6.1 - Graphing Linear Inequalities in Two Variables

Natural Numbers

Whole Numbers

Integers
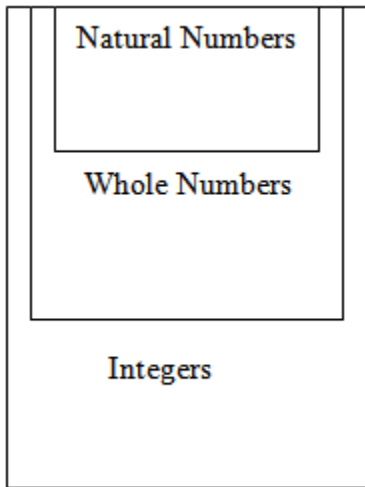
A mathematical inequality __must contain__ one of the following: $> \geq < \leq \neq$
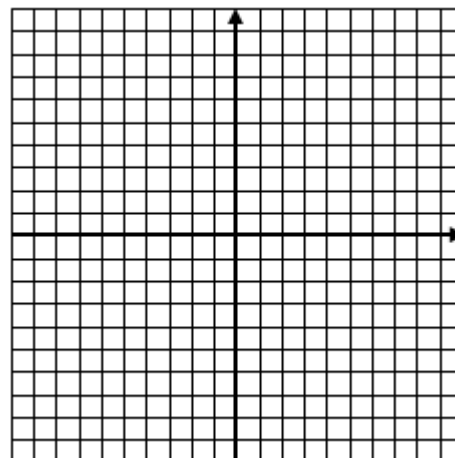
Examples of linear inequalities in a **single** variable: $x > 7$ $4x - 1 < 10$ $1 - 2a \leq 5$

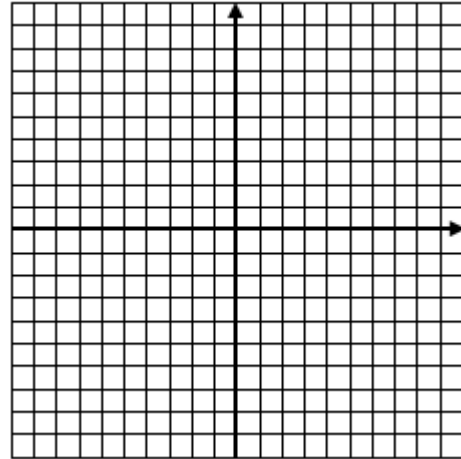The **solution** to a single variable inequality can be shown on a number line:

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10
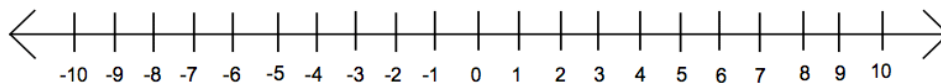
Solutions for a **double variable inequality** can be shown on a Cartesian plane.

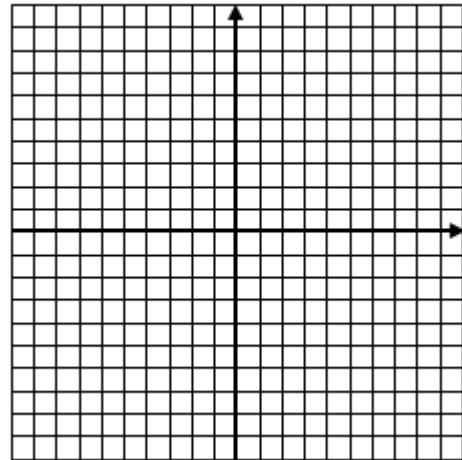__Example:__ Graph the solution set for $-3x + 4y \leq 12$

Example 2: Graph the solution set for each linear inequality on a Cartesian plane.

a) $\{(x, y)|\, x - 2 > 0,\ x \in R, y \in R\}$

b) $\{(x, y)|\, -3y + 6 \geq -6,\ x \in I, y \in I\}$

Example 3:

Oliver and Connor are competing in a spelling quiz. Connor gets a point for ever word he spells correctly. Oliver is younger than Connor is, so he gets 3 points for every word he spells correctly, plus one bonus point. What combinations of correctly spelled words for Oliver and for Connor scoring more points than Oliver? Choose two combinations that make sense and explain your choices.