26/09.

Problems on Ages

1) Ram is three times old as sam, 2 years ago he was five times old as sam present age of sam?

2 years ago		present
R-2	←	R → 35
S-2	←	S → 12.

$(R-2) = 5(S-2)$

$R-2 = 5S-10.$

$3S-2 = 5S-10.$

$2S = 8 \quad S = 4.$

2) 12 years ago, age of p was 3 times the age of Q. After 12 yrs ratio of ages of Q top will be 2:3. percentage of P.

12 yrs ago	present	future (after yrs)
(p-12) ←	p →	(p+12)
(q-12) ←	q →	(q+12)

$(p-12) = 3(q-12)$

$p-12 = 3q-36.$

$p = 3q-24.$

or

$\frac{p+12}{p+12} = \frac{2}{3}.$

$\frac{q+12}{3q-12} = \frac{2}{3}. \Rightarrow$

$3(q+12) = 2(3q-12)$

$3q+36 = 6q-24.$

$3q = 60.$

$q = 20.$

$P = 3(20)-24$

$= 60-24$

$= 36$ yrs.

3) Rohan is as much younger than ajay as he is older than meena. The sum of ages of ajay and meena is 108 yrs. how old is rohan?

M < R < A

ajay + meena = 108

$= \frac{108}{2}$

= 54 yrs (Avg)

(rohan)

10 ..... ? 24

$\frac{10+24}{2} = ?$

$? = 17.$ → same model

4) Rohan age is 5 times Ajay and 7/18 of Meena's age. sum of ages of all three is 132 yrs. how much younger is Ajay to meena?

$R = R$

$R = 5A$ jay

$R = 7/18 \times$ Meena

$\text{meena} = \frac{18}{7} \times R$

$= \frac{18}{7} \times 5A$

$= \frac{90A}{7}$.

$A + 5A + \frac{90A}{7} = 132$

$\frac{7A + 35A + 90A}{7} = 132$

$132A = 132 \times 7$

$A = 7$

$R = 5(7)$ $\quad$ Meena $= \frac{90 \times 7}{7}$

$= 35$. $\quad = 90$.

$= 90 - 7$

$= 83$ yrs,

5) Ram and shyam avg is 65 yrs. average of ram, shyam and John is 53 yrs. Age of John?

Avg. of Ram + shyam $= \frac{\text{sum of ages}}{2}$.

$65 = \frac{R+S}{2}$

$R + S = 130$.

Average $= \frac{\text{sum}}{\text{total}}$

Avg of 3 $= \frac{R+S+J}{3}$

$53 \times 3 = R+S+J$.

$159 = R+S+J$ $\quad 130+J$.

$29 = J$.

6) The Average of 10 students and Teacher is 15 years. Avg of 1st 7 students is 15 yrs. and that of last 3 is 11 years. Teacher age = ?

Average $= \frac{\text{sum}}{\text{total}}$

$\frac{S_{10} + T}{11} = 15$.

$S_{10} + T = 165$

$\frac{S_7}{7} = 15$

$S_7 = 105$.

$\frac{S_3}{3} = 11$.

$S_3 = 33$,

$S_{10} = S_7 + S_3$

$S_{10} = 138$

$138 + T = 165$

$T = 27$ yrs.

The average age of group of 4 friends is 36 years. The youngest friend amongst them is 6yrs. Avg age of group at the time of the birth of the youngest friend?

$A_4 = \frac{S_4}{4} = 36.$

$S_4 = 144$ yrs.

At the time of birth

S_4 (6 years) $= 144 - 4 \times 6.$

$= 144 - 24.$

$= 120.$

$AVG = 120/3$

$= 40$ yrs.

total $= 4 - 1$ (young)

$= 3.$

b) Average age of family of 4 members was 19 years, 4 yrs back. Birth of the new child kept the avg age of the same even today. How old is child today?

Before 4 years.

$\frac{S_4}{4} = 19.$

$S_4 = 76$ yrs.

After 4 years.

$76 + 4 \times 4$

$= 76 + 16$

$= 92$ yrs.

92 (old) + x (new child) $\longrightarrow$ 19 (total 5)

$92 + x = 19 \times 5$

$92 + x = 95$

$x = 3$ yrs.