Name: _____   Math 7.2, Period _____

Mr. Rogove   Date: _____

LEARNING OBJECTIVE: We will solve systems of inequalities. (Alg1M1L11)

ACTIVATING PRIOR KNOWLEDGE:
We remember the different ways to solve systems of equations (graphing, substitution and elimination)

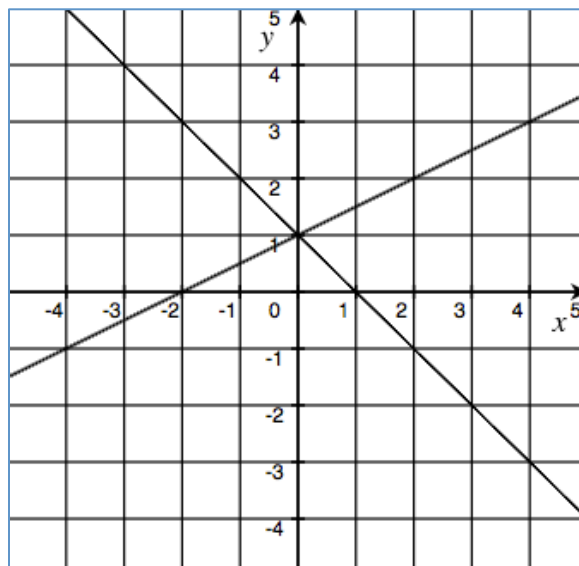|	
$\begin{cases} 3x + 2y = 4 \\ 4x + 7y = 1 \end{cases}$	$\begin{cases} 2x + y = 6 \\ x = 3y - 11 \end{cases}$

CONCEPT DEVELOPMENT:
When we solve systems of linear equations, the solution is typically a point on a coordinate plane (unless there are no solutions or infinitely many solutions).

When we solve an inequality in 2 variables, remember that the solution is a half plane.

What do we think that the solution to a system of linear inequalities will look like?

Example: $\begin{cases} x + y \leq 1 \\ y \geq \frac{1}{2}x + 1 \end{cases}$

Alg1M1L11: Systems of Inequalities

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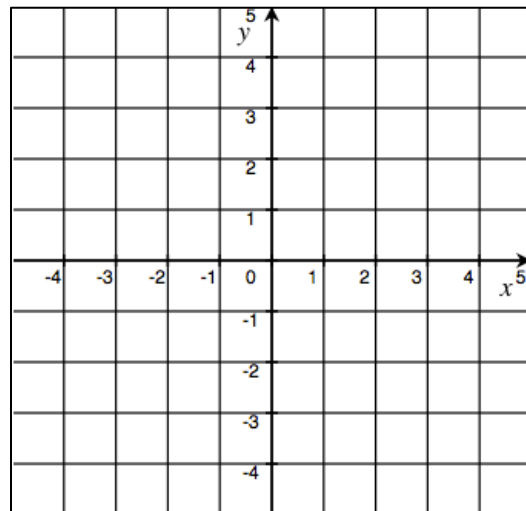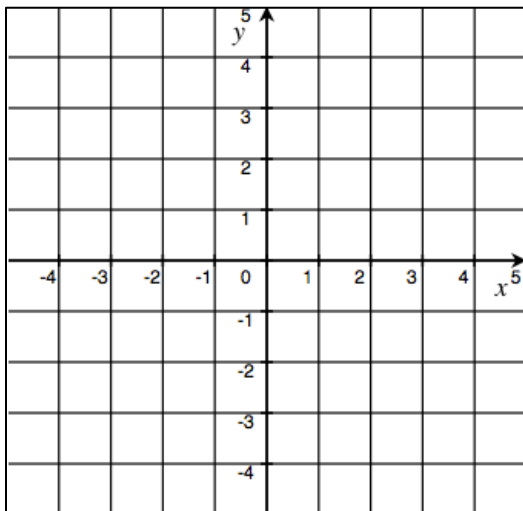
Guided Practice:

Steps for Solving Systems of Linear Inequalities
1. Read the question carefully.
2. Graph each linear inequality on the coordinate plane.
3. The solution is the overlapping shaded areas.

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

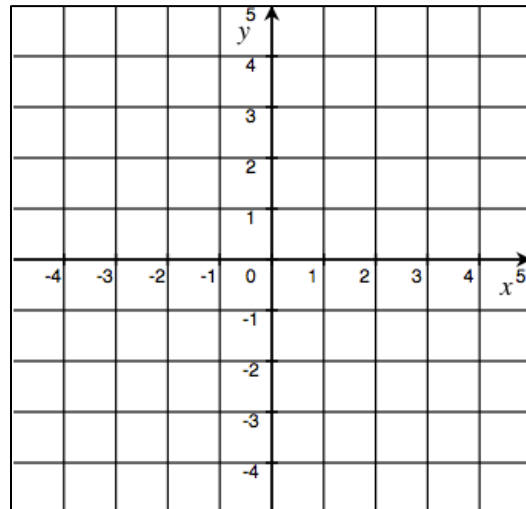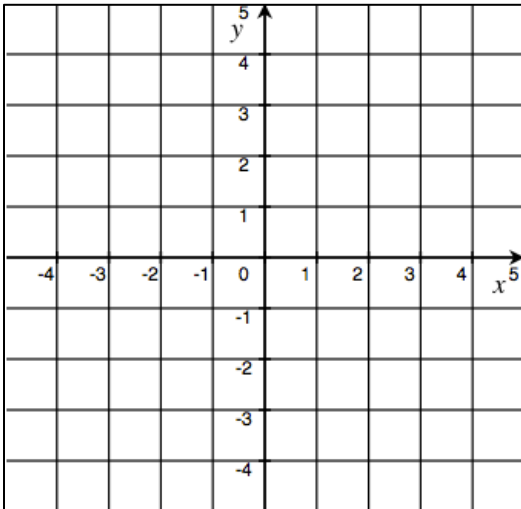$$\begin{cases} 2x - y < 3 \\ 4x + 3y \geq 0 \end{cases}$$

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

$$\begin{cases} x - 2y \geq 4 \\ y \geq \dfrac{1}{2}x \end{cases}$$

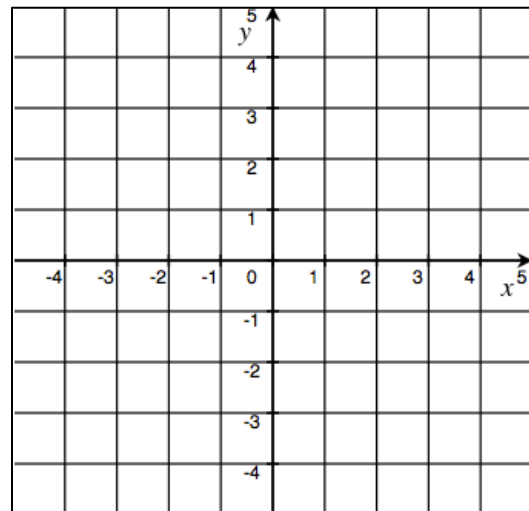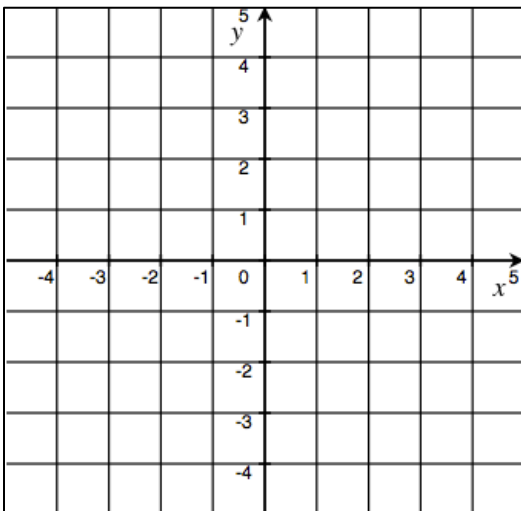$$\begin{cases} y \le x + 4 \\ x + y \le 4 \\ \quad y \ge 0 \end{cases}$$

$$\begin{cases} x - y < 2 \\ \quad x > -1 \\ 2x + y < 1 \end{cases}$$

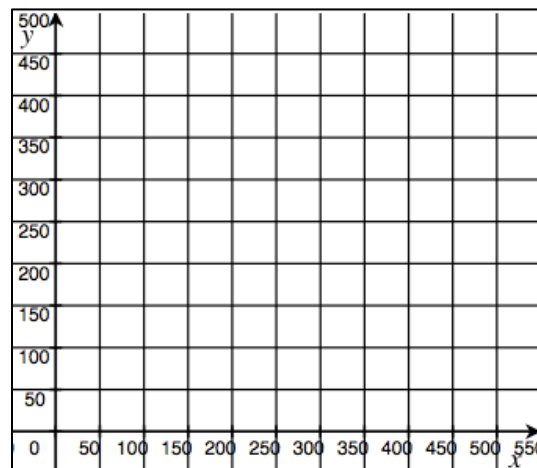| A clothing manufacturer has 1,000 yards of cotton to make shirts and pajamas. A shirt requires 1 yard of fabric and a pair of pajamas require 2 yards of fabric. It takes 2 hours to make a shirt and 3 hours to make a pair of pajamas, and there are 1,800 hours available to make the clothing. Graph the inequality based on the constraints given above.	A potter is making cups and plates. It takes her 6 minutes to make a cup and 3 minutes to make a plate. Each cup uses ¾ pound of clay and each plate uses 1 pound of clay. She has 20 hours available to make the cups and plates, and has 250 pounds of clay. Graph the inequality based on the constraints given above.

Closure:

Jason is buying wings and hot dogs for a party. One package of wings cost $7.00. Hot dogs cost $4 per pound. He MUST spend less than $40.00. He also knows that he will be buying at least 5 points of hot dogs. Write and graph a system of inequalities and identify at least two solutions that would work within your constraints.