33. At present age of the father is five times that of the age of his son. Three years hence, the father's age would be four times that of his son's age. Find the present ages of the father and the son.
(1) 35 yrs, 7 yrs
(2) 35 yrs, 11 yrs
(3) 45 yrs, 9 yrs
(4) 25 yrs, 12 yrs
(5) None of these

34. The age of man is 4 times that of his son. 5 years ago, the man was nine times as old as his son was at that time. What is the present age of the man?
(1) 28 yrs (2) 32 yrs
(3) 34 yrs (4) 36 yrs
(5) None of these

35. 10 years ago, Sita's mother was 4 times older than her daughter. After 10 years, the mother will be twice older than the daughter. What is the present age of Sita?
(1) 20 yrs (2) 22 yrs
(3) 24 yrs (4) 25 yrs
(5) None of these

36. One year ago the ratio between Sameer's and Ashok's age was 4 : 3. One year hence the ratio of their ages will be 5 : 4. What is the sum of their present ages in years?
(1) 14 years (2) 16 years
(3) 18 years (4) 20 years
(5) None of these

37. Ten years ago A was half of B in age. If the ratio of their present ages is 3 : 4, what will be the total of their present ages?
(1) 15 yrs (2) 20 yrs
(3) 25 yrs (4) 30 yrs
(5) None of these

38. The sum of ages of a mother and her daughter is 50 years. Also 5 years ago, the mother's age was 7 times the age of the daughter. What are the present ages of the mother and the daughter?
(1) 40 years, 10 years
(2) 48 years, 12 years
(3) 32 years, 8 years
(4) 36 years, 9 years
(5) None of these

39. The sum of the ages of a son and father is 56 yrs. After 4 yrs, the age of the father will be three times that of the son. What is the age of the son?
(1) 8 yrs (2) 10 yrs
(3) 12 yrs (4) 14 yrs
(5) None of these

40. The ratio of the father's ages to the son's age is 4 : 1. The product of their ages is 196. What will be the ratio of their ages after 5 years?
(1) 11 : 3 (2) 11 : 4
(3) 12 : 3 (4) 12 : 4
(5) None of these

41. The ratio of Rita's age to the age of her mother is 3 : 11. The difference of their ages is 24 yrs. What will be the ratio of their ages after 3 years?
(1) 1 : 3 (2) 3 : 4
(3) 2 : 3 (4) 1 : 2
(5) None of these

42. The ratio of the ages of the father and the son at present is 6 : 1. After 5 years the ratio will become 7 : 2. What is the present age of the son?
(1) 2 years (2) 3 years
(3) 4 years (4) 5 years
(5) None of these

43. A man's age is 150% of what it was 10 years ago, but 75% of what it will be after 10 years. What is his present age?
(1) 25 years (2) 30 years
(3) 35 years (4) 40 years
(5) None of these

44. Ram's present age is one-sixth of his father's age. If the difference between their present ages is 35 years, what is his father's present age?
(1) 32 years (2) 42 years
(3) 52 years (4) 44 years
(5) None of these

45. The ratio of the present ages of Sunita and Vinita is 4 : 5. Six years hence the ratio of their ages will be 14 : 17. What will be the ratio of their ages 12 years hence?
(1) 15 : 19 (2) 13 : 15
(3) 16 : 19 (4) 17 : 19
(5) None of these

46. The ratio of the ages of a father and his son 10 years hence will be 5 : 3, while 10 years ago, it was 3 : 1. The ratio of the age of the son to that of the father today, is:
(1) 1 : 2 (2) 1 : 3
(3) 2 : 3 (4) 2 : 5
(5) None of these

47. Michelle got married 9 years ago. Today her age is $1\frac{1}{3}$ times of her age at the time of marriage. At present her daughter's age is one-sixth of her age. What was her daughter's age two years ago?
(1) 6 years (2) 7 years
(3) 3 years
(4) Can't be determined
(5) None of these

48. The age of Sonal and Nitya are in the ratio of 9 : 5 respectively. After 8 years the ratio of their ages will be 13 : 9. What is the difference in years between their ages?
(1) 4 years (2) 12 years
(3) 6 years (4) 14 years
(5) None of these

49. Ratio of Rani's and Komal's age is 3 : 5 respectively. Ratio of Komal's and Pooja's age is 2 : 3 respectively. If Rani is two-fifth of Pooja's age, what is Rani's age?
(1) 10 years (2) 15 years
(3) 24 years
(4) Can't be determined
(5) None of these

50. The ratio between the ages of a father and a son at present is 5 : 2 respectively. Four years hence the ratio between the ages of the son and his mother will be 1 : 2 respectively. What is the ratio between the present ages of the father and the mother respectively?
(1) 3 : 4 (2) 5 : 4
(3) 4 : 3
(4) Can't be determined
(5) None of these

51. If the ages of P and R are added to twice the age of Q, the total becomes 59. If the ages of Q and R are added to thrice the age of P, the total becomes 68. And if the age of P is added to thrice the age of Q and thrice the age of R, the total becomes 108. What is the age of P?
(1) 15 yrs (2) 19 yrs
(3) 17 yrs (4) 12 yrs
(5) None of these

52. Present age of Rahul is 8 years less than Ritu's present age. If 3 years ago Ritu's age was x, which of the following represents Rahul's present age?
(1) $x + 3$ (2) $x - 5$
(3) $x - 3 + 8$ (4) $x + 3 + 8$
(5) None of these

53. A says to B "I am twice as old as you are when I was as old as you were". The sum of their ages is 63 years. Find the difference of their ages.
(1) 27 years (2) 21 years
(3) 9 years (4) 6 years
(5) None of these

Paramount concept:-
in Ques. 1,3,5 etc.

	Father	:	Son
Present ratio	= 6	:	1
Future ratio	= 4	:	1 (After 4 yrs.)

Present ratio, diff. is yrs

$$\text{Father's Present age} = \underbrace{\frac{6 \times 4}{6\times1 - 4\times1}}_{\text{ratios}} \times \underbrace{(4-1)}_{\text{diff. in future ratio}}$$

cross multiplied $\left(\begin{matrix}6 & : & 1\\ 4 & : & 1\end{matrix}\right)$

1.2; Let the present age of son be x years and present age of father = $6x$ years
After 4 years, age of son & father will be $(x + 4)$ years and $(6x + 4)$ years respectively.
Now, according to the question,

$$\frac{6x+4}{x+4} = \frac{4}{1}$$

$\Rightarrow 6x + 4 = (x + 4) \times 4$
$\Rightarrow 6x + 4 = 4x + 16$
$\Rightarrow 6x - 4x = 16 - 4$
$\Rightarrow 2x = 12$
$\Rightarrow x = 6$
$\therefore$ Present age of son = 6 years.

Paramount concept:-

F		S
6	:	1
		Diff. of time = 4 years.
4	:	1

$$\text{Age of son} = \frac{4\times1}{6\times1-4\times1} \times (4-1)$$

$$= \frac{4}{2} \times 3 = 6 \text{ years.}$$

2.1; Let present ages of P & Q be $3x$ years and $4x$ years respectively.
4 years hence, ages of P and Q will be $(3x + 4)$ and $(4x + 4)$ years respectively.
Now, according to question
$(4x + 4) - (3x + 4) = 5$
or, $4x + 4 - 3x - 4 = 5$
or, $x = 5$
Present age of P = $3x = 3 \times 5$
= 15 years.

Paramount concept:-

2.1; P : Q $\Rightarrow$ 3 : 4 (5 yrs.)
15yrs. 20 yrs.

3.1; Let the present age of son be x years
father's present age = $3x$ years
4 years hence, son's age & father's age will be $(x + 4)$ years & $(3x + 4)$ years respectively.
Now according to question

$$\frac{3x+4}{x+4} = \frac{13}{5}$$

$\Rightarrow (3x + 4) \times 5 = (x + 4) \times 13$
$\Rightarrow 15x + 20 = 13x + 52$
$\Rightarrow 15x - 13x = 52 - 20$
$\Rightarrow 2x = 32$
$\Rightarrow x = 16$
$\therefore$ father's present age = $3x$
= 3×16 years
= 48 years.

Paramount concept:-

F		S
3	:	1
		Diff. of time = 4 years.
13	:	5

Father's present age

$$= \frac{4\times3}{3\times5-1\times13} \times (13-5) \text{ years}$$

$$= \frac{4\times3}{2} \times 8 \text{ years} = 48 \text{ years}$$

4.5; Let the present age of mother be x years.
$\therefore$ present age of son be $(30 - x)$ years.
6 years ago, mother's age = $(x - 6)$ years
and son's age = $30 - x - 6$
= $24 - x$ years.
According to the question,
$(x - 6) - (24 - x) = 18$
$\Rightarrow x - 6 - 24 + x = 18$
$\Rightarrow 2x - 30 = 18$

$\Rightarrow 2x = 18 + 30$
$\Rightarrow 2x = 48$
$\Rightarrow x = 24$
$\therefore$ 6 years ago mother's age was
$= 24 - 6 = 18$ years.

4.5; **Paramount concept:-**
Sum of ages = 30 yrs.
Sum of ages 6yrs. ago = $30 - 6 \times 2$
$= 18$ yrs.
$\therefore$ Age of Mother = 18 Age of son
$= 0$ yrs.

5.1; Let the ages of A & B 4 years ago, be $11x$ years and $14x$ years respectively.
$\therefore$ Present ages of A & B will be $(11x + 4)$ years and $(14x + 4)$ years respectively
$\therefore$ 4 years later,
Age of A will be
$= 11x + 4 + 4 = (11x + 8)$ years
and age of B will be
$= 14x + 4 + 4 = (14x + 8)$ years
Now According to question,

$$\frac{11x+8}{14x+8} = \frac{13}{16}$$

$\Rightarrow (11x + 8) \times 16 = (14x + 8) \times 13$
$\Rightarrow 176x + 128 = 182x + 104$
$\Rightarrow 128 - 104 = 182x - 176x$
$\Rightarrow 24 = 6x$
$\Rightarrow x = 4$
Present age of A = $(11x + 4)$ years
$= (11 \times 4 + 4)$ years
$= (44 + 4)$ years
$= 48$ years.

Short Trick :-

$$\text{Age of A} = \frac{11 \times 8}{13 \times 16 - 13 \times 11} \times (16 - 13)$$

$$= \frac{11 \times 8 \times 3}{6} = 44 \text{ yrs.}$$

Present age = $44 + 4 = 48$ yrs.

6.3; Let the present age of two brothers be x years and $2x$ years.
5 years back, their age were $(x - 5)$ years and $(2x - 5)$ years respectively.
Now according to question

$$\frac{x-5}{2x-5} = \frac{1}{3}$$

$\Rightarrow (x - 5) \times 3 = 2x - 5$
$\Rightarrow 3x - 15 = 2x - 5$
$\Rightarrow 3x - 2x = -5 + 15$
$\Rightarrow x = 10$
After 5 years, their ages will be $(10 + 5)$ years $= 15$ years and $(2 \times 10 + 5)$ years $= 25$ years respectively.
$\therefore$ After 5 years, ratio of their ages.
$= 15 : 25$
$= 3 : 5$

Paramount concept:-
6.3; Five yrs. ago

$$\text{Present } \underset{2\times(1:2)}{1:3} \xrightarrow{5\text{yrs.}} \begin{matrix} 1:3 \\ 2:4 \end{matrix}$$

Present = 10 : 20
After 5 yrs. = 15 : 25 $\Rightarrow$ 3 : 5

7.3; Let the present ages of Rama & Shyama be $4x$ years & $5x$ years respectively.
After 5 years, their ages will be $(4x + 5)$ years and $(5x + 5)$ years respectively.
According to question

$$\frac{4x+5}{5x+5} = \frac{5}{6}$$

$\Rightarrow (4x + 5) \times 6 = (5x + 5) \times 5$
$\Rightarrow 24x + 30 = 25x + 25$
$\Rightarrow 25x - 24x = 30 - 25$
$\Rightarrow x = 5$
Present age of Rama
$= 4x = 4 \times 5 = 20$ years

Short-cut method

Rama		**Shyama**
4	:	5
		Diff. of time = 5
5	:	6

$x = 5 - 4 = 6 - 5 = 1$

$$\text{Present age of Rama} = \frac{5}{1} \times 4$$

$= 20$ years.

OR

$$= \frac{4 \times 5}{5 \times 5 - 6 \times 4} \times (6 - 5) = \frac{20}{25 - 24} \times 1$$

$$= \frac{20}{25-24} \times 1 = 20 \text{ yrs.}$$

8.1; Let the ages of father and his son 4 years ago be, $19x$ and $6x$ years respectively.

$\therefore$ their present ages are $(19x + 4)$ years and $(6x + 4)$ years respectively.

Now, according to the question

$(19x + 4) - (6x + 4) = 26$

$\Rightarrow 19x + 4 - 6x - 4 = 26$

$\Rightarrow 13x = 26$

$x = 2$

Ratio of their present age

$= (19x + 4) : (6x + 4)$

$= (19 \times 2 + 4) : (6 \times 2 + 4)$

$= (38 + 4) : (12 + 4)$

$= 42 : 16 = 21 : 8$

8.1; **Paramount concept:-**

4 yrs ago = 19 : 6

13

×2 ×2 ×2

26 yrs.

38 yrs. 12 yrs.

Present = 42 : 16

= 21 : 8

9. 3; Let the present ages of father and his son be x years & y years respectively.

3 years earlier, their ages were $(x - 3)$ years and $(y - 3)$ years respectively.

According to 1st condition of question.

$\Rightarrow x - 3 = 7(y - 3)$

$\Rightarrow x - 3 = 7y - 21$

$x - 7y = -21 + 3$

$x - 7y = -18$ ...(i)

3 years hence, their ages will be $(x + 3)$ years and $(y + 3)$ years respectively.

According to 2nd condition of the question.

$\Rightarrow x + 3 = 4(y + 3)$

$\Rightarrow x + 3 = 4y + 12$

$\Rightarrow x - 4y = 12 - 3$

$\Rightarrow x - 4y = 9$ ...(ii)

By subtracting eq (i) from eq (ii), we get

$3y = 27$

$y = 9$

Putting value of y in eq. (i), we get

$x - 7 \times 9 = -18$

$x - 63 = -18$

$x = -18 + 63$

$x = 45$

$\therefore$ Father's present age = 45 years and Son's present age = 9 years.

Paramount concept:-

F S

7 : 1

Diff. of time = 3 + 3 = 6 years.

4 : 1

age of father 3 yrs ago

$= \frac{7 \times 6}{7 \times 1 - 4 \times 1} \times (4 - 1)$

$= \frac{42}{3} \times 3 = 42$yrs.

Present age = 42 + 3 = 45 yrs.

age of son 3yrs. ago

$= \frac{1 \times 6}{7 \times 1 - 4 \times 1} \times (4 - 1)$

$= \frac{6}{3} \times 6 = 6$ yrs.

Present age = 6 + 3 = 9 yrs.

Paramount concept:-

9. Do it by option

3rd option satisfies the given condition

45 yr. 9 yr.

+3 +3

× 4

48 12

10.1; Let the present ages of Mohan & Meera are $3x$ years & $4x$ years respectively.

$\therefore$ 4 years earlier, their ages were $(3x - 4)$ years and $(4x - 4)$ years respectively.

According to question

$\frac{3x - 4}{4x - 4} = \frac{5}{7}$

$\Rightarrow (3x - 4) \times 7 = (4x - 4) \times 5$

$\Rightarrow 21x - 28 = 20x - 20$

$\Rightarrow 21x - 20x = -20 + 28$

$\Rightarrow x = 8$

$\therefore$ Present age of Mohan $= 3x = 3 \times 8$
$= 24$ years
and present age of Meera
$= 4x = 4 \times 8 = 32$ years

Short Trick:-

Mohan		Meera
3	:	4

Diff. of time = 4 years

5	:	7

Mohan's present age

$$= \frac{3 \times 4}{3 \times 7 - 5 \times 4} \times (7 - 5)$$

$$= \frac{12}{1} \times 2 = 24 \text{ yrs.}$$

Meera's present age

$$= \frac{4 \times 4}{3 \times 7 - 5 \times 4} \times (7 - 5)$$

$$= \frac{16}{1} \times 2 = 32 \text{ yrs.}$$

11.3; Let 2 years ago, age of A was $2x$ years and age of B was x years.
Present age of A = $(2x + 2)$ years
Present age of B = $(x + 2)$ years
According to question
$(2x + 2) - (x + 2) = 2$
$\Rightarrow 2x + 2 - x - 2 = 2$
$\Rightarrow x = 2$
$\therefore$ Present age of A $= 2x + 2 = 2 \times 2 + 2$
$= 4 + 2 = 6$ years

Short-cut-Method

11.3;

A	:	B
4	:	2
+2		
6 yr.		

12.2; Let after 5 years, Mother's and her son's age will be $3x$ years and x years respectively.
$\therefore$ their present ages are $(3x - 5)$ years and $(x - 5)$ years respectively.
5 years ago,
Mother's age $= (3x - 5) - 5$
$= (3x - 10)$ years
and Son's age $= (x - 5) - 5$
$= (x - 10)$ years
According to the question
$3x - 10 = 7(x - 10)$
$\Rightarrow 3x - 10 = 7x - 70$
$\Rightarrow 7x - 3x = 70 - 10$
$\Rightarrow 4x = 60$
$\Rightarrow x = 15$
$\therefore$ Present age of Mother
$= 3x - 5 = 3 \times 15 - 5$
$= 45 - 5 = 40$ years
and present age of son
$= x - 5 = 15 - 5 = 10$ years.

From options

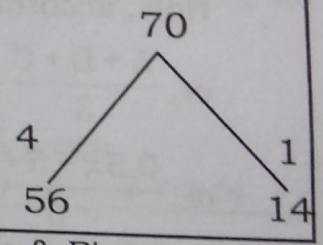
12.2;

40 yr.		10yr.
+5		+5
45yr.	$\xleftarrow{\times 3}$	15yr.

13.3; Let the present age of father and his son be $4x$ years and x years respectively.
$\therefore$ 5 years ago, their ages $(4x - 5)$ years and $(x - 5)$ years respectively.
$(4x - 5) + (x - 5) = 60$
$\Rightarrow 4x - 5 + x - 5 = 60$
$\Rightarrow 5x - 10 = 60$
$\Rightarrow 5x = 70$
$\Rightarrow x = 14$
So, Present age of father
$= 4x = 4 \times 14 = 56$ years.

Paramount concept:-

13.3; Sum of the ages 5yrs ago = 60
Sum of present ages = 60 + 5 + 5 =



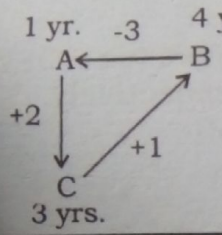
14.1; Let 2 years ago, A's & B's ages were 4 x years and x years respectively.
Present ages of A = $(4x + 2)$ years
and present ages of B = $(x + 2)$ years.
$\therefore$ 8 years hence,
Age of A = $4x + 2 + 8 = (4x + 10)$ years
and age of B = $x + 2 + 8 = (x + 10)$ years
According to question,
$(4x + 10) - (x + 10) = 12$
$\Rightarrow 4x + 10 - x - 10 = 12$
$\Rightarrow 3x = 12$
$\Rightarrow x = 4$

$\therefore$ Ratio of present ages of A & B
$= (4x + 2) : (x + 2)$
$= (4 \times 4 + 2) : (4 + 2)$
$= 18 : 6$
$= 3 : 1$

15.3; Let A's present age is x years
$\therefore$ B's present age $= x + 3$ years
and C's present age $= x + 2$ years
$\therefore$ Difference between B's present age and C's present age
$= (x + 3) - (x + 2) = x + 3 - x - 2$
$= 1$ year.
$\therefore$ B is one year older than C.

Short-cut-Method

15.3;



If B is 4yrs. old then A is of 1yr. and C is of 3yrs. Diff. between B and C is 4 - 3 = 1 yr.

16.1;Suppose the average age of A, B and C is x. Then
C's age $= 2x$

A's age $= \frac{x}{2} = 0.5x$

B's age = 5 years
Now, according to the question

or, $\frac{A + B + C}{3} = x$

or, $\frac{0.5x + 5 + 2x}{3} = x$

or, $2.5x + 5 = 3x$
or, $0.5x = 5$
$\therefore$ $x = 10$
Hence, the average age of A, B and C is 10 years

16.1; **Short-cut-Method**
C = 10 ×2 = 20 yr.

A $= \frac{10}{2} = 5$ yrs

B = 5 yr.

Average $= \frac{30}{3} = 10$ yr.

[solve it by options]

17.1;Let father's and his two son's present ages are x years, y years and z years respectively.
According to 1st condition of the question
$x = 3(y + z)$...(1)
20 years hence,
Father age $= (x + 20)$ years
and ages of his two sons will be $(y + 20)$ years and $(z + 20)$ years.
According to the 2nd condition of the question
$x + 20 = (y + 20) + (z + 20)$
$x + 20 = y + z + 40$
$x - (y + z) = 40 - 20$
$x - (y + z) = 20$ ...(2)
Putting the value of x in eq. (2), we get
$3(y + z) - (y + z) = 20$
$2(y + z) = 20$
$y + z = 10$
Putting the value of $(y + z)$ in eq. (1), we get
$x = 3 \times 10 = 30$ years
$\therefore$ Father's present age = 30 years.

From options:

17.1; It can be broken in the form of
$6x : x + x$
$\downarrow$
$30 : 5 + 5$
$+20 : +20 + 20$
$50 : 25 + 25$

18.3;Suppose, father's present ages is $4x$ and the sum of the ages of three children is x.
Now, according to the question

$\frac{4x + 6}{x + 18} = \frac{1}{2}$

or, $4x + 6 = 2x + 36$
or, $2x = 30$
$\therefore$ $x = 15$
Therefore, father's present age $= 4x = 4 \times 15 = 60$ years

18.3; **Go through the given options**

$12x : (x + x + x)\ 4$

1st condition ⟶ $60 : (5 + 5 + 5)$

×4

After 6 yrs. $60 + 6 : 15 + (6 + 6 + 6)$

2nd condition ⟶ $66 : 33$

×2

19.2; Let after 'x' years father's age will be twice of his son's age.

$41 + x = 2(16 + x)$

$\Rightarrow 41 + x = 32 + 2x$

$\Rightarrow x = 9$

$\therefore$ After 9 years father will be twice as old as his son.

Short-cut-Method

19.2; 41 → +9 → 50 (× 2 ←)

16 → +9 (from option) → 25

20.1; Let 10 years ago ages of A, B and C were x, $2x$ and $3x$ years respectively.

$\therefore$ Present age of A = $(x + 10)$ years

Present age of B = $(2x + 10)$ years

& Present age of C = $(3x + 10)$ years

Sum of their ages

$(x + 10) + (2x + 10) + (3x + 10) = 90$

$\Rightarrow 6x + 30 = 90$

$\Rightarrow 6x = 90 - 30$

$\Rightarrow 6x = 60$

$\Rightarrow x = 10$

$\therefore$ Present age of B = $(2x + 10)$ years

$= (2 \times 10 + 10)$ years

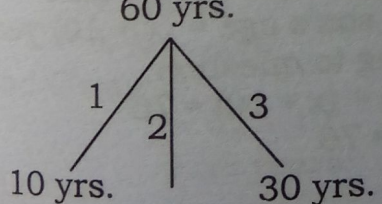
$= (20 + 10)$ years

= 30 years

Paramount concept:-

20.1; Sum of present ages = 90 yrs.

Sum ages 10 yrs ago = 90 - (10 × 3)



20 yrs.

+ 10

30yrs.

21.1; Let the present age of father be x years

$\therefore$ Present age of his son = $(45 - x)$ years

Five years ago, father age was = $(x - 5)$ years

and his son's age was = $(45 - x - 5)$ years

$= (40 - x)$ years

According to the question

$(x - 5)(40 - x) = 4 \times (x - 5)$

$40 - x = 4$

$\Rightarrow x = 36$

$\therefore$ Father age = 36 years

$\therefore$ Son's age = $45 - x = 45 - 36 = 9$ years

or

Let the present age of father and his son's be x years and y years respectively.

According to 1st condition of question.

$x + y = 45$...(1)

5 years ago father age = $(x - 5)$ years

and his son's age = $(y - 5)$ years

According to 2nd condition of question

$(x - 5) \times (y - 5) = 4 \times (x - 5)$

$\Rightarrow (y - 5) = 4$

$\Rightarrow y = 9$

Putting the value of y in eq. (1), we get

$x + 9 = 45$

$\Rightarrow x = 36$

Father's age = 36 years

Son's age = $45 - x = 9$ years

Paramount concept:-

21.3; Sum of their present ages = 45 yrs.

Sum of their ages 5 yrs. ago = 35 yrs.

$F \times S = 4 \times F$

$S = 4$yrs.

father = Son

A.T.Q, $31 = 4$

$\downarrow \times 4$

$31 \times 4 = 124$

$\therefore$ Present age = $(31 + 5)$ & $(4 + 5)$

= 36 yr. & 9 yr.

22.2; Let the father's and his son's age be $7x$ years and $4x$ years respectively.
According to question
$7x \times 4x = 1008$
$28x^2 = 1008$
$x^2 = 36$
$x = 6$
Father's present age = $7x = 7 \times 6$
= 42 years
his Son's present age = $4x = 4 \times 6$
= 24 years
After 6 years,
Father's age = 42 + 6 = 48 years
his Son's age = 24 + 6 = 30 years
After 6 years, the ratio of their ages
= 48 : 30 = 8 : 5

Paramount concept:-
22.2;

	Father		**Son**
	$7x$		$4x$
$28x^2 = 1008 \Rightarrow x^2 = 36$			
$x = 6$			
Present age →	42 yr.		24 yr.
	+6		+6
After 6 years →	48 yr.		30 yr.
	8	:	5

23.2; Let Sujeet's & Sameer's age be $4x$ years and $3x$ years respectively.
After 6 years, Sujeets age = $(4x + 6)$ years
According to question
$4x + 6 = 26$
$4x = 20$
$x = 5$
Sameer's age = $3x = 3 \times 5 = 15$ years.

Paramount concept:-
23.2;

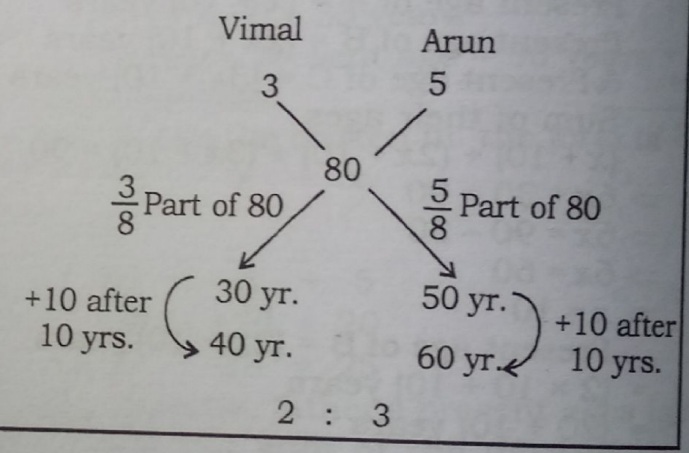
Sujeet	**Sameer**
4	3

Present age of sujeet = 26 – 6
= 20 yr.
If 4 units → 20 yr.
then 3 units → 15 yr.

24.4; Mahesh present age = 5 years
So, Anup's present age = (5 – 2)
= 3 years
According to question, $\frac{R-6}{18} = 3$
R = 18 × 3 + 6 = 54 + 6 = 60 yrs.
Randheer's present age = 60 yrs.

25.1; Let Vimal's age and Arun's age be $3x$ years & $5x$ years respectively.
According to question
$3x + 5x = 80$
$8x = 80$
$x = 10$
Vimal's age = $3x = 3 \times 10 = 30$ years
Arun's age = $5x = 5 \times 10 = 50$ years
After 10 years
Vimal's age = 30 + 10 = 40 years
Arun's age = 50 + 10 = 60 years
∴ Ratio of their ages after 10 years
40 : 60 = 2 : 3.

25.1; **Paramount concept:-**

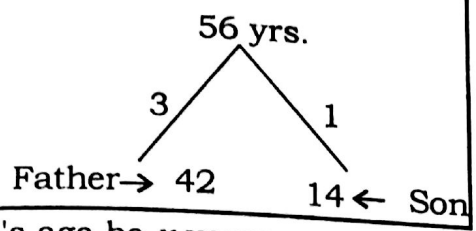


26.1; Let Shyam and his son's ages are $3x$ years and x years respectively.
After 10 years,
Shyam age = $(3x + 10)$ years
and his son's age = $(x + 10)$ years
According to question
$(3x + 10) + (x + 10) = 76$
$\Rightarrow 4x + 20 = 76$
$\Rightarrow 4x = 56$
Hence, $x = 14$
∴ Father's age = $3x = 3 \times 14 = 42$ years
his son's age = $x = 14$ years.

26.1; **Paramount concept:-**

Sum of age after 10 yrs. = 76 yrs.

Sum of present ages =



27. 1; Let B's age be x years

So, A's age = $(x + 20)$ years

According to question

A = 6B

$\Rightarrow x + 20 = 6B$

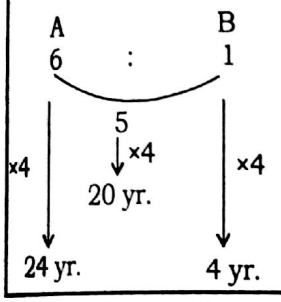
$\Rightarrow 5B = 20$

$\Rightarrow B = 4$

A's age = B + 20 = 4 + 20 = 24 years

and B's age = 4 years.

27.1; **Paramount concept:-**



Diff. between A & B is 5 units. According to ques. 5 units = 20yrs. Hence A : B i.e. 6 :1 is multiplied by 4 to get the exact ages of A & B

28.2; Let A's age = x years

$\therefore$ B's age = $2x$ years

and C's age = $(x + 17)$ years

According to question

Sum of their ages = 185

$x + 2x + (x + 17) = 185$

$4x + 17 = 185$

$4x = 185 - 17$

$4x = 168$

$x = 42$

A's age = x

= 42 years

B's age = $2x$

$= 2 \times 42$

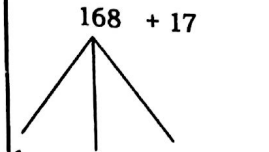
= 84 years

and C's age = $x + 17$

$= 42 + 17$

= 59 years.

28.2; **Paramount concept:-**



A : B : C

1 : 2 : 1 + 17 (because C is 17 more than A. 17 is removed from 185 to make the calculation easy. Remaining is divided into ratio 1 : 2 : 1 and then to obtain C, 17 is added to the result obtained

29.2; Let the mother's age = x years

$\therefore$ Her daughter's age = $(40 - x)$ years

After 5 years,

Mother's age = $(x + 5)$ years

and her daughter age

$= (40 - x) + 5$

$= 45 - x$ years

After 5 years

$\therefore$ Sum of their ages

$= (x + 5) + (45 - x)$

$= x + 5 + 45 - x$

= 50 years.

29.2; **Short-cut-Method**

Sum of present after = 40 yrs.

Sum of ages afer 5 yrs = 40 + (5+5)

= 50 yr.

30.1; Let the age of Geeta and her mother be x years and $5x$ years.

After 7 years

Age of Geeta = $(x + 7)$ years

and Age of her mother = $(5x + 7)$ years

According to question

$$\frac{x+7}{5x+7} = \frac{3}{8}$$

$\Rightarrow 8 \times (x + 7) = 3 \times (5x + 7)$

$\Rightarrow 8x + 56 = 15x + 21$

$\Rightarrow 15x - 8x = 56 - 21$

$\Rightarrow 7x = 35$

$\Rightarrow 5 = x$

Age of Geeta = x = 5 years

Age of her mother = $5x = 5 \times 5$

= 25 years.

Short-cut-Method

Geeta		Mother
1	:	5
		Diff. of time = 7 years
3	:	8

$$\text{Geeta's age} = \frac{1\times7}{5\times3-1\times8}(8-3)$$

$$= \frac{7}{7}\times5 = 5 \text{ years}$$

$$\text{Mother's age} = \frac{5\times7}{5\times3-1\times8}(8-3)$$

$$= \frac{5\times7}{7}\times5 = 5\times5$$

$$= 25 \text{ years}$$

31.2; Let the present age of Kamla be 'x' years

$\therefore$ 6 years ago her age = $(x-6)$ years

According to the question

$$x = 1\frac{1}{4}\times(x-6)$$

$$\Rightarrow x = \frac{5}{4}(x-6)$$

$\Rightarrow 4x = 5x - 30$

$\Rightarrow 30 = 5x - 4x$

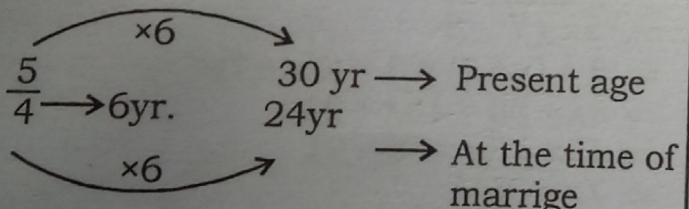
$\Rightarrow x = 30$

$$\text{So, her son's age} = \frac{1}{10}\times 30 \text{ years}$$

$$= 3 \text{ years.}$$

Paramount concept:-

31.2;



$$\text{Age of son} = \frac{1}{10}\times 30 = 3 \text{ yr.}$$

32.1; Let 10 years ago, age of Ajay was 'x' years.

$\therefore$ 10 years ago, age of Sachin = $2x$ years

Present age of Ajay = $(x + 10)$ years

Present age of Sachin = $2x + 10$

10 years hence, Sachin's age will be $(2x + 10) + 10$ years

According to question

$2x + 10 + 10 = 40$

$\Rightarrow 2x = 20$

$\Rightarrow x = 10$

$\therefore$ Present age of Ajay

$= x + 10 = 10 + 10 = 20$ years

32.1; **Short-cut-Method**

Age of Sachin after 10 yrs. = 40 yrs.

Age of Sachin presently = 30 yrs.

Age of Sachin10 yrs. ago = 20 yrs.

Age of Ajay 10 yrs. ago = 10yrs.

Present Age of Ajay = 20 yrs.

33.3; Let the present age of son = x years

$\therefore$ Present age of his father = $5x$ years

3 years hence, son's age will be $(x + 3)$ years

& his father's age will be $(5x + 3)$ years

According to question

$\Rightarrow 5x + 3 = 4(x + 3)$

$\Rightarrow 5x + 3 = 4x + 12$

$\Rightarrow 5x - 4x = 12 - 3$

$\Rightarrow x = 9$

$\therefore$ Present age of father = $5x$

$= 5 \times 9$

$= 45$ years

and present age of son = $x = 9$ years.

34.2; Let the age of man be $4x$ years and age of his son be x years

5 years ago the ages of man and his son were $(4x - 5)$ years and $(x - 5)$ years respectively.

According to question,

$(4x - 5) = 9(x - 5)$

$\Rightarrow 4x - 5 = 9x - 45$

$\Rightarrow 4x - 9x = -45 + 5$

$\Rightarrow -5x = -40$

$\Rightarrow 5x = 40$

$\Rightarrow x = 8$

Present age of father = $4x$

$= 4 \times 8$

$= 32$ years

Short-cut-Method

Father		Son
4	:	1
		Diff. of time = 5 years
9	:	1

$$\text{Father's present age} = \frac{4\times5}{1\times9-1\times4}(9-1)$$

$$= \frac{4\times5\times8}{5} = 32 \text{ yrs.}$$

35.1; Let 10 years ago, the ages of Sita and her mother were 'x' years and '$4x$' years respectively.

∴ Present age of Sita = $(x + 10)$ years & present age of her mother = $(4x + 10)$ years

∴ 10 years hence,

Sita's age = $(x + 10) + 10 = (x + 20)$ years and her mother's age = $(4x + 10) + 10 = (4x + 20)$ years

According to question

$\Rightarrow 4x + 20 = 2(x + 20)$

$\Rightarrow 4x + 20 = 2x + 40$

$\Rightarrow 4x - 2x = 40 - 20$

$\Rightarrow 2x = 20$

$\Rightarrow x = 10$

Present age of Sita

$= x + 10 = 10 + 10 = 20$ years

Short-cut-Method

Mother		Sita	
4	:	1	
2	:	1	Diff. of time = 10 + 10 = 20 years

Sita's age 10 yrs. ago

$$= \frac{1\times20}{1\times4-1\times2}\times(2-1)$$

$$= \frac{20}{4-2} + 10 = \frac{20}{2}$$

Sita's present age = 10 + 10 = 20 years.

36.2; Let one year ago, ages sameer of and Ashok were $4x$ years and $3x$ years respectively.

∴ Present age of Sameer= $(4x + 1)$ years

&Present age of Ashok = $(3x + 1)$ years

One year hence,

Age of Sameer = $(4x + 1) + 1$
$= (4x + 2)$ years

Age of Ashok = $(3x + 1) + 1$
$= 3x + 2$ years

According to question

$$\frac{4x+2}{3x+2} = \frac{5}{4}$$

$\Rightarrow 4 \times (4x + 2) = 5 \times (3x + 2)$

$\Rightarrow 16x + 8 = 15x + 10$

$\Rightarrow 16x - 15x = 10 - 8$

$\Rightarrow x = 2$

Sum of their present

$= (4x + 1) + (3x + 1) = 7x + 2$

$= 7 \times 2 + 2 = 14 + 2 = 16$ years.

36.2; **Paramount concept:-**

	Sameer	Ashok	
diff.=1	4	3	
	$5_{\times2}$	$4_{\times2}$	
	10 yr.	8 yr.	=18 yr.

37.5; Let 10 years ago, A's and B's ages were 'x' years and '$2x$' years respectively.

∴ A's present age = $(x + 10)$ years and B's present age = $(2x + 10)$ years

According to question.

$$\frac{x+10}{2x+10} = \frac{3}{4}$$

$\Rightarrow 4(x + 10) = 3(2x + 10)$

$\Rightarrow 4x + 40 = 6x + 30$

$\Rightarrow 6x - 4x = 40 - 30$

$\Rightarrow 2x = 10$

$\Rightarrow x = 5$

Total of their ages = $\{(x + 10) + (2x + 10)\}$ years

$= (3x + 20)$ years $= (3 \times 5 + 20)$ years

$= (15 + 20)$ years $= 35$ years

Short-cut Method

A	:	B	
1	:	2	
3	:	4	Diff. of time = 10 yrs

(A+B)'s present age

$$= \frac{10(2-1)}{3\times2-4\times1}\times(3+4)$$

$$= \frac{10}{2}\times7 = 35 \text{ yrs}$$