

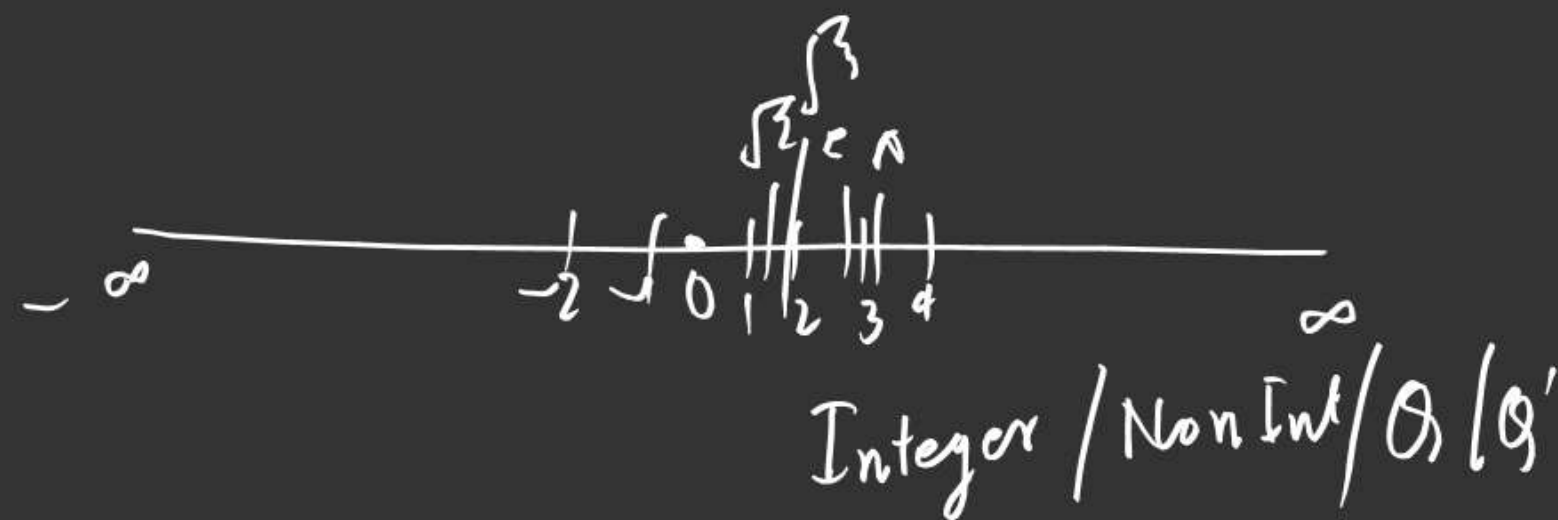
$N, W, I/Z, \boxed{Q/Q'}$

① Chapter complete solve.

② Short Notes

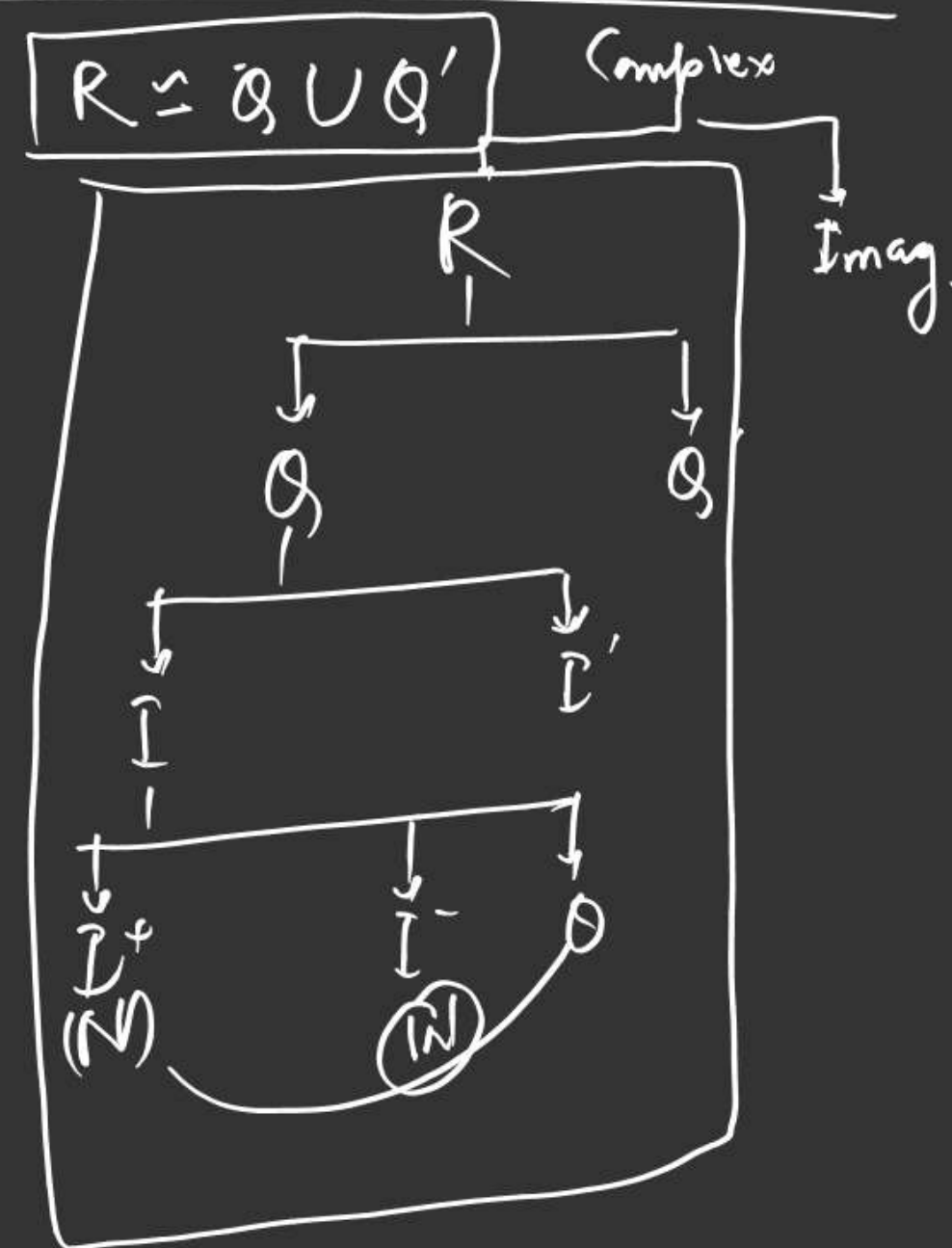
(5) Real No \Rightarrow Rep. by R

Normally we use complete x.l.x.s



π, e are 2 most imp Irr No

$\pi \approx 3.14, \frac{\pi}{2} \approx 1.57, e \approx 2.718$



$$\mathbb{C} \supset \mathbb{R} \supset \mathbb{Q} \supset \mathbb{I} \supset \mathbb{W} \supset \mathbb{N}$$

11) Interval.

() open [] close

$$1 < x < 4 \rightarrow x \in (1, 4) \Rightarrow x \in]1, 4[$$

$$1 \leq x \leq 4 \rightarrow x \in [1, 4]$$

$$x^2 - x - 6 = 0$$

$$(x-3)(x+2) = 0$$

$$x = -2, 3 \rightarrow x \in \{-2, 3\} \quad \{ \} \text{ shows specific value of } x$$

Board
Main
AdvancesInequality--ve
less than 0

Q. $x^3 - 6x^2 + 11x - 6 < 0$

① Solve given Eqⁿ & find values of x
 $(x-1)(x-2)(x-3) < 0$

(2) Put all values of x on No. line(3) Put +ve Sign to Rightmost Side & change sign for values of x which are given by odd degree brackets

$$x \in (-\infty, 1) \cup (2, 3)$$

Q₂ $(x-1)^2(x+4) < 0$



$$x \in (-\infty, -4)$$

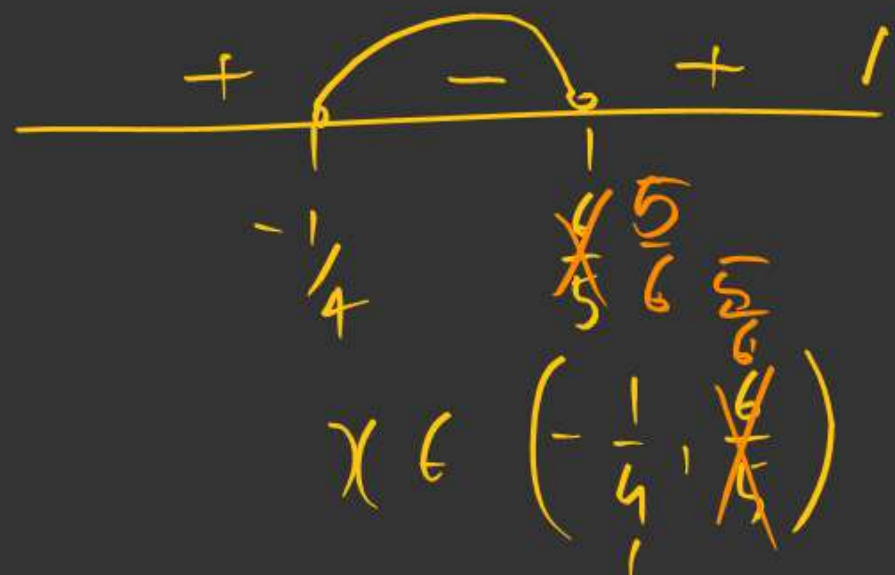
Q₃ $(x-1)^2(x+4) \leq 0$



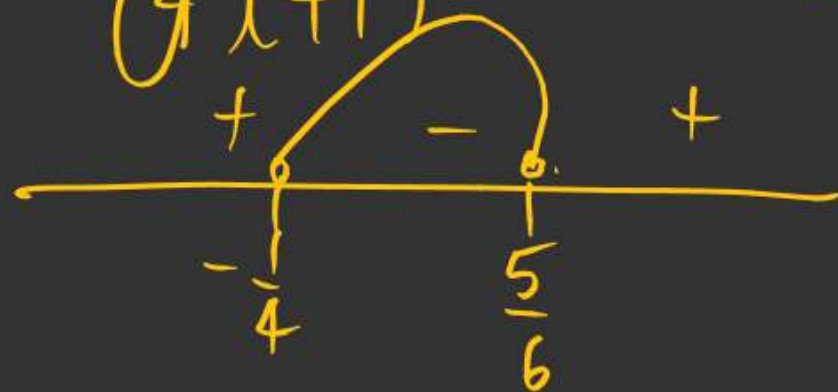
$$x \in (-\infty, -4]$$

Q4 $\frac{(6x-5)'}{(4x+1)'} < 0$ ^{-ve}

$\rightarrow -\frac{1}{4}$



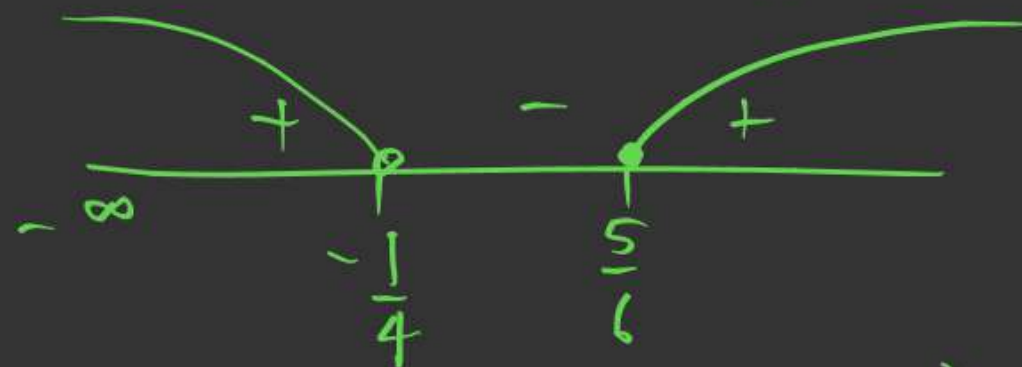
Q5 $\frac{(6x-5)}{(4x+1)} \leq 0$



Q $\frac{(6x-5)'}{(4x+1)'} \Rightarrow 0$

$\frac{5}{6}$ \rightarrow (+ve)

$-\frac{1}{4}$



$x \in (-\infty, -\frac{1}{4}) \cup [\frac{5}{6}, \infty)$

$\rightarrow x \in (-\frac{1}{4}, \frac{5}{6}]$

$$Q \quad \frac{.5}{x^2-x-6} \leq 0 \rightarrow y = \frac{.5}{x^2-x-6} \text{ 'SDm.}$$

$$\frac{+}{(-ve)} = -ve$$

$$\text{Pf anhi} \rightarrow \frac{+ .5}{(x-3)(x+2)} \quad \left(\leq 0 \right) \rightarrow -$$

$$\Rightarrow (x-3)(x+2) \leq 0$$

$$\begin{array}{c} + \quad - \quad + \\ | \quad | \quad | \\ -2 \quad 3 \end{array} \quad x \in (-2, 3)$$

$$Q \quad \frac{.75}{x^2-7x+10} > 0$$

$$\Rightarrow \frac{.75 \oplus ve}{(x-2)(x-5) \oplus +ve} > 0$$

$$\Rightarrow (x-2)(x-5) > 0$$

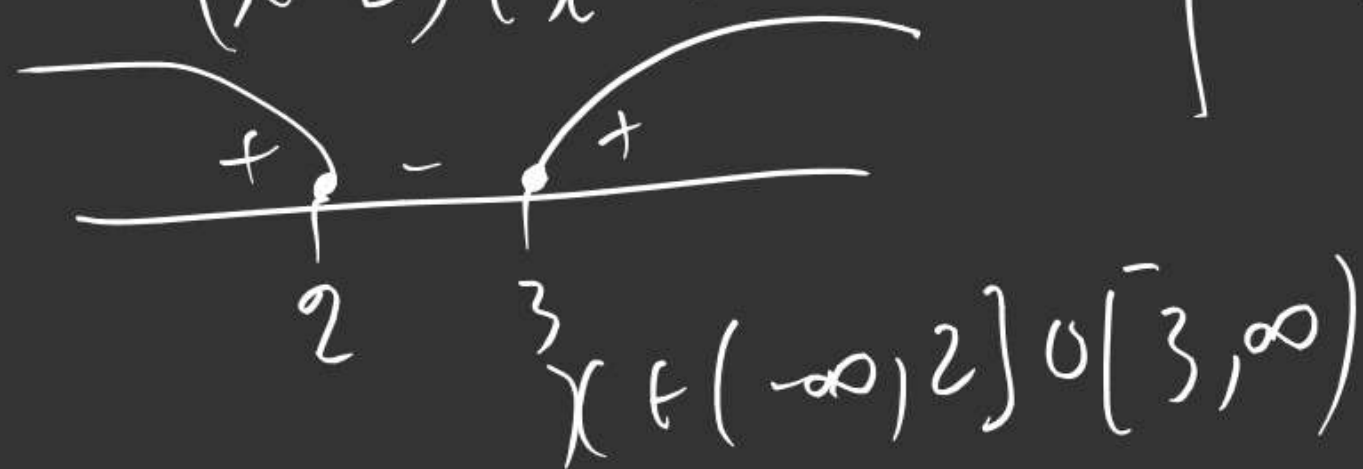
$$\begin{array}{c} + \quad - \quad + \\ | \quad | \quad | \\ 2 \quad 5 \end{array} \quad x \in (-\infty, 2) \cup (5, \infty)$$

$$Q \quad \frac{x^2 - 5x + 6}{x^2 + x + 1} \geq 0$$

$$\Rightarrow \frac{(x-2)(x-3)}{x^2 + x + 1} \geq 0 \quad \text{Factorise } x^2 + x + 1$$

Nr has to be +ve

$$(x-2)(x-3) \geq 0$$



$$a=1, b=1, c=1$$

Factorise $x^2 + x + 1$
D (check $b^2 - 4ac$)

$$b^2 - 4ac$$

$$1^2 - 4 \times 1 \times 1$$

$$D = -3 < 0$$

$$x^2 + x + 1 > 0$$

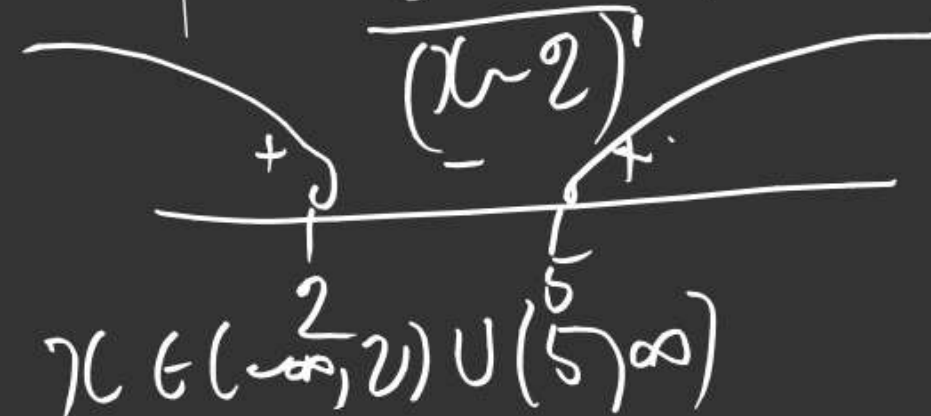
$$Q \quad \frac{3}{x-2} < 1$$

$$\frac{3}{x-2} - 1 < 0$$

$$\frac{3 - x + 2}{(x-2)} < 0$$

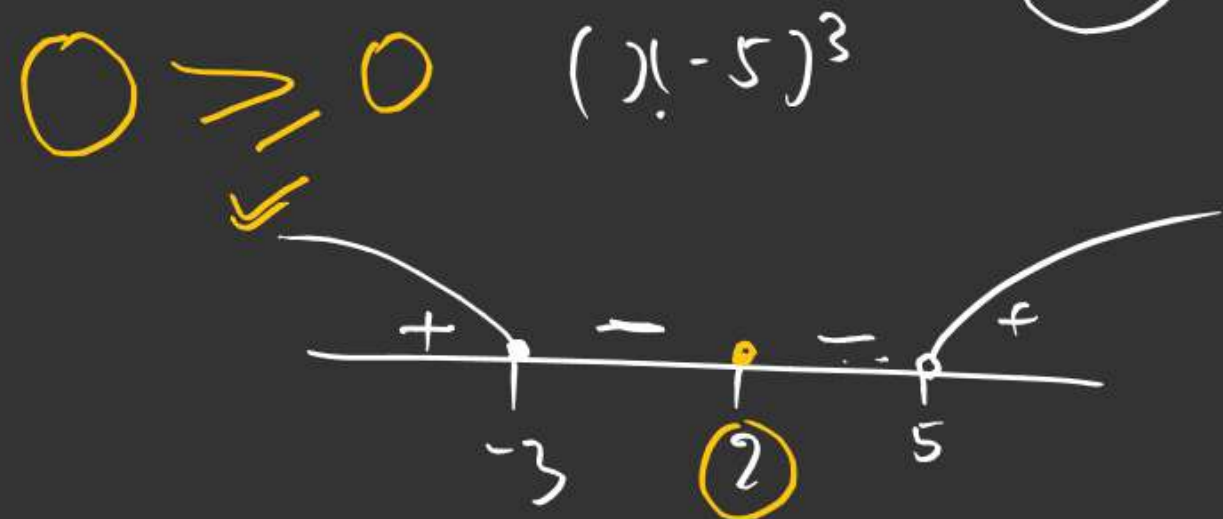
$$\frac{(5-x)}{(x-2)} < 0$$

$$\frac{(x-5)}{(x-2)} \geq 0$$



$$0 \geq 0$$

$$Q \frac{(x-2)^2(x+3)^5}{(x-5)^3} \geq 0 \quad \text{+ve}$$



$$x \in (-\infty, -3] \cup (5, \infty) \cup \{2\}$$

$$0 > 0$$

$$0 \geq 0$$

$$0 \leq 0$$

$$Q \frac{(x-2)^2(x-3)^5}{(x-5)^3} \leq 0 \quad \text{-ve}$$

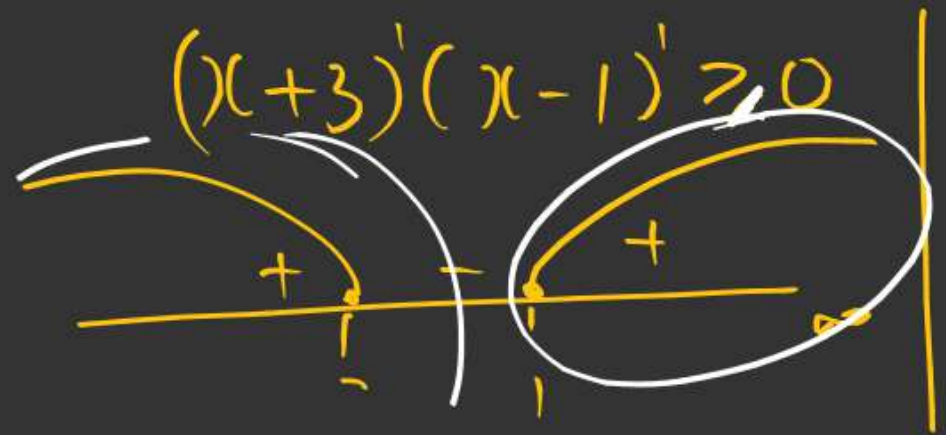


$$x \in [3, 5) \cup \{2\}$$

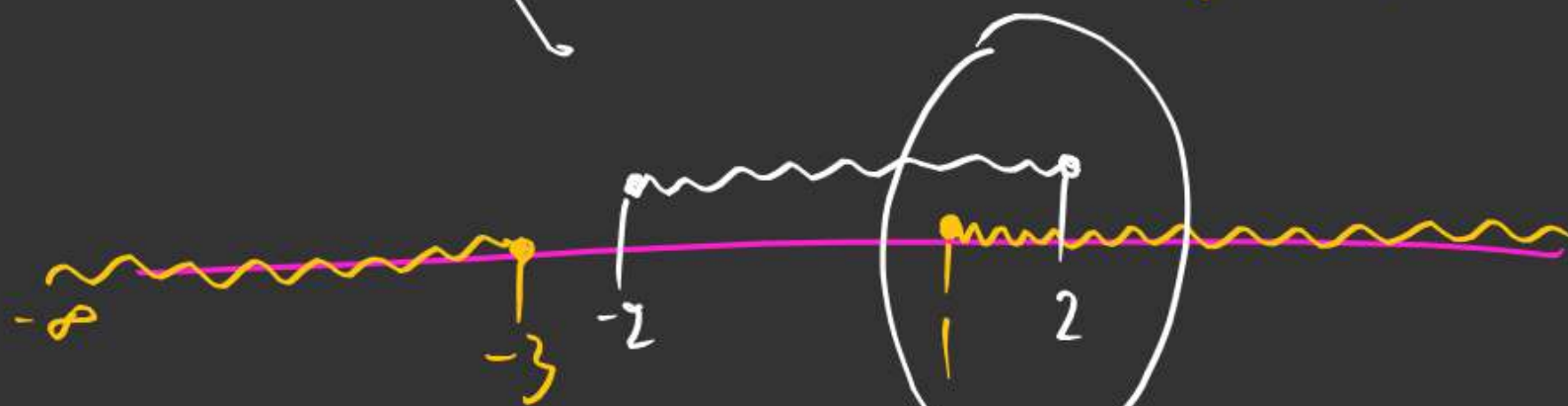
HW

$$Q \left| \begin{array}{l} 1) \frac{(x-2)}{(x-1)} > 2 \\ 2) \frac{.5}{x-x^2-1} < 0 \\ (5) \frac{1}{x} > 2 \end{array} \right| \begin{array}{l} (3) \frac{x^2+2x-3}{x^2+x+1} > 0 \\ (4) \frac{1}{x-1} \leq 2 \end{array}$$

Q Solve $x^2 + 2x - 3 \geq 0$ & $x^2 - 4 \leq 0$



$(x-2)(x+2) \leq 0$

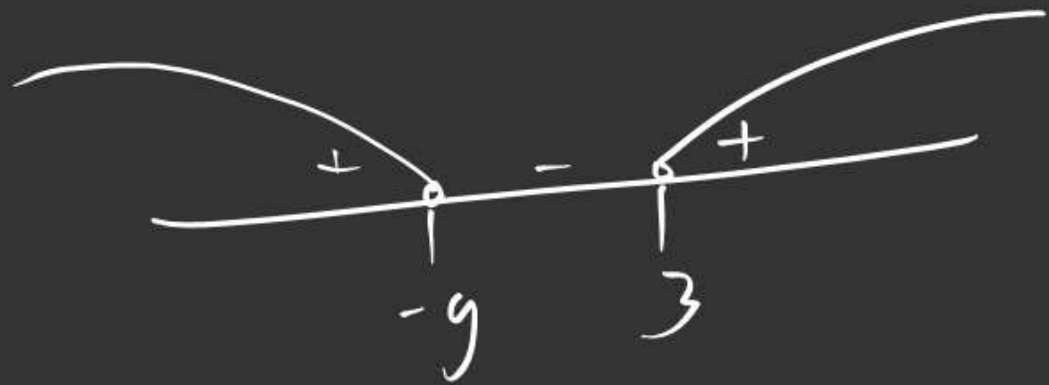


$x \in [1, 2]$

Q. $x^2 + 6x - 27 > 0$ ^{And} $x^2 - 9 < 0$

$$(x+9)(x-3) > 0$$

$$(x-3)'(x+3)' < 0 \quad (\text{-ve})$$



$$x \in \phi$$

Q $x^2 + 2x - 3 \geq 0$ & $x^2 - 1 \leq 0$ And

$$(x+3)(x-1) \geq 0$$



$$(x-1)(x+1) \leq 0$$



$$x \in \{1\}$$

11thDomain

$$y = \sqrt{x^2 + 2x - 3}$$

① Values of x for which $f(x)$ is defined

② 3 type of Basic $f(x)$'s Domain Treatment

A) $\frac{1}{f(x)}$

$$f(x) \neq 0$$

B) $\sqrt{f(x)}$

$$f(x) \geq 0$$

C) $\frac{1}{\sqrt{f(x)}}$

$$f(x) > 0$$

Q $y = \frac{1}{x^2 + 2x - 3}$ find Dom?

$$x^2 + 2x - 3 \neq 0$$

$$(x+3)(x-1) \neq 0$$

$$x \neq -3, 1$$



$$x \in \underbrace{(-\infty, \infty)}_{\text{या}} - \{ -3, 1 \}$$

Hta Kar

$$x \in \mathbb{R} - \{ -3, 1 \}$$

Q $y = \sqrt{x^2 + 2x - 3}$ find Domain?

$\rightarrow \sqrt{f(x)} \quad f(x) \geq 0$

$$x^2 + 2x - 3 \geq 0$$

$$(x+3)(x-1) \geq 0$$



$$x \in (-\infty, -3] \cup [1, \infty)$$