

4-5 Reteaching

Linear Inequalities

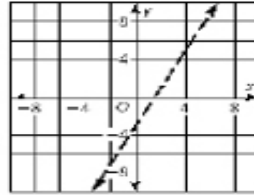
To graph an inequality, graph the line and find the solution region by substituting a test point. The point $(0, 0)$ is a good one unless the line goes through the origin.

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

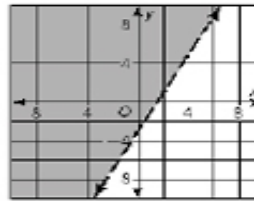


The ordered pairs are $(-2, -7)$, $(-1, -5)$, $(0, -3)$, $(1, -1)$, and $(2, 1)$. You can graph the line using these points. The line should be dashed because the inequality symbol is $>$.

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

$$\begin{aligned}
 y &> 2x - 3 \\
 0 &\stackrel{?}{>} 2(0) - 3 \\
 0 &> -3 \quad \checkmark
 \end{aligned}$$

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. $x - 2y > -1$