



DSSSB TGT

PART (A+B)



MATHS

REAL ANALYSIS (SET RELATION & FUNCTION)

Part -5



22/08/2024 04:00 PM



1. Let $A = \{2,3,4,5\}$ **and** $R =$
 $\{(2,2), (3,3), (4,4), (5,5), (2,3), (3,2), (3,5), (5,3)\}$
be a relation in A . Then, R is.

Reflexive ✓

- (a) reflexive and transitive
- ✓ (b) reflexive and symmetric
- (c) reflexive but not symmetric
- (d) None of the above

Reflexive $\rightarrow (a,a) \in R$

Symmetric $\rightarrow$
 $(a,b) \in R$
 $(b,a) \in R$

$(a,b) \in R$
 $(b,c) \in R$
 $(a,c) \in R$

2. The

relation

$R =$

$\{(1,1), (2,2), (3,3), (1,2), (2,3), (1,3)\}$ on set $A = \{1,2,3\}$ is

$A = \{1,2,3\}$

Reflexive $\rightarrow \{(1,1), (2,2), (3,3)\}$

(a) reflexive but not symmetric

$\rightarrow (a,b) \in R$
 $(b,a) \notin R$

(b) reflexive but not transitive

(c) symmetric and transitive

$\rightarrow (a,b) \in R$

(d) neither symmetric nor transitive

$\checkmark$ [Reflexive & Transitive]

$(b,c) \in R$

$(a,c) \in R$

3. Let

$$R = \{(3,3), (6,6), (9,9), (12,12),$$

$(6,12), (3,9), (3,12), (3,6)\}$ be a relation on the

set A = {3,6,9,12}. The relation is

~~(a)~~ reflexive and symmetric only

~~(b)~~ an equivalence relation

(c) reflexive only

(d) reflexive and transitive only

Transitive →

$$(3,6) \in R$$

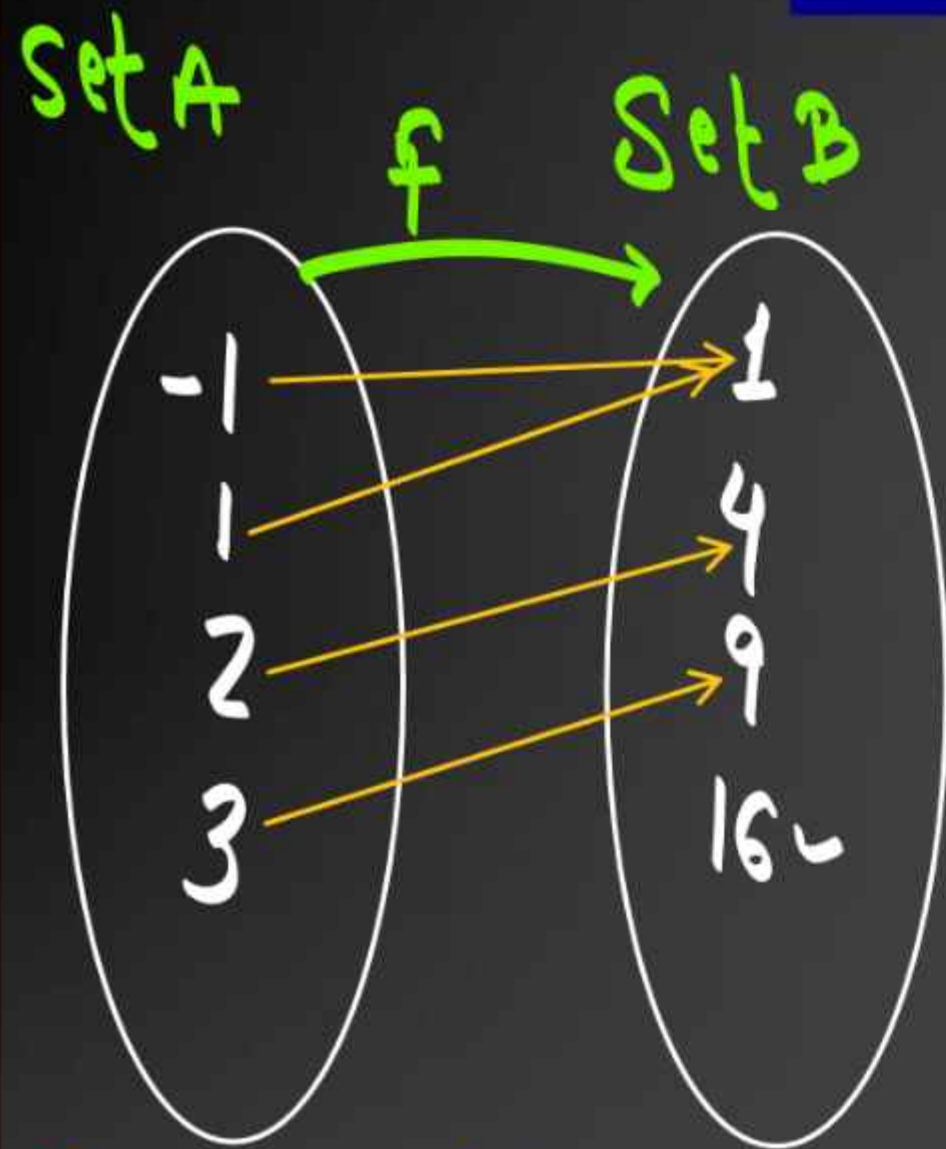
$$(6,12) \in R$$

$$(3,12) \in R$$

Symmetric
→ $(a,b) \in R$
 $(b,a) \in R$

$(a,b) \in R$
 $(b,c) \in R$ तो $(a,c) \in R$

Function :-



Domain $\rightarrow (-1, 1, 2, 3)$
Co-domain $\rightarrow (1, 4, 9, 16)$

Range $\rightarrow \{1, 4, 9\}$

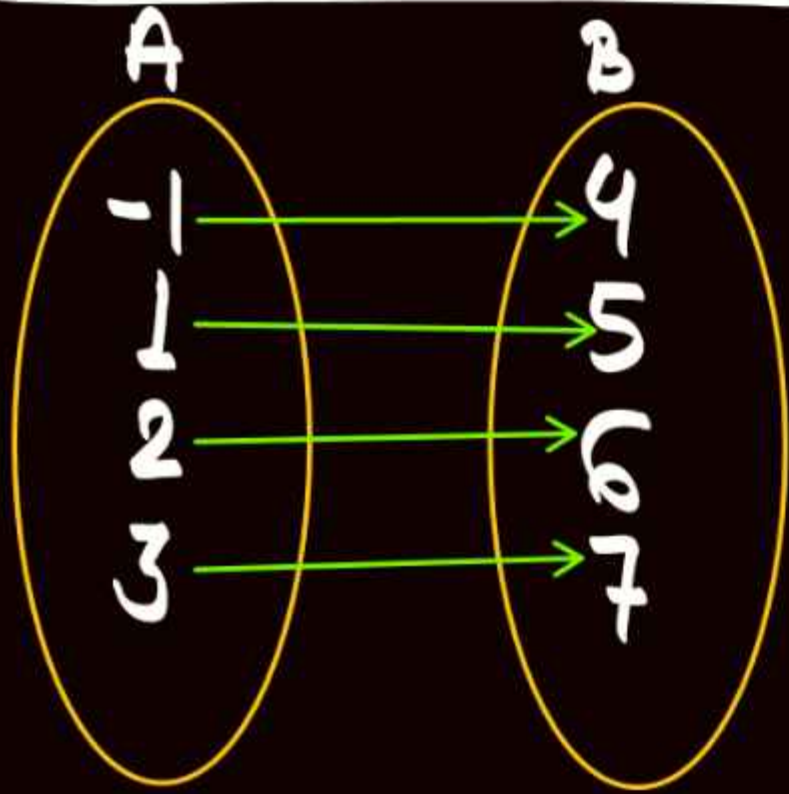
$$f: A \rightarrow B \text{ या } A \xrightarrow{f} B$$

Two Conditions do not exists $\rightarrow$

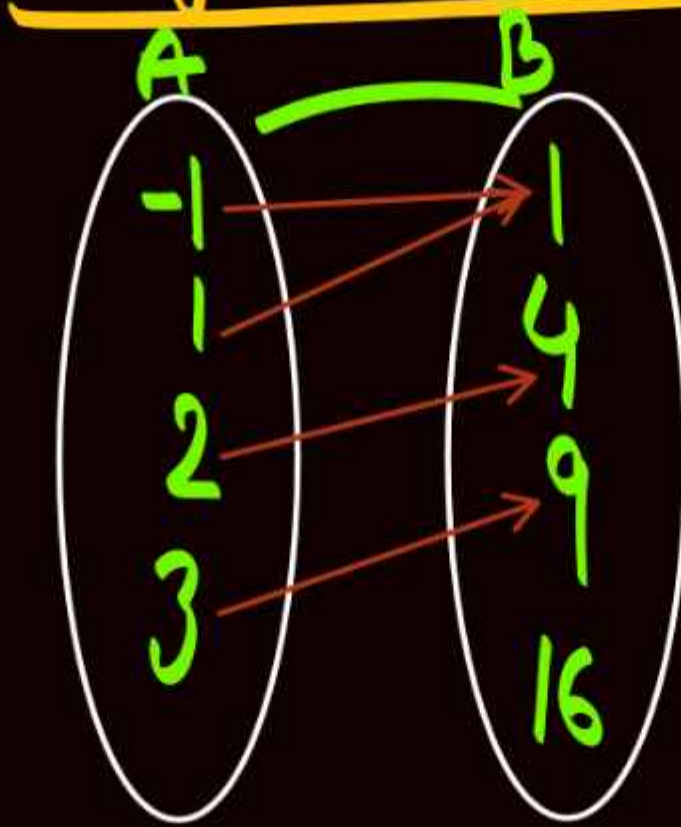
* One to Many नहीं होना चाहिए।

* Domain (Set A) में किसी भी Element बिना Image (output) के ना हो।

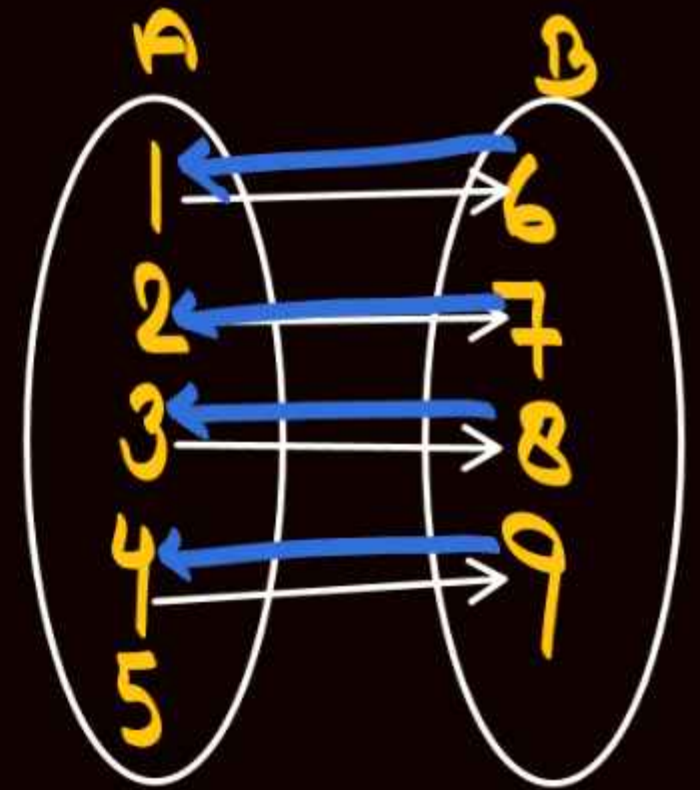
One-one function:→



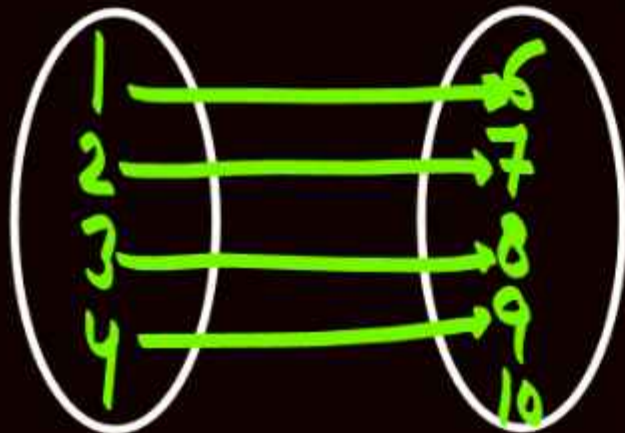
* Many to one function:→



Onto function→



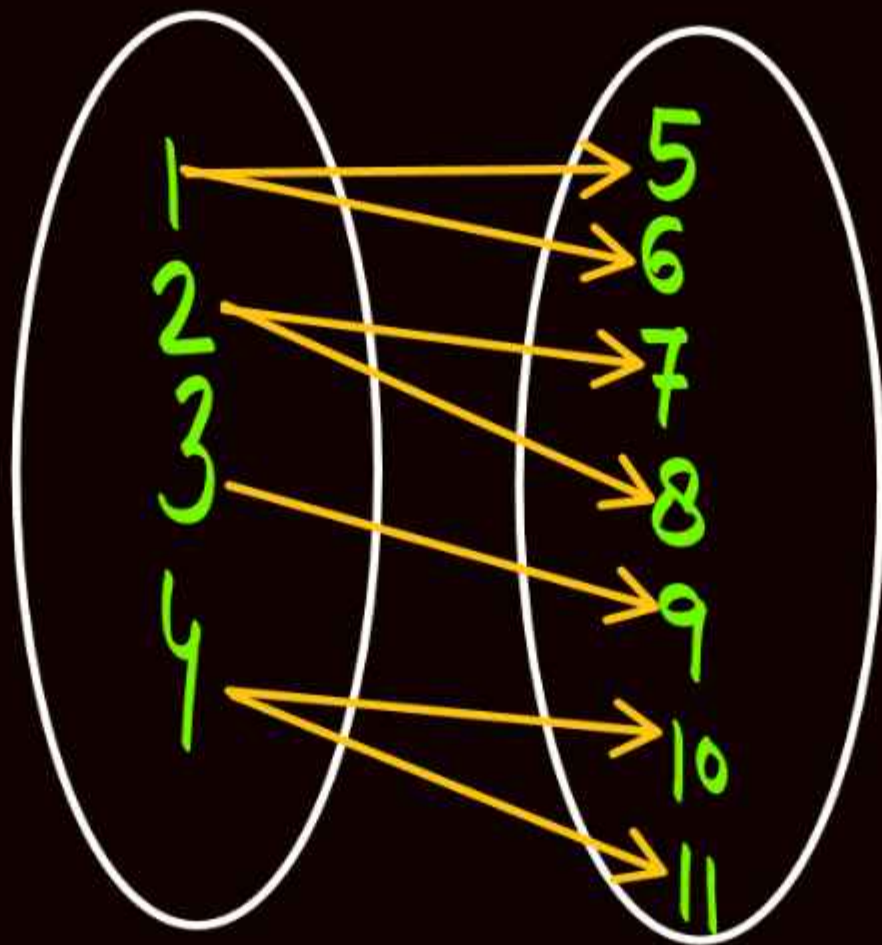
* Into-function→



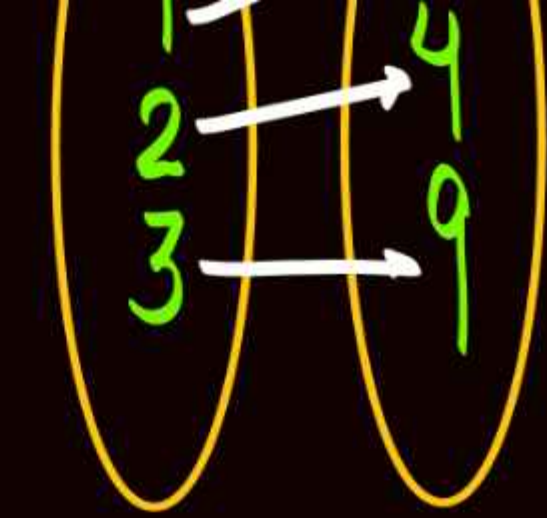
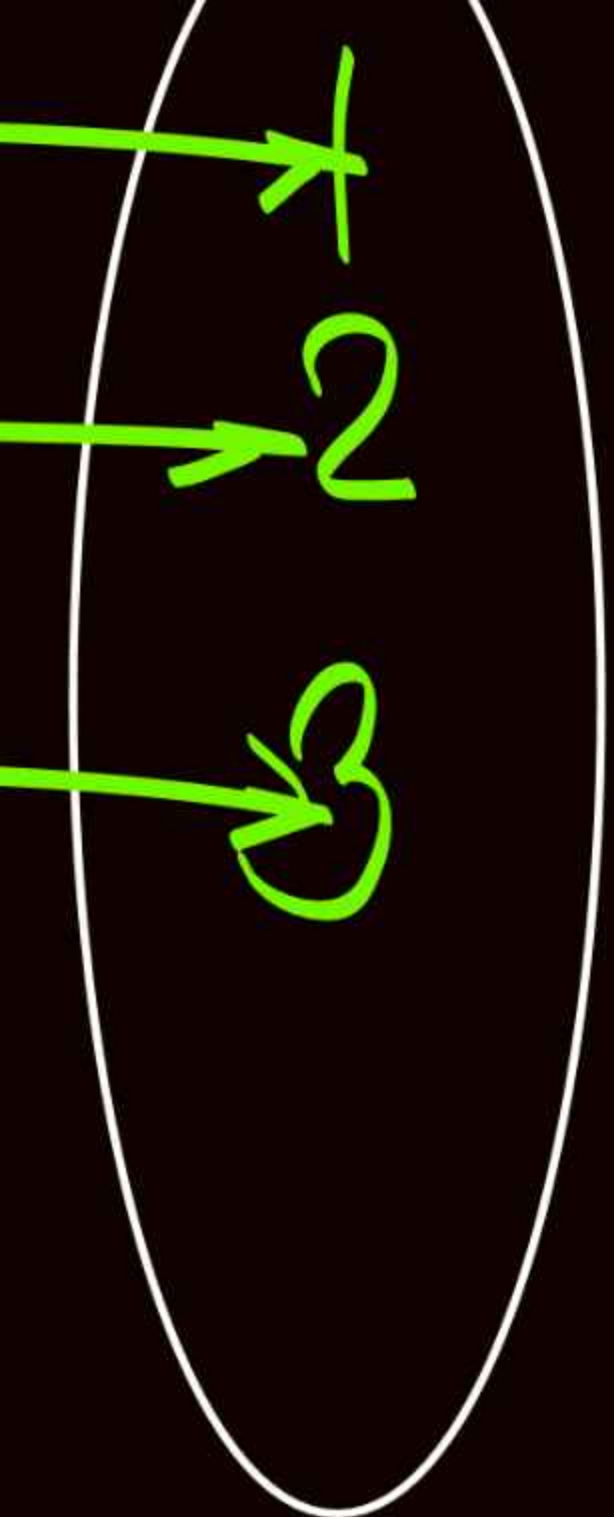
↓
Co-domain
में कोई भी Element
छोली है।

One to Many →

No
function



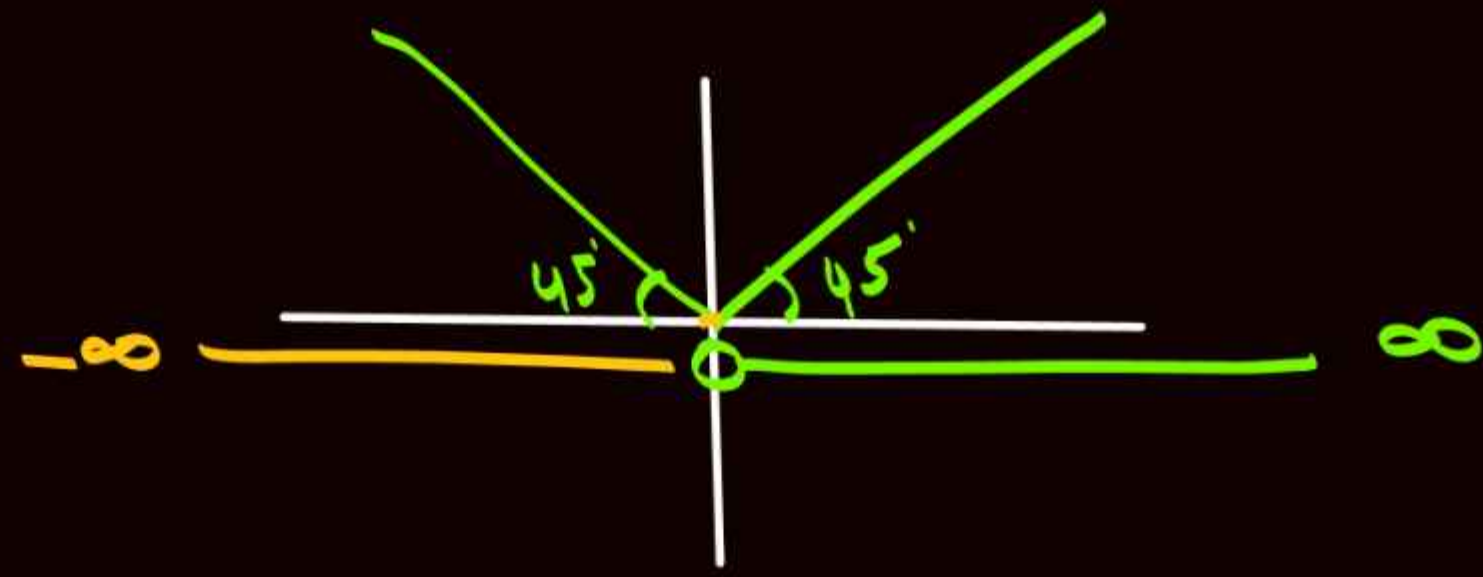
क्या ये onto होगा?
yes ✓



* किसी function के Inverse
function
होने के लिए function

function

One-One onto



* $\lim_{x \rightarrow 0} f(x)$ होने के लिए y-अक्ष के किसी भी एक
तरफ function होता है।

→ Real Number
4. $f(x) = |x|, x \in R$ For which Range of x , the given function is invertible;

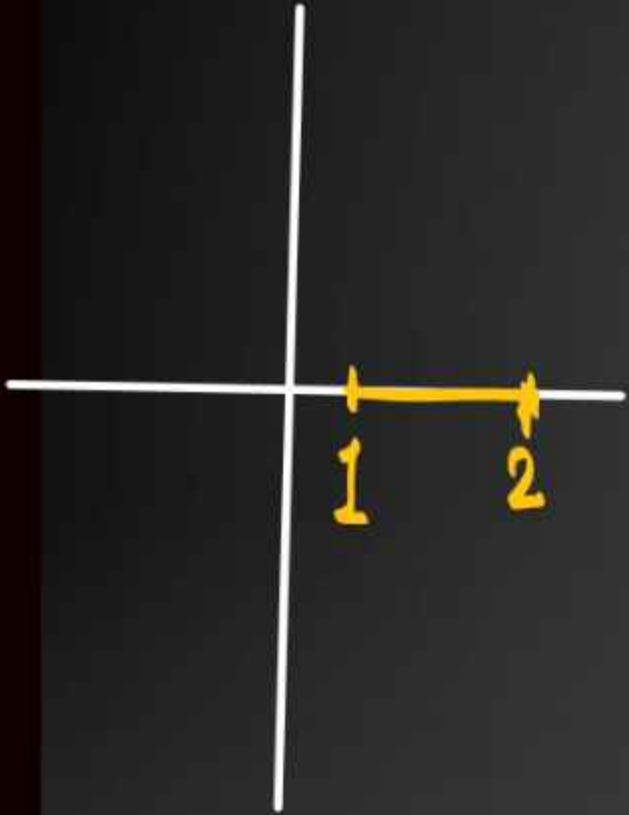
~~(a)~~ $x \in [-1, 1]$

~~(b)~~ $x \in [-2, 1]$

(c) $x \in [1, 2]$

(d) None of these

↓
{one-one onto}



5. $f(a) = |a|, a \in R$ For which Range of a , the given function is invertible?

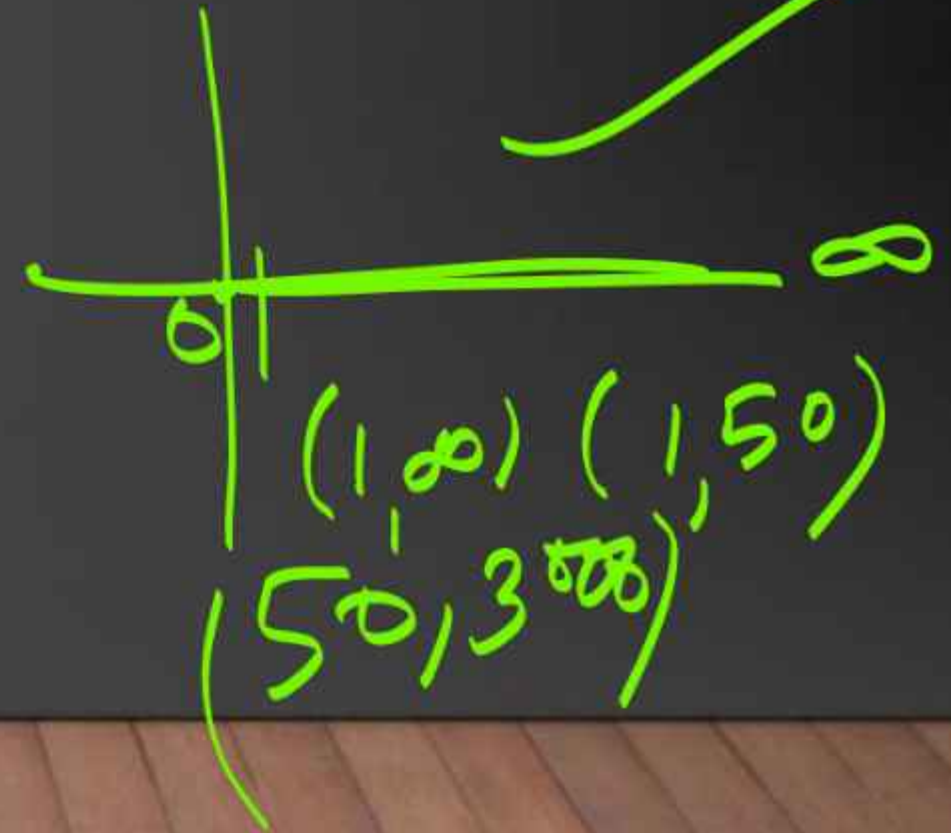
(a) $a \in [-\infty, \infty]$

(b) $a \in [-\infty, 1]$

(c) $a \in [-\infty, 0]$

(d) $a \in [-5, 5]$

one-one onto



6. फलन $f(x) = \frac{1}{\sqrt{x+[x]}}$ का प्रान्त है-

(Domain)

(a) R^+

(b) R^-

(c) R_0

(d) R