

## 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.

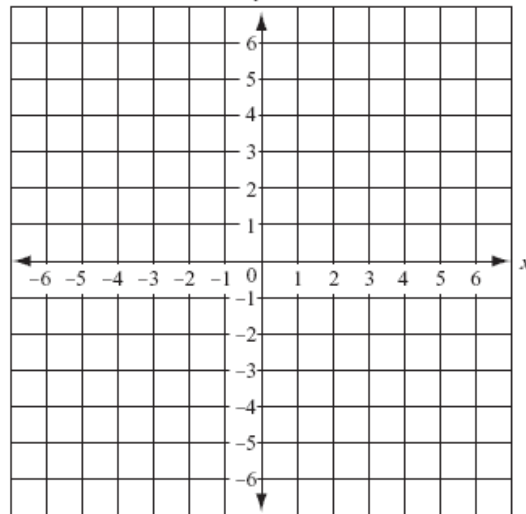


*Homework: Lesson 3.3 Worksheet*

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

$$y > -2x - 5$$

$$y \leq x + 3$$

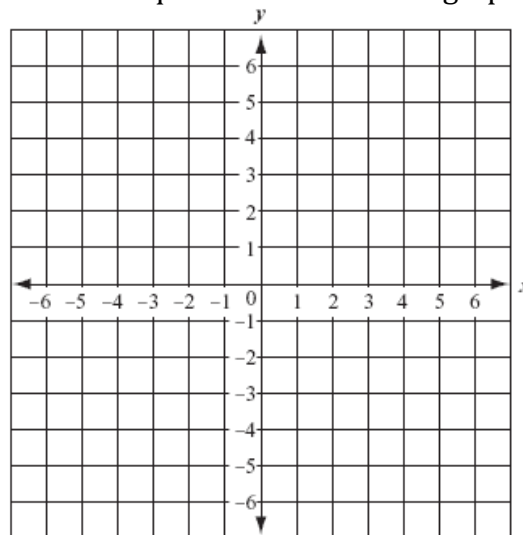


Identify the region that is shaded on both graphs.

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

$$2x + 3y < 6$$

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



Identify the region that is shaded on both graphs.

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**Notes:**

A \_\_\_\_\_, consists of two \_\_\_\_\_.

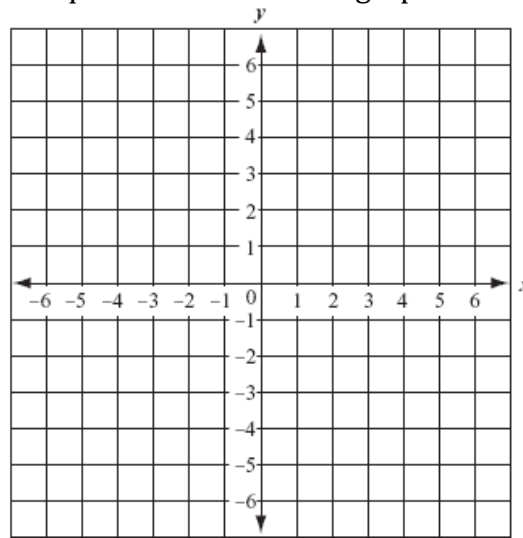
The \_\_\_\_\_ of a system of inequalities is the graph of all \_\_\_\_\_ of the system (the \_\_\_\_\_ where the \_\_\_\_\_ overlaps).

When there is \_\_\_\_\_ shaded region that overlaps, the system has \_\_\_\_\_.

**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.

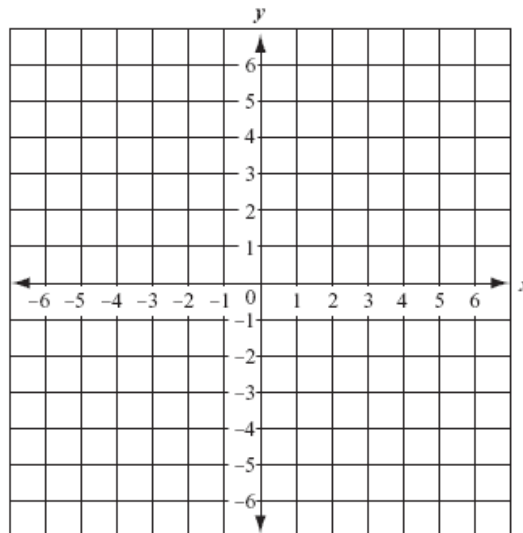
**Example #1:** Graph the system of inequalities.

1.  $x \leq 10$

$$x \geq -2$$

$$3x + 2y < 6$$

$$6x + 4y > -12$$

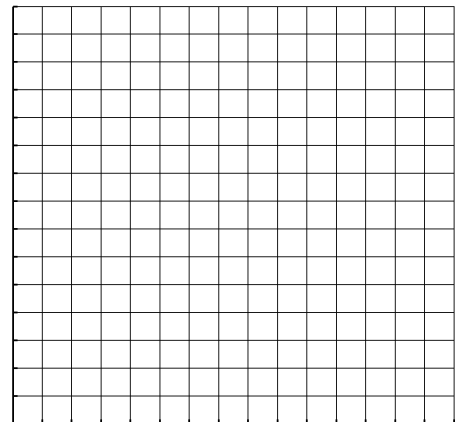


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**Example #2:** The Junior-Senior Prom Committee must consist of 5 to 8 representatives from the junior and senior class. The committee must include at least 2 juniors and at least 2 seniors. Let  $x$  be the number of juniors and  $y$  be the number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

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

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



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