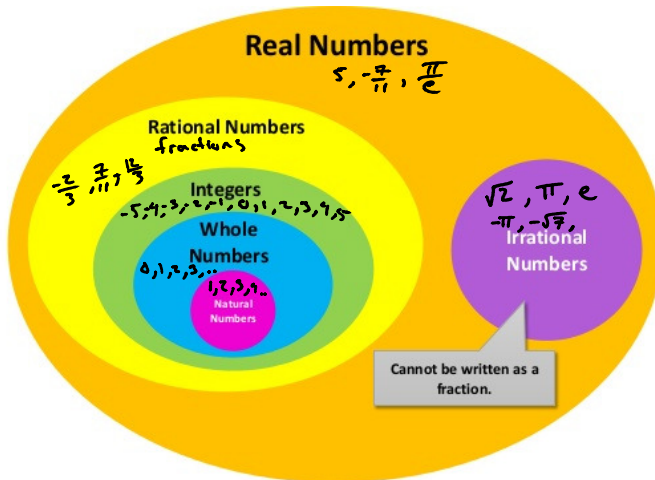


Domain and Range (take 2)

May 10, 2017 10:39 AM

Set: a collection of things

Sets in math are collection of numbers. You already know some sets of numbers.



Symbol

Real Numbers = \mathbb{R}

Integers = \mathbb{Z}

Whole Numbers = \mathbb{W}

Natural Numbers = \mathbb{N}

All positive Real Numbers

\mathbb{R}^+

* Does not include zero

We can create other sets of numbers

Ex: The set of all multiples of 2 $-4, -2, 0, 2, 4, 6, 8, \dots$

Ex: The fibonacci set $1, 1, 2, 3, 5, 8, 13, 21, 34, \dots$

Set Notation

We have a formal way of writing sets

{ Define the variables you will use | Ruler #1; Ruler #2; etc. }

Curly brackets * This is a set

* For all x

break

$x > 1; x \leq 17; x \in \mathbb{R}$

These are the numbers x can be

x is an element of the Real number Set

Ex: the set of all real numbers greater than 3

$\{ x \mid 3 < x; x \in \mathbb{R} \}$

my numbers

my numbers are greater than 3

my numbers are Real numbers

Ex: the set of all integers less than or equal to -2

$\{ y \mid y \leq -2; y \in \mathbb{Z} \}$

The alligator eats the bigger thing

-2

Ex: The set of all natural numbers between but not including 3 and 17



Ex: The set of all natural numbers between but not including 3 and 17

$$\{x \mid 3 < x; x < 17; x \in \mathbb{N}\}$$

$$\{x \mid 3 < x < 17; x \in \mathbb{N}\}$$

Ex: The set of all even integers

$$\{x \mid \frac{x}{2} \in \mathbb{Z}\}$$

$$\{x \mid 2x = y; y \in \mathbb{Z}\}$$

$\leftarrow x$ is an even set

$\&$ = and

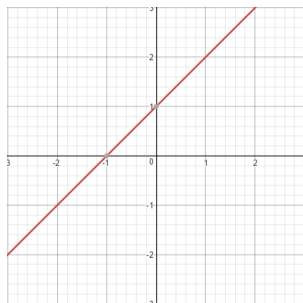
Ex: The set of all even integers greater than 5 and less than or equal to 106

Domain and Range

Domain: The set of all possible values for the independent variable in a relation.

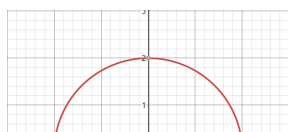
Range: The set of all possible values for the dependent variable in a relation.

Ex: Write the domain and range of the following functions in Set notation

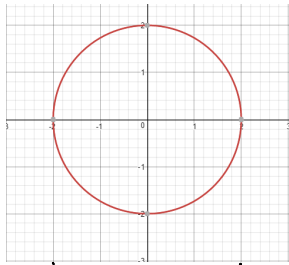


Domain
 x is all real numbers
 $\{x \mid x \in \mathbb{R}\}$

Range
 y is all real numbers
 $\{y \mid y \in \mathbb{R}\}$



Domain
 x is between -2 and 2 inclusive
and is a Real number
 $\{x \mid -2 \leq x \leq 2; x \in \mathbb{R}\}$



-2 Domain 2

Range
2
-2

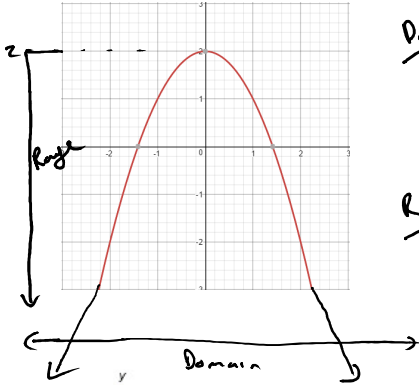
and is a Real number

$$\{x \mid -2 \leq x \leq 2; x \in \mathbb{R}\}$$

Range

y is between -2 and 2 inclusive
and is a Real number

$$\{y \mid -2 \leq y \leq 2; y \in \mathbb{R}\}$$



Domain

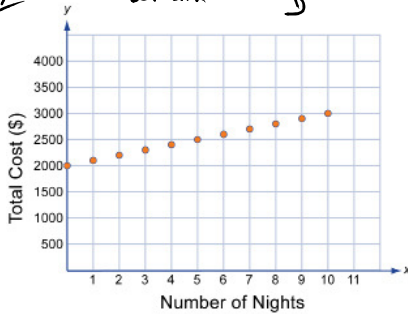
x is a Real number

$$\{x \mid x \in \mathbb{R}\}$$

Range

y is a Real number less than or equal to 2

$$\{y \mid y \leq 2; y \in \mathbb{R}\}$$



$$[x, y]$$

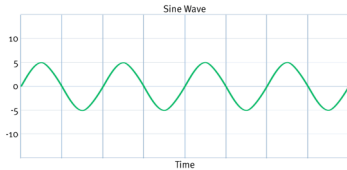
$$[(0, 2000); (1, 2100); (2, 2200); (3, 2300); (4, 2400); (5, 2500) \dots (10, 3000)]$$

Domain

$$\{x \mid 0 \leq x \leq 10; x \in \mathbb{Z}\}$$

Range

$$\{y \mid y = 100x + 2000; y \in \mathbb{Z}\}$$



Homework: Chapter 6.3 Pg: 301 Q: 1,2,3,4,6,8