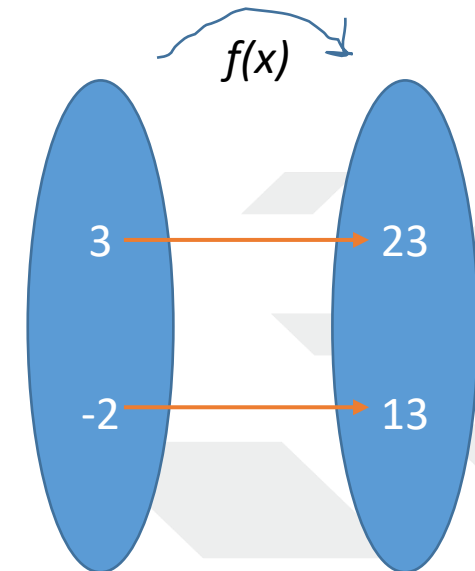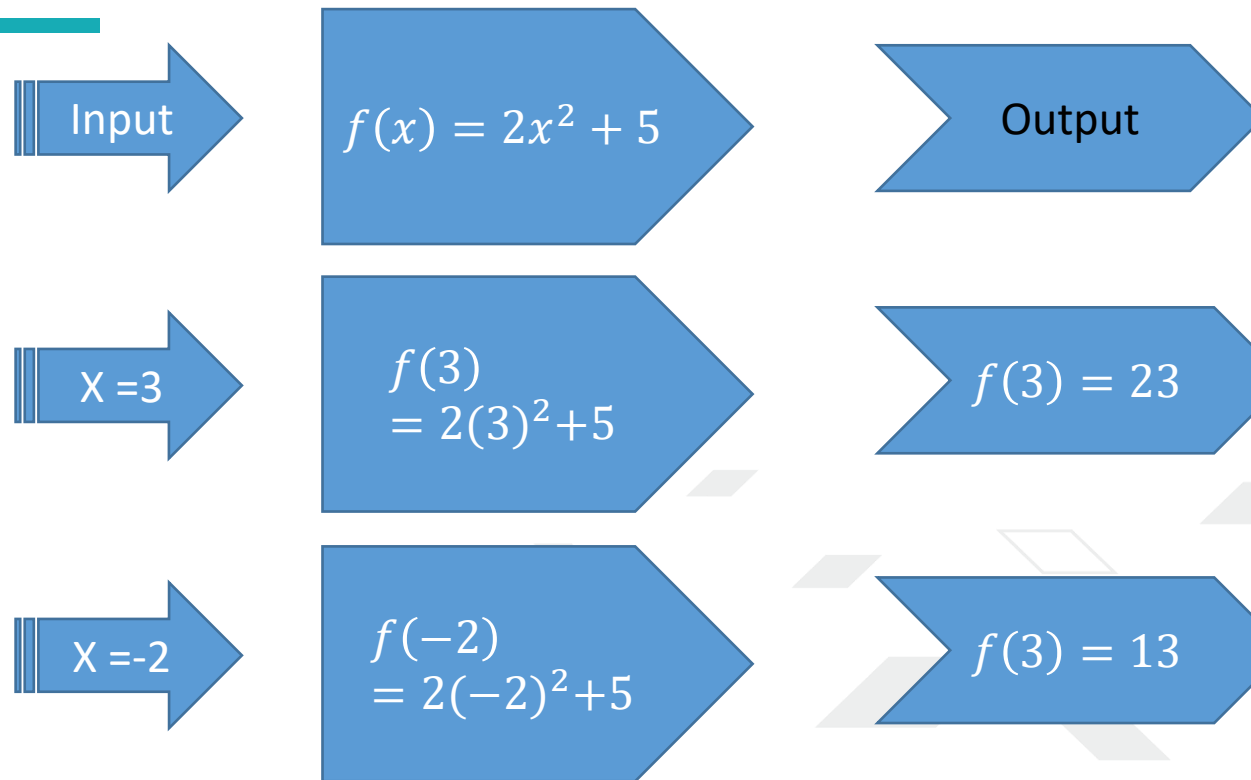# Functions

Week 1 Part 1

Objectives:

- Understand the definition of **function.**

Function

A relation from Set X to Set Y is called a function if **each element of X is related to exactly one element in Y.**
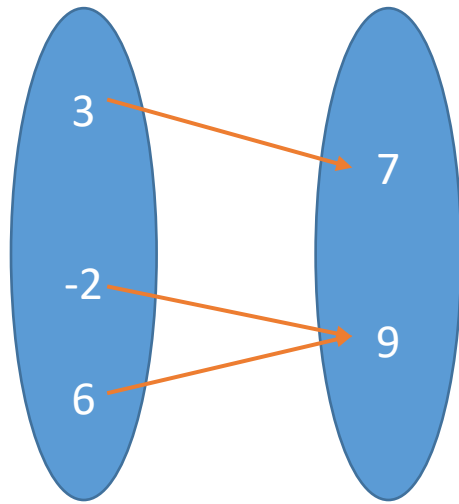
It is often written as "f(x)" where x is the input value.

Functions: Eg: $f(x) = 2x^2 + 5$

Input → $f(x) = 2x^2 + 5$ → Output

X =3 → $f(3) = 2(3)^2 + 5$ → $f(3) = 23$

X =-2 → $f(-2) = 2(-2)^2 + 5$ → $f(3) = 13$
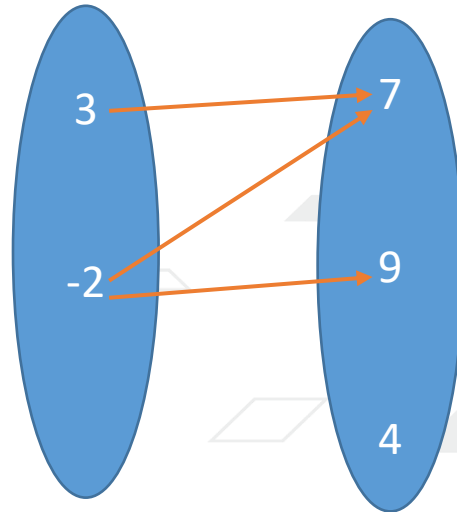
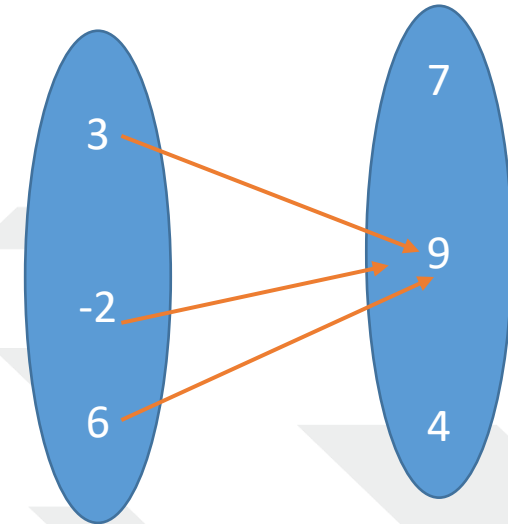$f(x)$

3 → 23

-2 → 13

Check function of not !

Consider the following relations:

Yes

No, 2 has more than one images

Yes

Example

Determine whether y is a function of x: Give reasons.

$$y^2 = x + 3$$

Solution: $y^2 = x + 3$

$$y = \pm \sqrt{x + 3}$$

If x = 0, $y = \pm \sqrt{3}$

If you put any value for x, you will get two values for y. So y is not a function of x.

Exercise

Find whether y is a function of x . Give reasons.

a) $3y^2 + 5x = 6$ b) $8x + 2y = 6$ c) $y^3 - 3x = 4$