

Inequalities Previous Knowledge Review

Inequalities

A mathematical sentence that compares quantities is an **inequality**.
Inequalities contain the symbols $<$, $>$, \leq , \geq .

$<$	$>$	\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 	<ul style="list-style-type: none"> • is less than or equal to • is at most 	<ul style="list-style-type: none"> • is greater than or equal to • is at least

Example 1

Of the numbers 5, 6, or 7, which is a solution of the inequality $f + 4 < 10$?

Value of f	$f + 4 < 10$	True or False
5	$5 + 4 < 10$ $9 < 10$	true
6	$6 + 4 < 10$ $10 < 10$	false
7	$7 + 4 < 10$ $11 < 10$	false

The number 5 makes a true sentence.

Example 2

Is the given value a solution of the inequality?

a. $x + 4 > 8$, $x = 5$

$$x + 4 > 8$$

Write the inequality.

$$5 + 4 \stackrel{?}{>} 8$$

Replace x with 5.

$$9 \stackrel{?}{>} 8$$

Simplify.

Since $9 > 8$, 5 is a solution.

b. $10 \leq 15 - y$, $y = 7$

$$10 \stackrel{?}{\leq} 15 - 7$$

Write the inequality, replacing y with 7.

$$10 \stackrel{?}{\leq} 8$$

Simplify.

Since 10 is not less than or equal to 8, 7 is not a solution.

Exercises**Determine which number is a solution of the inequality.**

1. $7 + a > 13$; 5, 6, 7

2. $12 - b \leq 4$; 6, 7, 8

3. $9 + n \geq 20$; 9, 10, 11

Is the given value a solution of the inequality?

4. $y - 3 < 5$, $y = 9$

5. $14 + s \geq 22$, $s = 8$

6. $r - 5 > 6$, $y = 10$