

## Unit 8 Solving Equations & Inequalities

### 8.5 Representing Inequalities (text 9.1)

**Inequality** – a mathematical statement comparing expressions that may not be equal

#### Inequality Symbols:

$<$  less than  $8 < 10$   
 $>$  greater than  
 $\leq$  less than or equal to  
 $\geq$  greater than or equal to  
 $\neq$  not equal to

We can express inequalities:

1) Verbally/written

ex. A number more than three.

2) Algebraically (with an inequality sign)

ex.  $x > 3$

3) Visually/graphically (on a number line)



boundary – open (hollow) → it is not part of the solution  
 value – closed (shaded) → it is is part of the solution

Ex. Show each statement graphically and algebraically:

a) All numbers equal to at most  $-1$ .



$x \leq -1$

b) You must be at least 16 years old to get a driver's license.



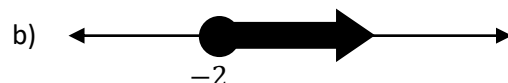
$x \geq 16$

Ex. State each inequality shown in words and algebraically:



All numbers less than 1

$x < 1$

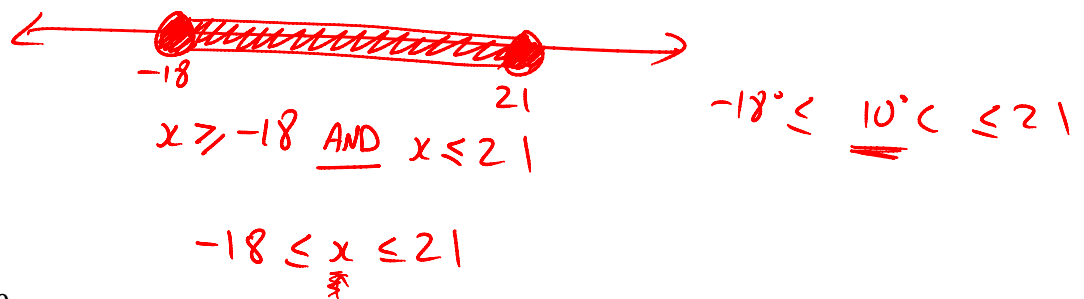


All numbers  $-2$  or more.

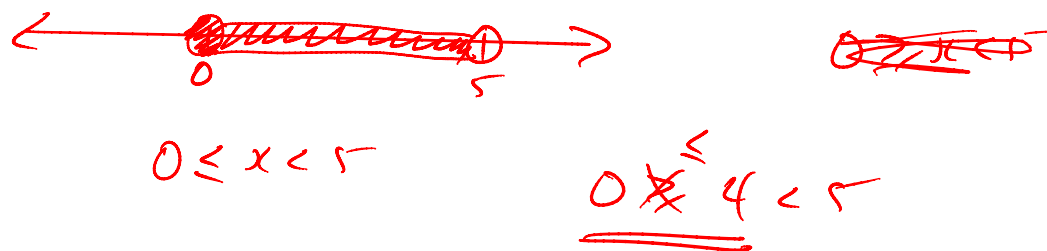
$x \geq -2$

## Combination (compound) Inequalities

Ex. The average temperature fluctuates from a low of  $-18^{\circ}\text{C}$  to a high of  $21^{\circ}\text{C}$ .



Ex.  $x < 5$  and  $x \geq 0$



Note:

|         |                      |                 |
|---------|----------------------|-----------------|
| $x > 8$ | $x$ greater than $8$ | } same solution |
| $8 < x$ | $8$ less than $x$    |                 |