

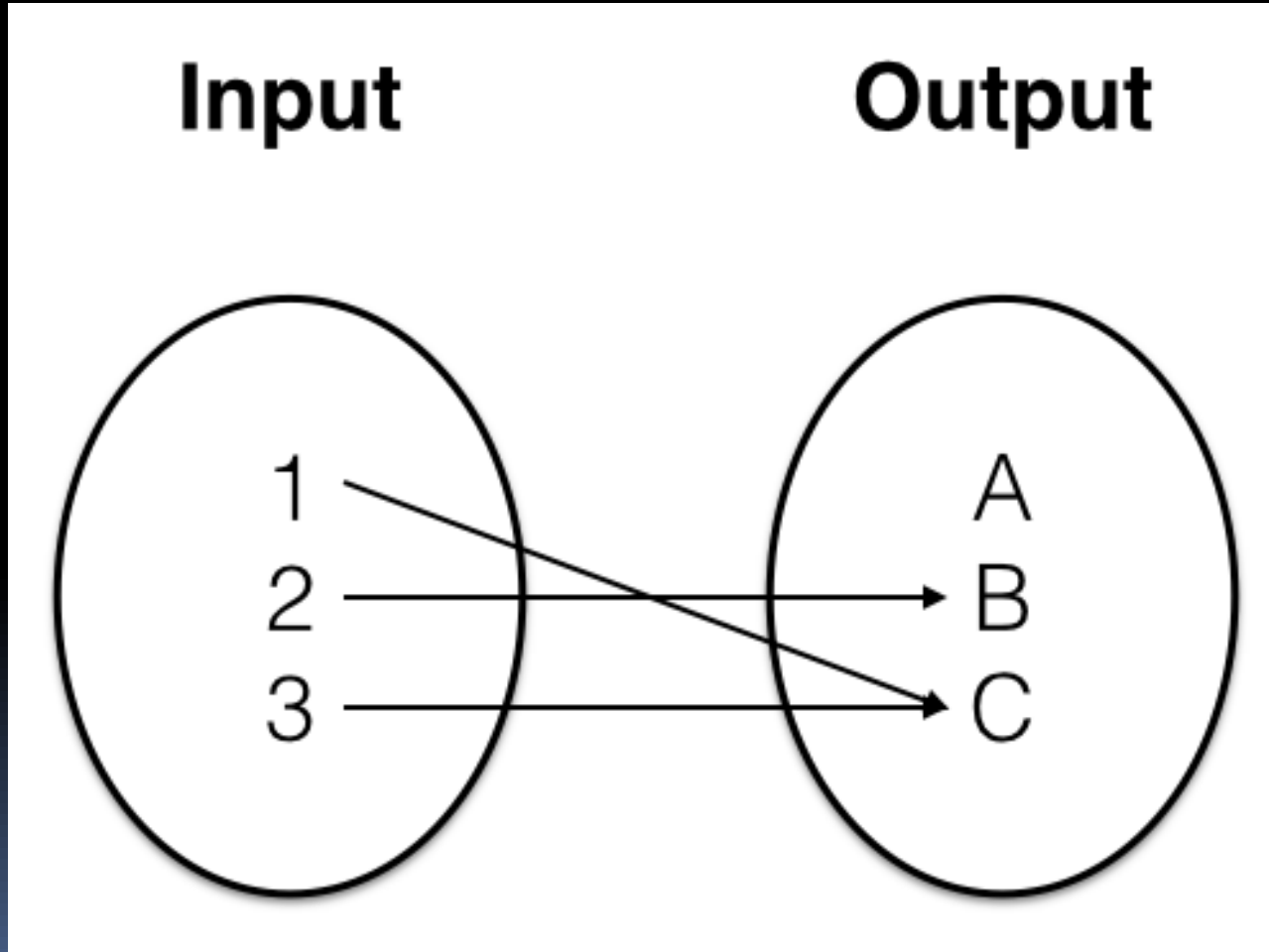
WHAT IS IT, HOW IS IT RELATED TO RELATION, WHAT ARE THE TYPES OF FUNCTIONS, AND THE EXAMPLES..

FUNCTIONS

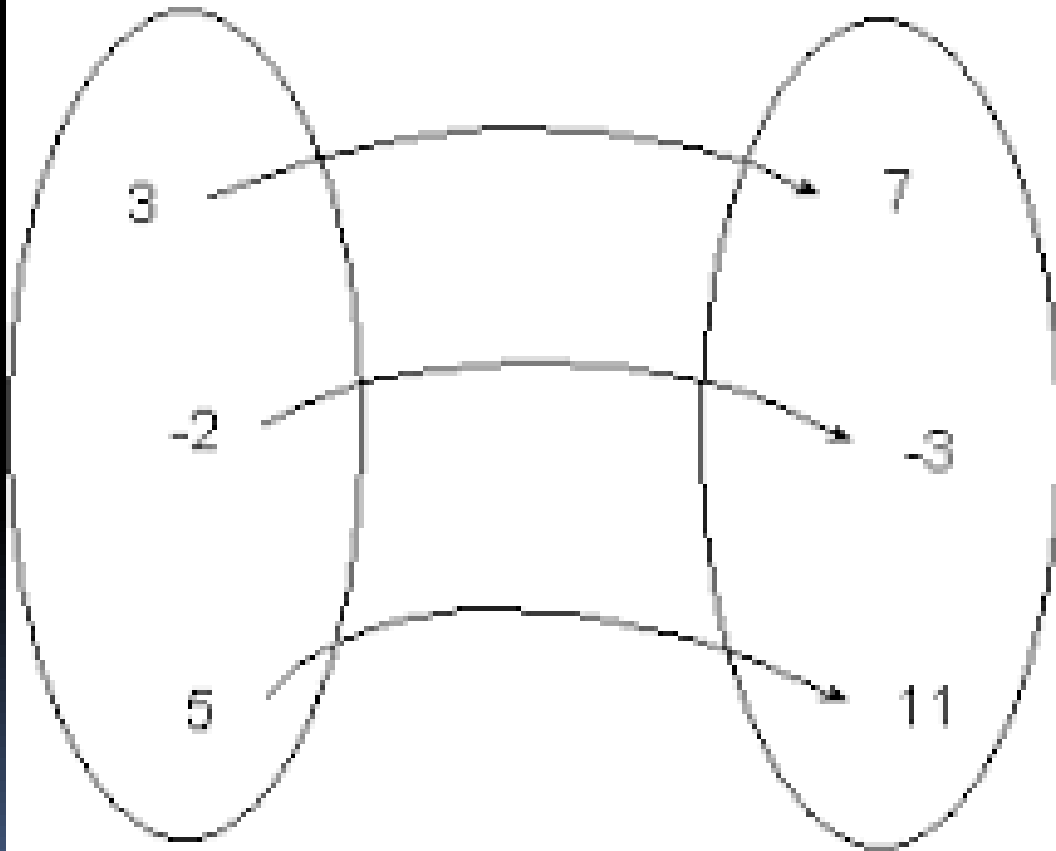
DEFINITION

- a relation from a set of inputs to a set of possible outputs where each input is related to exactly one output.
- The following relation is a function. $\{(-1,0)(0,-3)(2,-3)(3,0)(4,5)\}$

LETS SEE IT THROUGH A GRAPH

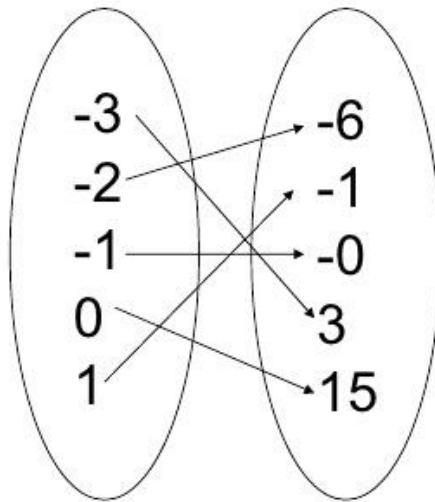


$$f(x) = 2x + 1$$

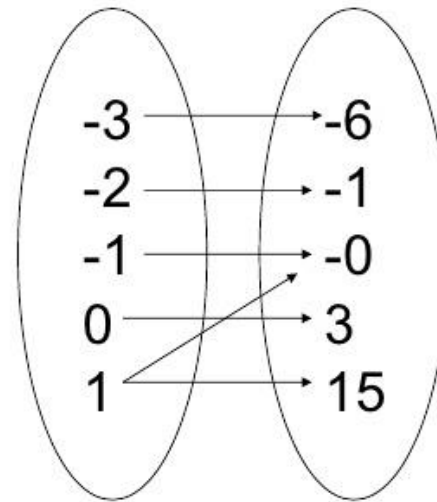


LETS SEE THE DIFFERENCE!!

Function



Not a Function



EVEN AND ODD FUNCTION!!

WHAT IS THAT!!

EVEN FUNCTION

- $F(-x) = f(x)$
- Example:
- $f(x) = x^2$

ODD FUNCTION

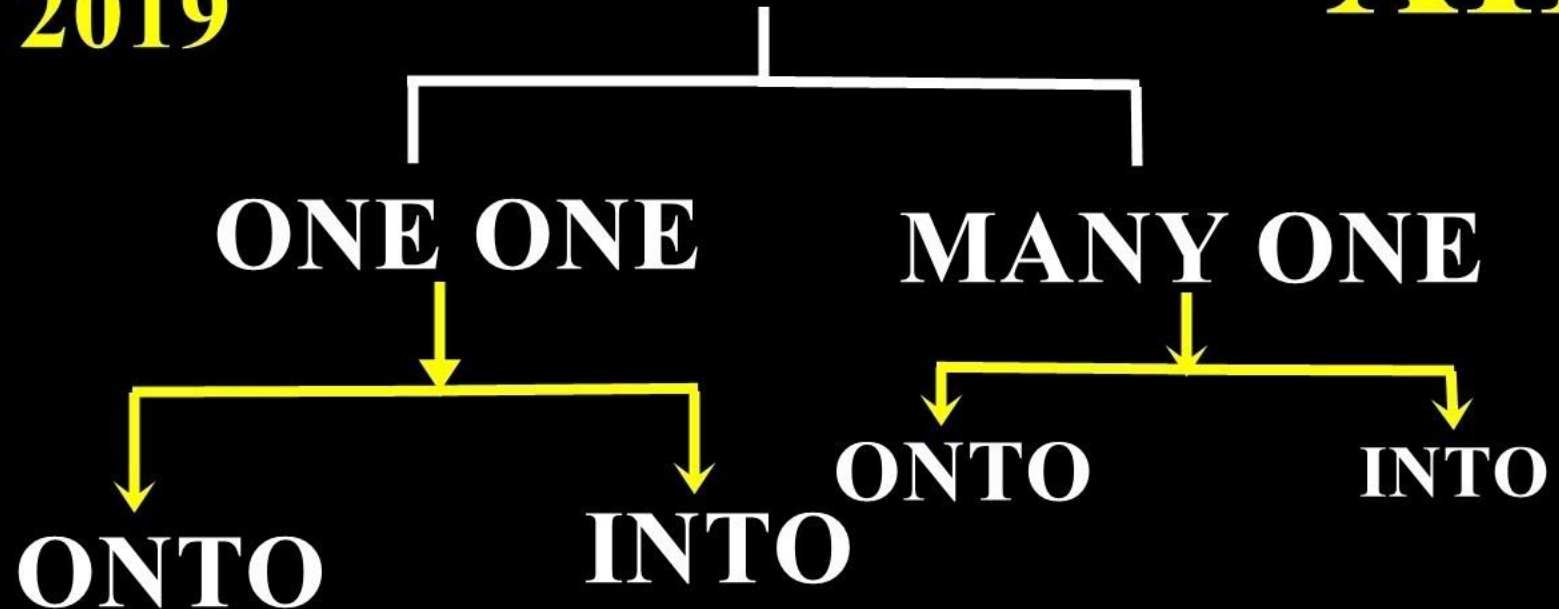
- $F(-x) = -f(x)$
- Example:
- $f(x) = x^3$

TYPES OF FUNCTION (VERY IMPORTANT FOR BOARDS)

**CBSE
2019**

FUNCTION

XII



WHAT DO YOU NEED TO LEARN FOR SURE??

THIS IS HOW ONE TO ONE FUNCTION LOOK LIKE.

TO FIND WHETHER A FUNCION IS ONE-ONE, YOU JUST NEED TO SOLVE:

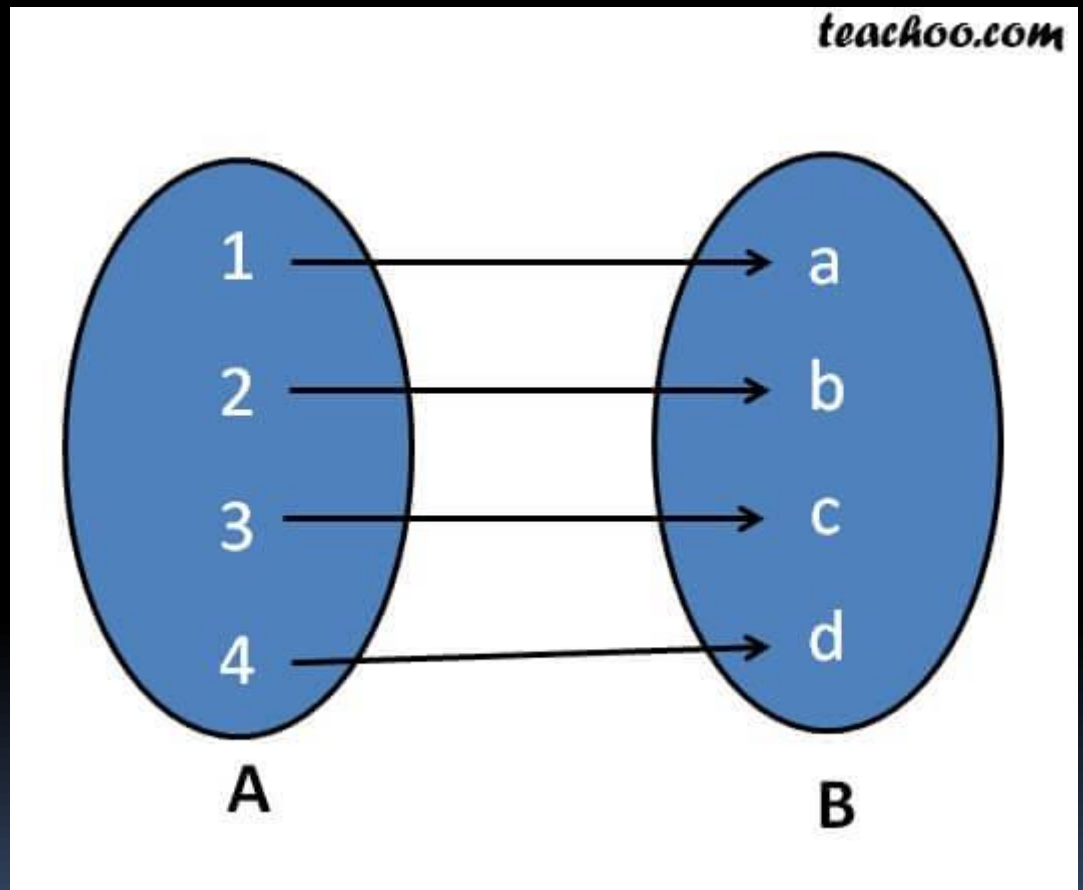
$$f(x_1) = f(x_2)$$

IF YOU GET

$$x_1 = x_2$$

Then it is ONE-ONE!

SIMPLE!!



Sum's on functions:-

1. Show that function $f: \mathbb{R} \rightarrow \mathbb{R}$, defined as $f(x) = \cos x$, $x \in \mathbb{R}$ is not one-one.

2. find whether the functions are one-one:-

i) $f(x) = x^3 - 2$, $x \in \mathbb{R}$

ii) $f: \mathbb{R} \rightarrow \mathbb{R}$. defined by $f(x) = 3x - 2$,

iii) $f: \mathbb{Q} \rightarrow \mathbb{Q}$ defined by $f(x) = 3x + 5$, $x \in \mathbb{Q}$.

iv) $f: \mathbb{N} \rightarrow \mathbb{N}$, defined by $f(x) = 2x + 5$, $x \in \mathbb{N}$

v) $f(x) = \frac{x+4}{x-3}$ where, $f: \mathbb{R} - \{3\} \rightarrow \mathbb{R}$.