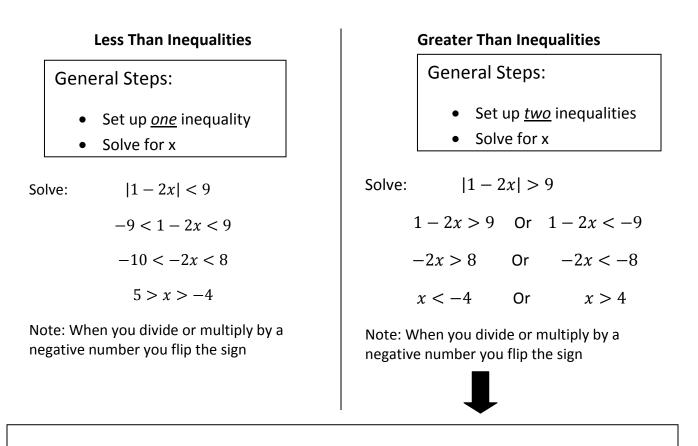
There are two types of absolute value inequalities; Greater than (<u>Or</u> statements) and less than (<u>And</u> statements). All an absolute value inequality does is talk about the distance away from zero so when working with these inequalities you have two methods depending on whether it is a less than statement or a greater than statement that you use to solve these equations.



Question: Why do you flip the sign and make the number negative?

**Answer:** All an absolute value inequality does is talk about the distance away from zero. That means you have the positive distance and the negative distance (see below)

$$+(1-2x) > 9$$
 Or  $-(1-2x) > 9$ 

But when you divide multiply or divide by a negative number it flips the sign so you end up with

$$1 - 2x > 9$$
 Or  $1 - 2x < -9$ 

## **Practice Problems**

1. Solve |x| > 5

2. Solve  $|2x + 5| \le 9$ 

3. Solve |5 - x| < 12

4. Solve  $|6x - 3| \ge 9$ 

5. Solve |x| - 10 > 5

## Solutions:

<b>1)</b> $x > 5$ Or $x < -5$	<b>2)</b> $-7 \le x \le 2$	<b>3)</b> −7 < <i>x</i> < 17
<b>4)</b> $x \le -1$ Or $x \ge 2$	<b>5)</b> $x < -15$ Or $x > 15$	