



Welcome
Class 11th

to Apni kaksha



LIVE



- ① Avoid chat
↓
used to answer the problems
written

① Notes



revise notes daily

solve illustrations on your own
also

~~sets~~

Higher Algebra

sheets → must

Level I → sheets / Standard books

Level II → books (revision)

Standard books

③ Hall & Knight ② S.L. Loney
Trigonometry ① Prelipko

Problem
Solving

30. \rightarrow problems

attempt

Q^2

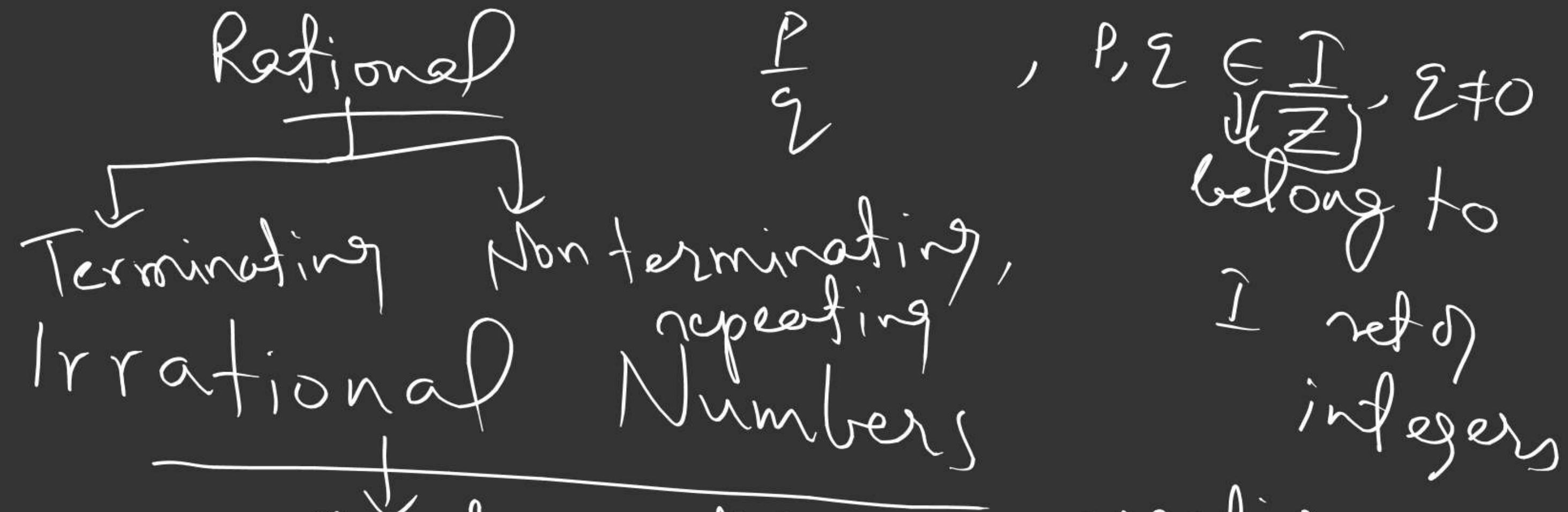
16
9
2

Numbers

Natural numbers = {1, 2, 3, - - -}

Whole numbers = {0, 1, 2, 3, - - -}

Integers = {- - , -2, -1, 0, 1, 2, - - -}



$$99x = 1772$$

$$\underline{-} \quad \underline{-}$$

$$non\ terminating, non\ repeating$$

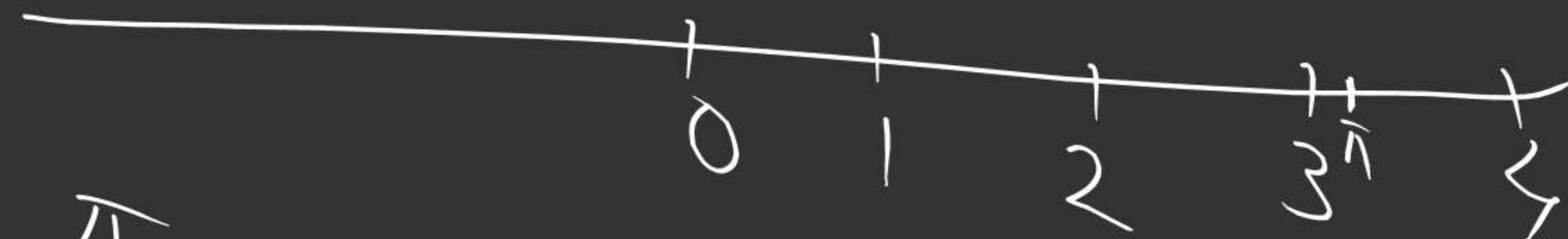
$$x = 17.89 = 17.898989\dots$$

$$100x = 1789.8989\dots$$

Real numbers

$$\pi \approx \frac{22}{7} \text{ (approx)}$$

represented on number line



$$\pi \approx 3.14$$

Imaginary numbers

↓
non real numbers

$$x^2 = -4$$

no real 'x'

Positive numbers

$$x > 0$$

Non negative numbers

π is non negative

True

3 is non negative

0 is non negative

$x \geq 0$

greater or
equal

Non positive $\rightarrow x \leq 0$

Negative $\rightarrow x < 0$

Prime

2, 3, 5, - - -

Composite

4, 12, . . .

1 → neither prime, nor composite

Relatively prime / Coprime numbers

2 natural are coprime if their hcf is 1
no. n.

36, 25 → coprime

Twin Prime



2 prime nos. said to be
twin prime if their difference
is 2

29, 31

31, 35
17, 19

Interval

Closed Interval

$$2 \leq x \leq 3 \Rightarrow x \in [2, 3]$$

belongs to

x

$$x \in [a, b]$$

Open Interval

$$a < x < b \Rightarrow$$

$$x \in (a, b)$$

$$\rightarrow x \in]a, b[$$

$$2.667$$

$$a < x < b \Rightarrow x \in (a, b)$$

$$2 < x < 3 \Rightarrow x \in (2, 3)$$

$$\text{or }]a, b[$$

Semi Closed)

$$-3 \leq x < 5 \Rightarrow x \in [-3, 5)$$

$$4 < x \leq 7.8 \Rightarrow x \in (4, 7.8]$$

$$x \in (4, 8) \Rightarrow 4 < x < 8 \quad \text{or} \quad x \in [4, 7.8]$$

$$x > 4 \Rightarrow x \in (4, \infty)$$

$$x \geq -7 \Rightarrow x \in [-7, \infty)$$

~~1 2 3 4 5 6 7~~

$$x \leq 8 \Rightarrow x \in (-\infty, 8]$$

~~1 2 3 4 5 6 7 8~~

Product of 3 consecutive natural numbers is divisible by 6.

① P.T. $n^3 - n$, $n \in \mathbb{N}$

$n^3 - n$ is divisible by 6
 $n^3 - n = (n-1)n(n+1)$ div. by 6

② If n is even natural number,
 then prove that $n^3 + 20n$
 is divisible by 48. div. by 48

$$n = 2k, k \in \mathbb{N}$$

$$n^3 + 20n = 8k^3 + 40k$$

$$\begin{aligned}
 &= 8k^3 - 8k + 48k \\
 &= 8(k-1)k(k+1) + 48k
 \end{aligned}$$

3 is not div
by 3 .
 \exists If

$$\underbrace{(P-1)}_{\text{is prime}} \underbrace{(P+1)}_{\text{div. by } 2^2}$$

div. by 8

$P \geq 5$,

prime ≥ 5 then $P \cdot T$ is $\overline{P-1}$ is divisible

by 24 .

$$P(P^2) = P^3$$

$$\underline{\underline{P-P}}$$

is div by 24 $\frac{(P-1)P(P+1)}{\text{div. by } 3}$
div. by 8