

# Inequalities: Symbols and Vocabulary

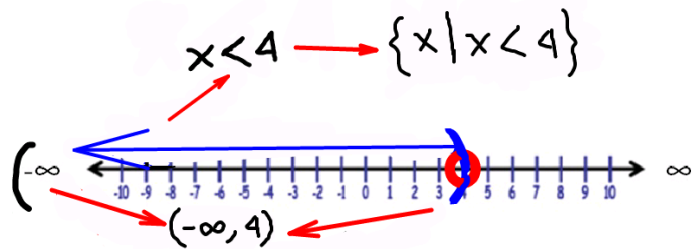
## Algebra rules / General Rules:

- Isolate a positive  $x$  on the left side using algebra
- Reverse the inequality sign when mult/divide by a negative

< **Less than:** The symbol that:

< ○ )  
 ≤ ● ]

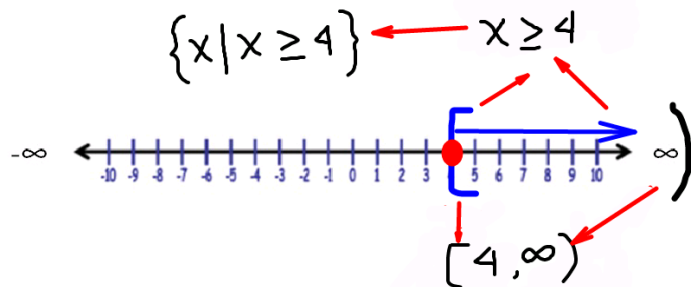
- ① Looks like an **L** (<) for **L**ess than
- ② Points to the **Left**
- ③ Caps the arrow pointing towards smaller numbers on the number line
- ④ Points towards the smaller of two numbers ( $4 < 7$ )



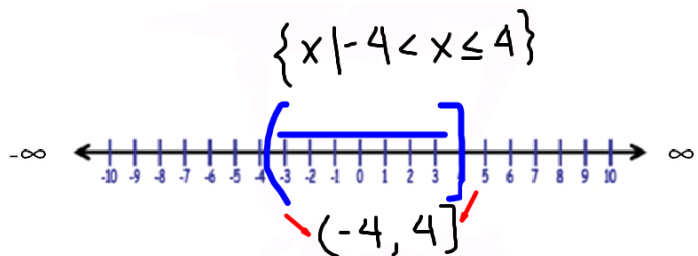
> **Greater than:** The symbol that:

> ○ (  
 ≥ ● [

- ① Looks like the top of an **R** (>) for **G**reater than
- ② Points to the **Right**
- ③ Caps the arrow pointing towards larger numbers on the number line
- ④ Open end is by the larger number ( $7 > 4$ )



**Compound inequalities:** usually in the form  $-4 < x < 4$   
 but can also be  $x > -4$  and  $x < 4$



## Union / Intersection Guidelines

- $\cup$  **Union** The symbol that:
  - ① Looks like a U for  $\cup$ ion (not intersection)
  - ② Resembles a smile ☺
  - ③ Smiles because if you get a **greater** amount
  - ④ Corresponds to the **greater than** ( $>$ ) inequality  
“GreatOR”

- $\cap$  **Intersection** The symbol that:
  - ① Looks like an **A** for  $\cap$ nd (not or)
  - ② Resembles a frown ☹
  - ③ Frowns because if you get **less**
  - ④ Corresponds to the **less than** ( $<$ ) inequality  
“Less thAND”

## Inequality Vocabulary

Phrases that can mean:

| $<$ (less than)        | $=$ (equal)              | $>$ (greater than)    |
|------------------------|--------------------------|-----------------------|
| is less than           | is / are / will be /only | more than             |
| is under               | is the same as           | above                 |
| is below               | that is equal to         | over                  |
| shorter / smaller than | exactly                  | greater / larger than |
| fewer than             | half ( = .5* or ½ *)     | exceeds / increased   |
| is lower than          |                          | longer than           |
| beneath                |                          | is higher than        |
| a better deal          |                          |                       |
|                        |                          |                       |
|                        |                          |                       |

| $\leq$ (less than or equal to) | $\neq$ (not equal to)       | $\geq$ (greater than or equal to) |
|--------------------------------|-----------------------------|-----------------------------------|
| at most                        | is not equal to             | at least                          |
| maximum                        | is not the same as          | minimum                           |
| bottom                         | is different / differs from | top                               |
| is no more than                |                             | is no less than                   |
|                                |                             |                                   |
|                                |                             |                                   |

### Compound inequality phrases:

- |         |                               |
|---------|-------------------------------|
| between | above phrases joined by “and” |
| within  | above phrases joined by “or”  |