



DSSSB TGT

PART (A+B)



MATHS

REAL ANALYSIS (SET RELATION & FUNCTION)

Part -5



20/08/2024 04:00 PM



$$f(x) = y$$
$$y = f(x)$$

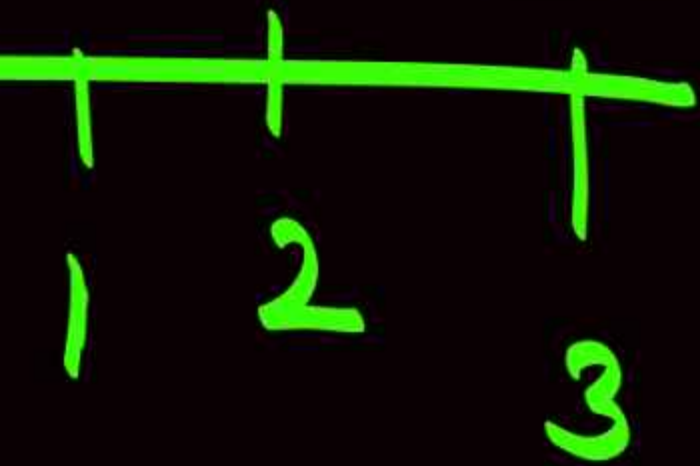
$$y = \frac{1}{x} \quad \text{⓪}$$

Domain (प्रान) → All values of x for which y is defined.

Range (परिसर) → All possible values of y.

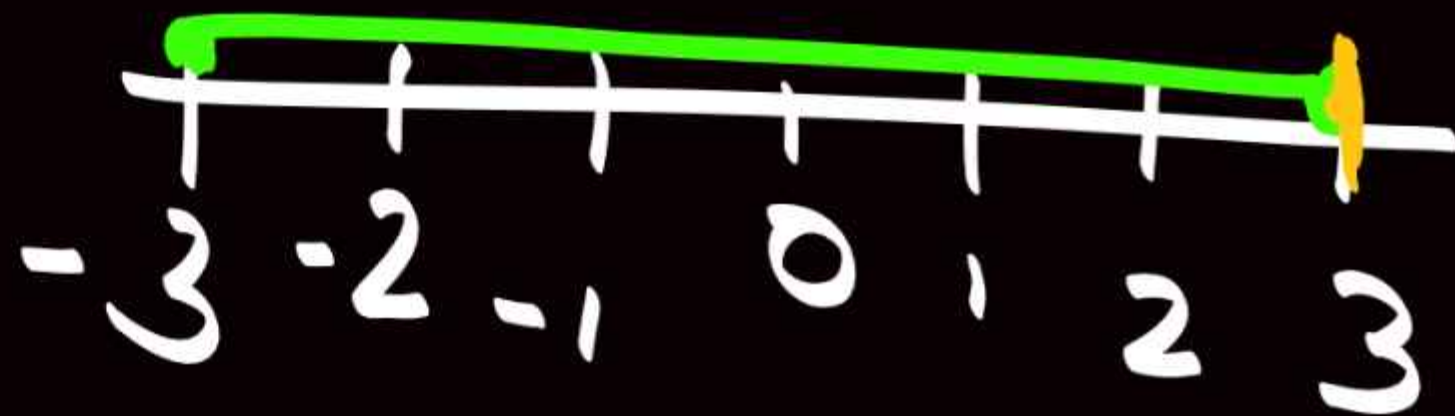
$$3 < x < 3$$

2.99999999



interval

$$[-3 \leq x \leq 3]$$



$$[-3, 3]$$

(Closed Interval)

1. $\overset{\text{open}}{-26 < x < 26}$

(i) $(-26, 26)$

(ii) $[-26, 26]$

(iii) $[-26, 26)$

(iv) $(-26, 26]$

2. $\overset{\text{open}}{3} < x \leq \overset{\text{closed}}{21}$

(i) $(3, 21)$

(ii) $[3, 21]$

(iii) $(3, 21]$

(iv) $[3, 21)$

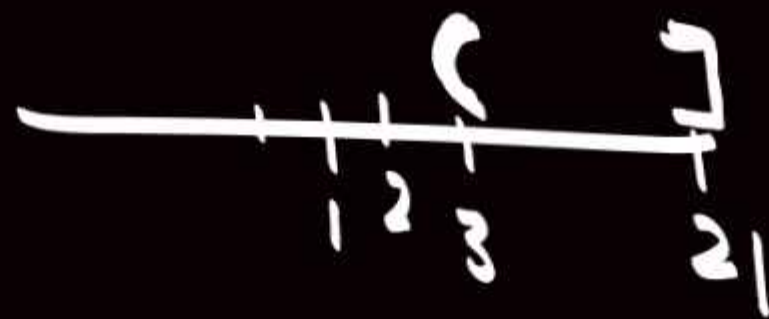
3. $10 \leq x \leq 20$

(i) $[10, 20)$

(ii) $(10, 20)$

(iii) $[10, 20]$

(iv) $(10, 20]$



3.000001

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

↓
Domain

(a) R^+

~~(b) R^-~~

~~(c) R_0~~

~~(d) R~~

$$f(x) = \frac{1}{\sqrt{x+[x]}}$$

$[x] \rightarrow$ Greatest
Integer
function

$R^+ \Rightarrow 1, 2, 3, 4, \dots$

$R^- \Rightarrow -1, -2, -3, \dots$

$R_0 \Rightarrow \dots -4, -3, -2, -1, 1, 2, 3$

$R = -\infty \text{ --- } +\infty$

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

~~(a) $\mathbb{R}$~~

~~(b) $\mathbb{R}_0$~~

~~(c) $\mathbb{R}^-$~~

(d) $\mathbb{R} - \mathbb{Z}$

Real-Integer

$$f(x) = \frac{1}{\sqrt{x-[x]}}$$

$$\frac{1}{\sqrt{-4.6 - [-4.6]}}$$

$$\frac{1}{\sqrt{-4.6 + 5}}$$

$$\frac{1}{\sqrt{0.4}} \checkmark \checkmark$$

$$\frac{1}{\sqrt{4.6 - [4.6]}} \Rightarrow \frac{1}{\sqrt{4.6 - 4}}$$

$$\frac{1}{\sqrt{0.6}}$$

8. फलन $f(x) = \frac{\sin^{-1}(x-3)}{\sqrt{9-x^2}}$ का प्रान्त है-
↳ Domain

(a) $[1,2]$

✓ (b) $[2,3]$

(c) $(1,2)$

✓ (d) $[2,3]$

$$f(x) = \frac{\sin^{-1}(x-3)}{\sqrt{9-x^2}}$$

$$-1 \leq x-3 \leq 1$$

$$2 \leq x \leq 4$$

$$[2,4]$$

$$9-x^2 > 0$$

$$x^2 < 9$$

$$x < \pm 3$$

$$(-3, 3)$$