

Learning Target: I can solve one-step inequalities and graph the solution on a number line.

INEQUALITIES

A mathematical sentence that contains $<$, $>$, \leq , or \geq is called an **inequality**.

$<$	$>$	\leq	\geq
<ul style="list-style-type: none"> • is less than • is fewer than 	<ul style="list-style-type: none"> • is greater than • is more than • exceeds 	<ul style="list-style-type: none"> • is less than <u>OR</u> equal to • is no more than • is at most 	<ul style="list-style-type: none"> • is greater than <u>OR</u> equal to • is no less than • is at least

Writing Inequalities

1) Less than 50 students attended the game.

students @ game < 50

2) Going to see the movie cost at least as much as his allowance of \$15.

Cost of movie ≥ 15

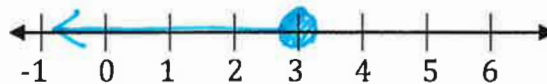
Graphing Inequalities

1) $x > 3$



* An **open circle** means that the number 3 is **NOT** included in the solution set.

2) $x \leq 3$

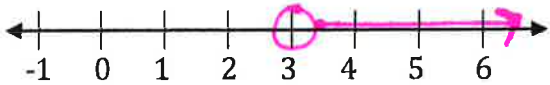


* A **closed circle** means that the number 3 **IS** included in the solution set.

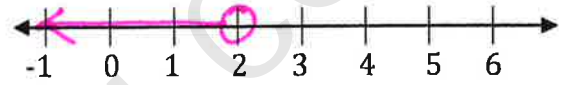
Solving Inequalities

Solving inequalities uses the same procedures as solving linear equations, with one very important exception...When you **multiply or divide an inequality by a negative number**, it changes the direction of the inequality

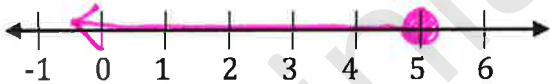
$$\begin{array}{r} 1) \quad x + 4 > 7 \\ \quad \underline{-4 \quad -4} \\ \quad x > 3 \end{array}$$



$$\begin{array}{r} 2) \quad m + 10 < 12 \\ \quad \underline{-10 \quad -10} \\ \quad m < 2 \end{array}$$



$$\begin{array}{r} 3) \quad -5c \geq -25 \\ \quad \underline{-5 \quad -5} \\ \quad c \leq 5 \end{array}$$



$$\begin{array}{r} 4) \quad -2\left(\frac{y}{-2}\right) \leq -2(-2) \\ \quad y \geq 4 \end{array}$$

