

Today's Learning Goal(s):

By the end of the class, I will be able to:

- a) Determine if a relation is a function (or not) given a mapping notation.
- b) Determine if a relation is a function (or not) given a graph.

MCF 3MI

1.0 & 1.1 Characteristics of a Function

Date: _____
(Every lesson)

Review:

Ex.1: Identify which of the following are linear or quadratic:

- a) $y = 5x + 2$ b) $y = 2x^2 - 3$ c) $y = -2$

Ex.2: For each relation, determine the y-intercept and the axis of symmetry.

a) $y = x^2 - 3$

b) $y = 3(x - 2)^2 + 1$

Domain and range describe all the possible values of the relation.

Domain describes ALL of the x -values.

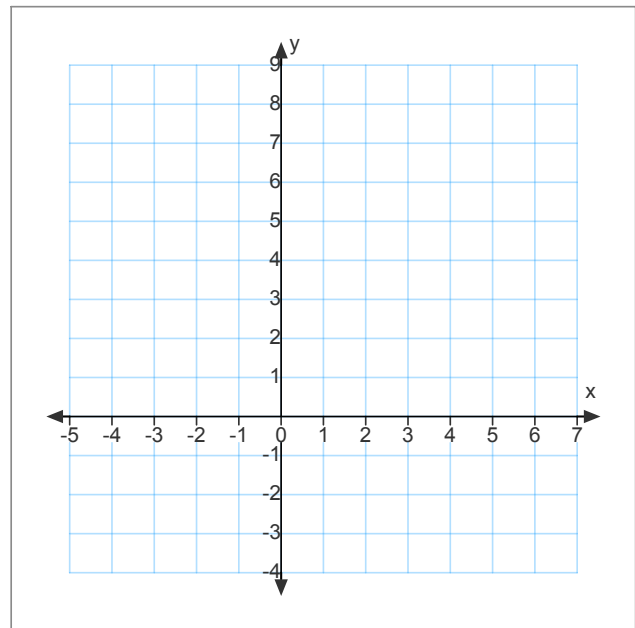
Range describes ALL of the y -values.

We use set notation to mathematically write the domain & range.

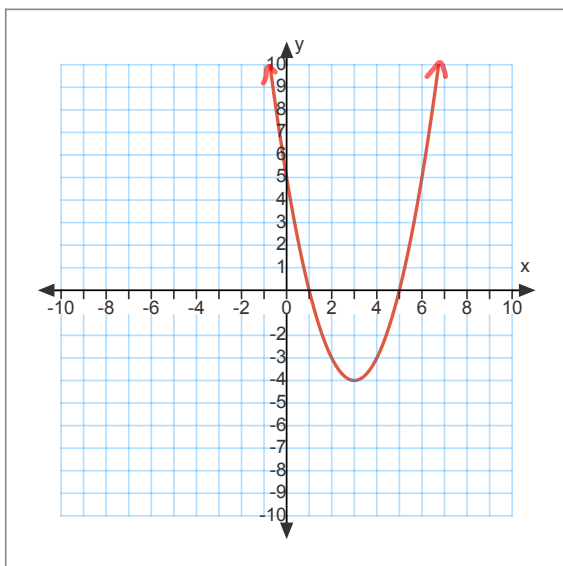
For example:

$$D = \{x \in \mathbb{R} \mid -2 \leq x \leq 5\}$$

$$R = \{y \in \mathbb{R} \mid y \geq -2\}$$



Ex.3: State the domain and range of the quadratic function below:



D: _____

R: _____

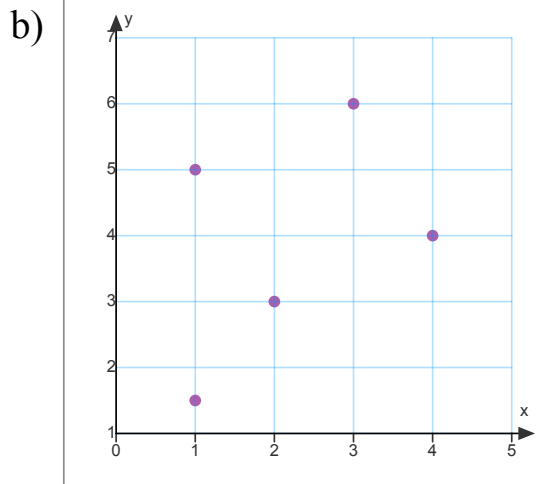
A function is a relation that has a one-to-one relationship.
 This means that for every x -value there is only one y -value.

Ex.4: For each of the following relations, determine the domain & range, then state whether or not it is a function.

a)

x	y
-1	-3
0	1
1	5
2	9

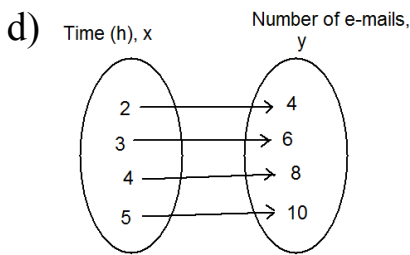
D: _____
 R: _____



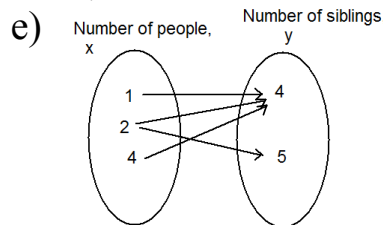
D: _____
 R: _____

c) $G:(x, y) = \{\text{number of golfers, score below or above par}\}$
 $= \{(0, -2), (0, -1), (0, 0), (1, 5)\}$

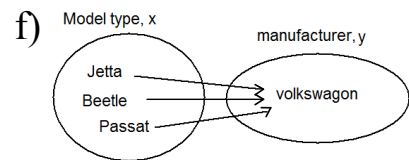
D: _____
 R: _____



D: _____
 R: _____

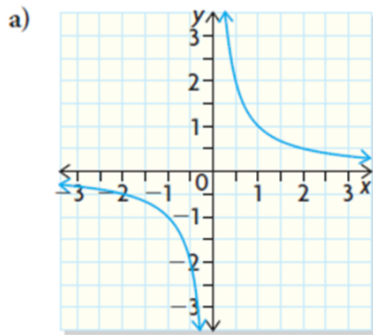


D: _____
 R: _____



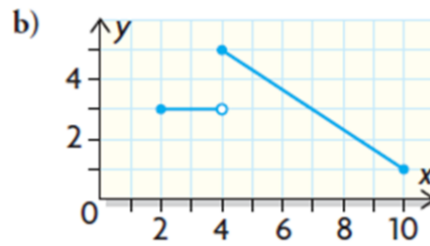
D: _____
 R: _____

Ex.5: For each of the following relations, determine the domain and the range, using **real numbers**. State whether or not the relation is a function.



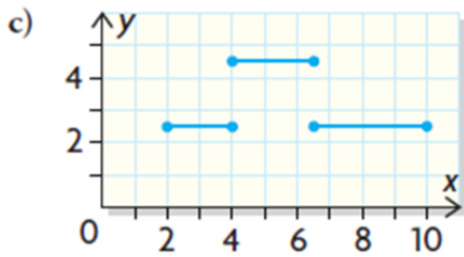
D: _____

R: _____



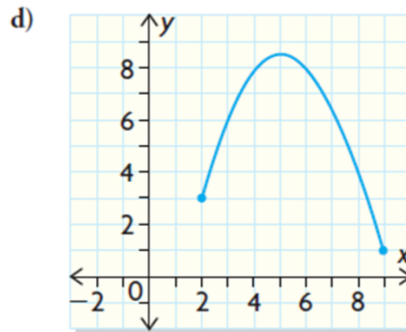
D: _____

R: _____



D: _____

R: _____



D: _____

R: _____

Ex. 6: Which variable would be associated with the domain for the following pairs of related quantities? Which variable would be associated with the range? Explain.

- heating bill, outdoor temperature
- report card mark, time spent doing homework
- person, date of birth
- number of slices of pizza, number of cuts