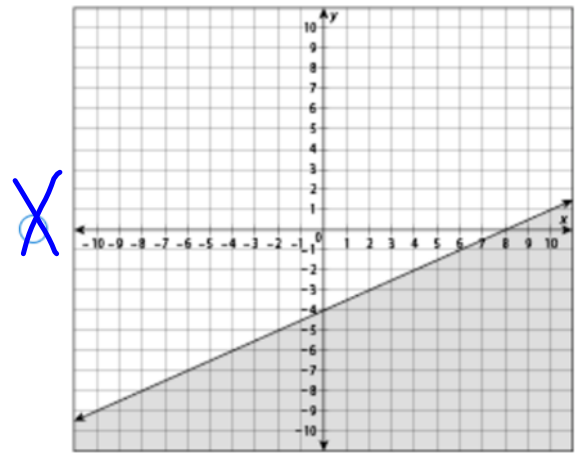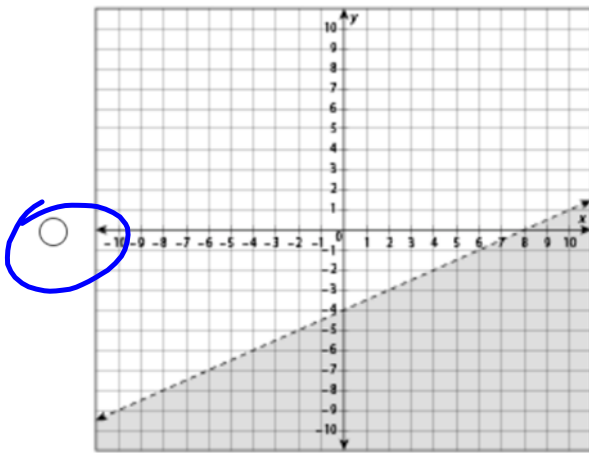# Graphing Inequalities

Warm-Up   12/5/17

Answer all 4 questions.

1.

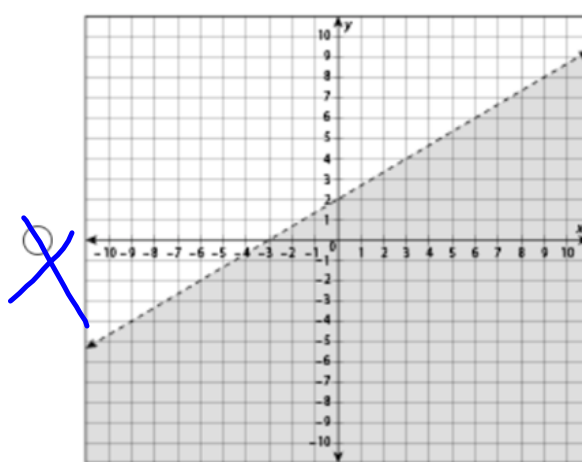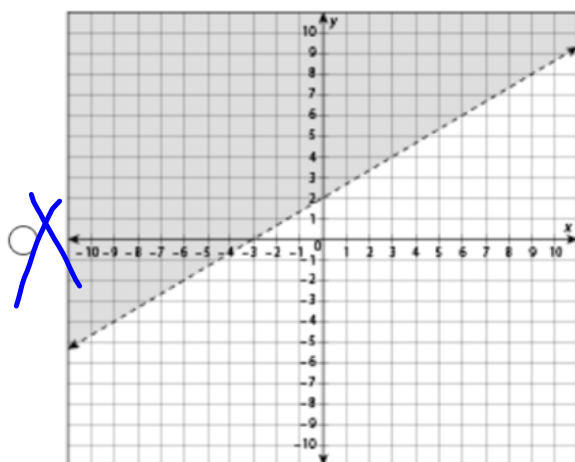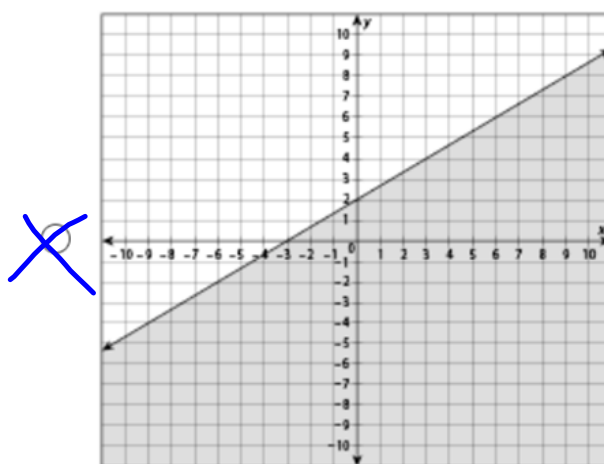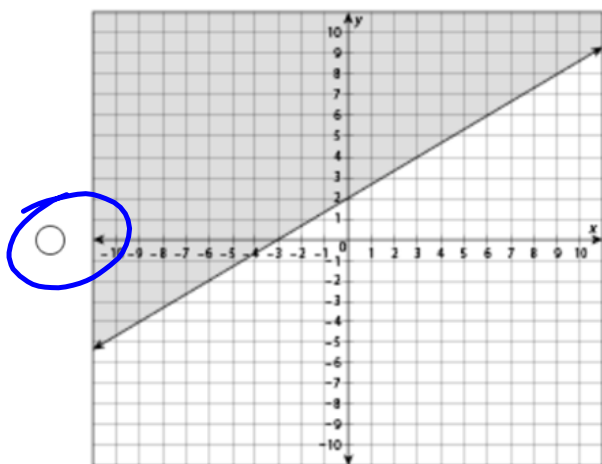Which graph represents the solution to the inequality $y < \frac{1}{2}x - 4$?

*dashed
below*

2.

Which graph represents the solution to the inequality $2x - 3y \leq -6$?

$$-3y \leq -2x - 6$$
$$\frac{-3y}{-3} \leq \frac{-2x}{-3} \frac{-6}{-3}$$

$$y \geq \frac{2}{3}x + 2$$

$$m = \frac{2}{3} \quad b = 2$$

Solid
Shade above

3. Mauricio's mother gave him $5 to spend at the concession stand on fruit for himself and his friends. Oranges cost $0.75 each, and apples cost $0.50 each. What are the solutions to the inequality that represents the number of oranges and apples Mauricio can buy if x represents the number of oranges and y represents the number of apples?

$\leq$

Solid below

Number of apples / Number of oranges

Number of apples / Number of oranges

Number of apples

0 1 2 3 4 5 6 7 8 9 10

Number of oranges

Number of apples

0 1 2 3 4 5 6 7 8 9 10

Number of oranges
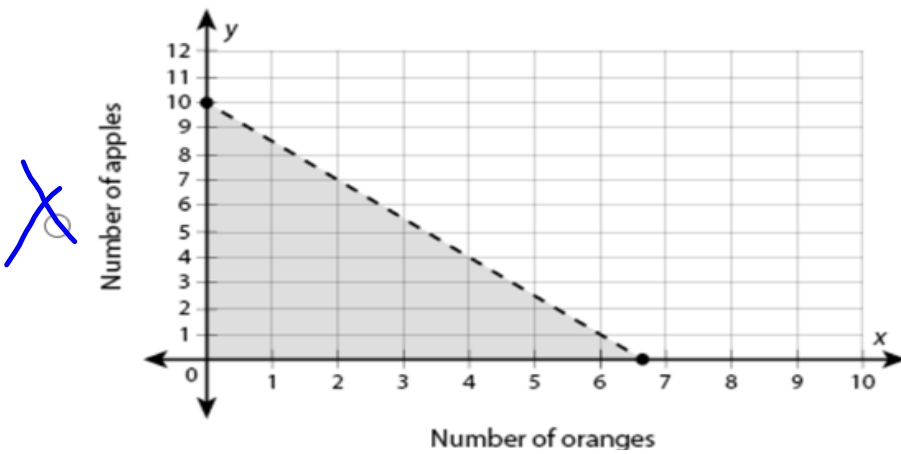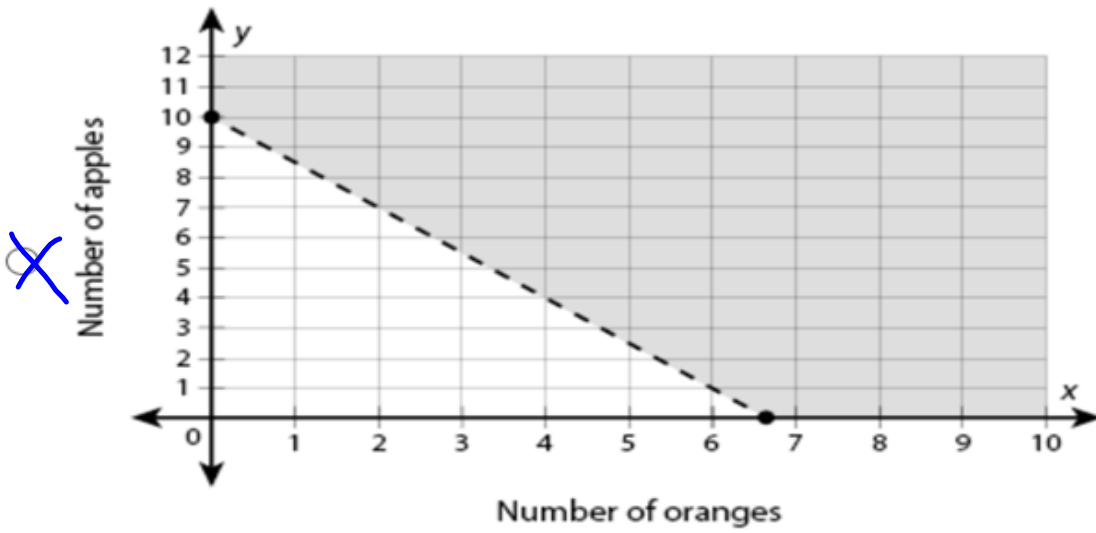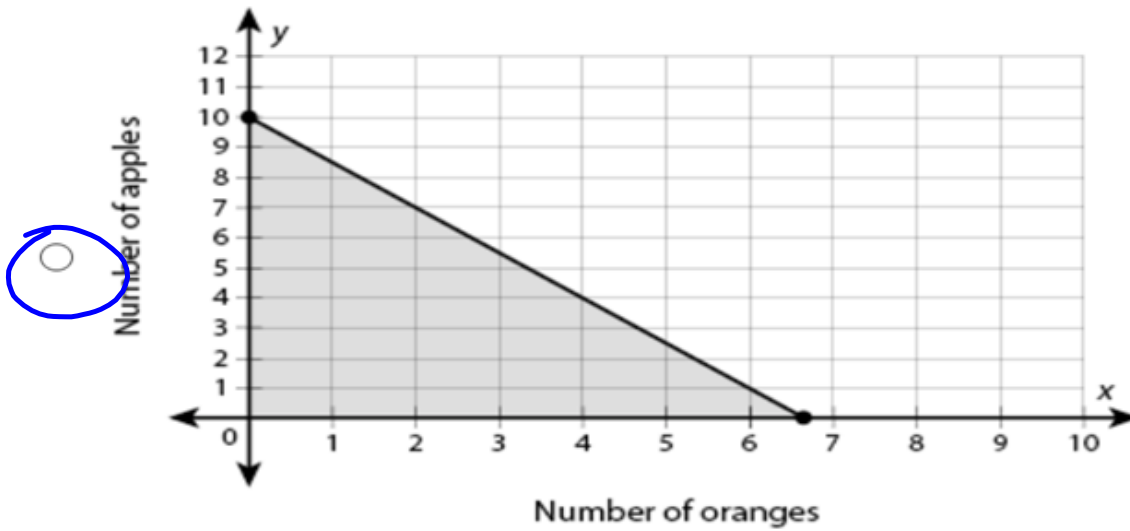
4.
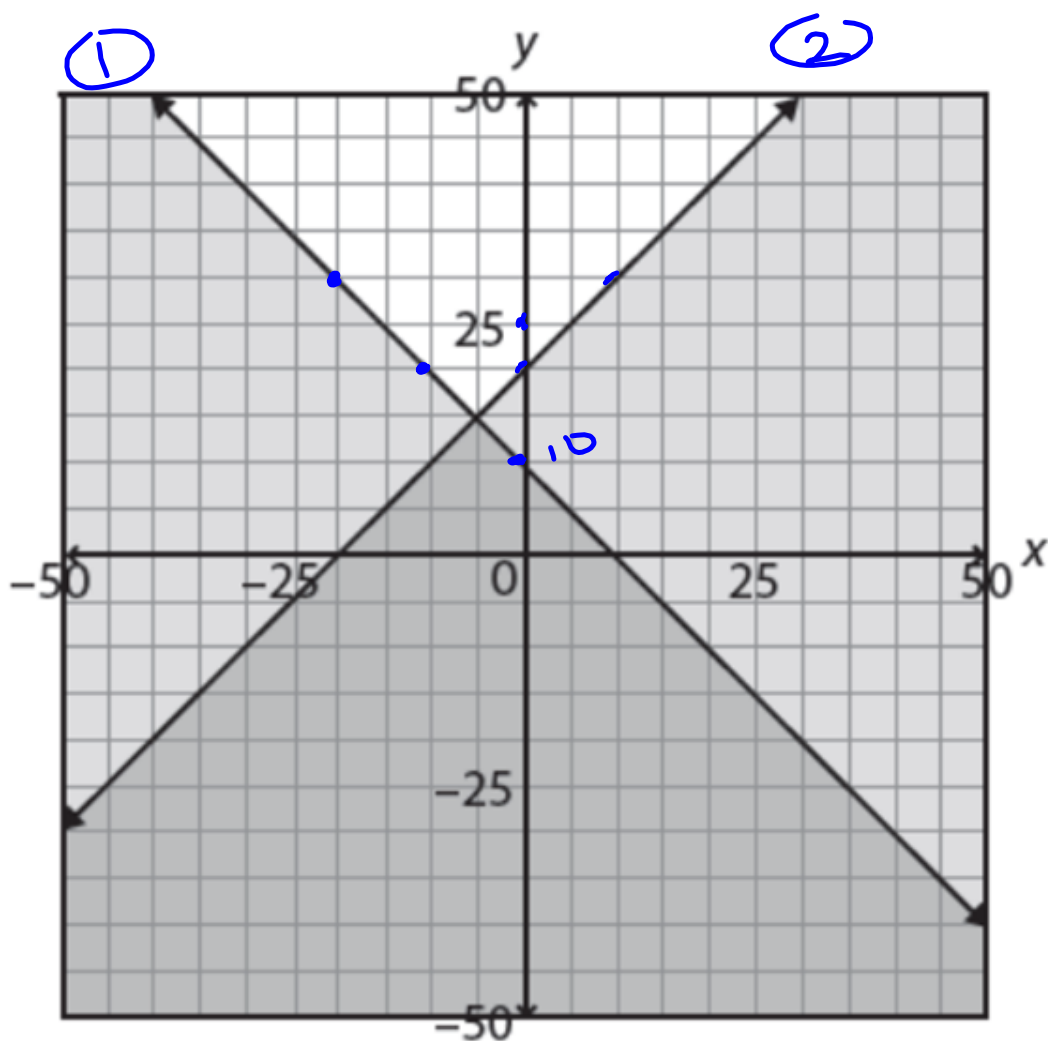
① $m = \dfrac{-2}{2} = -1 \quad b = 10$

$y \leq -1x + 10$

② $m = 1 \quad b = 20$

$y \leq 1x + 20$

Which of these systems of inequalities
match the graph?

$$\begin{cases} x + y > 10 \\ -x + y \geq 20 \end{cases}$$ ✗

$$\begin{cases} x + y \leq 10 \\ -x + y \geq 20 \end{cases}$$ ✗

$$\begin{cases} -x - y \leq 10 \\ x + y \geq 20 \end{cases}$$ ✗

$$\begin{cases} x + y \leq 10 \\ -x + y \leq 20 \end{cases}$$ ✓

From yesterday.......

I. Graph the inequality.

1. $y \geq x$
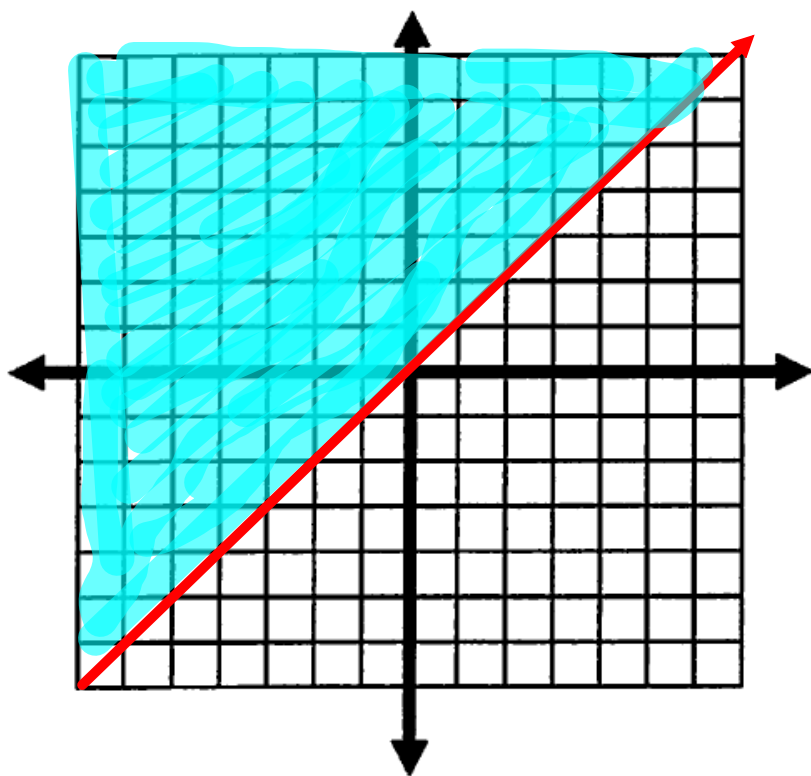
Turn in the following HW assignments NOW!!!

1. Substitution and Elimination # 1 - 12

2. Solving Systems - Word Problems # 7 - 12

3. Comic Strip Mini-Project.

Essential Question   12/5/17

How do I graph a System of Linear Inequalities?

Standard: MGSE9-12.A.REI.12

Graph the solution set to a linear inequality in two variables.

Graphing Systems of Linear Inequalities PPT

INB   12/5/17

Steps for Graphing Systems of Inequalities   *Name.*

1. Write in slope Intercept form	Example: Solve the system of inequalities by graphing. $3x - 4y < 4$ $x + 2y \le 8$
2. GRAPH THE Y-INTERCEPT	
3. GRAPH THE SLOPE	
4. DASHED OR SOLID LINE?	
5. SHADE ABOVE OR BELOW	
6. REPEAT 1-5 FOR 2nd Inequality	
7. THE SOLUTION is the area shaded twice	

$3x - 4y < 4$

$\dfrac{-3x \quad -3x}{}$

$\dfrac{-4y < -3x + 4}{-4} \quad \dfrac{}{-4} = 4$

$y > \dfrac{3}{4}x - 1$

Flip!! $m = \dfrac{3}{4}$ $b = -1$

$x + 2y \le 8$

$\dfrac{-x \quad -x}{}$

$\dfrac{2y}{2} \le \dfrac{-x}{2} + \dfrac{8}{2}$

$y \le -\dfrac{1}{2}x + 4$

$m = -\dfrac{1}{2}$ $b = 4$

Shade above	Shade below
$>, \ge$	$<, \le$

Solid Line	Dashed Line
$\ge, \le$	$>, <$

solution {

Guided Practice Notes

Graphing System

of

Linear Inequalities

Dotted

Below

the line

Above
"not equal to"
the line
Solid

"or equal to"
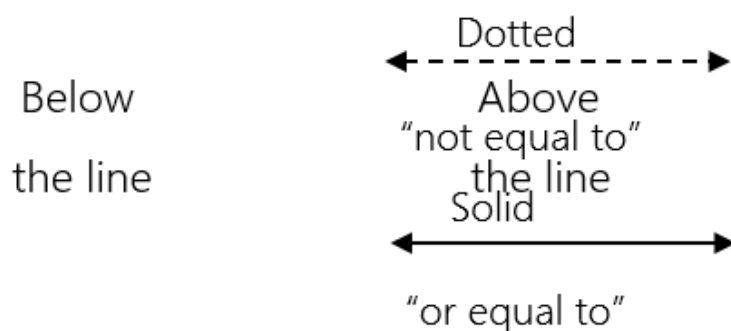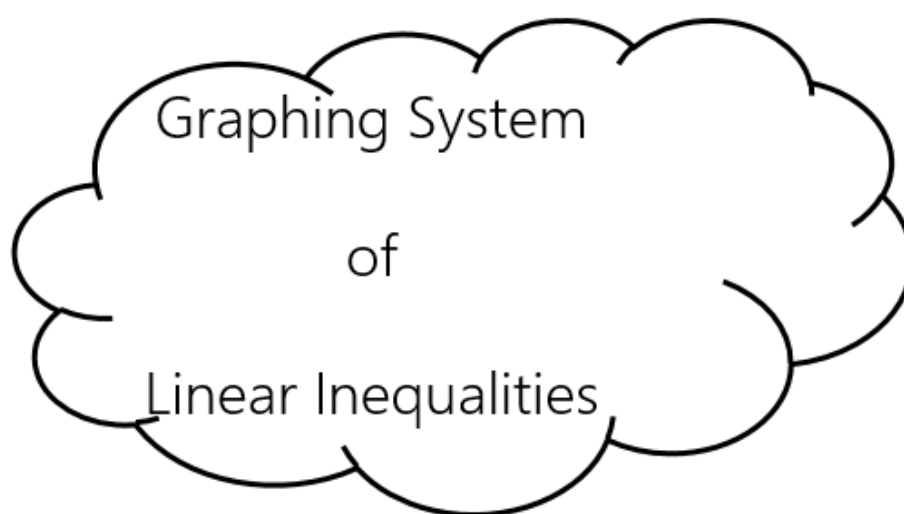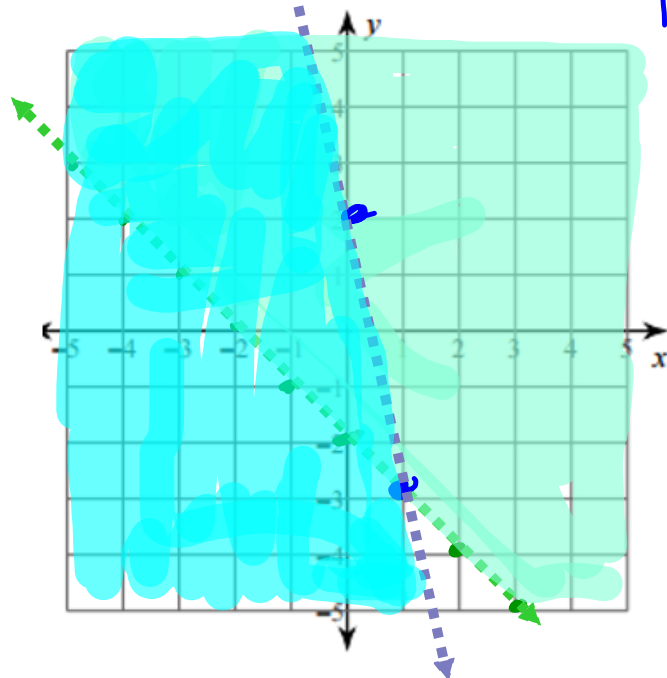
Example 1:

$y > -x - 2$

$y < -5x + 2$

$m = -\dfrac{1}{1} \quad b = -2$

$m = -\dfrac{5}{1} \quad b = 2$

Example 2: $x \leq -3$

$y < \dfrac{5}{3}x + 2$ $m = \dfrac{5}{3}$ $b = 2$
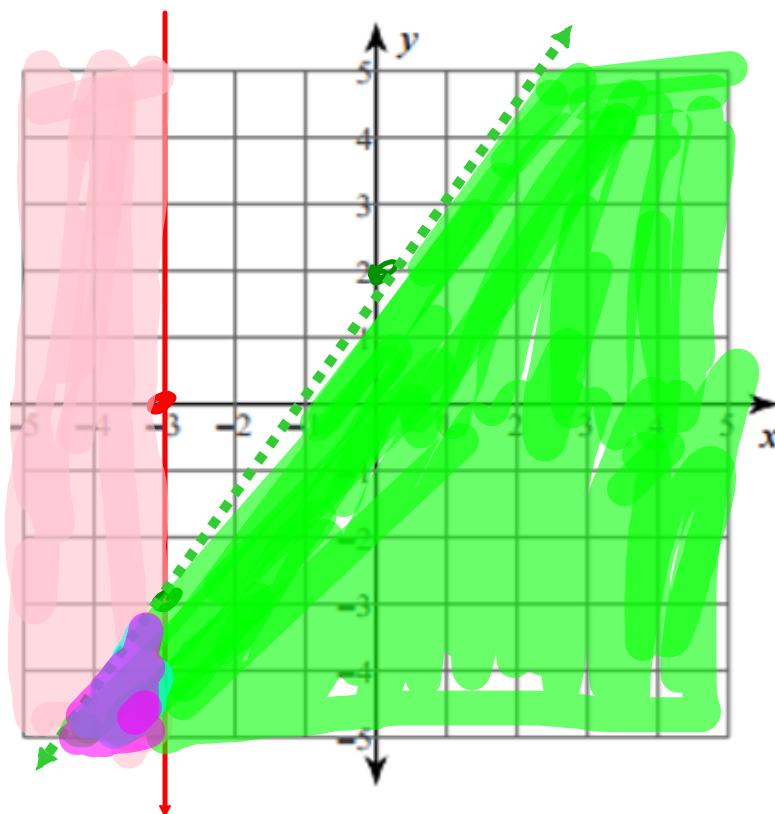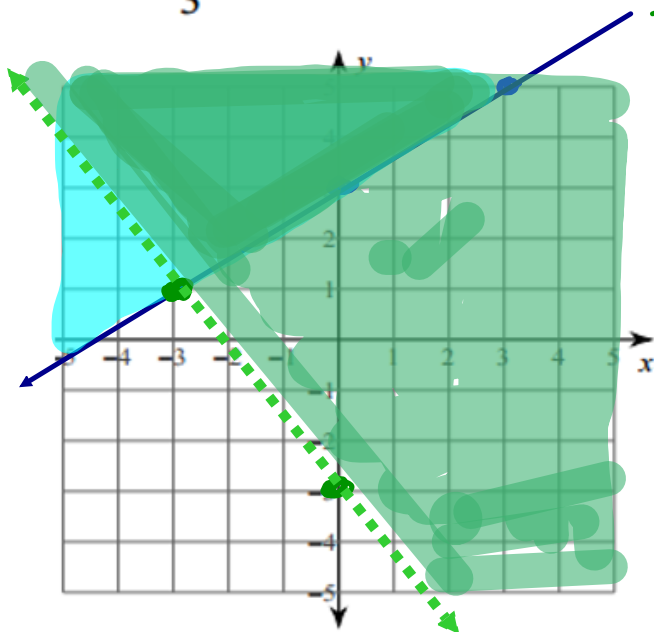
Example 3:

$$y \geq \frac{2}{3}x + 3 \qquad m = \frac{2}{3} \quad b = 3$$

$$y > -\frac{4}{3}x - 3 \qquad m = -\frac{4}{3} \quad b = -3$$

Example 4:

$$4x + y < 2$$
$$y > -2$$

$y < -4x + 2$
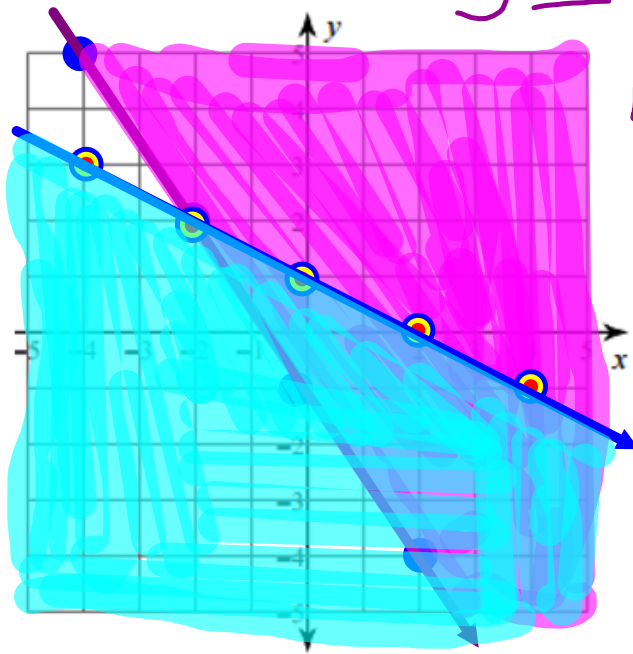
$m = -\dfrac{4}{1} \quad b = 2$
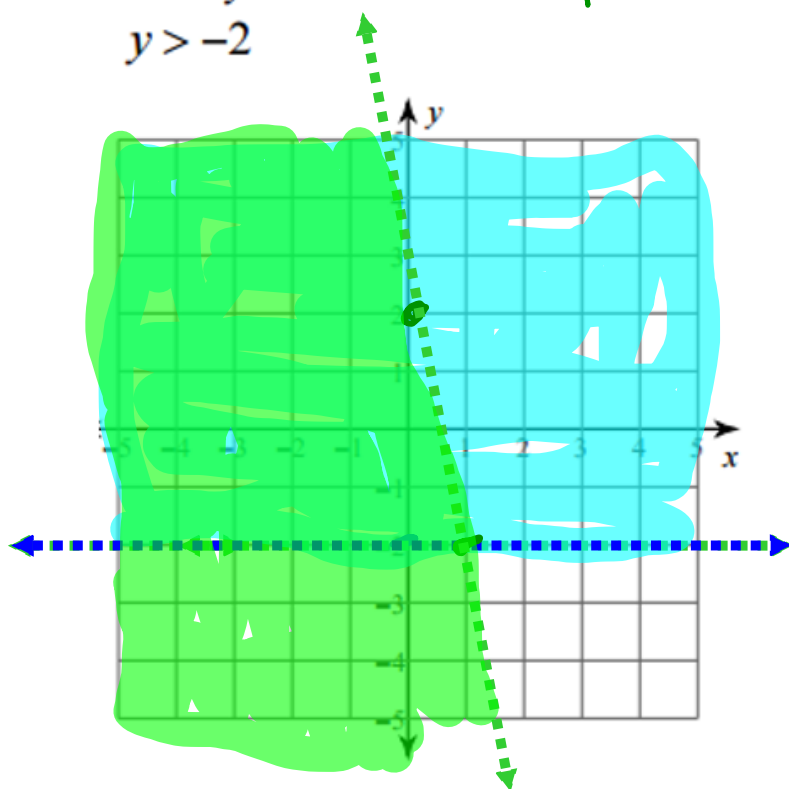
Example 5:

$3x + 2y \geq -2$

$x + 2y \leq 2$

$\frac{2y}{2} \geq \frac{-3x}{2} - \frac{2}{2}$

$y \geq \frac{-3}{2}x - 1$

$m = \frac{-3}{2} \quad b = -1$

$\frac{2y}{2} \leq \frac{-x}{2} + \frac{2}{2}$

$y \leq -\frac{1}{2}x + 1 \quad m = -1/2$

$b = 1$

Application: X

Example 6: It cost 50 cents to make a bracelet and $1 to make a necklace. To make a profit, the total cost for bracelets and necklaces must be less than $10. The jeweler can make no more than 14 pieces of jewelry each day. Write a system of inequalities to model the number of bracelets and necklaces to be made each day.
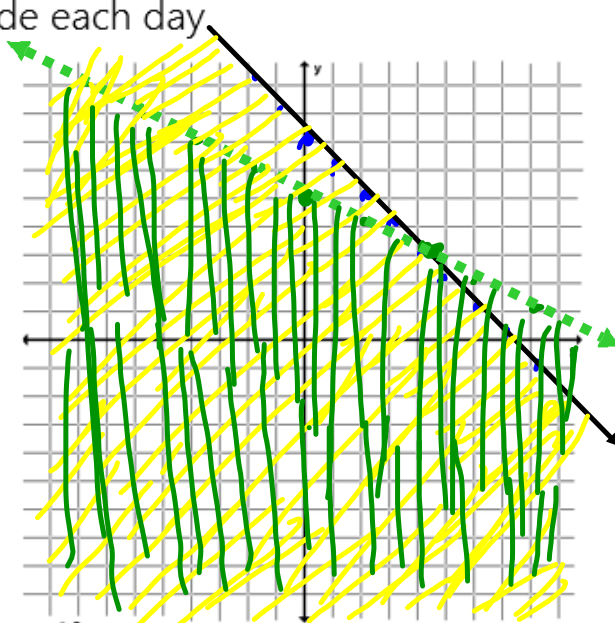
$$x + y \leq 14$$
$$.5x + 1y < 10$$

$$y \leq -x + 14$$

$$y < -.5x + 10$$

$$m = -\frac{1}{1} \quad b = 14$$

$$m = -\frac{1}{2} \quad b = 10$$

Attachments

Day 11 Systems of Inequalities.pptx