Name: KEY Hour: _____ Date: _____

NOTES: Section 3.3 – Graph Systems of Linear Inequalities

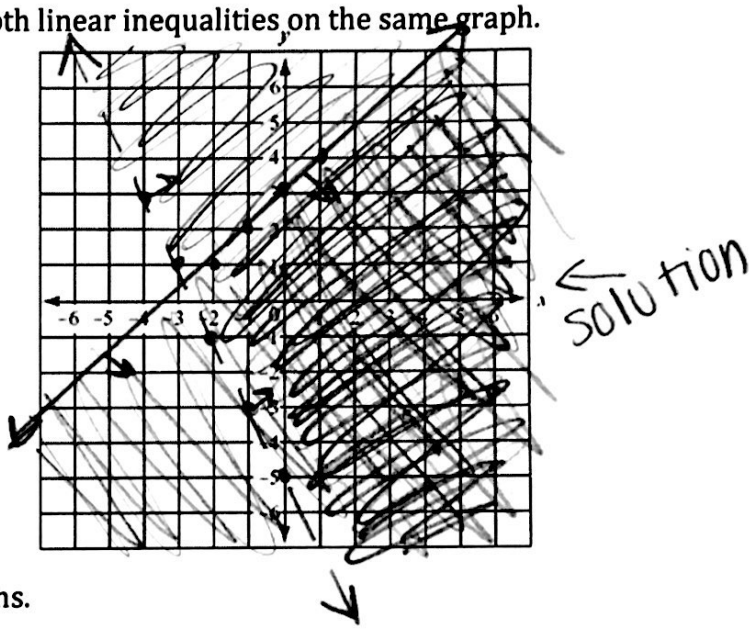
Goals: #1 - I can graph a system of inequalities in order to determine the region of points that are solutions to the system.

Homework: Lesson 3.3 Worksheet

Exploration #1: Work with a partner. Graph both linear inequalities on the same graph.

$y > -2x - 5$

$y \leq x + 3$



Identify the region that is shaded on both graphs.

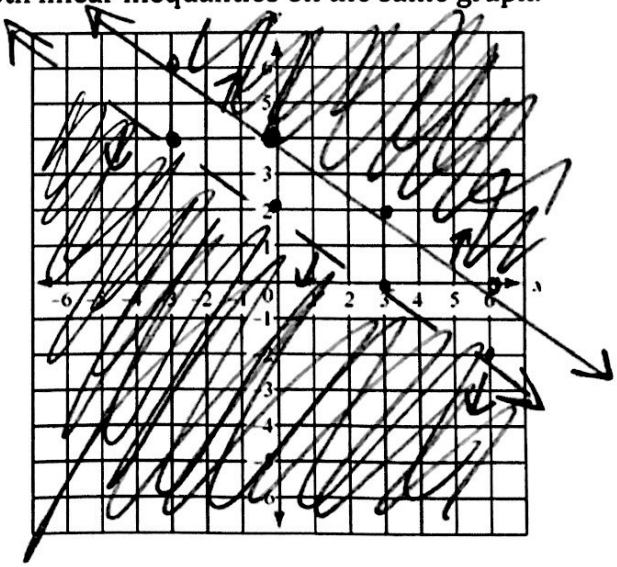
Exploration #2: Work with a partner. Graph both linear inequalities on the same graph.

$2x + 3y < 6$

$3y < -2x + 6$

$y < -\frac{2}{3}x + 2$

$y \geq -\frac{2}{3}x + 4$



Identify the region that is shaded on both graphs.

NONE!

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Notes:

A system of inequalities consists of two inequalities.

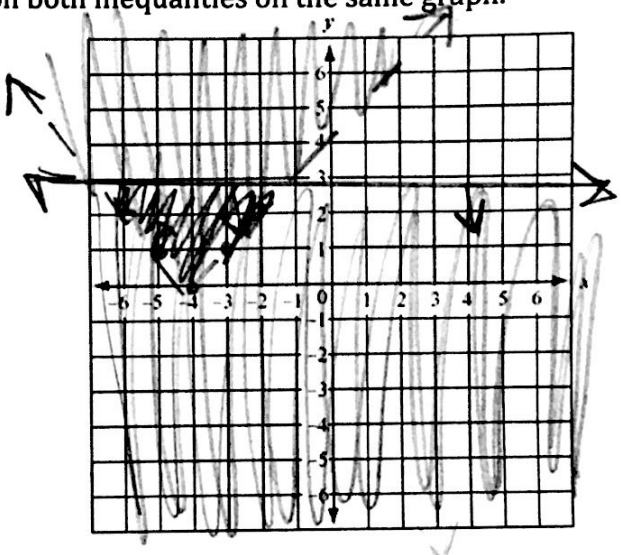
The solution of a system of inequalities is the graph of all solutions of the system (the region where the shading overlaps).

When there is NO shaded region that overlaps, the system has no solution.

Exploration #3: Work with a partner. Graph both inequalities on the same graph.

$y \leq 3$

$y > |x + 4|$



Identify the region that is shaded on both graphs.

Example #1: Graph the system of inequalities.

1. $x \leq 10$

$x \geq -2$

$3x + 2y < 6$

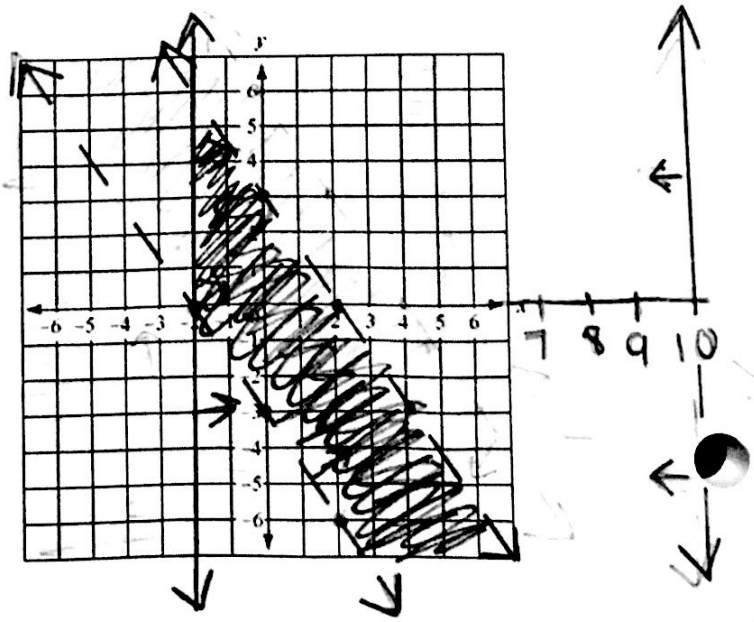
$2y < -3x + 6$

$y < -3/2x + 3$

$6x + 4y > -12$

$4y > -6x - 12$

$y > -3/2x - 3$



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Example #2: The Junior-Senior Prom Committee must consist of 5 to 8 representatives from the junior and senior class. The committee must include at least 2 juniors and at least 2 seniors. Let x be the number of juniors and y be the number of seniors.

a. Write a system of inequalities to describe the situation.

$x \geq 2$

$y \geq 2$

$x + y \leq 8$ $\quad$ $x + y \geq 5$

b. Graph the system you wrote in part (a).

$x \geq 2$

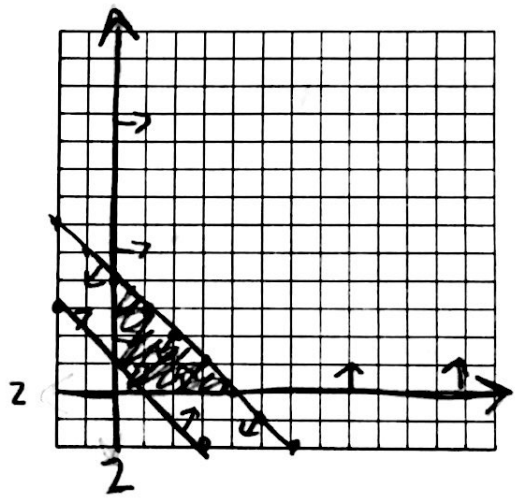
$y \geq 2$

$x + y \leq 8$

$y \leq -x + 8$

$x + y \geq 5$

$y \geq -x + 5$



c. Give two possible solutions for the numbers of juniors and seniors on the prom committee.

3 juniors, 4 seniors

4 juniors, 4 seniors