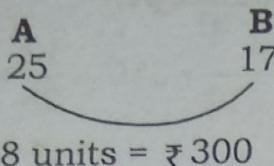


16.2; Paramount concept:-



$$\therefore 42 \text{ units} = \frac{300}{8} \times 42 = ₹ 1575 \text{ which is } 40\%$$

$$\text{Total i.e. } 100\% = \frac{100 \times 1575}{40} = ₹ 3937.50$$

17.4; 50000 : 70000

5 : 7

According to the question

$$\frac{30}{100} \times 7x - \frac{30}{100} \times 5x = 90$$

$$\frac{30}{100} \times 2x = 90 \text{ or } x = \frac{90 \times 100}{30 \times 2}$$

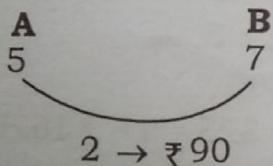
$$x = 3 \times 50 = 150$$

$$x = 150$$

$$5x + 7x = 12x$$

$$12 \times 150 = 1800$$

17.4; Paramount concept:-



$$\text{Total} = 12 = \frac{12 \times 90}{2} = ₹ 540 = 30\%$$

$$\text{Total profit} = \frac{100 \times 540}{30} = ₹ 1800$$

18.2; Let total profit = 100

Donation = 5% of 100 = 5/-

Remaining is 95/-

3 : 2 of 95

57 : 38

A's share is 57/-

$57 \times 150 = 8550$ (actual profit of A)

$\therefore 38 \times 150 = 5700$ (profit of B)

Total profit of A + B = $8550 + 5700$

$$= 14250$$

$$95\% = 14250$$

$$100\% = \frac{100 \times 14250}{95} = 15000$$

18.2; Paramount concept:-

$$A = 3 \text{ units} = ₹ 8550$$

$$A+B = 5 \text{ units} = \frac{5 \times 8550}{3} = ₹ 14250$$

$$\text{Total profit} = \frac{14250}{95} \times 100 = ₹ 15000/-$$

19.4; Let the shares of A, B and C be $3x$, $3x$ and $5x$ respectively.

According to the question,

$$3x + 3x + 5x = 22000$$

$$11x = 22000$$

$$x = 2000$$

$$\begin{aligned} \text{Total share of A and C} &= 3x + 5x = 8x \\ &= 8 \times 2000 \\ &= ₹ 16000 \end{aligned}$$

19.4; Paramount concept:-

$$A + B + C = 11 \text{ units} = ₹ 22,000$$

$$A + C = 8 \text{ units} = \frac{8}{11} \times 22000 = ₹ 16000$$

20.1; A : B : C

3 : 5 : 7

$$\begin{aligned} \text{Sum of their ratio} &= 3 + 5 + 7 \\ &= 15 \text{ units} \end{aligned}$$

$$\text{Share of C} = \frac{7}{15} \times 9915 = 4,627$$

21.1; Paramount concept:-

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$$63 : 56 : 84$$

or

$$9 : 8 : 12 = 29$$

Sum of
9, 8 and 12.

$$\downarrow$$

$$54000$$

If $12 \rightarrow 54000$

$$\text{then } 29 \rightarrow \frac{54000 \times 29}{12} = ₹ 130500$$

22.1; The profit should be divided in the ratios of the capitals, i.e. in the ratio 16 : 18 : 23

$$\text{Now, } 16 + 18 + 23 = 57$$

$$\text{A's share} = \frac{16}{57} \text{ of } ₹ 1938 = ₹ 544$$

$$B's \ share = \frac{18}{57} \text{ of } ₹ 1938 = ₹ 612$$

$$C's \ share = \frac{23}{57} \text{ of } ₹ 1938 = ₹ 782$$

Paramount concept:-

22.1;	A	B	C	Total
	16	18	23	57
	↓ × 34	↓ × 34	↓ × 34	↓ × 34
	544	612	782	1938
If $57 \times 34 = 1938$ then all the others must be multiplied with 34				

23.1; A : B : C

$$\begin{aligned} &= 3,20,000 \times 4 : 5,10,000 \times 3 : 2,70,000 \times 5 \\ &= 32 \times 4 : 51 \times 3 : 27 \times 5 \\ &= 128 : 153 : 135 \\ &= \text{Total profit} = 1,24,800 \end{aligned}$$

∴ A's share of profit

$$= \frac{128}{128+153+135} \times 124800$$

$$= \frac{128}{416} \times 124800 = ₹ 38,400$$

Paramount concept:-

23.1;	A	B	C
	32	51	27
	4	3	5
	128	153	135

$$\frac{128}{416} \times 1,24,800 = ₹ 38,400$$

$$\begin{aligned} 24.2; \quad &1200 \times 4 : 1400 \times 8 : 1000 \times 10 \\ &12 : 28 : 25 \end{aligned}$$

Sum of the terms of ratios = 65

$$A's \ share = \frac{12}{65} \times 585 = ₹ 108$$

$$B's \ share = \frac{28}{65} \times 585 = ₹ 252$$

$$C's \ share = \frac{25}{65} \times 585 = ₹ 225$$

24.2; Paramount concept:-

	A	B	C	
Capital	6	7	5	
Time	2	4	5	
	12	28	25	total = 65
	↓ × 9	↓ × 9	↓ × 9	↓ × 9
	108	252	225	585
If 65×9 is 585 then each will be multiplied by 9.				

Paramount concept:-

25.2;	A	B	C
Capital	2	3	5
Time	4	5	6
Profit	8	15	30

26.1; Paramount concept:-

	A	B	C
Capital	5	6	8
Time	× 1	× 1/2	× 1.5
Profit	5	3	12

$$\begin{aligned} 27.1; \quad &16000 \times 3 + 11000 \times 9 : 12000 \times 3 + \\ &17000 \times 9 : 21000 \times 6 \\ &48000 + 99000 : 36000 + 153000 : \\ &126000 \\ &147000 : 189000 : 126000 \\ &147 : 189 : 126 \\ &49 : 63 : 42 \end{aligned}$$

$$\begin{aligned} \text{Total of the terms of ratios} &= 154 \\ B's \ share - C's \ share &= 63 - 42 = 21 \end{aligned}$$

$$\therefore \frac{21}{154} \times 26400 = ₹ 3600$$

27.1; Paramount concept:-

A	B	C	Total
$(16 \times 3) + (11 \times 9) : (12 \times 3) + (17 \times 9) : (21 \times 6)$			$= 49 + 63 + 42$
49	63	42	$= 154$

$$\text{Difference between B & C} = 63 - 42 = 21$$

$$\therefore \frac{21}{154} \times 26400 = ₹ 3600$$

28.3; Paramount concept:-

$$\begin{array}{ccc} \mathbf{A} & \mathbf{B} & \mathbf{C} \\ 20 \times 5 & : & 12 \times 6 \\ 100 & : & 72 \\ \downarrow & & \downarrow \\ 300 & : & 240 \end{array} \quad \begin{array}{ccc} & & 25 \times 3 \\ & & 75 \end{array}$$

$$A's \text{ share} = \frac{100}{247} \times 508.82 = ₹ 206$$

$$29.3; 3000 \times 12 : 4000 \times 6 : 4500 \times 8 \\ 3 : 2 : 3$$

$$A's \text{ Share} = \frac{3}{8} \times 1000 = 375$$

$$B's \text{ Share} = \frac{2}{8} \times 1000 = 250$$

$$C's \text{ Share} = \frac{3}{8} \times 1000 = 375$$

29.3; Paramount concept:-

$$\begin{array}{ccc} \mathbf{A} & \mathbf{B} & \mathbf{C} \\ 30 \times 12 & : & 40 \times 6 \\ 3 & : & 2 \\ \downarrow \times 125 & \downarrow \times 125 & \downarrow \times 125 \\ 375 & 250 & 375 \end{array} \quad \begin{array}{ccc} & & 45 \times 8 \\ & & 1000 \end{array}$$

If $8 \times 125 = 1000$ then each is multiplied by 125

30.1; A's share : B's share : C's share

$$= 1500 \times 12 : 2000 \times 9 : 2250 \times 8$$

$$= 15 \times 12 : 20 \times 9 : 22.5 \times 8$$

$$= 180 : 180 : 180 = 1 : 1 : 1$$

$$\text{Therefore, each of them gets } ₹ \frac{900}{3} = ₹ 300$$

30.1; Paramount concept:-

$$\begin{array}{ccc} \mathbf{A} & \mathbf{B} & \mathbf{C} \\ 15 \times 12 & : & 20 \times 9 \\ \downarrow & : & \downarrow \\ 300 & : & 300 \end{array} \quad \begin{array}{ccc} & & 22.5 \times 8 \\ & & 300 \end{array}$$

31.4; Paramount concept:-

$$\begin{array}{ccc} \mathbf{A} & \mathbf{B} & \mathbf{C} \\ (50 \times 4 + 25 \times 8) & : & (45 \times 6 + \frac{45}{2} \times 6) \\ 400 & : & 405 \\ 80 & : & 81 \end{array} \quad \begin{array}{ccc} & & (70 \times 6) \\ & & 420 \\ & & 84 \end{array}$$

32.2; Paramount concept:-

$$\begin{array}{ccc} \mathbf{A} & \mathbf{B} & \mathbf{C} \\ 20 \times 5 & : & 20 \times 5 \\ + & & + \\ 15 \times 7 & : & 16 \times 7 \\ \downarrow & & \downarrow \\ 205 & : & 212 \end{array} \quad \begin{array}{ccc} & & 26 \times 7 \\ & & 282 \end{array}$$

$$\begin{aligned} B's \text{ share} &= \frac{212}{(205 + 212 + 282)} \times 69900 \\ &= \frac{212}{699} \times 69900 = 21200 \end{aligned}$$

33.2; A : B : C

$$A \times 2 = B \times 3 \quad (\text{I})$$

$$B = 4C \quad (\text{II})$$

$$2A = 3B$$

$$A = \frac{3}{2}B$$

$$C = \frac{B}{4}$$

$$A : B : C = \frac{3}{2}B : B : \frac{B}{4}$$

$$= \frac{3}{2} : 1 : \frac{1}{4}$$

$$= \frac{3 \times 2}{4} : \frac{4}{4} : \frac{1}{4}$$

$$= 6 : 4 : 1$$

$$\therefore \text{Share of B} = \frac{4}{11} \times 297000 = ₹ 1,08,000$$

33.2; Paramount concept:-

$$\begin{array}{ccc} \mathbf{A} & \mathbf{B} & \mathbf{C} \\ 6 & 4 & 1 \\ \frac{4}{11} \times 297000 & = ₹ 1,08,000 \end{array}$$

$$34.1; \begin{aligned} A &= B \times 2 \quad \text{(i)} \\ B &= C \times 3 \quad \text{(ii)} \\ C &= \frac{B}{3} \end{aligned}$$

$$\begin{aligned} A : B : C &= 2B : B : \frac{B}{3} \\ &= 2 : 1 : \frac{1}{3} \\ &= 6 : 3 : 1 \end{aligned}$$

\therefore Required Ratio = 6 : 3 : 1

$$34.1; \text{ Paramount concept:-}$$

A	B	C
6	$\leftarrow \times 2$	3 $\leftarrow \times 3$ 1

$$\begin{aligned} 35.5; A &= B + 4000 \\ B &= C + 5000 \\ A + B + C &= 50,000 \\ B + 4000 + B + B - 5000 &= 50000 \\ 3B &= 51000 \\ B &= \frac{51000}{3} = 17000 \end{aligned}$$

$$\therefore A = 17000 + 4000 = ₹ 21000/- \\ \text{in } = 50000$$

$$\begin{aligned} \text{Hence in } 35000/- \text{ A gets } &\frac{21000}{50000} \times 35000 \\ &= ₹ 14700/- \end{aligned}$$

$$35.5; \text{ Paramount concept:-}$$

A	B	C
12,000	12,000	12,000
+9000	+5000	
<u>21</u>	17	12

$$\frac{21}{50} \times 35000 = ₹ 14,700$$

A's share in total profit = ₹ 14,700

$$36.1; \begin{array}{cccc} & \mathbf{A} & : & \mathbf{B} & : & \mathbf{C} \\ \text{Investment} & 1 & : & 2 & : & 3 \\ \text{Time} & 12 & : & 6 & : & 4 \end{array}$$

$$\begin{array}{ccc} \overline{12} & : & \overline{12} : \overline{12} = 27000 \\ & 1 & : \quad 1 : \quad 1 \end{array}$$

$$3x = 27000$$

$$x = 9000$$

$$\therefore \text{C's share } ₹ 9000/-$$

36.1; Paramount concept:-

	A	B	C
Capital	1	2	3
Time	<u>12</u>	6	4
	<u>1</u>	1	<u>1</u>
	9000	9000	9000

$$37.1; \begin{array}{l} A : C \\ 2 : 1 \end{array} \times 3$$

$$\begin{array}{l} A : B \\ 3 : 2 \end{array} \times 2$$

To make A equal we have to multiply

A : C by

3 and A : B by 2

A : B : C

6 : 4 : 3

6 + 4 + 3 = 13

$$\therefore \text{B's share} = \frac{4}{13} \times 1,57,300 = ₹ 48,400$$

37.1; Paramount concept:-

B	A	C
② \leftarrow 2	1	
2 : 3 \rightarrow ③		(This method is explained in chapter ratio and & proportion)
<u>4</u>	6	1

$$\text{B's share} = \frac{4}{13} \times 1,57,300 = ₹ 48,400$$

38.1; A's share : B's share : C's share

$$= \frac{1}{4} : \frac{1}{4} : \frac{1}{5} : \frac{1}{2} : \left\{ 1 - \left(\frac{1}{4} + \frac{1}{5} \right) \right\} \times 1$$

$$= \frac{1}{16} : \frac{1}{10} : \frac{11}{20}$$

Multiplying each fraction by LCM of 16, 10 and 20, i.e., 80.

We have 5 : 8 : 44

$$\text{A's share} = \frac{5}{57} \times 1140 = ₹ 100$$

$$\text{B's share} = \frac{8}{57} \times 1140 = ₹ 160$$

$$\text{C's share} = \frac{44}{57} \times 1140 = ₹ 880$$

38.1; Paramount concept:-

	A	B	C
Capital	5	4	11 (Let capital = 20)
Time	3	6	12 (time = 12 months)
	5	8	44
	20 \times ↓	20 \times ↓	20 \times ↓
	100	160	880
	57	Sum of 5,8 and 44 is 57	1140

$$39.3; C's \text{ share} = 1 - \left(\frac{1}{8} + \frac{1}{3} \right) = \frac{13}{24}$$

$$C's \text{ investment} = 1560 \times 8$$

$$\text{If } \frac{13}{24} = 1560 \times 8$$

$$\text{Then, } \frac{1}{8} = \frac{1 \times 1560 \times 8 \times 24}{8 \times 13}$$

$$= 120 \times 24$$

A's share is for 4 months

$$\therefore 120 \times 24 = 120 \times 6 \times 4$$

$$A's \text{ share} = 120 \times 6 = 720$$

$$B's \text{ share} = \frac{1}{3} = \frac{1 \times 1560 \times 8 \times 24}{3 \times 13}$$

$$= 120 \times 8 \times 8$$

B' share is for 6 months

$$120 \times 8 \times 8 = 20 \times 6 \times 8 \times 8$$

$$B's \text{ share} = 20 \times 8 \times 8 = 1280$$

39.3; Paramount concept:-

	A	B	C
Capital	$\frac{960 \times 3}{4} = 720$	$\frac{960 \times 8}{6} = 1280$	$\frac{1560 \times 8}{13} = 960$
Time	4	6	8
Profit	3	8	13

40.5; **A** **B** **C**

Capital: $\frac{1}{6}$ $\frac{1}{3}$ Remaining

Time: $\frac{1}{6}$ $\frac{1}{3}$ Whole time

Suppose capital = 6 lakh
and time = 6 yrs.

then we get,

Captial : 1 2 3

Time : $\frac{1}{6}$ $\frac{2}{6}$ $\frac{6}{6}$
Profit : $\underline{1 : 4 : 18}$

$$B' \text{ share} = \frac{4 \times 23000}{(1+4+18)} = 4000$$

Ago (Past)	Present (Now)	Future (After, Hence)
↓ was/were	↓ is/am/are	↓ will be/shall be

9. Four years ago, the ratio of the ages of A and B was 2 : 3 and after 4 years it will become 5 : 7. Find their present ages.
 (1) 36 yrs., 52 yrs.
 (2) 37 yrs., 37 yrs.
 (3) 35 yrs., 51 yrs
 (4) 35 yrs., 50 yrs
10. 3 years ago, the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is the same today. The present age of the baby is
 (1) 2 yrs. (2) 4 yrs.
 (3) 3 yrs. (4) 1 yr.
11. A person was asked to state his age in years. His reply was, "Take my age 3 years hence, multiply it by 3 and then subtract three times my age three years ago and you will know how old I am". What was the age of the person?
 (1) 12 yrs. (2) 14 yrs.
 (3) 14 yrs. (4) 18 yrs.
12. The average age of 30 students is 9 years. If the age of their teacher is included, the average age becomes 10 years. The age of the teacher (in years) is
 (1) 34 yrs. (2) 36 yrs.
 (3) 38 yrs. (4) 40 yrs.
13. 5 years ago, the average age of A, B, C and D was 45 years with E joining them now, the average age of all the five is 49 years. How old is E?
 (1) 40 yrs. (2) 45 yrs.
 (3) 50 yrs. (4) 55 yrs.
14. I am 3 times as old as my son. 15 years, hence, I will be twice as old as my son. The sum of our ages is
 (1) 60 yrs. (2) 55 yrs.
 (3) 50 yrs. (4) 45 yrs.
15. The average age of 45 persons is decreased by $\frac{1}{9}$ year when one of them of 60 years is replaced by a new comer. Then the age of the new comer is
 (1) 45 yrs. (2) 50 yrs.
 (3) 55 yrs. (4) 60 yrs.
16. The average age of a family of 10 members is 20 years. If the age of the youngest member of the family is 10 years, then the average age of the members of the family just before the birth of the youngest members was approximately-
- (1) $9\frac{1}{11}$ yrs. (2) $9\frac{1}{10}$ yrs.
 (3) $9\frac{1}{9}$ yrs. (4) $9\frac{1}{8}$ yrs.

1.2; Answers with explanation

$$\begin{array}{cc} \text{A} & \text{B} \\ 10 \text{ years ago} = 3 \times 20 & 2 \times 20 \\ & 20 \text{ yr} \end{array}$$

$$\begin{array}{cc} \text{After 10 year} = 4 \times 20 & 3 \times 20 \\ \therefore 10 \text{ years ago sum of ages} = 100 \text{ yrs} & \\ \text{Sum of present ages} = 100 + 20 & \\ & = 120 \text{ yrs.} \end{array}$$

$$\text{Sum of ages after 10 years} = 140 \text{ yrs.}$$

Paramount concept:-

When we observe the ratio, we see that there is one unit increase in the ratio, but the difference is of 20 years. So, it gives us the conclusion that 1 unit is of 20 years. The sum of after 10 years, and to find out the current age, we add 10 - 10 years in the ages of both, which gives us $100 + 20 = 120$ years.

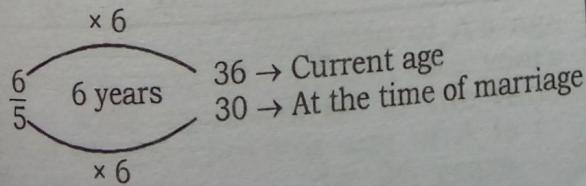
2.1;

$$\begin{array}{cc} \text{A} & \text{B} \\ 10 \text{ yrs ago} = & 3 \quad 1 \\ & \text{diff.} = 2 \quad 20 \text{ yr} \end{array} \quad 3 : 1$$

$$\begin{array}{ccccc} \text{After 10 yrs} & 2 \times 2 & 1 \times 2 & 4 : 2 \\ 10 \text{ yrs ago} = 4 \times 20 & = 80 \text{ yrs.} & & \\ \text{Present} = 80 + 20 & = 100 \text{ yrs.} & & \\ \text{After 10 yrs} & = 120 \text{ yrs} & & \end{array}$$

- When the latter ratio is less than the former ratio, then simply multiply the latter ratio with the difference of previous ratio. By doing this we will get the new ratio $4 : 2$. There is increase of 1 unit which is due to gap of 20 years. So, sum of ages 10 years ago was 80 years and current sum is 100 years.

3.4; Paramount concept:-



$$\therefore \text{Her son's age} = \frac{36}{12} = 3 \text{ years.}$$

- Sita's current age is $\frac{6}{5}$ times of her age at the time of her marriage which means her current age is 6 units and her age at the time of marriage was 5 units. But she got married 6 years ago which means 1 unit is equal to 6 years so her current age is 36 years

and her son's age is $\frac{1}{12}$ of her current age i.e. 3 years.

4.2; Paramount concept:-

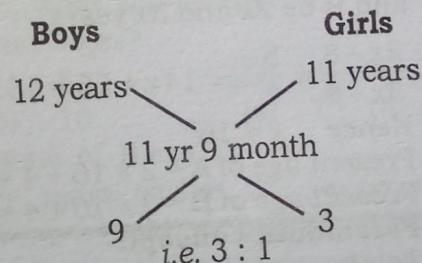
$$\text{Current sum of ages} = 150 \text{ yrs.}$$

$$\begin{aligned} \text{Sum of ages 10 years ago} &= 120 \text{ (as } 10 + 10 + 10 \text{ yrs. of 3 persons)} \\ &\text{will be reduced from 150)} \end{aligned}$$

$$\begin{array}{ccc} \text{A} & \text{B} & \text{C} \\ \text{Ratio of Ages 10 yrs. ago} & = 5 : 4 : 3 \\ & = 12 \text{ yrs.} \\ & 50 : 40 : 30 \\ & = 120 \text{ yrs.} \end{array}$$

$$\begin{array}{c} \text{Ratio of ages after 10 yrs} \\ = 70 : 60 : 50 \\ [\text{add 20 yrs. to each}] \quad 7 : 6 : 5 \end{array}$$

5.3; Paramount concept:-



$$\text{Hence, girls } \frac{1}{4} \times 600 = 150$$

- Instead of going with traditional method, we can use the method of alligation to solve the question.

6.1;

$$\begin{aligned}\text{At the time of marriage} &= \text{Mother} + \text{father} + \text{son} \\ &= 42 \times 3 \\ &= 126 \text{ years.}\end{aligned}$$

$$\begin{aligned}\text{After 6 years} &= 126 + 6 + 6 + 6 \\ &= 144 \text{ yrs}\end{aligned}$$

Current:- M + F + Son + Daughter in law + child = $36 \times 5 = 180$ yrs.

$144 + \text{Daughter in law} + 4 = 180$ [as child was born after 2 yrs. of marriage so he is of 4 yrs. now.]

$$\begin{aligned}\text{Daughter in law} &= 180 - 148 \\ &= 32 \text{ years}\end{aligned}$$

$$\begin{aligned}\text{At the time of marriage} &= 32 - 6 \\ &= 26 \text{ years}\end{aligned}$$

7.1; **Paramount concept:-**

$$\begin{aligned}\text{Total age of 40 boys} &= 40 \times 16 \\ &= 640 \text{ years}\end{aligned}$$

$$\begin{aligned}\text{New age of 40 boys} &= 40 \times 15.875 \\ &= 635 \text{ years}\end{aligned}$$

$$\begin{aligned}\text{Required age} &= [635 - (640 - 17)] \\ &= 12 \text{ years}\end{aligned}$$

8.2; **Paramount concept:-**

$$\begin{aligned}\text{Overall increase in the total ages} &= 8 \times 2 = 16 \text{ years}\end{aligned}$$

$$\begin{aligned}\therefore \text{Total age of 2 new men} &= 21 + 23 + 16 = 60 \text{ years}\end{aligned}$$

$$\therefore \text{Average age} = \frac{60}{2} = 30 \text{ years.}$$

9. **Paramount concept:-**

Four years ago, let the ages of A and B be $2x$ and $3x$ years.

$$\frac{2x+8}{3x+8} = \frac{5}{7} \Rightarrow 14x + 56 = 15x + 40$$

$$\text{Hence, } x = 16$$

$$\begin{aligned}\therefore \text{Present age of A} &= 2 \times 16 + 4 = 36 \text{ yrs} \\ \text{Present age of B} &= 3 \times 16 + 4 = 52 \text{ yrs}\end{aligned}$$

10.1; **Paramount concept:-**

$$\begin{aligned}\text{Total age of 5 members, 3 years ago} &= 17 \times 5 = 85 \text{ years}\end{aligned}$$

$$\text{Total present age} = 85 + 3 \times 5 = 100 \text{ yrs.}$$

3yrs. \times 5member

Now,

$$\begin{aligned}\text{Total age of 6 members} &= 17 \times 6 \\ &= 102 \text{ years}\end{aligned}$$

$$\therefore \text{Age of baby} = 2 \text{ years}$$

11.4; Let the age of the person be x year.

$$x = 3(x + 3) - 3(x - 3)$$

$$x = 3x + 9 - 3x + 9$$

$$x = 18 \text{ years}$$

12.4; Total age of 30 students = 9×30

$$= 270 \text{ years}$$

Total age of 30 students and a teacher = $31 \times 10 = 310$ yrs

$$\therefore \text{Age of the teacher} = 310 - 270 = 40 \text{ years.}$$

13.2; **Paramount concept:-**

$$\begin{aligned}\text{Sum of present ages of A, B, C and D} &= 45 \times 4 + 5 \times 4 = 200 \text{ years}\end{aligned}$$

5yrs. \times 4member

$$\begin{aligned}\text{Sum of present ages of A, B, C, D and E} &= 49 \times 5 = 245 \text{ years}\end{aligned}$$

$$\therefore \text{Present age of E} = 245 - 200 = 45 \text{ yrs.}$$

14.1; Let the age of son = x year

$$\text{Age of father} = 3x \text{ years}$$

After 15 years,

$$3x + 15 = 2(x + 15)$$

$$\Rightarrow 3x + 15 = 2x + 30$$

$$x = 30 - 15 = 15$$

$$\text{Sum of ages} = x + 3x = 4x$$

$$= 4 \times 15 = 60 \text{ years}$$

15.3; The age of new comer is

$$\therefore 60 - 45 \times \frac{1}{9} = 55 \text{ years}$$

16. **Paramount concept:-**

$$\begin{aligned}\text{Sum of present ages of 10 members} &= 20 \times 10 = 200 \text{ years}\end{aligned}$$

$$\begin{aligned}\text{Total age of members 10 years ago} &= 100 \text{ years } \{ 200 - (10 \times 10) \}\end{aligned}$$

10yrs. \times 10member

$$\therefore \text{Required average} = \frac{100}{9} = 11\frac{1}{9} \text{ years.}$$

Exercise

10. The ratio of the ages of Mohan and Meera is 3 : 4. Four years earlier the ratio was 5 : 7. Find the present ages of Mohan and Meera.
- 24 years, 32 years
 - 26 years, 34 years
 - 22 years, 30 years
 - 27 years, 38 years
 - None of these
11. Two years ago A was twice as old as B was. If the difference in their age be 2 years, find A's age.
- 14 years
 - 18 years
 - 6 years
 - 12 years
 - None of these
12. After 5 years the age of a mother will be thrice the age of his son, whereas five years ago, he was 7 times as old as his son was. What are their present ages?
- 39 years, 8 years
 - 40 years, 10 years
 - 36 years, 14 years
 - 49 years, 12 years
 - None of these
13. Five years ago, the sum of the ages of father and son was 60 years. The ratio of their present ages is 4 : 1. The present age of the father is:
- 48 years
 - 51 years
 - 56 years
 - 61 years
 - None of these
14. Two years ago, A was four times as old as B. 8 years hence, A's age will exceed B's age by 12 years. The ratio of the present ages of A and B is:
- 3 : 1
 - 4 : 1
 - 3 : 2
 - 5 : 1
 - None of these
15. A is 3 years younger to B. C is two years older than A. Then B's relation to C is:
- two years older
 - one year younger
 - one year older
 - two years younger
 - None of these
16. If C's age is twice the average age of A, B and C. A's age is half the average of A, B and C and if B is 5 years old, then find the average age of A, B and C is:
- 10 years
 - 15 years
 - 12 years
 - 9 years
 - None of these
17. A father's age is three times the sum of the ages of his two children, but 20 years hence his age will be equal to the sum of the ages of his children. The father's age is:
- 30 years
 - 40 years
 - 35 years
 - 45 years
 - None of these
18. A father's age is four times as much as the sum of the ages of his three children but 6 years hence his age will be only double the sum of their ages. The age of the father is:
- 30 years
 - 40 years
 - 60 years
 - 45 years
 - None of these
19. The respective ages of a father and his son are 41 and 16 years. In how many years will the father be twice as old as his son?
- 19 years
 - 9 years
 - 10 years
 - 15 years
 - None of these
20. The total ages of A, B and C at present is 90 years. Ten years ago the ratio of their ages was 1 : 2 : 3. The present age of B is:
- 30 years
 - 20 years
 - 40 years
 - 45 years
 - None of these
21. The sum of the ages of a father and son is 45 years. Five years ago, the product of their ages was four times the father's age at that time. The present ages of the father and son are _____ and _____ years respectively.
- 39, 6
 - 35, 10
 - 36, 9
 - 40, 10
 - None of these

