

4.4 Domain and Range Part 2

C. Interval Notation


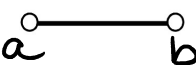
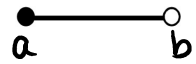

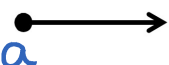
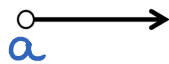
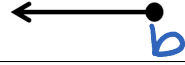
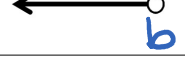

Square brackets and round brackets are used to note the domain and range of **continuous data/values**. This notation is interval notation.

- An interval can be represented by a pair of numbers.
- The numbers are the ends of the interval.
- Round and/or square brackets indicate whether endpoints are included or excluded

[] square brackets represents closed intervals (Filled in circles) ●

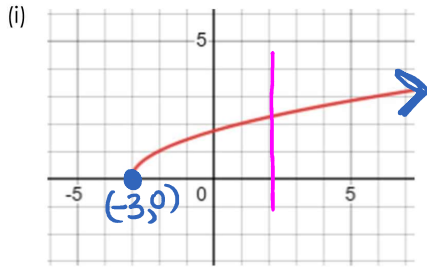
() round brackets represents open intervals (open circles) ○

filled in circles
open circles

	Set Notation	Interval Notation
	$a \leq x \leq b$	$[a, b]$
	$a < x < b$	(a, b)
	$a \leq x < b$	$[a, b)$
	$a < x \leq b$	$(a, b]$
	$x \geq a$	$[a, \infty)$
	$x > a$	(a, ∞)
	$x \leq b$	$(-\infty, b]$
	$x < b$	$(-\infty, b)$
	$x \in \mathbb{R}$	$(-\infty, \infty)$

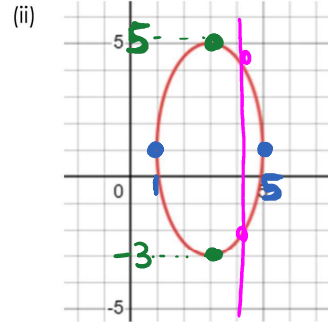
all Real Numbers

Example 1 : Determine the domain and range of each relation using **interval notation**. Determine if the relation is a function.



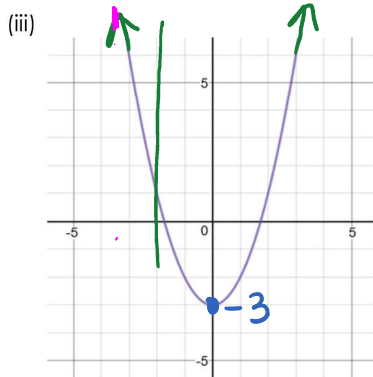
Domain : $[-3, \infty)$
 Range : $[0, \infty)$
 Function : Yes No

Passes the vertical line test



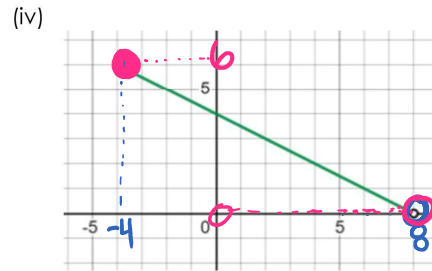
Domain : $[1, 5]$
 Range : $[-3, 5]$
 Function : Yes No

Fails the vertical line test



Domain : $(-\infty, \infty)$
 Range : $[-3, \infty)$
 Function : Yes No

passes the vertical line test



Domain : $[-4, 8)$
 Range : $(0, 6]$
 Function : Yes No