Inequalities

We use the symbol $=$ to represent equality.

To express inequalities, we have the following symbols:

- $>$ greater than
- $<$ less than
- $\geq$ greater than or equal to
- $\leq$ less than or equal to
- $\neq$ not equal to

Example 1:

True or False?

a) $-3 < -4$

The symbol $<$ means less than. Looking at the number line, $<$ means “to the left of”

so, $-3 < -4$ means $-3$ is to the left of $-4$ on the number line.

Therefore, this statement is false.
b) Consider \( x > 4 \)

This means \( x \) greater than and is to the right of \( 4 \) on the number line.

- Can \( x \) be 5?
- Can \( x \) be 3?
- Can \( x \) be 4?

Example 2:

True or False?

\[
85 \geq 2[3 + 5(6 + 2)] \\
\geq 2[3 + 5(\_\_\_\_\_\_\_\_) ] \\
\geq 2[3 + \_\_\_\_\_\_\_] \\
2(\_\_\_\_\_\_\_\_\_\_\_\_\_\_) \\
\]

Answer:____________________________________________________

NOTE: For example 2, we must follow the Order of Operations.
1. True or False?

   a) $5 > 7$
   b) $9 > 11$
   c) $-4 > -5$
   d) $-11 > -10$

2. True or False?

   $6[2^3 - 7] + 15 \geq 21$