

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

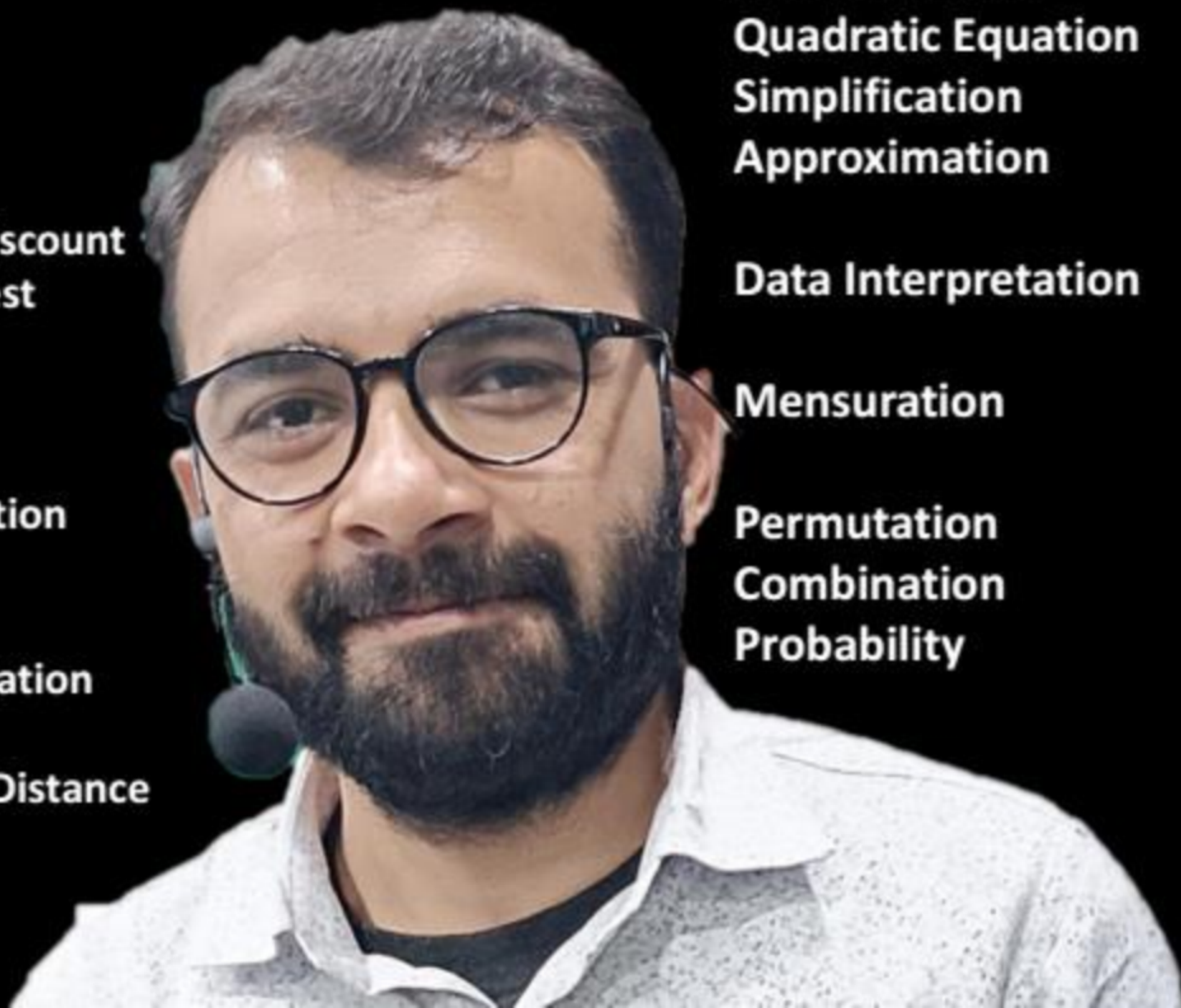
Surds
Indices
Algebra

Trigonometry
Height and Distance

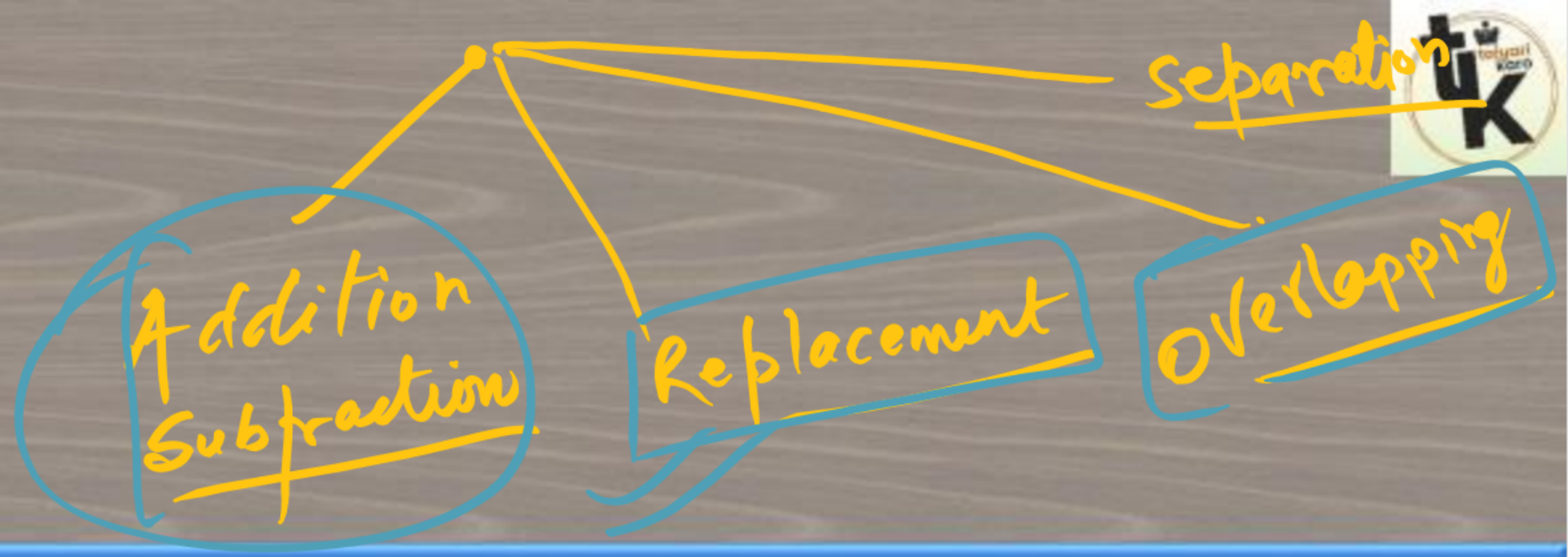
Geometry

Mensuration-2D
Mensuration-3D

Co-ordinate Geometry



AVERAGE

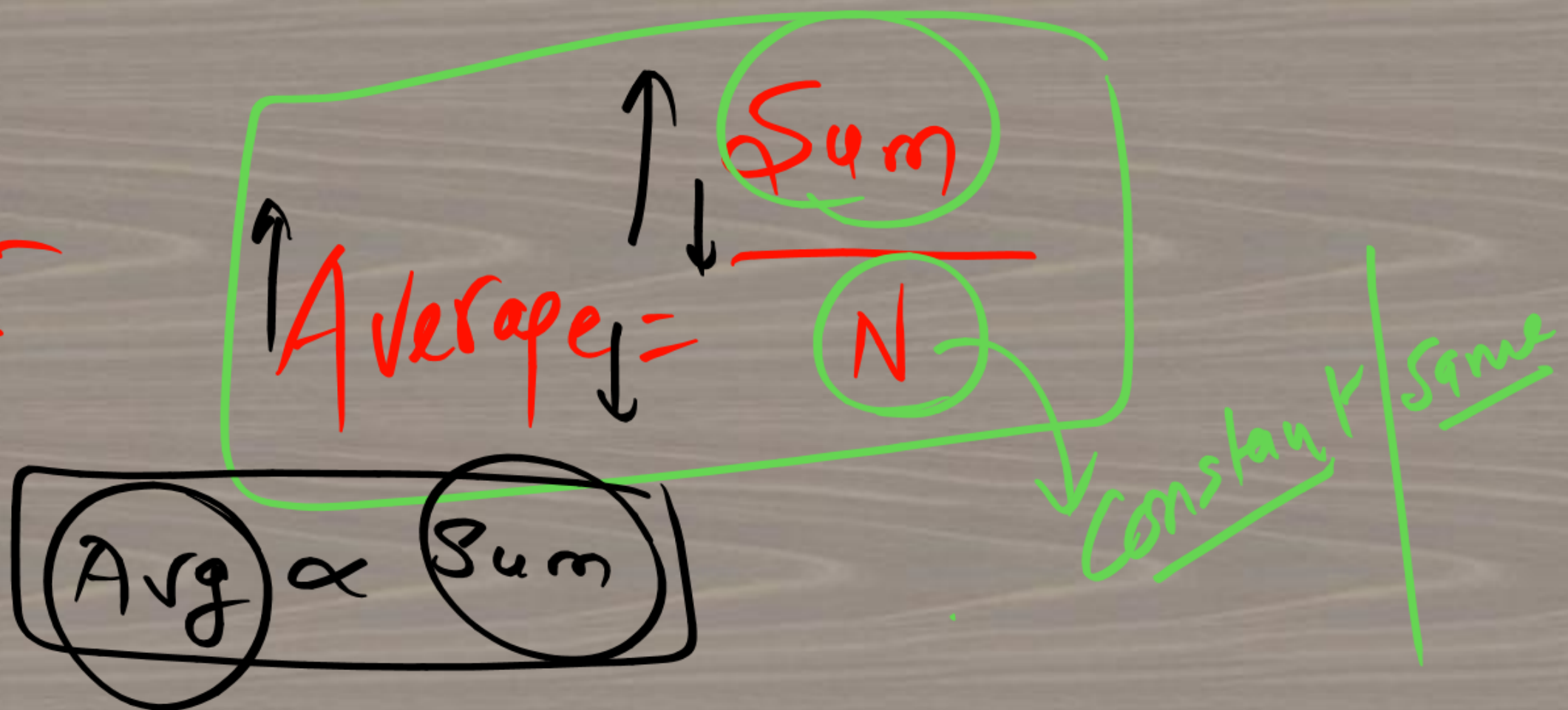


Replacement & Overlapping

NO. OF QUESTIONS	CLASS NUMBER	CLASS DURATION
15 Questions	DAY - 4	1 HOURS

Replacement

Replacement:-

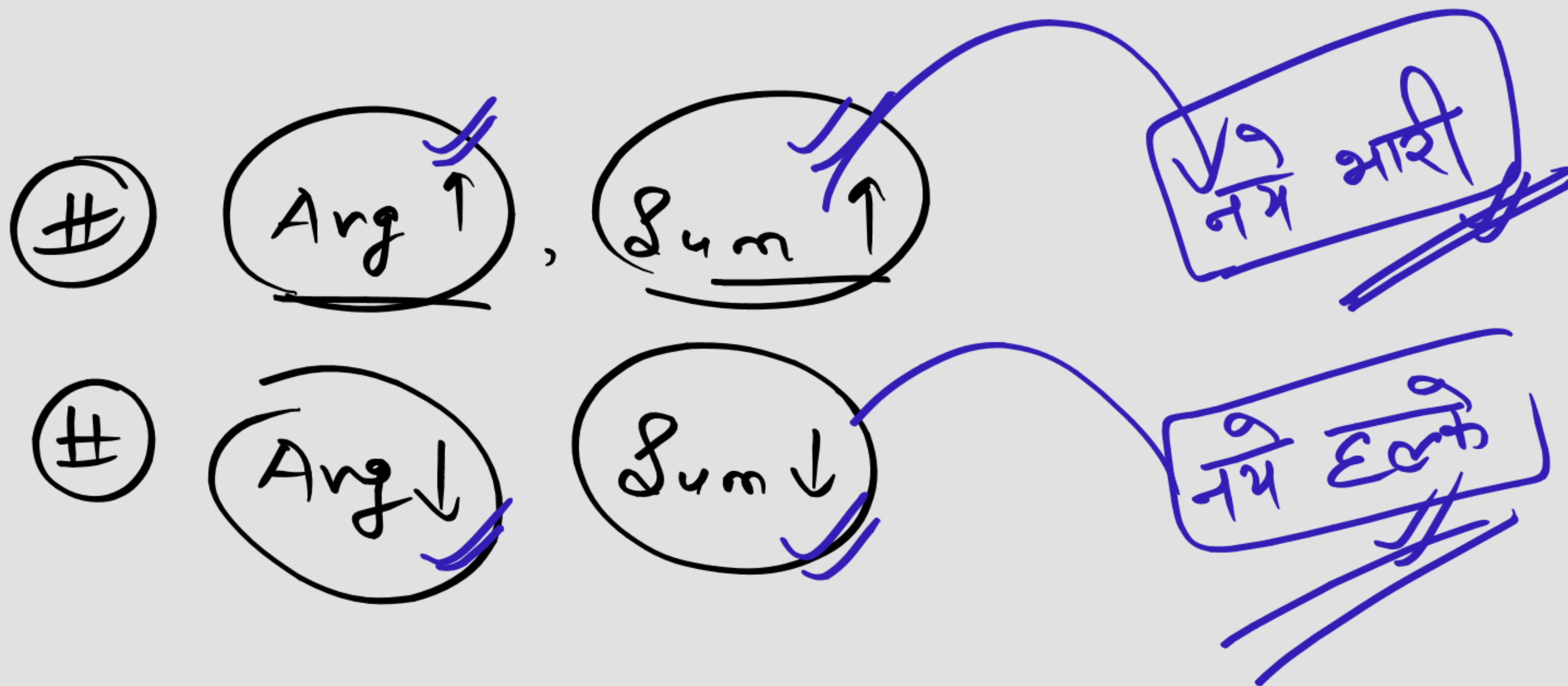


The diagram illustrates the relationship between Average, Sum, and N in a replacement problem. It shows the formula $\text{Average} = \frac{\text{Sum}}{N}$ with 'Sum' and 'N' circled in green. A green box encloses the entire formula. Below this, a black box contains the expression $\text{Avg} \propto \text{Sum}$. A green arrow points from the 'N' in the denominator of the formula to the text 'Constant / Same' written in green.

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

$\text{Avg} \propto \text{Sum}$

Constant / Same



The average age of 10 players was decreased by 2 Years when two players are replaced by two new players of 22 years and 26 years. What is the average age of the replaced players? 10 खिलाड़ियों की औसत आयु में 2 वर्ष की कमी आई जब दो खिलाड़ियों को 22 वर्ष और 26 वर्ष के दो नए खिलाड़ियों द्वारा प्रतिस्थापित किया गया। बदले गए खिलाड़ियों की औसत आयु क्या है?

- (a) 29 (b) 36 (c) 34
(d) 24 (e) None of these

Handwritten solution:

Let the sum of ages of 10 players be S and the average age be A .

$$\frac{S}{10} = A$$

Sum = 68
A = 34
Ans

When two players are replaced by two new players of 22 years and 26 years, the average age decreases by 2 years.

Let the sum of ages of the replaced players be m and the average age be A .

$$\frac{m}{2} = A$$

Sum = 48

Sum = -2 x 10

Ans = -2

The average age of 10 persons in a committee is increased by 5 years when two men aged 45 yrs and 65 yrs are substituted by two women. Find the average age of these two women.

एक समिति में 10 व्यक्तियों की औसत आयु में 5 वर्ष की वृद्धि होती है जब 45 वर्ष और 65 वर्ष की आयु के दो पुरुषों को दो महिलाओं द्वारा प्रतिस्थापित किया जाता है। इन दोनों महिलाओं की औसत आयु ज्ञात कीजिए

- (a) 70 (b) 60 (c) 80 ✓
(d) 50 (e) None of these

$$\begin{array}{r} \text{45} \quad \text{65} \\ \text{M}_1 \quad \text{M}_2 \\ \hline \text{10} \end{array} \quad \text{Sum} = 110$$

$$\begin{array}{r} \text{M}_1 \quad \text{M}_2 \\ \hline \text{Sum} = +50 \end{array} \quad (+5)$$

$$\text{Sum } 110 + 50 = 160$$

$$A = 80$$

Average-4 (Replacement)

MATHS WITH SACHIN BALIYAN SIR



The average height of 24 students was increased by 3 cm when two students are replaced by two new students of 178 cm and 180 cm. If the ratio of the height of old replaced students are 9:13.

What is the Height of the taller student?

24 छात्रों की औसत ऊँचाई में 3 सेमी की वृद्धि हुई जब दो छात्रों को 178 सेमी और 180 सेमी के दो नए छात्रों द्वारा प्रतिस्थापित किया गया। यदि पुराने बदले गए विद्यार्थियों की लंबाई का अनुपात 9:13 है। लम्बे छात्र की ऊँचाई क्या है?

(a) 119 cm

(b) 169 cm ✓

(c) 126 cm

(d) 150 cm

(e) None of these

Handwritten solution:

Let the heights of the two old students be x and y .

Ratio $x:y = 9:13$

Sum of heights of 24 students = $24 \times \text{Average}$

Sum of heights of 24 students = $24 \times 169 = 4056$

Sum of heights of 24 students = $178 + 180 + \text{Sum of heights of 22 students}$

Sum of heights of 24 students = $358 + \text{Sum of heights of 22 students}$

Sum of heights of 24 students = 4056

Sum of heights of 22 students = $4056 - 358 = 3698$

Sum of heights of 22 students = $22 \times \text{Average}$

Sum of heights of 22 students = $22 \times 168 = 3696$

Sum of heights of 22 students = 3698

Sum of heights of 22 students = 3698

Sum of heights of 22 students = 3698



The average daily temperature from Monday to Saturday (both days inclusive) was 34°C and that from Tuesday to Sunday (both days inclusive) was 40°C . The temperature of Monday was 12°C . What was the temperature of Sunday ? सोमवार से शनिवार (दोनों दिन मिलाकर) का औसत दैनिक तापमान 34°C था और मंगलवार से रविवार तक (दोनों दिन सम्मिलित) 40°C था। सोमवार का पारा 12 डिग्री सेल्सियस रहा। रविवार का तापमान क्या था?

- (a) 36°C (b) 48°C (c) 45°C
 (d) 46°C (e) None of these

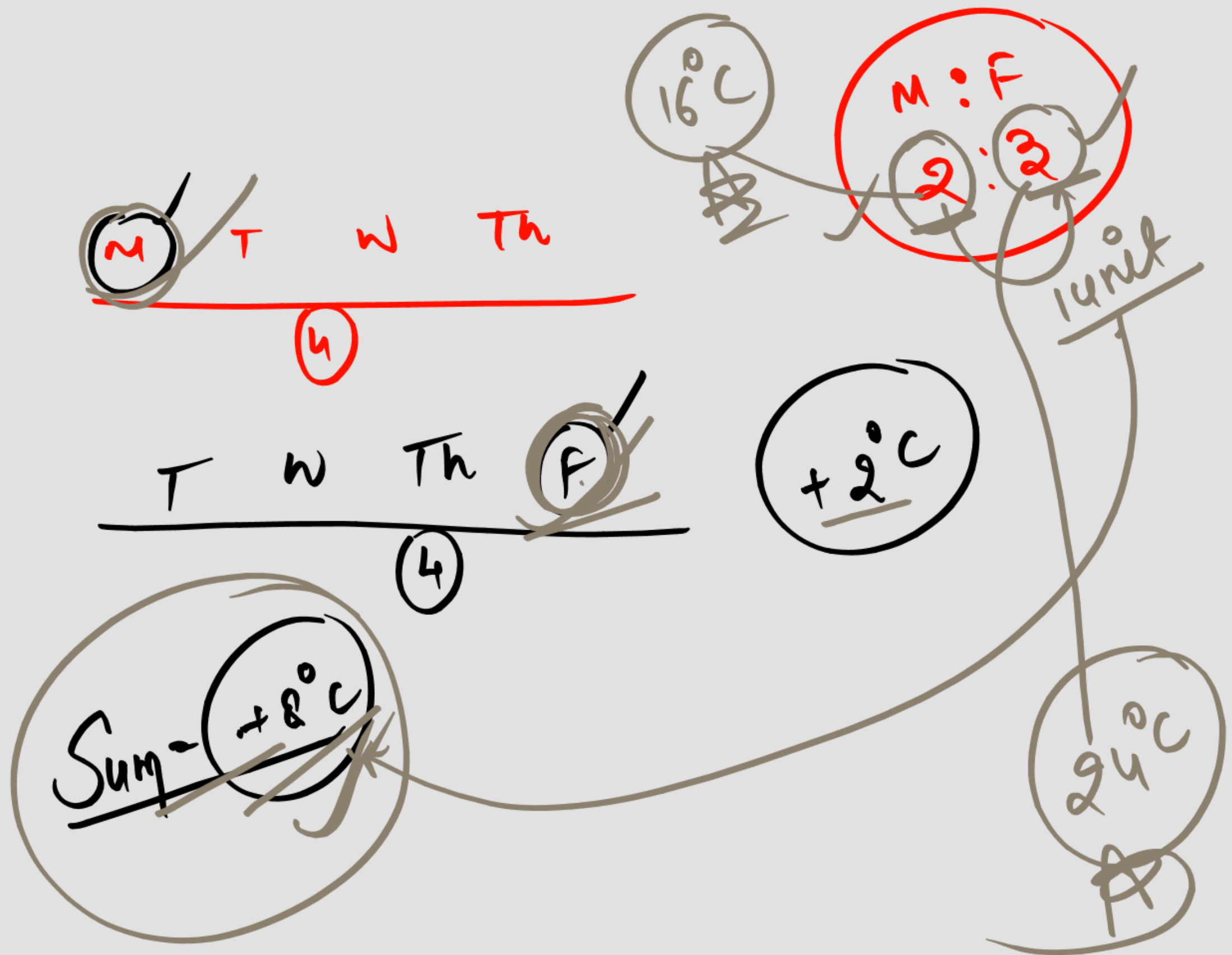
Handwritten solution:

Monday (M) T W Th F Sat 34°C
 (6) $\downarrow +6$

T W Th F Sat Sun 40°C
 (6)

Sum = $+36$

Sum = $36 + M$
 48°C
 12





Overlapping of Data

Average-4 (Overlapping)

MATHS WITH SACHIN BALIYAN SIR





The average of 15 results is 20.
The average of the first 8 of
them is 15 and that of the last
8 is 24. Find the 8th result? **15**

परिणामों का औसत 20 है।
उनमें से पहले 8 का औसत 15
है और अंतिम 8 का 24 है।
8वां परिणाम खोजें?

- (a) 12 (b) 28 (c) 37
(d) 47 (e) None of these.

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

$$\begin{aligned} \text{Sum}_8 &= 8 \times 15 = 120 \\ \text{Sum}_8 &= 8 \times 24 = 192 \\ \text{Sum}_{15} &= 15 \times 20 = 300 \end{aligned}$$

$\text{Sum} = 312$
 $\text{8th} = 12$

OK

15 → 20 ✓

8 ✓ → 15 ✓

8 ✓ → 24 ✓

$$\begin{aligned} -5 \times 8 &= -40 \\ +4 \times 8 &= +32 \end{aligned}$$

8th = 20 - 8 ✓

~~(12) Ans~~



The average of 19 results is 70. If the average of the first 10 results is 60 and that of the last 10 is 85. Find the 10th result. 19 परिणामों का औसत 70 है। यदि पहले 10 परिणामों का औसत 60 है और अंतिम 10 का 85 है। 10वां परिणाम ज्ञात कीजिए।

- (a) 110 (b) 120 (c) 130 (d) 140
(e) None of these.

19 → 70 ✓
10 → 60
10 → 85
 $- 10 \times 10 = -100$
 $+ 15 \times 10 = +150$
 $\frac{1580}{10} = 158$

If the average of 14 numbers is 62 in which the average of the first 8 numbers is 53 and that of the last 9 numbers is 76 then find the 7th number if the ratio of 6th, 7th and 8th number is 2:3:5? यदि 14 संख्याओं का औसत 62 है जिसमें पहली 8 संख्याओं का औसत 53 है और अंतिम 9 संख्याओं का औसत 76 है तो 7वीं संख्या ज्ञात कीजिए यदि 6, 7वीं और 8वीं संख्या का अनुपात 2:3:5 है?

- (a) 110 (b) 72 (c) 30
(d) 24 (e) None of these.

Handwritten solution:

$$\begin{aligned}
 &14 \rightarrow 62 \rightarrow 186 \\
 &8 \rightarrow 53 \\
 &9 \rightarrow 76 \\
 &\quad - 9 \times 8 = -72 \\
 &\quad + 14 \times 9 = +126 \\
 &\quad \quad \quad + 54 \\
 &\text{Sum} \Rightarrow 186 + 54 = 240 \\
 &\text{Ratio } 2:3:5 \text{ (for 6th, 7th, 8th)} \\
 &\quad \quad \quad \times 24 \\
 &\quad \quad \quad 12
 \end{aligned}$$

The 7th number is 12.

