

Mod 1: Lesson 1.1

Day 2 Identifying a function's Domain & range

Objective: We will be able to determine the domain, range, and end behavior of a function.

Domain of a function f is the set of input values x .

Range is the set of output values $f(x)$.

INTERVAL NOTATION

A parenthesis means really close to this point, but not equal to. (open circle)

A bracket means to include this point ("or equal to")

Domain: Left to Right $-\infty \rightarrow \infty$

Range: Bottom to Top $-\infty \rightarrow \infty$

must be in numerical order (least to greatest)

use \cup to describe two parts with a gap

Example: $(-\infty, 0) \cup (2, \infty)$

1 Example

Write the domain and the range of the function using set notation, and using interval notation.

The graph of the quadratic function $f(x) = x^2$ is shown.

Domain:

Set notation: $x \in \mathbb{R}$

Interval notation:

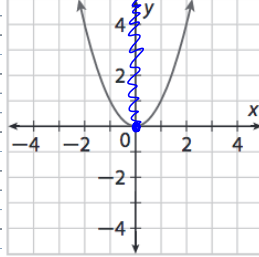
$(-\infty, \infty)$

Range:

Set notation: $\{y \mid y \geq 0\}$

Interval notation:

$[0, \infty)$



6 Example

Write the domain and the range of the function using set notation, and using interval notation.

Domain:

Set notation: $\{x \mid -5 \leq x < 0\}$

Interval notation:

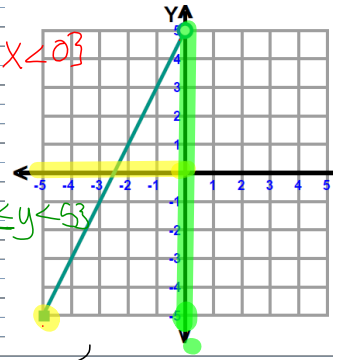
$[-5, 0)$

Range:

Set notation: $\{y \mid -5 \leq y < 5\}$

Interval notation:

$[-5, 5)$



7 Example

Write the domain and the range of the function using set notation, and using interval notation.

Domain:

Set notation: $\{x \mid 0 \leq x < 4\}$

Interval notation:

$[0, 4)$

Range:

Set notation: $\{y \mid -2 \leq y < 2\}$

Interval notation:

$(-2, 2)$

