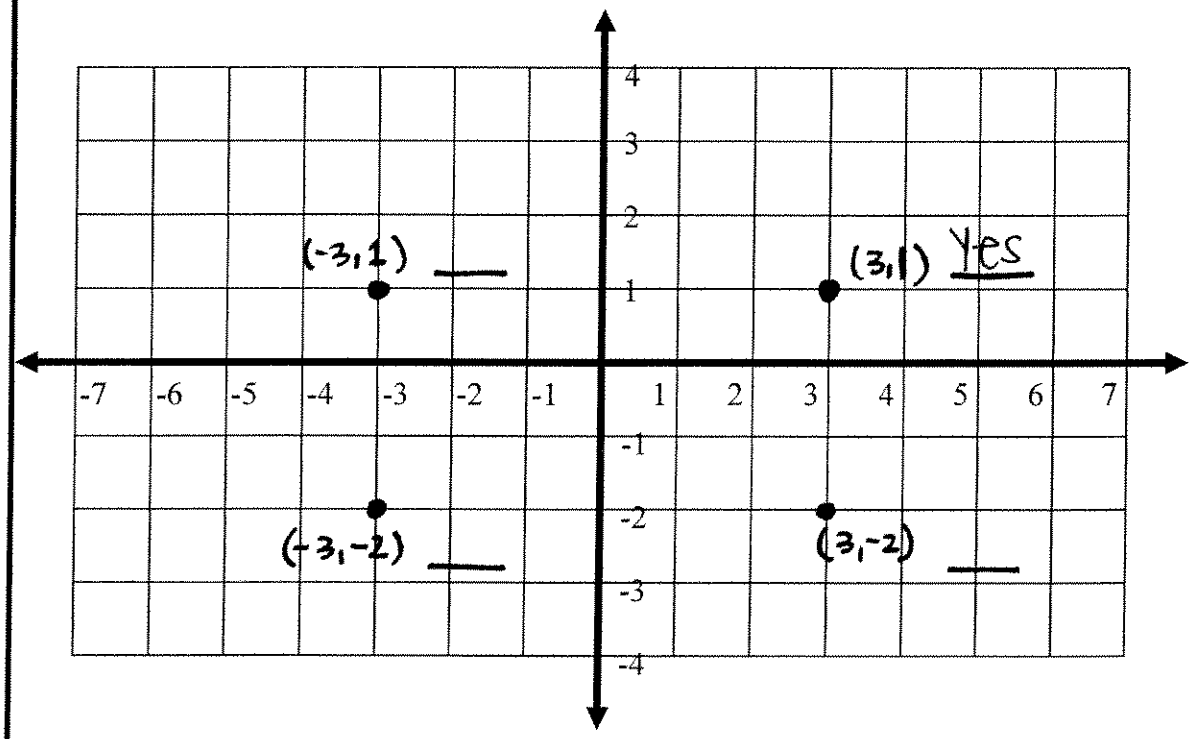
Introduction to Linear Inequalities

example 1: $x + y > 0$

We are looking for all the points (ordered pairs) that satisfy the inequality.

Consider the points below:

fill in yes or no



(3,1) satisfies the inequality since $3 + 1 = 4 > 0$

what about the other points?

We can't test every point to see if it satisfies the inequality, so we have a process to find ALL SOLUTIONS.

STEP 1: Graph the boundary line for the inequality.

We do this by making the inequality into an equality

$$x+y>0 \rightarrow x+y=0$$

TO graph the line, we make a chart

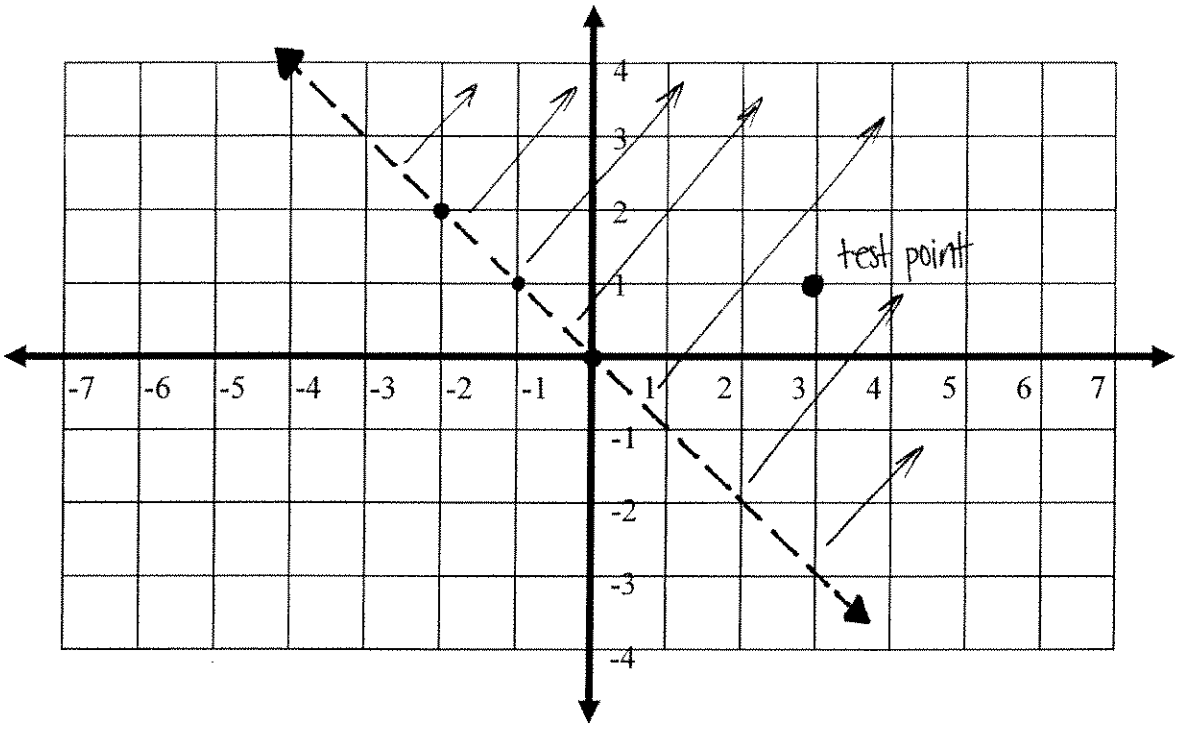
x	y
-2	2
-1	1
0	0

We plot the points to draw the line.

NOTE: The boundary line is drawn as a dashed line whenever you have a strict inequality

$<$ OR $>$

and is drawn as a solid line whenever you have $\leq$ OR $\geq$



STEP 2: choose a point not on the boundary line and check to see if it satisfies the inequality.

- If yes, then shade the region that INCLUDES the test point.
- If no, then shade the region that DOES not INCLUDE the test point.

We know the point (3,1) satisfies the equation so we shade the region that includes the point (3,1)

Intro to Linear Inequalities Practice Problems

Graph the inequality

$$x - y < 1$$