

Nov. 25 Graphing Linear Inequalities

Review graphing lines using x and y - intercepts:

The easiest way to graph a line is to determine the x and y intercept of the line, plot these points and draw your line through the 2 points.

To determine the x - intercept: Replace y with 0 and solve for x.

To determine the y - intercept: Replace x with 0 and solve for y.

Find the x and y intercept of the following equations:

$$y = 2x + 1$$

x-int

$$0 = 2x + 1$$

$$-1 = 2x$$

$$x = -\frac{1}{2}$$

y-int

$$y = 2(0) + 1$$

$$y = 1$$

$$3x - 2y = 10$$

y-int:

$$3(0) - 2y = 10$$

$$y = \frac{-10}{2} = -5$$

x-int

$$3x - 2(0) = 10$$

$$x = \frac{10}{3}$$

When we graph a linear inequality we follow these steps:

1. Find the x and y intercepts of the line and plot the line.

Note: When $>$ or $<$ the line is dotted because the line is not part of the solution region.

2. Pick a point above or below the line and test the point in your original inequality. This helps determine if you shade above or below the line. The region we shade represents all of the possible points that will satisfy our inequality.

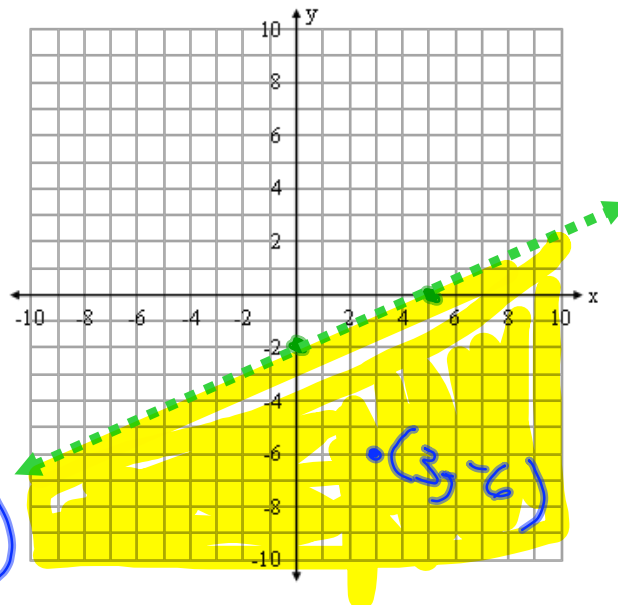
So, let's try this out!!!!!!

$$b + 30$$

$$\text{Graph } \underline{2x - 5y} > 10$$

$$x = 5$$

$$y = -2$$



Test Point $(0, 0)$

$$2(0) - 5(0) > 10$$

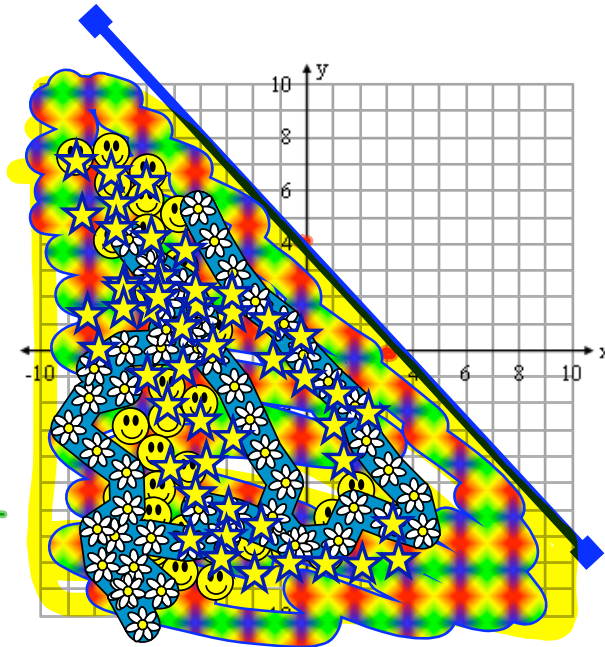
$$0 > 10$$

False $(0, 0)$ is not in our shaded region.

Graph $4x + 3y \leq 12$

$$x = 3$$
$$y = 4$$

$$4(0) + 3(0) \leq 12$$
$$0 \leq 12$$



A Christmas tree grower plants pine and spruce trees. She can plant up to 3000 trees. Draw a graph to show how many of each tree could be planted.

x - # pine.

y - # spruce.

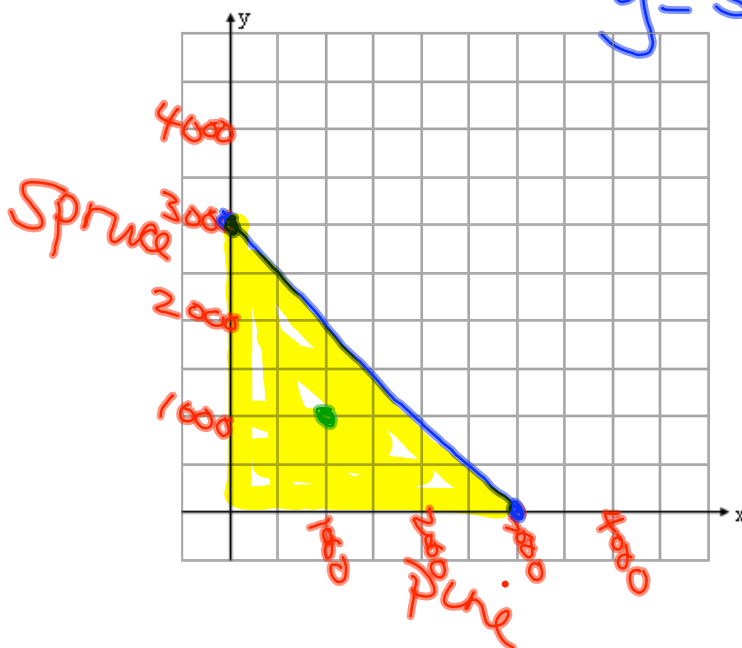
$$x + y \leq 3000$$

$$x = 3000$$

$$y = 3000$$

$$x \geq 0$$

$$y \geq 0$$



1000 pine
1000 spruce

Assignment:

Pg. 350 1-3, 4 odds, 6, 7