LINEAR INEQUALITIES

An inequality is a mathematical statement that uses a <, ≤, ≥ or >

example: $2 < 9,\ 2k+11 < 9$

Inequalities can have an infinite number of solutions

example: $x > 3$

LINEAR INEQUALITIES

Linear inequalities can be solved in a similar way to linear equations.

If however, we multiply or divide both sides of an inequality by a negative number, the inequality sign is **reversed**.

Example: $5 < 8$ but $-5 > -8$ $\quad\quad$ $3 > 2$ but $-3 < -2$

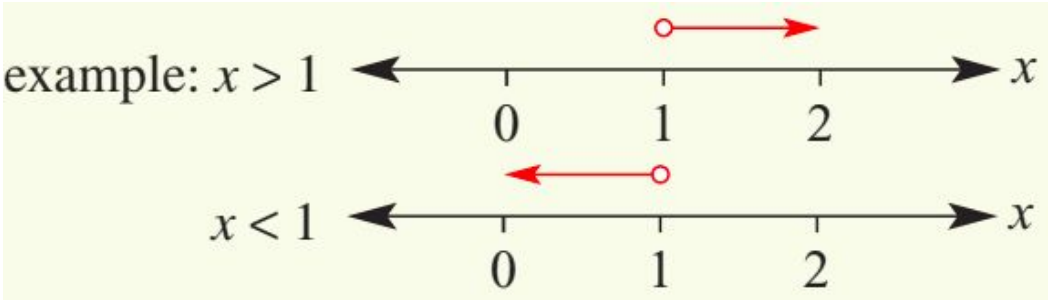
If we swap the sides of an inequality, then the inequality sign is reversed.

Example: $3 < 7$ but $7 > 3$ $\quad\quad$ $6 > 2$ but $2 < 6$

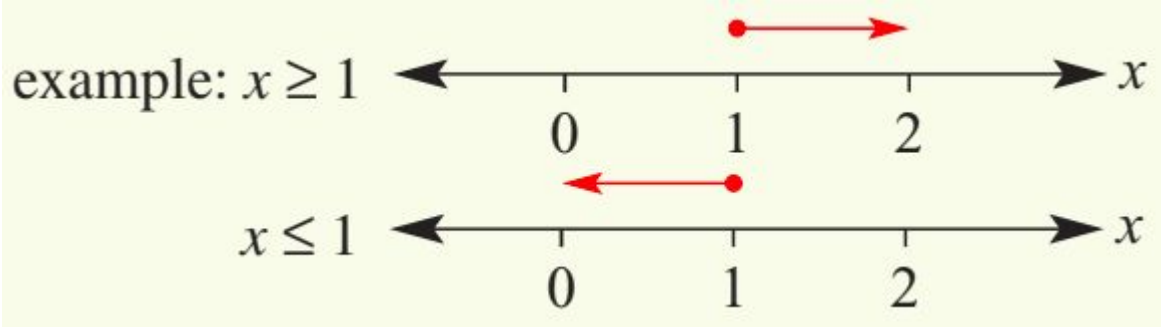
LINEAR INEQUALITIES

A number line can be very helpful to solve inequalities.

Use an **open circle** when showing > (greater than) or < (less than).



Use a **closed circle** when showing ≥ (greater than or equal to) or ≤ (less than or equal to).



LINEAR INEQUALITIES

A set may have an upper and lower bound

example: $-2 < x \leq 3$