NOTES: Section 2.8 – Graph Linear Inequalities in Two Variables

Goals: #1 – I can graph linear inequalities in one and two variables.
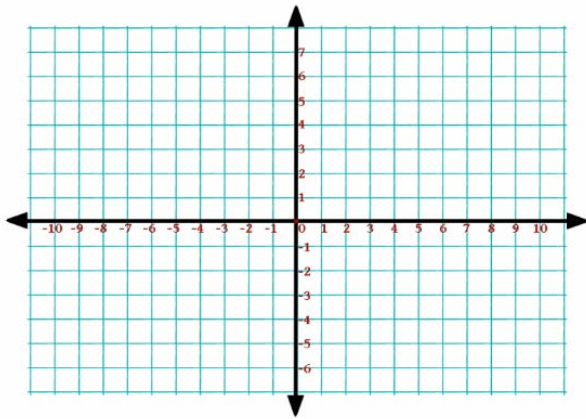
#2 – I can graph absolute value inequalities.

😎   😬   😢

Homework: Lesson 2.8 Worksheet

Warm Up:

1. Graph $y = -|x + 2| - 2$ and compare it with the graph of $y = |x|$

Comparisons:

2. What is the vertex of $y = \frac{1}{4}|x - 4| + 3$
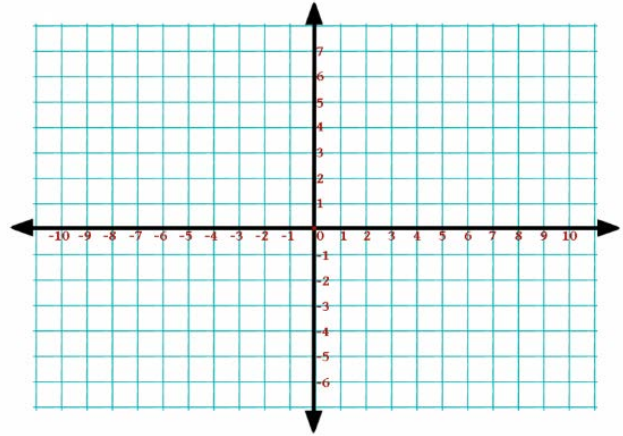
Exploration #1: Work with a partner.

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

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

CHALLENGE: How would we represent this on a graph?

  2. $y \leq -3$

x	y

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

x	y
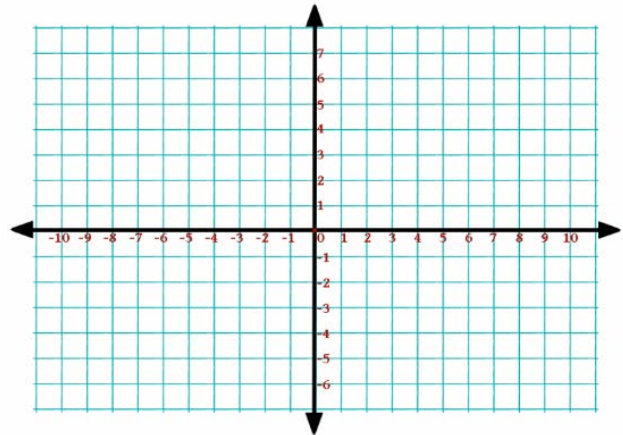
Notes:

To graph linear inequalities, we need to first _____ the function.
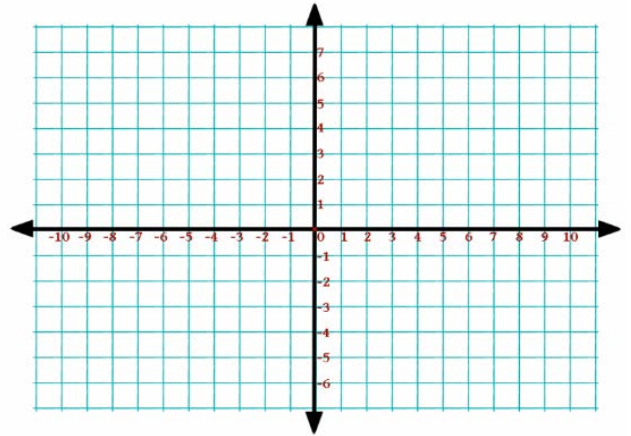
We use a _____ line for _____ and a _____ line for _____.

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

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

x	y

Example #4: Graph $y > -2|x - 3| + 4$.

x	y
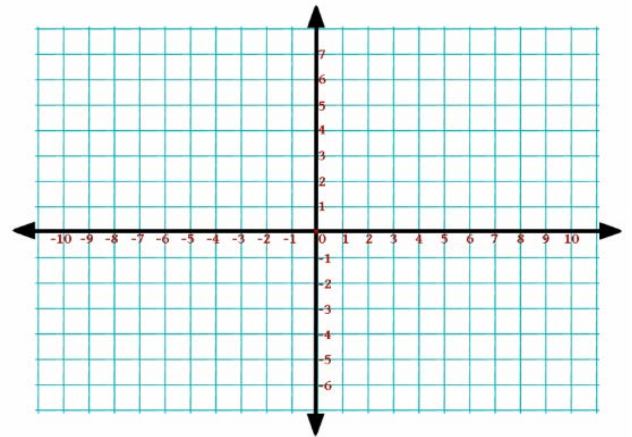
CHALLENGE: Graph the solution to the system of inequalities: $\begin{cases} x + y > 5 \\ 2x - y \leq 4 \end{cases}$
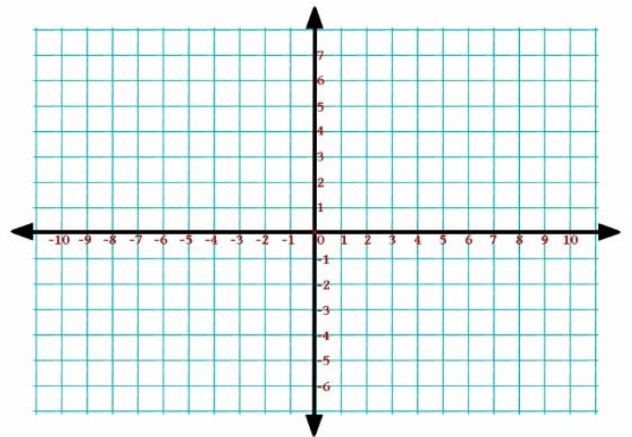
Example #5: A film class is recording a DVD of student-made short films. Each student group is allotted up to 300 megabytes (MB) of video space. The films are encoded on the DVD at two different rates: a standard rate of 0.4 MB/sec for normal scenes and a high-quality rate of 1.2 MB/sec for complex scenes.

    a. Write an inequality describing the possible amounts of time available for standard and high-quality video.

    b. Graph the inequality.
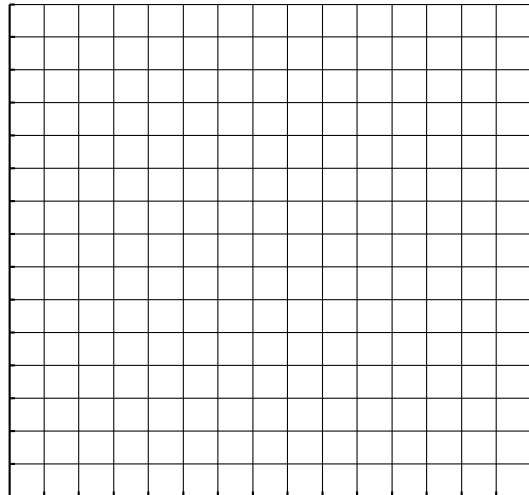
    c. Identify three possible solutions of the inequality.