Name _____ Class _____ Date _____
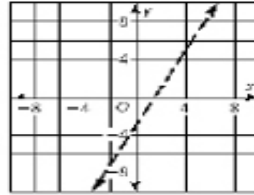
4-5 Reteaching

Linear Inequalities

To graph an inequality, graph the line and find the solution region by substituting a test point. The point $(0, 0)$ is a good one unless the line goes through the origin.

Problem

What is the graph of $y > 2x - 3$?

Begin by graphing the line $y = 2x - 3$. Take random values for x, find the corresponding y values, and create a table.

| x	$y = 2x - 3$
−2	−7
−1	−5
0	−3
1	−1
2	1

The ordered pairs are $(-2, -7)$, $(-1, -5)$, $(0, -3)$, $(1, -1)$, and $(2, 1)$. You can graph the line using these points. The line should be dashed because the inequality symbol is $>$.

To determine which region to shade, substitute $(0, 0)$ into the inequality to see if it is a solution.

$$y > 2x - 3$$
$$0 \overset{?}{>} 2(0) - 3$$
$$0 > -3 \checkmark$$

The point $(0, 0)$ satisfies the inequality and is above the line. Therefore, shade the region above the line, which is the solution region.
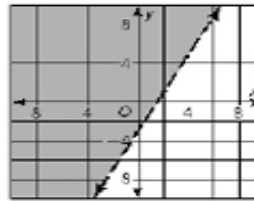
Exercises

Graph each linear inequality.

1. $y < x + 2$ **2.** $y > 3x - 4$ **3.** $x + y < -3$ **4.** $x - 2y > -1$