




Interval and Inequality Notation

★ Why learn about them?!

to state
domain :
range

★ What's the difference?!

Interval and Inequality Notation

	Example on a number line	Interval Notation	Inequality Notation
Closed		all #s b/w 2, 5 $[2, 5]$ left right	$2 \leq x \leq 5$
Open		$(2, 5)$ all #s from 2 to 5	$2 < x < 5$
Half Open		$[2, 5)$	$2 \leq x < 5$

Interval and Inequality Notation

Inequality and Interval Notation

Interval and Inequality Notation for Infinite Cases

Do you think we will use closed brackets or open brackets to represent ∞ & $-\infty$? Why?!

Example

	Interval Notation	Inequality Notation
	cannot close ∞ , so open left, right $(-\infty, a]$	$x \leq a$
	(b, ∞)	$x > b$

Inequality and Interval Notation



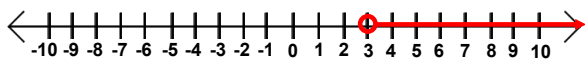
$\{-1, 2, 3\}$
set of points
Set Notation

Example on a number line



Inequality and Interval Notation

1 Write the interval notation AND inequality notation for the given graph.

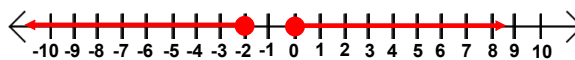


$$x > 3$$

$$(3, \infty)$$

Interval and Inequality Notation

2 Write the interval notation AND inequality notation for the given graph.



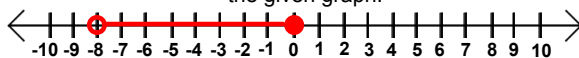
union

$$(-\infty, -2] \cup [0, \infty)$$

$$x \leq -2 \cup x \geq 0$$

Interval and Inequality Notation

3 Write the interval notation AND inequality notation for the given graph.



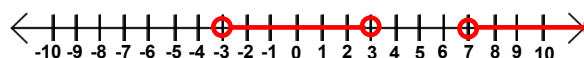
left, right

$$(-8, 0]$$

$$-8 < x \leq 0$$

Interval and Inequality Notation

4 Write the interval notation AND inequality notation for the given graph.



$$(-3, 3) \cup [7, \infty)$$

$$-3 < x < 3 \cup x \geq 7$$

Interval and Inequality Notation

⁵ Sketch a graph that shows the interval $(-10, \infty)$. Then write the inequality notation as well.



Interval and Inequality Notation

⁶ Sketch a graph that shows the interval $(-\infty, -2] \cup (0, 3)$. Then write the inequality notation as well.



Interval and Inequality Notation

Quick Recall : What is a function?!

Domain & Range

x 's inputs y 's outputs

"Can you redefine "function," in terms of domain and range? :)"

every element in the domain maps to exactly 1 in the range