



# MATHS SPECIAL



**PRE + MAINS**

**LIVE CLASS** (ONE TO ONE INTERACTION)

**REGISTRATION  
OPEN**

**BILINGUAL CONTENT**

**1 YEAR VALIDITY**

## INCLUDES

- ☐ LIVE Classes
- ☐ Result Oriented Approach
- ☐ PDF Notes
- ☐ Conceptual Clarity

## USEFUL FOR

- ☐ SSC EXAMS
- ☐ BANK EXAMS
- ☐ CSAT
- ☐ STATE GOVT. EXAMS

**DOWNLOAD TAIYARI KARO APP TO JOIN THE BATCH**



**SACHIN BALIYAN SIR**



# MATHS SYLLABUS



## ARITHMETIC:

(SSC/BANK/CUET/CSAT/STATE GOVT)

Time and Work  
Pipe and Cistern

Percentage  
Profit Loss and Discount  
Compound Interest  
Simple Interest

Average  
Ratio and Proportion  
Based of Ages  
Partnership  
Mixture and Alligation

Time Speed And Distance  
Train  
Race  
Boat and Stream

## BANK:

Number Series  
Quadratic Equation  
Simplification  
Approximation

Data Interpretation

Mensuration

Permutation  
Combination  
Probability

## SSC:

Number System  
LCM + HCF

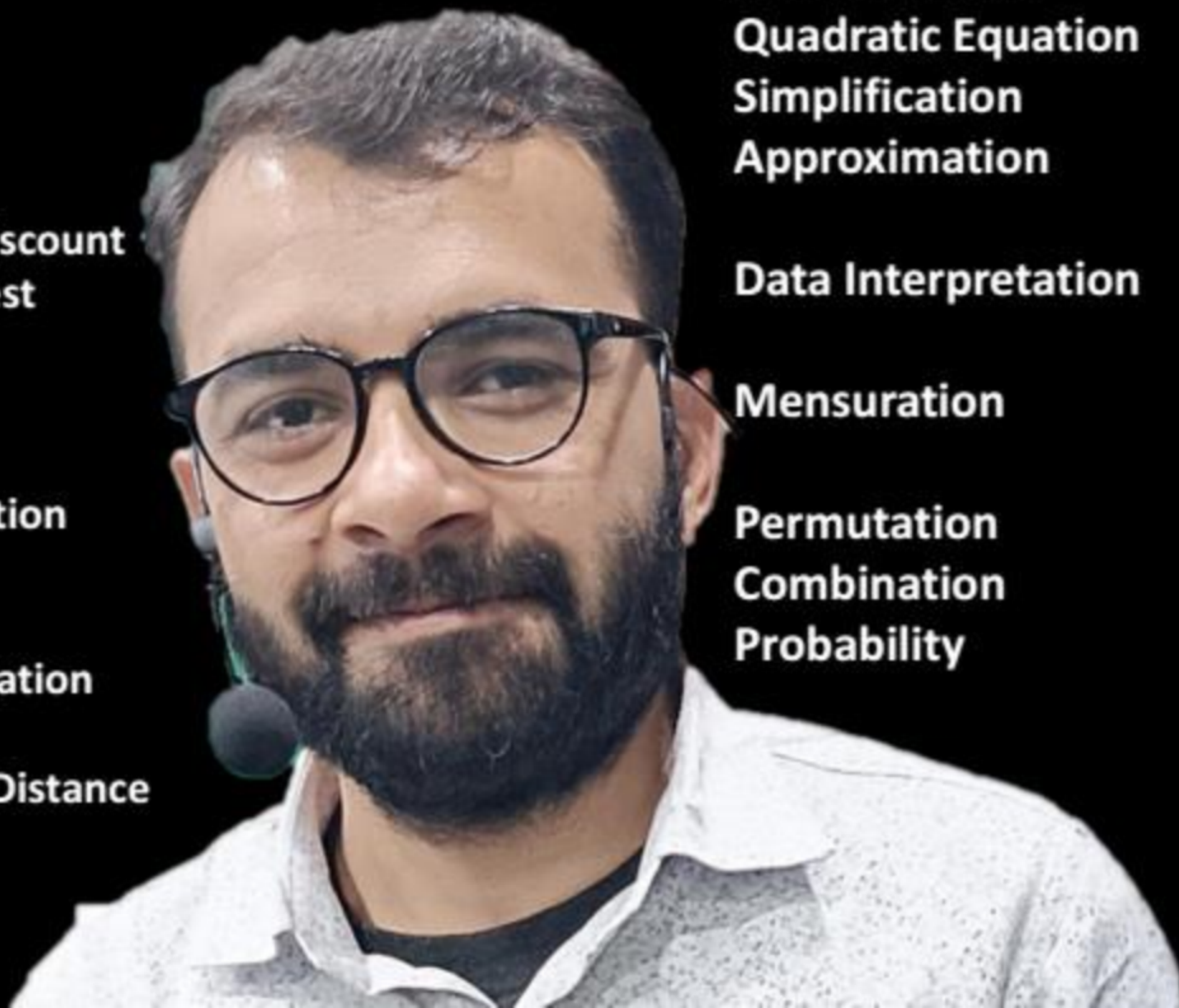
Surds  
Indices  
Algebra

Trigonometry  
Height and Distance

Geometry

Mensuration-2D  
Mensuration-3D

Co-ordinate Geometry



**AVERAGE**



# NUMBERS BASED

| NO. OF QUESTIONS | CLASS NUMBER | CLASS DURATION |
|------------------|--------------|----------------|
| 15 Questions     | DAY -1       | 1 HOURS        |



AVERAGE:

$$\text{Average} = \frac{\text{Sum of terms}}{\text{Number of terms}}$$

+26

Average = Equal Distribution (Balancing Point)

60 kg ✓  
40 kg ✓

20 kg ✓

$$\text{Sum} = \frac{120}{3}$$

$$\text{Avg} = \frac{\text{Sum}}{N}$$

40

Balancing  
Point





Find the average of 1210, 1220, 1225, 1190, 1230?

1210, 1220, 1225,  
1190, 1230 का औसत  
ज्ञात कीजिए?

- (a) 1210      (b) 1215 ✓  
(c) 1220      (d) 1240  
(e) None of these

$$\text{Avg} = \frac{\text{Sum}}{N}$$





The average of 1120, 1090, 1030, x, 1050, 1140, 1130 is 1080. Find x? 1120, 1090, 1030, x, 1050, 1140, 1130 का औसत 1080 है। x ज्ञात कीजिए?

- (a) 1010      (b) 1020      (c) 1000  
(d) 1050      (e) None of these.

$$\begin{aligned} \text{Avg} &= \frac{\text{Sum}}{N} \\ 1080 &= \frac{6560 + x}{7} \\ 7560 &= 6560 + x \\ \boxed{x = 1000} \end{aligned}$$

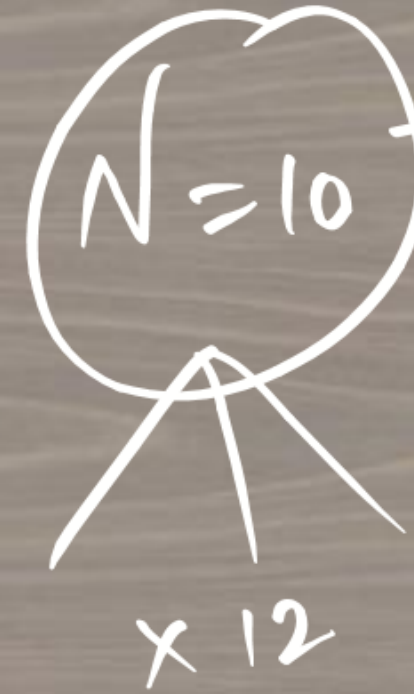




The average of 10 numbers is 7. If each number is multiplied by 12, then the average of the new set of numbers will be?

10 संख्याओं का औसत 7 है। यदि प्रत्येक संख्या को 12 से गुणा किया जाता है, तो संख्याओं के नए सेट का औसत होगा ?

- (a) 7                      (b) 19                      (c) 82  
(d) 84                      (e) None of these



$$\text{Avg} = 7$$
$$\times 12$$

$$\text{New Avg} = \boxed{84}$$

*Ans*

$$\left\{ \begin{array}{l} \textcircled{\#} \text{ if each no is } \textcircled{+}/\textcircled{-} \text{ by } \underline{\underline{a}} \Rightarrow \text{Arg is } \textcircled{+}/\textcircled{-} \text{ by } 'a' \\ \textcircled{\#} \text{ if each no is } \textcircled{\times}/\textcircled{\div} \text{ by } 'a' \Rightarrow \text{Arg is } \textcircled{\times}/\textcircled{\div} \text{ by } 'a' \end{array} \right.$$



**Average-1 (Basic Question)**

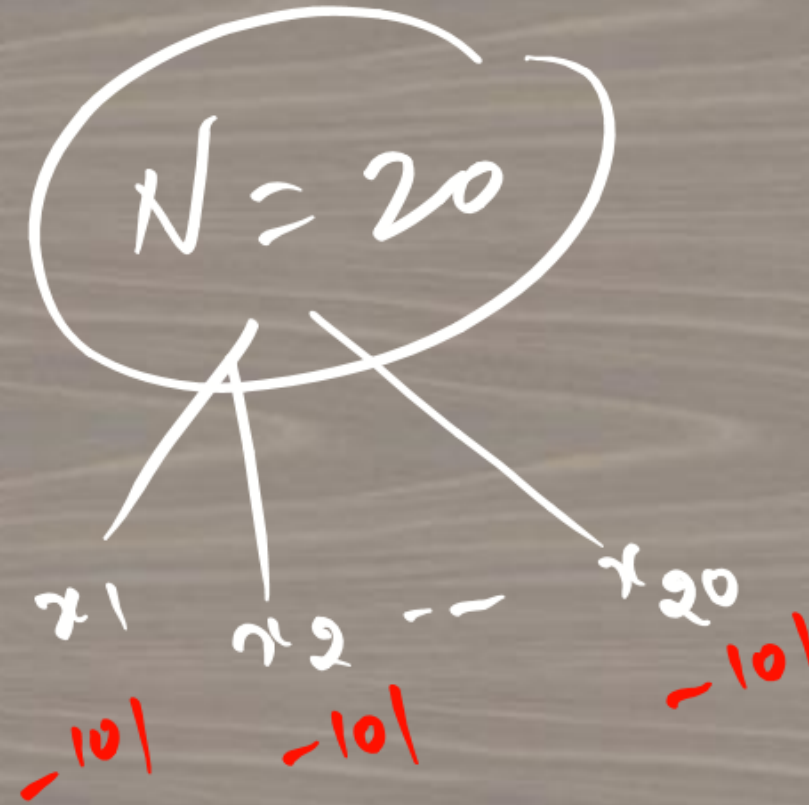
**MATHS WITH SACHIN BALIYAN SIR**





If average of 20 observations  $x_1, x_2, \dots, x_{20}$  is  $y$ , then the average of  $x_1 - 101, x_2 - 101, \dots, x_{20} - 101$  is ? यदि 20 प्रेक्षणों  $x_1, x_2, \dots, x_{20}$  का औसत  $y$  है, तो  $x_1 - 101, x_2 - 101, \dots, x_{20} - 101$  का औसत है?

- (a)  $y-20$                       (b)  $y-101$   
(c)  $20y$                       (d)  $101y$   
(e) None of these



$$\text{Avg} = y$$

$$\text{New Avg} = \frac{y - 101}{1}$$





The average marks of  $x$  students of 9<sup>th</sup> class are  $y$  while the average marks of  $y$  students of 10<sup>th</sup> class are  $x$  find the avg marks of students together?

9 वीं कक्षा के  $x$  छात्रों के औसत अंक  $y$  हैं जबकि 10 वीं कक्षा के  $y$  छात्रों के औसत अंक  $x$  हैं, एक साथ छात्रों के औसत अंक ज्ञात कीजिए?

- (a)  $xy$  (b)  $\frac{2xy}{x+y}$  (c)  $x+y$   
 (d)  $x^2$  (e) None of these.

9<sup>th</sup>  
 $A = \frac{\text{Sum}}{N}$

$\text{Sum} = xy$

10<sup>th</sup>  
 $A = \frac{\text{Sum}}{N}$

$\text{Sum} = xy$

$$\text{Avg} = \frac{\text{Sum}}{N} = \frac{2xy}{x+y}$$





The average marks of 'x' students of 9<sup>th</sup> class is  $y^2$  & average marks of 'y' students of 10<sup>th</sup> class is  $x^2$ . Find the average marks of all the students together? 9 वीं कक्षा के 'x' छात्रों के औसत अंक  $y^2$  हैं और 10 वीं कक्षा के 'y' छात्रों के औसत अंक  $x^2$  हैं। एक साथ सभी छात्रों के औसत अंक ज्ञात कीजिए?

- ✓ (a)  $xy$  (b)  $\frac{2xy}{x+y}$   
 (c)  $x+y$  (d)  $x^2+xy+y^2$   
 (e) None of these

9<sup>th</sup>  

$$Avg = \frac{Sum}{N}$$

$$Sum = xy^2$$

10<sup>th</sup>  

$$A = \frac{Sum}{N}$$

$$Sum = x^2y$$

$$Avg = \frac{Sum}{N} = \frac{xy^2 + x^2y}{x+y}$$

$$= \frac{xy[y+x]}{x+y} = xy$$



# Based on Numbers

(From Starting)



find the Average of 1<sup>st</sup> 50 Natural number?

$$\text{Avg} = \frac{\text{Sum}}{N}$$

50



⑧ Sum of 1st n - Natural Number  $\Rightarrow$   $\boxed{\frac{n(n+1)}{2}}$

$$\left[ \underline{1+2+3+4+5+\dots+n} \right]$$

$$\text{Avg} = \frac{\text{Sum}}{N} = \frac{\frac{n(n+1)}{2}}{n}$$

$$= \boxed{\frac{1+n}{2}} //$$

Question find the Avg of 1st 100 Natural nos-

$$\text{Avg} = \frac{1+n}{2} \quad \frac{n=100}{\text{Ans}}$$
$$\frac{101}{2} = \boxed{50.5}$$



⑧ Sum of <sup>1st</sup> n-even nos =  $\frac{n(n+1)}{2}$

$2 + 4 + 6 + 8 + \dots + 2n$

$$\text{Avg} = \frac{\text{Sum}}{N} = \frac{n(n+1)}{n}$$

$$= (1+n)$$

Q. find the Avg of 1<sup>st</sup> 20 even nos.

$$\text{Avg} = \frac{1+n}{2}$$

$n = 20$

$$\boxed{A = 21} \text{ Ans}$$



④ Sum of 1<sup>st</sup> n-odd Nos  $\Rightarrow$   ~~$n^2$~~

$1 + 3 + 5 + 7 + \dots + (2n-1)$

$$\text{Avg} = \frac{\text{Sum}}{N} = \frac{n^2}{n} = \text{ ~~$n$~~ }$$

Q. find the Avg of 1<sup>st</sup> (20) odd numbers

$$\text{Avg} = n$$

$$\text{Ans} = 20$$



① Sum of Square of 1<sup>st</sup> n-Natural nos:-

$$[1^2 + 2^2 + 3^2 + \dots + n^2]$$

$$\Rightarrow \frac{\frac{n(n+1)}{2} \times \frac{2n+1}{3}}{\cancel{n(n+1)(2n+1)}} = \frac{n(n+1)(2n+1)}{6}$$

$$\text{Avg} = \frac{\text{Sum}}{N} =$$

$$= \frac{(n+1)(2n+1)}{6}$$

Q. find the Avg of Square of 1<sup>st</sup> 20 Natural numbers: —

$$n = 20$$

$$\text{Avg} = \frac{(n+1)(2n+1)}{6}$$

$$= \frac{1 \times 21 \times 41}{\cancel{6} \times 2} = \frac{287}{2}$$

143.5

 Ans



#

Sum of Cube of 1<sup>st</sup> n-Natural nos -

$$\left[ 1^3 + 2^3 + 3^3 + 4^3 + \dots + n^3 \right] \Rightarrow \left( \frac{n(n+1)}{2} \right)^2$$

$$\text{Avg} = \frac{\text{Sum}}{N} = \frac{\frac{n^2(n+1)^2}{4}}{n}$$

$$= \frac{n(n+1)^2}{4}$$

Question

find the Avg of Cube of 1<sup>st</sup> 20  
Natural nos?

$$\text{Avg} = \frac{n(n+1)^2}{4}$$

$$= \frac{20 \times 21^2}{4}$$

$$5 \times 441$$

$$\boxed{2205} \text{ Ans}$$









Average

$$\begin{array}{l} \checkmark \text{ Natural} = \frac{1+n}{2} \\ \text{even} = 1+n \\ \text{odd} = n \end{array} \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} \text{if Nos are} \\ \text{From} \\ \text{Starting} \end{array}$$

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