Notes by @jpwebdevelopers

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YOUVA

Types of function

(i) One - One function (Injective function)

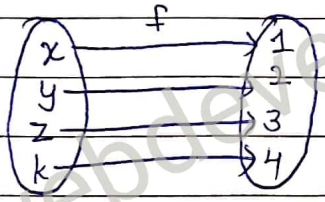
A function $f: A \to B$ is said to be a One - One (injective) function if different elements of A have different images in B.

Example

$X = \{x, y, z, k\}$

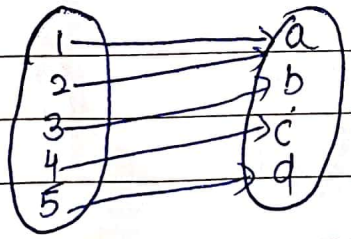
$Y = \{1, 2, 3, 4\}$

$f = \{(x,1), (y,2), (z,3), (k,4)\}$



(ii) Surjective (Onto) functions :-

A function in which every element of the

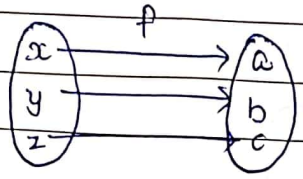


(iii) Bijective (One to One Onto) function :-

A function which is both injective and surjective is called bijective.

Example: $P = (x, y, z)$ $Q = \{a, b, c\}$ $f: P \to Q$

$f = \{(x, a), (y, b), (z, c)\}$



(IV) Into functions:-

A function $f: A \to B$ is said to be an into a function if there exists an element in B with no pre-image in A.

A function $f: A \to B$ is into function when it is not onto.

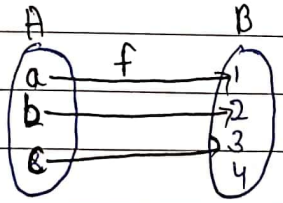
INTO FUNCTION

$A = \{a, b, c\}$ $B = \{1, 2, 3, 4\}$

$f: A \to B$

$f = \{(a, 1), (b, 2), (c, 3)\}$

In this function f, the range i.e. $\{1, 2, 3\} \neq$ co-domain of Y i.e. $\{1, 2, 3, 4\}$.



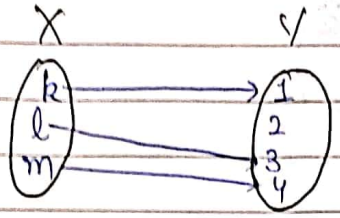
(V) One - One Into function

let $f: X \to Y$ This function f is called one - one into function if different elements of X have different unique images of Y.

Example $X = \{k, l, m\}$ $Y = \{1, 2, 3, 4\}$

$f: X \to Y$ such that

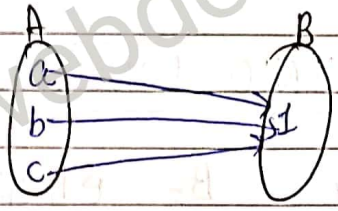
$f = \{(k,1), (l,3), (m,4)\}$



Many-One function:-

A function $f: A \to B$ is said to be a many-one function if two or more elements of set A have the same image in B.

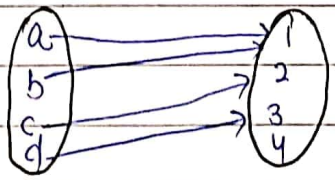
let $A = \{a, b, c\}$ and $B = \{1\}$



Many-One into functions:-

A function that is both many-one and into is called many-one into function.

let $A = \{a, b, c, d\}$ and $B = \{1, 2, 3, 4\}$



Many-One Onto function:

A function that is both many-one and onto is called Many-One Onto function.

let $A = \{a, b, c\}$ and $B = \{1, 2\}$