

## Pre-Algebra

### Graphs of Inequalities in One Dimension

Inequalities in one dimension are generally graphed on the number line. Alternatively, if it is clear that the graph is one-dimensional, the graphs can be shown in relation to a number line but not specifically on it (examples of this are on the next page).

#### One-Dimensional Graph Components

- **The endpoint(s)** – The endpoints for the ray or segment in the graph are shown as either open or closed circles.
  - If the point is included in the solution to the inequality (i.e., if the sign is  $\leq$  or  $\geq$ ), the circle is closed.
  - If the point is not included in the solution to the inequality (i.e., if the sign is  $<$  or  $>$ ), the circle is open.
- **The arrow** – If all numbers in one direction of the number line are solutions to the inequality, an arrow points in that direction.
  - For  $<$  or  $\leq$  signs, the arrow points to the left (  $\longleftarrow$  ).
  - For  $>$  or  $\geq$  signs, the arrow points to the right (  $\longrightarrow$  ).
- **The line** – in a simple inequality, a line is drawn from the endpoint to the arrow. If there are two endpoints, a line is drawn from one to the other.

#### Examples:

