

**Math 9**

Name: \_\_\_\_\_

**6.3 – Introduction to Linear Inequalities**

Date: \_\_\_\_\_

An **EQUATION** is a statement that one quantity is **EXACTLY EQUAL** to another quantity.

An **INEQUALITY** is a statement that one quantity is **GREATER** than or **LESS** than another quantity.

The following symbols are use for expressing Inequalities:

$>$                        $<$                        $\geq$                        $\leq$

Are the following inequalities **TRUE** or **FALSE**:

$9 > 5$                        $-2 > -4$                        $-10 < -15$                        $1.49 \geq 0.49$

Write inequalities that are **true**:             $\_\_\_\_ \leq \_\_\_\_$              $\_\_\_\_ > \_\_\_\_$              $\_\_\_\_ \geq \_\_\_\_$

Write inequalities that are **false**:             $\_\_\_\_ \leq \_\_\_\_$              $\_\_\_\_ > \_\_\_\_$              $\_\_\_\_ \geq \_\_\_\_$

Inequalities can be used to model situations where a **number** of **different** solutions are possible:

$x \leq -5$  means:

$p > 10$  means:

Write an inequality to model the following situations:

*“A participant’s age must be at least 15 years of age”*

*“The speed limit is 50km/h”*

*“To use the express line you must have 7 items or less”*

Circle the values that are **solutions** to the inequality given:

$x < 5$  : 3    9    -2    1.45    0                       $d \geq -3$  : 7    9    -4    -5.25    0

## Graphing Inequalities

List **ALL** solutions to the inequality,  $x > 3$ :

The solutions to an inequality can be shown graphically by using a **number line**:

Graph the solutions to the following inequalities:

$$x > 3 : \quad \leftarrow \text{-----} \rightarrow$$

$$b < 5 : \quad \leftarrow \text{-----} \rightarrow$$

$$w > 0 : \quad \leftarrow \text{-----} \rightarrow$$

$$m \geq -2 : \quad \leftarrow \text{-----} \rightarrow$$

$$a \leq 4.5 : \quad \leftarrow \text{-----} \rightarrow$$

$$k \geq -4.9 : \quad \leftarrow \text{-----} \rightarrow$$

$$h < \frac{5}{6} : \quad \leftarrow \text{-----} \rightarrow$$

$$y > \frac{2}{3} - \frac{3}{4} : \quad \leftarrow \text{-----} \rightarrow$$

$$n \leq -3.6 - 2.1 : \quad \leftarrow \text{-----} \rightarrow$$

$$x < 6.8 - 4.1 : \quad \leftarrow \text{-----} \rightarrow$$