

NOTES: Section 7.6 – Systems of Linear Inequalities

Goals: #1 - I can graph a system of linear inequalities.



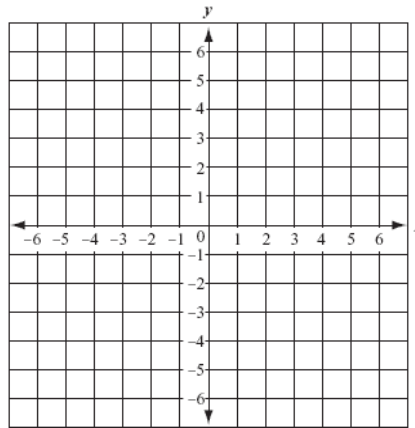
Homework: Section 7.6 Worksheet

Warm Up:

- Use the graphing method to solve the linear system and tell how many solutions the system has.

$$-x + 4y = -20$$

$$3x - 12y = 48$$



- Use substitution or elimination to solve the linear system and tell how many solutions the system has.

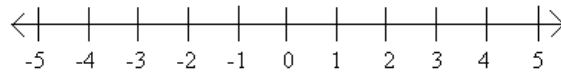
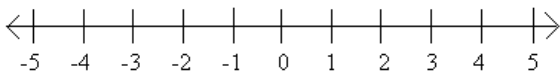
$$-6x + 2y = -2$$

$$-4x - y = 8$$

Exploration #1: Work with a partner and graph the following inequalities on a number line.

1. $x < 2$

2. $x \geq -3$



Name: _____ Hour: _____ Date: _____

Exploration #2: Work with a partner.

1. Which of the following ordered pairs are solutions of $3x + 4y > 8$?

- a. $(6, -3)$ b. $(-2, -1)$ c. $(3, 2)$ d. $(0, 2)$

Notes:

To graph linear inequalities, we need to first _____ the function.

We use a _____ line for _____ and a _____ line for _____.

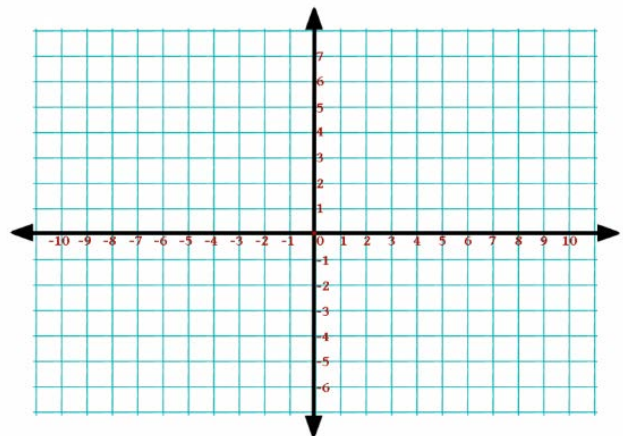
Then, we _____ points not on the line to determine where to _____.

Example #1: How would we represent this on a graph?

1. $y \leq -3$

Test:

x	y

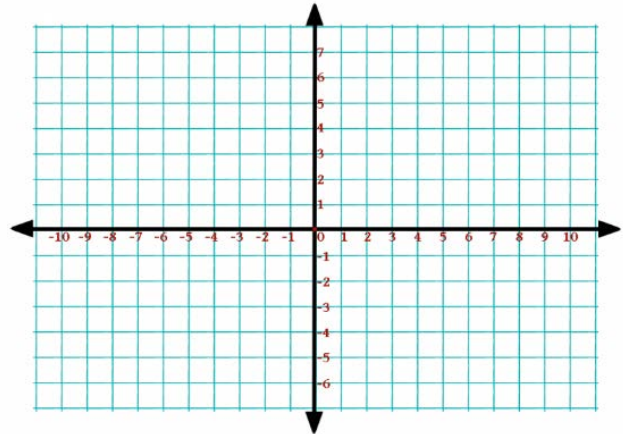


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Example #2: Graph $y > -2x$

Test:

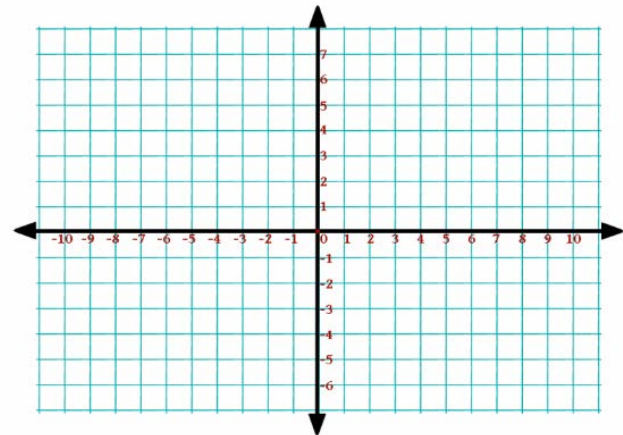
x	y



Example #3: Graph $5x - 2y \leq -4$

Test:

x	y

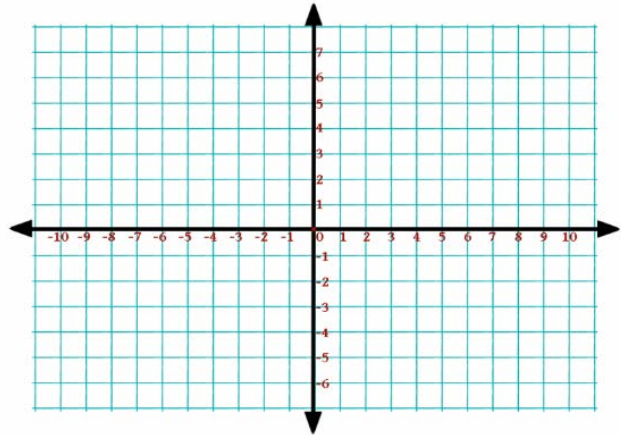


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Warm Up: Graph $x + 2y \leq 6$

Test:

x	y



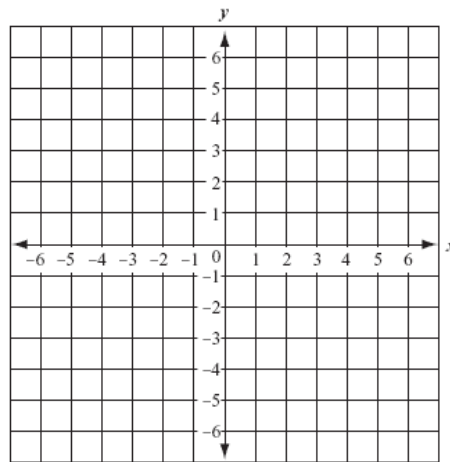
Exploration #3: Work with a partner. Graph both linear inequalities on the same graph.

Test:

$$y > -2x - 5$$

x	y

$$y \leq x + 3$$



Identify the region that is shaded on both graphs.

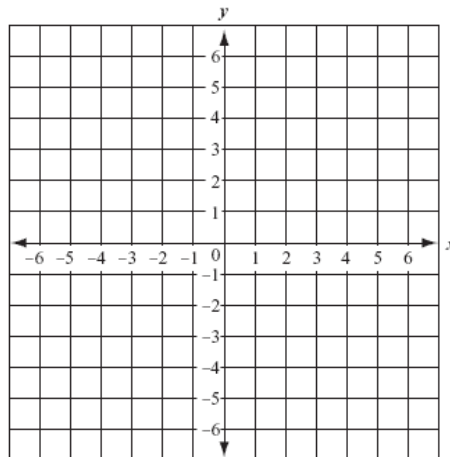
Exploration #4: Work with a partner. Graph both linear inequalities on the same graph.

Test:

$$2x + 3y < 6$$

x	y

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



Identify the region that is shaded on both graphs.

Name: _____ Hour: _____ Date: _____

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 _____.

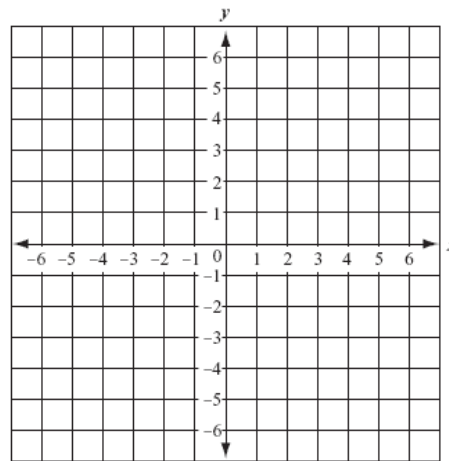
Example #4: Graph the system of inequalities.

1. $x + y < 3$

$x + 4y \geq 0$

Test:

x	y



Example #5: Graph the system of inequalities.

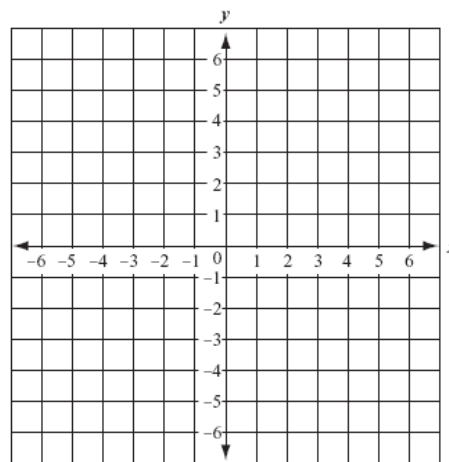
1. $y < 2$

$x \geq -1$

$y > x - 2$

Test:

x	y



Name: _____ Hour: _____ Date: _____

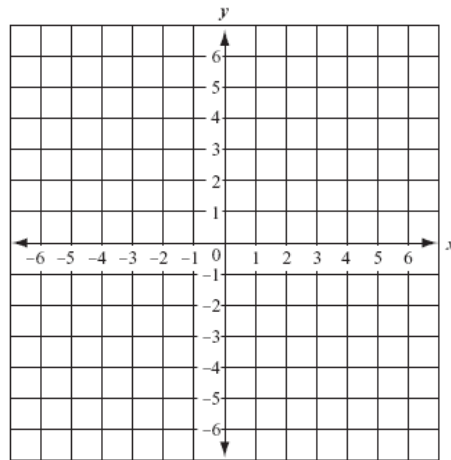
Example #6: Graph the system of inequalities.

1. $y < 3$

Test:

x	y

$y > 1$



CHALLENGE: Graph the system of inequalities.

1. $x \leq 10$

$x \geq -2$

$3x + 2y < 6$

$6x + 4y > -12$

