

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

$$R-2$$



$$R$$

$$R \rightarrow 3S$$

$$S-2$$



$$S$$

$$\rightarrow 12$$

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

$$R-2 = 5S-10$$

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

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

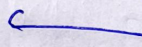
- 2) 12 years ago, age of P was 3 times the age of Q. After 12 years ratio of ages of Q to P will be 2:3. percentage of P.

12 yrs ago

present

future (after yrs)

$$(P-12)$$

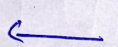


$$P$$



$$(P+12)$$

$$(Q-12)$$



$$Q$$



$$(Q+12)$$

$$(P-12) = 3(Q-12)$$

$$P-12 = 3Q-36$$

$$P = 3Q-24$$

$$\frac{Q+12}{P+12} = \frac{2}{3}$$

$$\frac{Q+12}{3Q-12} = \frac{2}{3}$$

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

$$3Q+36 = 6Q-24$$

$$3Q = 60$$

$$Q = 20$$

$$P = 3(20)-24$$

$$= 60-24$$

$$= 36 \text{ yrs}$$

- 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?

$$\text{Ajay} + \text{Meena} = 108$$

$$\div 2$$

$$= 54 \text{ yrs (Avg)}$$

(Rohan)

$$M < R < A$$

$$10 \dots \dots ? \dots \dots 24$$

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

$$[? = 17]$$

same model

4) Rohan age is 5 times Ajay and $\frac{7}{18}$ of Meena's age. Sum of ages of all three is 132 yrs. How much younger is Ajay to Meena?

$$R = 5A$$

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

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

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

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

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

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

$$132A = 132 \times 7$$

$$A = 7$$

$$R = 5(7)$$

$$= 35$$

$$= 90 - 7$$

$$= 83 \text{ yrs.}$$

$$\text{Meena} = \frac{90 \times 7}{7} = 90$$

5) Ram and Shyam avg is 65 yrs. Average of Ram, Shyam and John is 53 yrs. Age of John?

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

$$\text{Avg. of Ram \& Shyam} = \frac{\text{sum of ages}}{2}$$

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

$$R + S = 130$$

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

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

$$159 = R + S + J = 130 + J$$

$$29 = J$$

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

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

$$S_{10} + T = 15$$

$$\frac{11}{3}$$

$$S_{10} + T = 165$$

$$R + T = 163$$

$$T = 27 \text{ yrs.}$$

$$\frac{S_7}{7} = 10$$

$$S_7 = 105$$

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

$$S_3 = 33$$

$$S_{10} = S_7 + S_3$$

$$S_{10} = 138$$

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

$$A_4 = \frac{S_4}{4} = 36. \quad \text{At the time of birth}$$

$$S_4 (6 \text{ years}) = 144 - 4 \times 6 = 144 - 24 = 120.$$

$$Avg = 120/3 = 40 \text{ yrs.}$$

$$\text{total} = 4 - 1 (\text{youngst}) = 3.$$

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.

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

$$S_4 = 76 \text{ yrs.}$$

after 4 years.

$$\begin{array}{c} 92 \\ \text{(old)} \end{array} + \begin{array}{c} 1 \\ \text{(new child)} \end{array}$$

total (5)

$$92 + x = 19 \times 5$$

$$92 + x = 95$$

$$x = 3 \text{ yrs.}$$

$$\begin{aligned} 76 + 4 \times 4 \\ = 76 + 16 \\ = 92 \text{ yrs.} \end{aligned}$$