

$-3 < 6$  Is it true? **yes**

Multiply each side by 3. Is it still true?

$$\begin{array}{ccc} -3 < 6 \\ \times 3 & & \times 3 \end{array}$$

$$-9 < 18$$

Still true

Divide each side by 3. Is it still true?

$$\begin{array}{ccc} -3 < 6 \\ \div 3 & & \div 3 \end{array}$$

$$-1 < 2$$

Still true

Multiply each side by -3. Is it still true?

$$\begin{array}{ccc} -3 < 6 \\ \times -3 & & \times -3 \end{array}$$

$$9 < -18$$

**NOT TRUE**

Divide each side by -3. Is it still true?

$$\begin{array}{ccc} -3 < 6 \\ \div -3 & & \div -3 \end{array}$$

$$1 < -2$$

**NOT TRUE**

When solving inequalities  
you are allowed to multiply  
or divide by a positive number.

There is a special rule when  
you multiply or divide by a negative  
number.

We must reverse the inequality sign when multiplying or dividing both sides by a negative number to keep the inequality true!

ex. solve and graph the following inequalities

