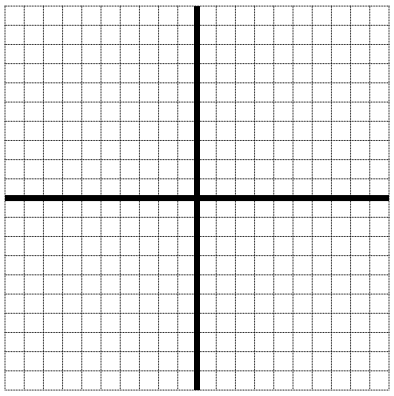
NOTES 7.4 LINEAR INEQUALITIES IN 2-VARIABLES

REMEMBER: Every time you divide or multiply both sides of the inequality by a negative number, you have to switch the sense of the inequality.

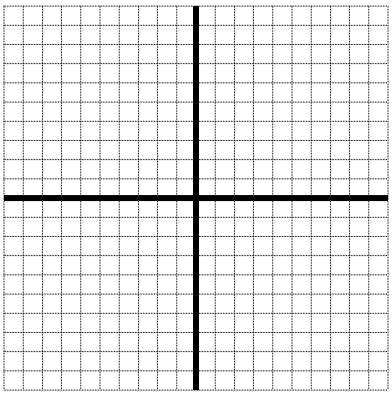
If the inequality has: $\leq$ **or** $\geq$ Line is: _____	If the inequality has: $<$ **or** $>$ Line is: _____	If the symbol is: $y\geq$ **or** $y>$ Shade goes:	If the symbol is: $y\leq$ **or** $y<$ Shade goes:

USE THE X & Y INTERCEPTS TO GRAPH EACH INEQUALITY:

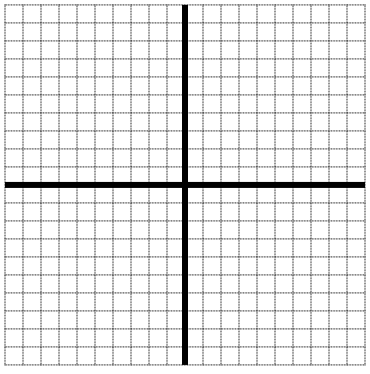
Ex 1) $3x + 5y < 15$ Line:_____ Shade:_____



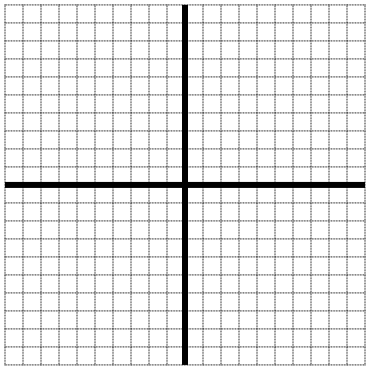
Ex 2) $2x - 4y \geq 8$ Line:_____ Shade:_____



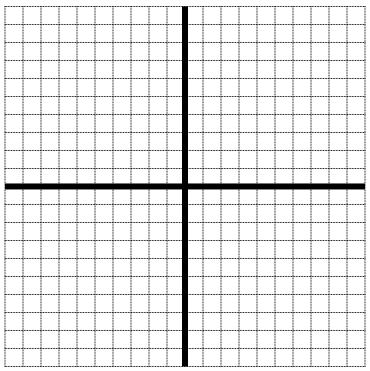
Try 1) $2x - 4y \leq 8$ Line:_____ Shade:_____



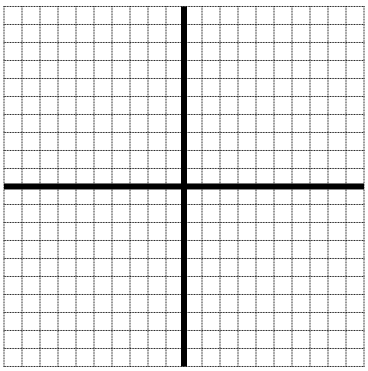
Try 2) $-x + y > 3$ Line:_____ Shade:_____



Ex 3) $x > -2$



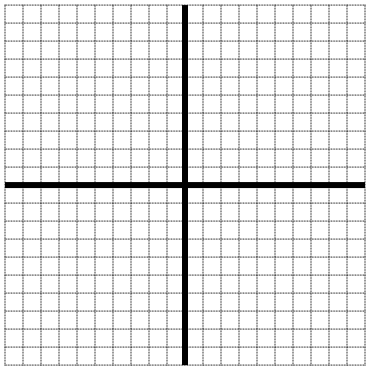
Ex 4) $y \leq 3$



<u>Graphing Systems of Linear Inequalities</u>:

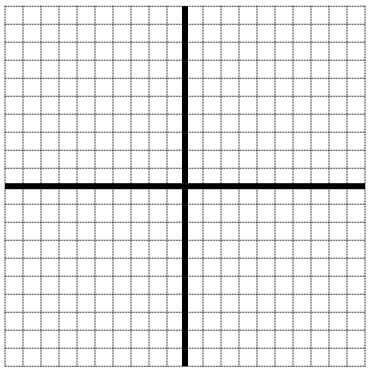
Ex 5) Graph the solution set of the system:

$x - y > 1$
$2x + 6y \leq 12$



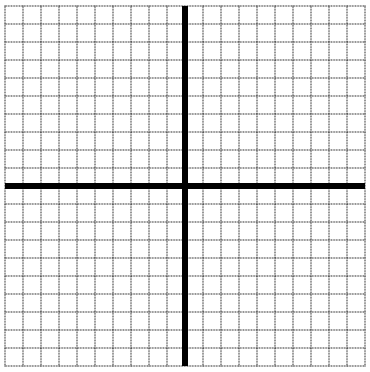
Try: Graph the solution set of the system:

$X + 2Y > 4$
$2X - 3Y \leq -6$



Ex 7) Graph the solution set of the system:

$X > -4$
$Y \leq 7$



Ex 8) Given the system of inequalities below, check if points A (1, 2) and B (-2, 5) are solutions to the system:

$x - y < 1$
$2x + 3y \geq 12$

Ex 9) A patient is not allowed to have more than 330 milligrams of cholesterol per day from a diet of eggs and meat. Each egg provides 165 milligrams of cholesterol and each ounce of meat provides 110 milligrams.

a) Write an inequality that describes the patient's dietary restrictions for x-eggs and y-ounces of meat.

b) Graph the inequality. Because x and y must be positive, limit the graph to quadrant I only. Label axes and determine the scale you will use.