



# RATIO & PROPORTION

## Introduction

Ratio is a quantity that expresses the relationship between two similar quantities. It expresses a magnitude by which one quantity is a part of or a multiple of another quantity.

If the value of A and B are 8 and 6, respectively, then they are in the ratio 8:6 (read as 8 is to 6). Ratio can be understood also as the relationship which one quantity bears with the other of the same kind. Due to this reason, we cannot compare salary of one person with the percentage expenditure of another person.

The ratio of two quantities A and B is written as A:B. Here, A is known as an antecedent and B is known as a consequent. It can also be said that A:B = kA:kB, where k is any constant known as constant of proportionality,  $k \neq 0$ .

If the antecedent is more than the consequent (or, the numerator is more than the denominator), then the ratio is known as an improper ratio. For **example**, 5/3, 55/29, etc.

If the antecedent is less than the consequent (or, the numerator is less than the denominator), then the ratio is known as a proper ratio. For **example**, 3/7, 7/18, etc.

Since ratio compares two similar quantities, it cannot have any units.

**Example 1** Consider any ratio  $\frac{a}{b}$ . Now, x is added to the numerator and the denominator of this fraction. Which of the following is greater:  $\frac{a+x}{b+x}$  or  $\frac{a}{b}$  ?

**Solution** It depends upon the following two factors:

- If the ratio is proper or improper.
- x is positive or negative.

If  $\frac{a}{b} > 1$  and  $x > 0$ , or,  $\frac{a}{b} < 1$  and  $x < 0$

$$\frac{a}{b} > \frac{a+x}{b+x}$$

and if  $\frac{a}{b} > 1$  and  $x < 0$ , or,  $\frac{a}{b} < 1$  and  $x > 0$

$$\frac{a}{b} < \frac{a+x}{b+x}$$

## RATIO

Ratio can be understood in the following two ways:

- Ratio as a bridging element
- Ratio as a multiplier

### Ratio as a Bridging Element

Ratio as a bridging element helps us in establishing the relationship between more than two quantities. This can be further understood with the following **example**:

Suppose conversion rate of our currency Rupee is given with respect to US dollar and also with respect to Pound sterling. If we have to find the conversion ratio of US dollar with respect to pound sterling, we can do it by making rupee as the bridge between US dollar and pound sterling.

**Example 2** The ratio of the age of A and B is 2:5 and ratio of the age of B and C is 3:4. What is the ratio of the age of A, B, and C?

**Solution** Since B is the common platform that associates A and C, so we will try to make B equal in both the cases.

$$\text{Age of A : Age of B} = [2:5] \times 3$$

$$\text{Age of B : Age of C} = [3:4] \times 5$$

$$\text{Or, Age of A : Age of B} = 6:15 \text{ (i)}$$

$$\text{Age of B : Age of C} = 15:20 \text{ (ii)}$$

Since ratio of B is same in both the cases, hence, age of A:Age of B : Age of C = 6:15:20.

**Example 3** Given that

$$\text{Salary of A:Salary of B} = 1:2$$

$$\text{Salary of B : Salary of C} = 3 : 4$$

$$\text{Salary of C : Salary of D} = 5 : 6$$

$$\text{Salary of D : Salary of E} = 7 : 8$$

$$\text{Salary of E : Salary of F} = 9 : 10$$

What is the ratio of the salaries of A, B, C, D, E, and F?

**Solution** Salary of A : Salary of B : Salary of C : Salary of D : Salary of E : Salary of F =  $(1 \times 3 \times 5 \times 7 \times 9) : (2 \times 3 \times 5 \times 7 \times 9) : (2 \times 4 \times 5 \times 7 \times 9) : (2 \times 4 \times 6 \times 7 \times 9) : (2 \times 4 \times 6 \times 8 \times 9) : (2 \times 4 \times 6 \times 8 \times 10)$

(Understand the above mechanism with the help of the method given in **Example 2**. In these cases, this method can be used as a shortcut to find the ratios in the following way : For A, take all the leftmost digits, and now keep shifting towards the right digits by quitting one by one all the leftmost digits. So, B = Right digit of 1st ratio and so on for C, D, E, and F.)

**Example 4** If A:B = 3:4,

$$B:C = 5:7$$

$$C:D = 10:11$$

What is the ratio of A:D?

**Solution** A = 3 × 5 × 10 and D = 4 × 7 × 11

So, the ratio = 150:308

$$\text{Alternatively, } (A/B) \times (B/C) \times (C/D) = (3/4) \times (5/7) \times (10/11) = (3 \times 5 \times 10)/(4 \times 7 \times 11) = 150:308$$

**Example 5** A, B, C, and D purchase a gift worth Rs.60. A pays 1/2 of what others are paying, B pays 1/3rd of what others are paying and C pays 1/4th of what others are paying. What is the amount paid by D?

**Solution** Since A is paying 1/2 of what others are paying, so A is paying 1/3rd of the total amount. (To understand this, let us assume that B, C, and D are paying Rs.2x. So, A is paying Rs.x. The total amount being paid by A, B, C, and D = 3x = Rs.60, hence, the amount paid by A =  $x/3x = 1/3$ rd of the total.) So, the amount paid by A =  $60/3 = \text{Rs.}20$





In case of an analogy, two quantities share same kind of relationship. For **example**, what Macbeth is to William Shakespeare, Dr Zivago is to Boris Pasternak.

In QA, the same is true for proportion. It is basically the equality of the two ratios.

$$\frac{A}{B} = \frac{C}{D}$$

When A, B, C, and D are in proportion, then A and D are known as 'extremes', and B and C are known as 'means'. Therefore, we can say,  
Product of extremes = Product of means

**Example 9** What is the value of x in the following expression?

$$\frac{5}{8} = \frac{x}{12}$$

**Solution**  $\frac{5}{8} = \frac{x}{12}$

$$\Rightarrow x = \frac{60}{8} = 7.5$$

It can be calculated with the help of percentages also. In this question, the percentage increase in the denominator is 50%, so the numerator will also increase by 50%.

## Standard Results/Definitions on Ratio/Proportion

- Continued proportion  
a, b, and c are said to be in continued proportion

$$\text{if } \frac{a}{b} = \frac{b}{c}$$

So,  $b^2 = ac$ . Here, b is known as the mean proportion. Similarly, if a, b, c, and d are in continued proportion, then we get:

$$\frac{a}{b} = \frac{b}{c} = \frac{c}{d}$$

- Componendo

$$\text{If } \frac{a}{b} = \frac{c}{d}, \text{ then } \frac{a+b}{b} = \frac{c+d}{d}$$

- Dividendo

4.

$$\text{If } \frac{a}{b} = \frac{c}{d}, \text{ then } \frac{a-b}{b} = \frac{c-d}{d}$$

- Componendo and Dividendo

$$\text{If } \frac{a}{b} = \frac{c}{d}, \text{ then } \frac{a+b}{a-b} = \frac{c+d}{c-d}$$

- Invertendo

$$\text{If } \frac{a}{b} = \frac{c}{d}, \text{ then } \frac{b}{a} = \frac{d}{c}$$

- Alterando

$$\text{If } \frac{a}{b} = \frac{c}{d}, \text{ then } \frac{a}{c} = \frac{b}{d}$$

$$7. \frac{a}{b} = \frac{c}{d} = \frac{a+c}{b+d}$$

In general, if  $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \dots = K$

$$\text{Then, } \frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \dots = K = \frac{a+c+e+\dots}{a+d+f+\dots}$$

= (any combination of the numerator/any combination of the corresponding denominator)

$$\text{For example, } 1/2 = 3/6 = 4/8 = \dots = (1+3+4)/(2+6+8) = (3+4)/(6+8)$$

- If we multiply the numerator and the denominator of a ratio by any number N ( $N \neq 0$ ), then the ratio remains same.  $A/B = NA/NB$
- If we divide the numerator and the denominator of a ratio by any number N ( $N \neq 0$ ), then the ratio remains same.  $A/B = (A/N)/(B/N)$
- If  $a/b, c/d, e/f \dots$  etc., are all unequal ratios, then the value of  $(a+c+e+\dots)/(b+d+f+\dots)$  lies in between the minimum and the maximum of all these ratios.

## APPLICATION OF RATIO, PROPORTION, AND VARIATION

### Income-Expense Ratio

When the ratio of incomes and expenses of two persons are given and their savings is being asked.

**Example 12** The ratio of the incomes of Mr Vinay Singh and Mr Arun Sharma is 3:5 and the ratio of their expenses is 1:3. Who is saving more?

**Solution** Let us assume the values of income and expenses of A and B.

	Income	Expense	Savings
<b>Vinay</b>	3	1.5	1.5
<b>Arun</b>	5	4.5	0.5

So, Vinay saves more than Arun.

In the other case,

	Income	Expense	Savings
<b>Vinay</b>	3	1	2
<b>Arun</b>	5	3	2

So, savings of both of them is equal.

	Income	Expense	Savings
<b>Vinay</b>	3000	1600	1400
<b>Arun</b>	5000	4800	200

So, in this case, Mr Singh is saving less than Mr Sharma. Therefore, it is difficult to determine who is saving more. The concept tells us: If the value of the ratio of income is more than the value of the ratio of expenses, then we cannot determine who is saving more. If the value of the ratio of expenses is more than the value of the ratio of income, then we can determine who is saving more. (Ratio should be taken in such a way that the value of

ratio is less than 1, i.e., the numerator should be less than the denominator.)

In the above case, the value of the ratio of income =  $\frac{3}{5} = 0.6$  and value of ratio of expenses =  $\frac{1}{3} = 0.33$

Since the value of ratio of expenses < value of the ratio of income, we cannot determine who is saving more.

**Q1.**

Seats for Maths, Physics and Biology are in the ratio of 5 : 7 : 8 respectively. There is a proposal to Increase these seats by 40%, 50% and 75% respectively. What will be the respective ratio of increased seats ?

- (a) 2 : 3 : 4
- (b) 6 : 7 : 8
- (c) 6 : 8 : 9
- (d) Cannot be determined
- (e) None of these

**Q2.**

Samira, Mahira and Kiara rented a set of DVDs at a rent of Rs. 578. If they used it for 8 hours, 12 hours and 14 hours respectively, what is Kiara's share of rent to be paid ?

- (a) Rs. 238
- (b) Rs. 204
- (c) Rs. 192
- (d) Rs. 215
- (e) None of these

**Q3.**

A sum of money is to be divided among four persons in the ratio of 2 : 3 : 4 : 5. Out of the four, one person gets Rs. 200 more than the other and Rs.100 less than another. What is the sum ?

- (a) Rs. 2800
- (b) Rs. 1400
- (c) Rs. 4200
- (d) Cannot be determined
- (e) None of these

**Q4.**

In a college the number of students studying Arts, Commerce and Science are in the ratio of 3 : 5 : 8 respectively. If the number of students studying Arts, Commerce and Science is increased by 20%, 40% and 25% respectively, what will be the new ratio of students in Arts, Commerce and Science respectively ?

- (a) 18 : 35 : 50
- (b) 3 : 10 : 10
- (c) 4 : 8 : 5
- (d) 32 : 35 : 25
- (e) None of these

**Q5.**

20 boys and 25 girls form a group of social workers. During their membership drive, the same number of boys and girls joined the group(e.g. if 7 boys joined, 7 girls joined). How many members does the group have now, if the ratio of boys to girls is 7 : 8 ?

However, in the above question, if we take the ratio of income of Vinay and Arun as 3:5 and the ratio of their expenses as 3:1, then Arun is saving

**PREVIOUS YEAR QUESTIONS**

- (a) 75
- (b) 65
- (c) 70
- (d) 60
- (e) None of these

**Q6.**

A sum of money is divided among A, B, C and D in the ratio of 3 : 4 : 9 : 10 respectively. If the share of C is Rs. 2,580 more than the share of B, then what is the total amount of money of A and D together ?

- (a) Rs. 5,676
- (b) Rs. 6,192
- (c) Rs. 6,708
- (d) Rs. 224
- (e) None of these

**Q7.**

Production of company A is 120% of the production of company B and 80% of the production of company C, What is the ratio between the productions of companies A, B and C respectively?

- (a) 6 : 5 : 9
- (b) 6 : 5 : 4
- (c) 12 : 10 : 15
- (d) 10 : 12 : 15
- (e) None of these

**Q8.**

Number of students in Arts and Science faculties in an institute are in the ratio of 5 : 8 respectively. If 150 more students join ' Arts faculty while 80 more students join Science faculty, the respective ratio becomes 3 : 4. Originally what was the total number of students in both faculties together ?

- (a) 1200
- (b) 1400
- (c) 1150
- (d) Cannot be determined
- (e) None of these

**Q9.**

75% of a number is equal to 5/8th of another number. What is the ratio between the first number and the second number respectively?

- (a) 5 : 4
- (b) 6 : 5
- (c) 4 : 5
- (d) 5 : 6
- (e) None of these

**Q10.**



In a test, a candidate secured 336 marks out of maximum marks 'x', If the maximum marks 'x' were converted into 400 marks, he would have secured 192 marks, What were the maximum marks of the test ?

- (a) 7001
- (b) 750
- (c) 500
- (d) 650
- (e) 800

**Q11.**

Which of the following represents  $ab = 64$  ?

- (a)  $8 : a = 8 : b$ .
- (b)  $a : 16 = b : 4$
- (c)  $a : 8 = b : 8$ .
- (d)  $32 : a = b : 2$
- (e) None of these

**Q12.**

The ratio of the number of students studying in school A, B and C is 5 : 8 : 4 respectively. If the number of students studying in each of the school is increased by 20%, 25% and 30% respectively, what will be the new respective ratio of the students in school A, B and C ?

- (a) 13 : 25 : 15
- (b) 20 : 25 : 13
- (c) 15 : 25 : 13
- (d) Cannot be determined
- (e) None of these

**Q13.**

When 30% of one number is subtracted from another number, the second number reduces to its own four-fifth. What is the ratio between the first and the second numbers respectively?

- (a) 4 : 7
- (b) 3 : 2
- (c) 2 : 5
- (d) Cannot be determined
- (e) None of these:

**Q14.**

The largest and the second largest angles of a triangle are in the ratio of 3 : 2 respectively. The smallest angle is 20% of the sum of the largest and the second largest angles. What is the sum of the smallest and the second largest angles ?

- (a) 80
- (b) 60
- (c) 100
- (d) 90
- (e) None of these

**Q15.**

The ratio between the angles of a quadrilateral is 7 : 2 : 5 : 6 respectively. What is the sum of double the smallest angle and half the largest angle of the quadrilateral?

- (a) 162
- (b) 198
- (c) 99
- (d) 135
- (e) None of these

**Q16.**

The angles of a quadrilateral are in the ratio of 2 : 4 : 7 : 5. The smallest angle of the quadrilateral is equal to the smallest angle of a triangle. One of the angles of the triangle is twice the smallest angle of the triangle. What is the second largest angle of the triangle?

- (a) 80
- (b) 60
- (c) 120
- (d) Cannot be determined
- (e) None of these

**Q17.**

The ratio between the angles of a quadrilateral is 3 : 4 : 6 : 7. Half the second largest angle of the quadrilateral is equal to the smaller angle of a parallelogram. What is the value of adjacent angle of the parallelogram ?

- (a) 136
- (b) 126
- (c) 94
- (d) 96
- (e) None of these

**Q18.**

The ratio between the three angles of a quadrilateral is 1 : 4 : 5 respectively. The value of the fourth angle of the quadrilateral is 60. What is the difference between the value of the largest and the smallest angles of the quadrilateral ?

- (a) 120
- (b) 90
- (c) 110
- (d) 100
- (e) None of these

**Q19.**

Mr. Pandit owned 950 gold coins all of which he distributed amongst his three daughters Lalita, Amita and Neeta. Lalita gave 25 gold coins to her husband, Amita donated 15 gold coins and Neeta made jewellery out of 30 gold coins. The new respective ratio of the coins left with them was 20 : 73 : 83. How many gold coins did Amita receive from Mr. Pandit?





- (a) 380
- (b) 415
- (c) 400
- (d) 350
- (e) None of these

**Q20.**

The largest and the second largest angles of a triangle are in the ratio of 13 : 12 respectively. The smallest angle is 20% of the sum of the largest and the second largest angles. What is the sum of the smallest and the second largest angles ?

- (a) 120
- (b) 108
- (c) 100
- (d) 102
- (e) None of these

**Q21.**

Twenty five percent of Pranab's annual salary is equal to eighty percent of SuRya's annual salary. Surya's monthly salary is forty percent of Dheeru's monthly salary. If Dheeru's annual salary is Rs. 6 lacs, what is Pranab's monthly salary ?

- (a) Rs. 7.68 lacs
- (b) Rs. 56,000
- (c) Rs. 8.4 lacs
- (d) Rs. 64,000
- (e) None of these

**Q22.**

The ratio between the three angles of a quadrilateral is 1 : 6 : 2 respectively. The value of the fourth angle of the quadrilateral is 45. What is the difference between the value of the largest and the smallest angles of the quadrilateral ?

- (a) 165
- (b) 140
- (c) 175
- (d) 150
- (e) None of these

**Q23.**

The ratio between the angles of a quadrilateral is 3 : 4 : 6 : 5. Two-third of the largest angle of the quadrilateral is equal to the smaller angle of a parallelogram. What is the value of adjacent angle of the parallelogram ?

- (a) 120
- (b) 110
- (c) 100
- (d) 130
- (e) None of these

**Q24.**

Rohit has some 50 paise coins, some 2 rupee coins, some 1 rupee coins and some 5 rupee coins. The value of all the coins is Rs. 50. Number of 2 rupee coins is 5 more than that of the 5 rupee coins. 50 paise coins are double in number than 1 rupee coins. Value of 50 paise coins and 1 rupee coins is Rs. 26, How many 2 rupee coins does he, have?

- (a) 4
- (b) 2
- (c) 7
- (d) Cannot be determined
- (e) None of these

**Q25.**

The ratio between the adjacent angles of a parallelogram is 2 : 3 respectively. Half the smaller angle of the parallelogram is equal to the smallest angle of a quadrilateral. Largest angle of quadrilateral is four times its smallest angle. What is the sum of largest angle of quadrilateral and the smaller angle of parallelogram?

- (a) 252
- (b) 226
- (c) 144
- (d) 180
- (e) None of these

**Q26.**

One of the angles of a triangle is two-third of sum of adjacent angles of parallelogram. Remaining angles of the triangle are in ratio 5 : 7 respectively. What is the value of second largest angle of the triangle ?

- (a) 25
- (b) 40
- (c) 35
- (d) Cannot be determined
- (e) None of these

**Q27.**

The largest and the smallest angles of a triangle are in tile ratio of 3 : 1 respectively. The second largest angle of the triangle is equal to 44. What is the value of 150 percent of the largest angle of the triangle?

- (a) 149
- (b) 129
- (c) 153
- (d) 173
- (e) None of these

**Q28.**

One of the angles of a quadrilateral is thrice the smaller angle of a parallelogram. The respective ratio between the adjacent angles of the parallelogram is 4 : 5. Remaining three angles of the quadrilateral are in



ratio 4 : 11 : 9 respectively. What is the sum of the largest and the smallest angles of the quadrilateral?

- (a) 255
- (b) 260
- (c) 265
- (d) 270
- (e) None of these

**Q29.**

Smallest angle of a triangle is equal to two-third of the smallest angle of a quadrilateral. The ratio between the angles of the quadrilateral is 3 : 4 : 5 : 6. Largest angle of the triangle is twice its smallest angle. What is the sum of second largest angle of the triangle and largest angle of the quadrilateral?

- (a) 160
- (b) 180
- (c) 190
- (d) 170
- (e) None of these

**Q30.**

The largest and the second largest angles of a triangle are in the ratio of 4 : 3 respectively. The smallest angle is half the largest angle. What is the difference between the smallest and the largest angles of the triangle?

- (a) 30
- (b) 60
- (c) 40
- (d) 20
- (e) None of these

**Q31.**

The ratio between the three angles of a quadrilateral is 13 : 9 : 5 respectively. The value of the fourth angle of the quadrilateral is 36. What is the difference between the largest and the second smallest angles of the quadrilateral?

- (a) 104
- (b) 108
- (c) 72
- (d) 96
- (e) None of these

**Q32.**

The ratio between the adjacent angles of a parallelogram is 7 : 8 respectively. Also the ratio between the angles of quadrilateral is 5 : 6 : 7 : 12. What is the sum of the smallest angle of parallelogram and second largest angle of the quadrilateral?

- (a) 168
- (b) 228
- (c) 156

(d) 224

(e) None of these

**Q33.**

The age of Sulekha and Aruni-ma are in the ratio of 9 : 8 respectively. After 5 years the ratio of their age will be 10 : 9. What is the difference (in years) between their age?

- (a) 4 years
- (b) 5 years
- (c) 6 years
- (d) 7 years
- (e) None of these

**Q34.**

The age of Sonal and Mitya are in the ratio of 9 : 5 respectively. After 8 years the ratio of their age will be 13 : 9. What is the difference (in years) between their age?

- (a) 4 years
- (b) 12 years
- (c) 6 years
- (d) 14 years
- (e) None of these

**Q35.**

The ratio of the age of a father and son is 17 : 7 respectively. 6 years ago the ratio of their age was 3 : 1 respectively. What is the father's present age?

- (a) 64 yrs
- (b) 51 yrs
- (c) 48 yrs
- (d) Cannot be determined
- (e) None of these

**Q36.**

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?

- (a) 10 years
- (b) 15 years
- (c) 24 years
- (d) Cannot be determined
- (e) None of these

**Q37.**

Present age of Amit and his father are in the ratio of 2 : 5 respectively. Four years hence the ratio of their age becomes 5 : 11 respectively. What was father's age five years ago?

- (a) 40 years
- (b) 45 years
- (c) 30 years
- (d) 35 years
- (e) None of these

**Q38.**

Four years ago Shyam's age was  $\frac{3}{4}$  times that of Ram. Four years hence, Shyam's age will be  $\frac{5}{6}$  times that of Ram. What is the present age of Shyam ?

- (a) 15 years
- (b) 20 years
- (c) 16 years
- (d) 24 years
- (e) 8 years

**Q39.**

The ratio of the age of Tina and Rakesh is 9 : 10 respectively. Ten years ago the ratio of their age was 4 : 5 respectively. What is the present age of Rakesh ?

- (a) 25 years
- (b) 20 years
- (c) 30 years
- (d) 24 years
- (e) None of these

**Q40.**

The present age of Vishal and Shekhar are in the ratio of 14 : 17 respectively. Six years from now, their age will be in the ratio of 17 : 20 respectively. What is Shekhar's present age ?

- (a) 17 years
- (b) 51 years
- (c) 34 years
- (d) 28 years
- (e) None of these

**Q41.**

The ratio between the age of a father and a son at present is 5 : 2 respectively. Four years hence the ratio between the age of the son and his mother will be 1 : 2 respectively. What is the ratio between the present age of the father and the mother respectively ?

- (a) 3 : 4
- (b) 5 : 4
- (c) 4 : 3
- (d) Cannot be determined
- (e) None of these

**Q42.**

Radha's present age is three years less than twice her age 12 years ago. Also the respective ratio between Raj's present age and Radha's present age is 4 : 9. What will be Raj's age after 5 years ?

- (a) 12 years
- (b) 7 years
- (c) 21 years
- (d) Cannot be determined
- (e) None of these

**Q43.**

The ratio of the present age of Meena and Fiona is 16 : 13 respectively. Four years ago the respective ratio of their age was 14 : 11. What will be Fiona's age four years from now ?

- (a) 28 years
- (b) 32 years
- (c) 26 years
- (d) 36 years
- (e) None of these

**Q44.**

The respective ratio of the present age of Swati and Trupti is 4 : 5. Six years hence the respective ratio of their age will be 6 : 5. What is the difference between their age?

- (a) 2 years
- (b) 3 years
- (c) 4 years
- (d) Cannot be determined
- (e) None of these

**Q45.**

The respective ratio between the present age of Ram and Rakesh is 6 : 11. Four years ago the ratio of their age was 1 : 2 respectively. What will be Rakesh's age after five years?

- (a) 45 years
- (b) 29 years
- (c) 49 years
- (d) Cannot be determined
- (e) None of these

**Q46.**

The respective ratio between the present age of son, mother, father and grandfather is 2 : 7 : 8 : 12. The average age of son and mother is 27 years. What will be mother's age after 7 years?

- (a) 40 years
- (b) 41 years
- (c) 48 years
- (d) 49 years
- (e) None of these

**Q47.**

The respective ratio between the present age of Ram, Rohan and Raj is 3 : 4 : 5. If the average of their present age is 28 years then what would be the sum of the age of Ram and Rohan together after 5 years?

- (a) 45 years
- (b) 55 years
- (c) 52 years
- (d) 59 years
- (e) None of these



**Q48.**

The respective ratio between present age of Manoj and Wasim is 3 : 11. Wasim is 12 years younger than Rehana. Rehana's age after 7 years will be 85 years. What is the present age of Manoj's father who is 25 years older than Manoj ?

- (a) 43 years
- (b) 67 years
- (c) 45 years
- (d) 69 years
- (e) None of these

**Q49.**

The respective ratio between the present age of Aarti and Savita is 5 : x. Aarti is 9 years younger than Jahnvi. Jahnvi's age after 9 years will be 33 years. The difference between Savita's and Aarti's age is same as the present age of Jahnvi. What will ( come in place of x ?)

- (a) 21
- (b) 37
- (c) 17
- (d) Cannot be determined.
- (e) None of these

**Q50.**

An amount of money is to be divided among P, Q and R in the ratio of 3 : 5 : 7 respectively. If the amount received by R is Rs.4,000 more than the amount received by Q, what will be the total amount received by P and Q together ?

- (a) Rs. 8,000
- (b) Rs. 12,000
- (c) Rs. 16,000
- (d) Cannot be determined
- (e) None of these

**Q51.**

Rita Invested 25% more than Sunil. Sunil invested 30% less than Abhinav who invested Rs. 6,000. What is the respective ratio between the amount that Rita invested and the total amount invested by all of them together ?

- (a) 35 : 104
- (b) 13 : 29
- (c) 101 : 36
- (d) 35 : 103
- (e) None of these

**Q52.**

When X is subtracted from the numbers 9, 15 and 27, the remainders are in continued proportion. What is the value of X?

- (a) 8

- (b) 6

- (c) 4

- (d) 5

- (e) None of these

**Q53.**

A certain amount was to be distributed among A, B and C in the ratio 2 : 3 : 4 respectively, but was erroneously distributed in the ratio 7 : 2 : 5 respectively. As a result of this, B got Rs. 40 less. What is the amount?

- (a) Rs. 210
- (b) Rs. 270
- (c) Rs. 230
- (d) Rs. 280
- (e) None of these

**Q54.**

A particular sum was divided among A, B and C in the ratio 2 : 6 : 7 respectively. If the amount received by A was Rs. 4,908, what was the difference between the amount received by B and C ?

- (a) Rs. 2,454
- (b) Rs. 3,494
- (c) Rs. 2,135
- (d) Rs. 2,481
- (e) None of these

**Q55.**

The average age of a man and his son is 30 years. The ratio of their age four years ago was 10 : 3 respectively. What is the difference between the present age of the man and his son?

- (a) 28 years
- (b) 16 years
- (c) 26 years
- (d) 44 years
- (e) None of these

**Q56.**

A sum of Rs. 221 is divided among X, Y and Z such that X gets Rs. 52 more than Y. Y gets % 26 more than Z. The ratio of the shares of X, Y and Z respectively is :

- (a) 9 : 5 : 3
- (b) 9 : 3 : 5
- (c) 5 : 9 : 3
- (d) 10 : 6 : 5
- (e) None of these

**Q57.**

The average weight of boys in a class is 45 kg while that of girls is 36 kg. The average weight of the whole class is 42.25 kg. What is the respective ratio between the number of boys and girls in the class?

- (a) 11 : 25



- (b) 25 : 11
- (c) 25 : 12
- (d) 12 : 25
- (e) None of these

**Q58.**

If 50% of a certain number is equal to  $\frac{3}{4}$ th of another number, what is the ratio between the numbers?

- (a) 3 : 2
- (b) 2 : 5
- (c) 5 : 2
- (d) 3 : 4
- (e) 4 : 3

**Q59.**

The ratio of the present age of Mahesh and Ajay is respectively 3 : 2. After 8 years, ratio of their age will be 11 : 8. What will be the present age of Mahesh's son if his age is half of the present age of Ajay?

- (a) 12 years
- (b) 24 years
- (c) 18 years
- (d) 9 years
- (e) None of these

**Q60.**

A vessel contains 64 litres of mixture of milk and water in the ratio 7 : 3 respectively. 8 litres of mixture is replaced by 12 litres of milk. What is the ratio of milk and water in the resulting mixture?

- (a) 64 : 21
- (b) 35 : 22
- (c) 64 : 23
- (d) 65 : 21
- (e) None of these

**Q61.**

There was a science exhibition in an auditorium. On the first day 14 persons visited the exhibition, on the second day 12 persons and on the third day only 10 persons visited the exhibition. The ratio of admission fees collected from each of them on these days was 2 : 3 : 5 respectively. If the total amount collected on these three days was Rs. 4560, what amount was collected on the first day?

- (a) Rs. 1120
- (b) Rs. 1140
- (c) Rs. 1150
- (d) Rs. 1160
- (e) None of these

**Q62.**

The ratio of present ages of P and Q is 8 : After 4 years their ages will be in the ratio 4 : 3 respectively.

What will be the ratio of P's age after 7 years from now and Q's age now?

- (a) 3 : 2
- (b) 1 : 2
- (c) 2 : 1
- (d) 3 : 1
- (e) None of these

**Q63.**

15 years ago the average age of a family of four members was 40 years. Two children were born in that span of 15 years. The present average age of the family remained unchanged. Among the two children who were born in between the 15 years. If the older child at present is 8 years more than the younger one, what is the respective ratio between the present age of the older child and the present age of the younger child?

- (a) 9 : 4
- (b) 7 : 3
- (c) 7 : 6
- (d) 7 : 4
- (e) 9 : 5

**Q64.**

4 years ago, the respective ratio between  $\frac{1}{2}$  of A's age at that time and four times of B's age at that time was 5 : 12. Eight years hence  $\frac{1}{2}$  of A's age at that time will be less than B's age at that time by 2 years. What is B's present age?

- (a) 10 years
- (b) 14 years
- (c) 12 years
- (d) 5 years
- (e) 8 years

**Q65.**

The present age of Bob is equal to Abby's age 8 years ago. Four years hence, the respective ratio between Bob's age and Abby's age will be 4 : 5 at that time. What is Bob's present age?

- (a) 24 years
- (b) 32 years
- (c) 40 years
- (d) 20 years
- (e) 28 years

**Q66.**

Respective ratio between total number of students studying in College A and College B is 5 : 8. In College B, out of the total number of students,  $\frac{5}{8}$ th is boys, out of which 60% study Commerce and the remaining 800 boys study in other streams. What is the total number of students in College A?



- (a) 1500
- (b) 2500
- (c) 1200
- (d) 4000
- (e) 2000

**Q67.**

At present the respective ratio between the ages of A and B is 3 : 4 and that between A and C is 1 : 2. Six years hence, the sum of ages of A, B and C will be 96 years. What is the present age of A?

- (a) 12 years
- (b) 21 years
- (c) 18 years
- (d) 15 years
- (e) 9 years

**Q68.**

B is 8 years older than A and 8 years younger than C. 12 years hence, respective ratio of the ages of A and C will be 5 : 9. What is the sum of present ages of A, B and C ?

- (a) 58 years
- (b) 46 years
- (c) 48 years
- (d) 60 years
- (e) None of these

**Q69.**

'B' is 3 years older than 'A' and 'B' is also 3 years younger than 'C'. 3 years hence, the respective ratio between the ages of A and C will be 4 : 5. What is the sum of the present ages of A, B and C?

- (a) 48 years
- (b) 56 years
- (c) 63 years
- (d) 84 years
- (e) 72 years

**Q70.**

The present ages of Ranjana and Rakhi are in the ratio of 15 : 17 respectively. After 6 years, the respective ratio between the age of Ranjana and Rakhi will be 9 : 10. What will be the age of Ranjana after 6 years?

- (a) Other than those given as options
- (b) 40 years
- (c) 34 years
- (d) 30 years
- (e) 36 years

**Q71.**

If 7 boys and 2 men working together can do three times as much work per hour as a boy and a man together, what will be the respective ratio of work done by a boy and a man for the given time?

- (a) 3 : 1
- (b) 1 : 2
- (c) 1 : 3
- (d) 2 : 3
- (e) 1 : 4

**Q72.**

At present, the respective ratio between the ages of A and B is 3 : 4 and that between A and C is 1 : 2. Six years hence, the sum of the ages of A, B and C will be 96 years. What is the present age of A?

- (a) 12 years
- (b) 21 years
- (c) 18 years
- (d) 15 years
- (e) 9 years

**Q73.**

Four years ago, the respective ratio between the age of Ram and that of Sonu, was 4 : 9. Tina is ten years older than Ram. Tina is ten years younger than Sonu. What is Tina's present age ?

- (a) 40 years
- (b) 36 years
- (c) 30 years
- (d) 20 years
- (e) 42 years

**Q74.**

When a number is added to a second number, the sum is 1000/3 percent of the second number. What is the ratio between the first number to the second number?

- (a) 3 : 7
- (b) 7 : 4
- (c) 7 : 3
- (d) Data inadequate
- (e) None of these

**Q75.**

A sum of money is to be distributed among F, Q and R in the ratio 6 : 19 : 7. If R gives 200 from his share to Q, the ratio of P, Q and R becomes 3 : 10 : 3, what is the total sum?

- (a) Rs. 6400
- (b) Rs. 12800
- (c) Rs. 3200
- (d) Data inadequate
- (e) None of these

**Q76.**

In a school the number of boys and that of the girls are in the respective ratio of 2 : 3, If the number of boys is increased by 20% and that of girls is increased by 10%, what will be the new ratio of number of boys to that of the girls ?



- (a) 4 : 5
- (b) 5 : 8
- (c) 3 : 4
- (d) Data inadequate
- (e) None of these

**Q77.**

.Income of two companies A and B are in the ratio of 5 : 8. Had the income of company A' been more by Rs. 25. lakhs, the ratio of their income would have been 5 : 4 respectively. What is-the income of company 'B' ?

- (a)Rs. 80 lakhs
- (b)Rs. 50 lakhs
- (c)Rs. 40 lakhs
- (d)Rs. 60 lakhs
- (e) None of these

**Q78.**

Ratio of the earnings of A and B is 4 : 7 respectively. If the earnings of A increase by 50% and the earnings of B decrease by 25% the new ratio of their earnings becomes 8 : 7 respectively. What are A's earnings ?

- (a)Rs. 26,000
- (b)Rs. 28, 000
- (c)Rs. 21,000 ,
- (d) Data inadequate
- (e) None of these

**Q79.**

Salaries of A, B and C are in the ratio of 2 : 3 : 5 respectively. If their salaries were increased by 15%, 10% and 20% respectively what will be the new respective ratio of their salaries ? .

- (a) 3 : 3 : 10
- (b) 23 : 33 : 60
- (c) 10 : 11 : 20
- (d) Can't be determined
- (e) None of these

**Q80.**

Present age of Seema and Naresh are in the respective ratio of 5 : 7. Five years hence the ratio of their age becomes 3 : 4 respectively. What is Naresh's present age

- (a)25
- (b)40
- (c)30
- (d)Can not be determined
- (e) None of these

**Q81.**

A and B together can complete atask in 15 days. B and C together can complete the same task in 20 days. A and C together can complete the same task in 30 days'. What is the respective ratio of the number of days

taken by A while completing the same task alone to the number of days taken by C while completing the same task alone?

- (a) 2 : 3
- (b) 1 : 4
- (c)( 3) 1 : 3
- (d) 3 : 1
- (e) None of these

**Q82.**

A sum of money Is divided among A, B, C and D in the ratio of 3 : 5 : 9 : 13 respectively. If the share of C is Rs. 2412 more than the share of A, then what is the total amount of money of B and D together ?

- (a)Rs. 4422
- (b)Rs. 7236
- (c)Rs. 6030
- (d)Rs. 4,824
- (e) None of these

**Q83.**

The age of Khushi and Jagriti are in the ratio of 5 : 8 respectively. After 8 years the ratio of their age will be 3 : 4. What is the difference in their age ?

- (a) 16 years
- (b) 8 years
- (c) 10 years
- (d) 12 years
- (e) None of these

**Q84.**

The respective ratio of, the present age of a mother and daughter is 7 : 1. Four years ago the respective ratio of their age was 19 : 1. What will be the mother's age four years from now?

- (a) 42 years
- (b) 38 years
- (c) 46 years
- (d) 36 years
- (e) None of these

**Q85.**

Mr. X invested a certain amount in Debit and Equity funds in the ratio of 4 : 5 respectively. At the end of one year, he earned a total dividend of 30% on his investment. After one year he reinvested the amount including dividend in the ratio of 6 : 7 in Debit and Equity Funds. If the amount reinvested in Equity Funds was Rs. 94, 500, what was the original amount invested in Equity Funds ?

- (a)Rs. 75,000
- (b)Rs. 81,007
- (c)Rs. 60,000
- (d)Rs. 65,007



(e) None of these

**ANSWERS :**

- |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| 1a  | 2a  | 3b  | 4a  | 5a  | 6c  |
| 7c  | 8e  | 9d  | 10a | 11d | 12c |
| 13e | 14d | 15d | 16b | 17b | 18a |
| 19a | 20d | 21d | 22c | 23c | 24c |
| 25e | 26c | 27c | 28b | 29b | 30c |
| 31d | 32a | 33b | 34e | 35b | 36d |
| 37d | 38c | 39b | 40c | 41d | 42e |
| 43e | 44b | 45c | 46d | 47d | 48a |
| 49e | 50c | 51d | 52e | 53a | 54a |
| 55a | 56a | 57b | 58a | 59a | 60a |
| 61a | 62d | 63b | 64a | 65e | 66e |
| 67c | 68c | 69e | 70e | 71e | 72c |
| 73c | 74c | 75a | 76e | 77c | 78d |
| 79b | 80e | 81c | 82b | 83e | 84c |
| 85a |     |     |     |     |     |

**1.**(1) Let the initial seats for Maths, Physics and Biology be  $5x$ ,  $7x$ , and  $8x$  respectively,

Now, new seats for Maths

$$= 5x \times 140/100$$

$$\text{For physics} = (7x \times 150/100)$$

$$\text{and for Biology} = 8x \times 175/100$$

$\therefore$  Required ratio

$$= (5x \times 140)/100 : 7x \times 150/100 : 8x \times 175/100$$

$$= 5 \times 140 : 7 \times 150 : 8 \times 175$$

$$= 2 : 3 : 4$$

**2.**(1) Ratio of rent's sharing

$$= 8 : 12 : 14 = 4 : 6 : 7$$

Total rent = Rs. 578

Share of Kiara

$$= 7/17 \times 578 = \text{Rs. } 238$$

**3.**(2) From the options,

$$2x + 3x + 4x + 5x = 1400$$

$$= 14x = 1400$$

$$x = 100$$

$\therefore$  shares are : Rs. 200, Rs. 300, Rs. 400 and Rs. 500,

Hence, total sum =  $200 + 300 + 400 + 500 = \text{Rs. } 1400$

**4.**(1) Let the number of students in Arts, Commerce and Science be  $3x$ ,  $5x$  and  $8x$  respectively,

On increasing their respective numbers,

Required ratio

$$= 3x \times 120/100 : 5x \times 140/100 : 8x \times 125/100$$

$$= 360 : 700 : 1000 = 18 : 35 : 50$$

**5.**(1) Let  $x$  boys and  $x$  girls joined the group.

According to the question,

$$(20 + x)/(25 + x) = 7/8$$

$$= 160 + 8x = 175 + 7x$$

$$= 8x - 7x = 175 - 160$$

$$= x = 15$$

$\therefore$  New number of members

$$= 20 + x + 25 + x = 45 + 2x$$

$$= 45 + 2 \times 15 = 75$$

**6.**(3) Let the amount received by

A, B, C and D be Rs.  $3x$ ,  $4x$ ,  $9x$  and Rs.  $10x$  respectively.

According to the question,

$$9x - 4x = 2580$$

$$= 5x = 2580$$

$$x = 2580/5 = 516$$

Total amount of the money of A and D =  $3x + 10x$

$$= 13x = 13 \times 516 = \text{Rs. } 6708$$

**7.**(3) Let the production of company B = 100 units

$\therefore$  Production of company A = 120 units

Production of company C

$$= 120 \times 100/80 = 150 \text{ units}$$

$\therefore$  Required ratio

$$= 120 : 100 : 150$$

$$= 12 : 10 : 15$$

**8.**(5) Let the original number of students in Arts and Science faculties be  $5x$  and  $8x$  respectively.

According to the question.

$$5x + 150/8x + 80 = 3/4$$

$$= 24x + 240 = 20x + 60$$

$$4x + 240 = 20x + 600$$

$$= 4x = 360$$

$$= x = 360$$

$$= x \times 360 / 4 = 90$$

$\therefore$  Original number of students =  $5x + 8x = 13x$

$$= 13 \times 90 = 1170$$

**9.**(4) Let the number be  $x$  and  $y$  respectively.

$$\therefore 75x/100 = 5y/8$$

$$= x/y = 5/8 \times 100/75$$

$$= 5/6 \text{ or } 5 : 6$$

**10.**(1)  $x : 336 = 400 : 192$

$$= x \times 192 = 336 \times 400$$

$$x = 336 \times 400/192 = 700$$

**11.**(4)  $32/a = b/2 = ab = 64$

**12.**(3) Required ratio

$$= 5 \times 120/100 : 8 \times 125/100 : 4 \times 130/100$$

$$= 5 \times 120 : 8 \times 125 : 4 \times 130$$

$$= 15 : 25 : 13$$

**13.**(5) Let the number be  $x$  and  $y$  respectively,

According to the question

$$y \rightarrow x \times 30/100 = 4/5y = y/5 = 3x/10$$

$$\rightarrow x : y = 10/(3 \times 5) = 2 : 3$$

**14.**(4) (Tricky approach)

If the largest and the second largest angles be  $3x^\circ$  and  $2x^\circ$ , respectively then,

third angle =  $x$

$\therefore$  Required sum

$$= x + 2x = 3x = 90^\circ$$

**15.**(4) [Tricky approach]

$$7x + 2x + 5x + 6x = 360^\circ$$

$$= 2x = 360^\circ$$

$$= x = 360/20 = 18$$

$$\therefore \text{Required answer} = 2 \times 2x + 7x/2$$

$$= 15x/2 = 15 \times 18/2 = 135^\circ$$

**16.**(2)  $2x + 4x + 7x + 5x = 360^\circ$

$$= 18x = 360^\circ$$

$$x = 360^\circ/18 = 20^\circ$$

$\therefore$  Smallest angle of the triangle

$$= 2 \times 20^\circ = 40^\circ$$

Second angle =  $2 \times 40^\circ = 80^\circ$

$\therefore$  Required angle



$$= 180^\circ - 80^\circ - 40^\circ = 60^\circ$$

$$17.(2) \quad 3x + 4x + 6x + 7x = 360^\circ$$

$$= 20x = 360^\circ$$

$$x = 18^\circ$$

∴ Smaller angle of the parallelogram

$$= 6x/2 = 3x = 54^\circ$$

∴ Adjacent angle of parallelogram

$$= 180^\circ - 54^\circ = 126^\circ$$

$$18.(1) \quad x + 4x + 5x + 60 = 360^\circ$$

$$= 10x = 300^\circ$$

$$x = 30$$

∴ Required difference =  $5x - x$

$$= 4x = 4 \times 30 = 120^\circ$$

$$19.(1) \quad 20x + 73x + 83x$$

$$= 950 - 25 - 15 - 30$$

$$= 176x = 880$$

$$x = 880/176 = 5$$

∴ Number of coins got by Amita

$$= 73x + 15 = 73 \times 5 + 15 = 380$$

$$20.(4) \quad \text{Sum of three angles of a triangle} = 180^\circ$$

$$\text{Largest angle} = 13x$$

$$\text{Second largest angle} = 12x$$

∴ Third angle

$$= (13x + 12x) \times 1/5 = 5x$$

$$\therefore 13x + 12x + 5x = 180^\circ$$

$$= 30x = 180^\circ$$

$$= x = 180/30 = 6^\circ$$

∴ Required sum =  $5x + 12x$

$$= 17x = 17 \times 6 = 102^\circ$$

$$21.(4) \quad \text{Pranab} \times 25/100 = \text{Surya} \times 80/100$$

$$= \text{Pranab} / \text{Surya} = 80/25 = 16/5$$

$$\text{Pranab} : \text{Surya} = 16 : 5$$

$$\text{Surya} / \text{Dheeru} = 40/100 = 2/5$$

$$\text{Surya} : \text{Dheeru} = 2 : 5$$

$$\text{Pranab} : \text{Surya} : \text{Dheeru}$$

$$= 16 \times 2 : 5 \times 2 : 5 \times 5$$

$$= 32 : 10 : 25$$

Now,

$$\therefore 25 = 600000$$

$$\therefore 32 = 600000/25 \times 32$$

$$= \text{Rs. } 768000 = \text{Pranab's annual income}$$

∴ Pranab's monthly salary

$$= 768000/12 = \text{Rs. } 64000$$

$$22.(3) \quad \text{Sum of the angles of quadrilateral} = 360^\circ$$

$$= x + 6x + 2x + 45 = 360$$

$$= 9x = 360 - 45 = 315$$

$$= x = 315/9 = 35$$

$$23.(3) \quad \text{Sum of the angles of a quadrilateral} = 360^\circ$$

$$\therefore 3x + 4x + 6x + 5x = 360^\circ$$

$$= 18x = 360^\circ$$

$$x = 20^\circ$$

∴ The largest angle of the quadrilateral =  $6 \times 20 = 120^\circ$

∴ Smaller angle of parallelogram

$$= 120 \times 2/3 = 80^\circ$$

∴ Its adjacent angle

$$= 180 - 80 = 100^\circ$$

24.(3) If the number of 2 rupee coins be  $x$ , then number of 5 rupee coins =  $x - 5$

$$\therefore 2x + 5(x - 5) = 50 - 25$$

$$= 2x + 5x - 25 = 24$$

$$= 7x = 24 + 25 = 49$$

$$x = 49/7 = 7$$

25.(5) Let the adjacent angles of parallelogram be  $2x^\circ$  and  $3x^\circ$  respectively, then

$$2x^\circ + 3x^\circ = 180^\circ$$

$$= 5x^\circ = 180^\circ = x^\circ = 36^\circ$$

∴ Smallest angle of parallelogram

$$= 2x = 72^\circ$$

= smallest angle of the quadrilateral =  $36^\circ$

∴ Its largest angle =  $4 \times 36 = 144^\circ$

∴ Required sum =  $144 + 72 = 216^\circ$

$$26.(3) \quad \text{Sum of adjacent angles of a parallelogram} = 180^\circ$$

∴ One of the angles of triangle

$$= 2/3 \times 180^\circ = 120^\circ$$

Sum of three angles of a triangle

$$= 180^\circ \therefore 5x + 7x = 180 - 120$$

$$= 12x = 60$$

$$x = 5$$

Second angle of triangle

$$= 5 \times 5 = 25^\circ$$

Third angle of triangle

$$= 7 \times 5 = 35^\circ$$

∴ The second largest angle of triangle

$$= 35^\circ$$

$$27.(3) \quad \text{Sum of angles of a triangle} = 180^\circ$$

$$= 3x + x + 44 = 180$$

$$= 4x = 180 - 44 = 136$$

$$x = 136/4 = 34$$

∴ Largest angle of triangle

$$= 3 \times 34 = 102^\circ$$

$$\therefore 150\% \text{ of } 102 = 102 \times 150/100 = 153$$

28.(2) For the Parallelogram,

$$4x^\circ + 5x^\circ = 180^\circ$$

$$= 9x = 180$$

$$x = 180/9 = 20$$

Smaller angle of parallelogram

$$= 4 \times 20 = 80^\circ$$

∴ One angle of quadrilateral

$$= 3 \times 80 = 240^\circ$$

Now,  $4y + 11y + 9y$

$$= 360 - 240 = 120$$

$$= 24y = 120$$

$$= y = 120/24 = 5$$

= Its smallest angle

$$= 4 \times 5 = 20^\circ$$

∴ Required sum

$$= 240^\circ + 20^\circ = 260^\circ$$

$$29.(2) \quad \text{Sum of the angles of quadrilateral} = 360^\circ$$

$$\therefore 3x + 4x + 5x + 6x = 360$$

$$= 18x = 360$$

$$x = 360/18 = 20$$

∴ Smallest angle of quadrilateral =

$$3 \times 20 = 60^\circ$$

Largest angle of quadrilateral

$$= 6 \times 20 = 120^\circ$$

∴ smallest angle of triangle

$$= 60 \times 2/3 = 40^\circ$$

Largest angle of triangle

$$= 2 \times 40 = 80^\circ$$

∴ Third angle of triangle

$$= 180^\circ - 40^\circ - 80^\circ = 60^\circ$$

∴ Required sum





$$= 60 + 120 = 180^\circ$$

**30.(3)** The smallest angle of triangle is half of the largest angle.

$$\therefore \text{Ratio of three angles} = 4 : 3 : 2$$

$$\text{Now, } 4x + 3x + 2x = 180$$

$$= 9x = 180$$

$$= x = 20$$

$\therefore$  Required difference

$$= 4x + 3x + 2x = 180$$

$$= 9x = 180$$

$$x = 20$$

$\therefore$  Required difference

$$= 4x - 2x = 2x$$

**31.(4)** Let the three angle of quadrilateral be  $13x^\circ$   $9x^\circ$  +

$$5x = 360 - 36$$

$$27x = 324 = x = 324/27 = 12$$

$\therefore$  Required difference

$$= 13x - 5x = 8x = 8 \times 12 = 96^\circ$$

**32.(1)** Let the adjacent angles be  $7x^\circ + 8 = 180$

$$= 15x = 180$$

$$x = 12$$

$$\therefore \text{Smaller angle} = 7 \times 12 = 84^\circ$$

$$\text{Again, } 5y + 6y + 7y + 12y = 360^\circ$$

$$= 30y = 360^\circ$$

$$y = 360^\circ/30 = 12^\circ$$

$$\therefore \text{Second largest angle of ht quadrilateral} = 7 \times 12 = 84^\circ$$

$$\therefore \text{Required sum} = 84 + 84 = 168^\circ$$

**33.(2)** Let the present age of Sulekha and Arunima be  $9x$  and  $8x$  years respectively.

According to the question,

After 5 years,

$$(9x + 5)/(8x + 5)$$

$$= 10/9$$

$$= 81x + 45 = 80x + 50$$

$$= 81x - 80x = 50 - 45$$

$$x = 5 \text{ years}$$

**34.(5)** Let the present age of Sonal and Nitya be  $9x$  and  $5x$  years respectively

According to the question

$$= (9x + 8)/(5x + 8) = 13/9$$

$$= 81x + 72 = 65x + 104$$

$$= 81x - 65x = 104 - 72$$

$$= 16x = 32$$

$$x = 32/16 = 2$$

$\therefore$  Required difference =  $9x - 5x$

$$= 4x = 4 \times 2 = 8 \text{ years}$$

**35.(2)** Let the present age of father and son be  $17x$  years and  $7x$  years respectively.

According to the question.

$$(17x - 6)/(7x - 6) = 3/1$$

$$= 21x - 18 = 17x - 6$$

$$= 21 - 17x = 18 - 6$$

$$= 4x = 12$$

$$x = 12/4 = 3$$

$\therefore$  Father's present age

$$= 17 \times 3 = 51 \text{ years}$$

**36.(4)** Rani : Komal =  $3 : 5 = 6 : 10$

$$\text{Komal : Pooja} = 2 : 3 = 10 : 15$$

$$\therefore \text{Rani : Komal : Pooja} = 6 : 10 : 15$$

We have insufficient data to solve this questions.

**37.(4)** Let the present age of Amit and his father be  $2x$  years and  $5x$  years respectively.

$$\therefore (2x + 4)/(5x + 4) = 5/11$$

$$= 25x + 20 = 22x + 44$$

$$= 3x = 24$$

$$x = 24/3 = 8$$

$\therefore$  Father's age 5 years ago

$$= 5x - 5 = 5 \times 8 - 5 = 35 \text{ years}$$

**38.(3)** Four years ago,

$$\text{Shyam : Ram} = 3 : 4$$

After four years,

$$(3x + 8)/(4x + 8) = 5/6$$

$$= 20x + 40 = 18x + 48$$

$$2x = 48 - 40 = 8$$

$$= x = 8/2 = 4$$

$\therefore$  Shyam's present age =  $3x + 4$

$$= 3 \times 4 + 4 = 16 \text{ years}$$

**39.(2)** Let the present age of Tina and Rakesh be  $9x$  and  $10x$  years respectively.

10years ago,

$$(9x - 10)/(10x - 10) = 4/5$$

$$= 45x - 50 = 40x - 40$$

$$5x = 10$$

$$x = 10/5 = 2$$

$\therefore$  Rakesh's present age

$$= 10x = 10 \times 2 = 20 \text{ years}$$

**40.(3)** Let the present age of Vishal and Shekhar be  $14x$  and  $17$  years respectively.

After 6 years

$$= (14x + 6)/(17x + 6) = 17/20$$

$$= 280x + 120 = 9x = 18$$

$$x = 18/9 = 2$$

=Shekhar's present age

$$= 17 \times 2 = 34 \text{ years}$$

**41.(4)** Let the present age of father and son be  $5x$  and  $2x$  years respectively,

After 4 years,

Son's age =  $y$  years

and mother's age =  $2y$  years

$$\text{Now, } y = 2x + 4$$

$$= x(y - 4)/2$$

$\therefore$  Father's present age

$$= 5(y - 4)/2 \text{ years}$$

$$\text{Now, } y = 2x + 4$$

$$= x = (y - 4)/2$$

$\therefore$  Father's present age

$$= 5(y - 4)/2 \text{ Years}$$

Mother's present age

$$= (2y - 4) \text{ years}$$

Clearly, data are inadequate.

**42.(5)** Let Radha's present age

$$= x \text{ years}$$

$$\therefore \text{Raj's present age} = 4/9 \times 27$$

$$= 12 \text{ years}$$

$\therefore$  Raj's age after 5 years

**43.(5)** Let the present age of Meena and Fiona be  $16x$  and  $13x$  year respectively.

According to the question,

$$(16x - 4)/(13x - 4)$$

$$= 14/11$$

$$= 176x - 44 = 182x - 56$$



$$= 182x - 176x = 56 - 44$$

$$= 6x = 12$$

$$= x = 2$$

∴ Fiona's age after four years

$$= 13x + 4$$

$$= 13 \times 2 + 4 = 30 \text{ years}$$

**44.**(4) Let Swati's present age

$$= 4x \text{ years}$$

Trupati's present age = 5x years

$$\therefore (4x + 6)/(5x + 6)$$

$$= 6/7$$

$$= 30x + 36 = 28x + 42$$

$$= 2x = 42 - 36 = 6$$

$$= x = 3 = \text{difference of their age}$$

**45.**(3) Let Ram's present age be 6x years and that of

Rakesh be 11x years.

Four year ago,

$$(6x - 4)/(11x - 4) = \frac{1}{2}$$

$$= 12x - 8 = 11x - 4$$

$$x = 8 - 4 = 4$$

∴ Rakesh's age after five years

$$= 11x + 5$$

$$= 11 \times 4 + 5 = 49 \text{ years}$$

**46.**(4) According to the question,

$$(2x + 7x)/2 = 27$$

$$= 9x = 27 \times 2 = 54$$

$$x = 54/9 = 6$$

∴ Mother's age after 7 Years

$$= 7x + 7 = 7 \times 6 + 7 = 49 \text{ years}$$

**47.**(4) Let the present age of Ram,

Rohan and Raj be 3x, 4x and 5x

years respectively.

$$\therefore 3x + 4x + 5x = 3 \times 28$$

$$= 12x = 84$$

$$= x = 84/12 = 7$$

Sum of the age of Ram and Rohan after 5 years

$$= 3x + 4x + 10 = 7x + 10$$

$$= 7 \times 7 + 10 = 59 \text{ years}$$

**48.**(1) Rehana's present age

$$= 85 - 7 = 78 \text{ years}$$

Wasim's present age

$$= 78 - 12 = 66 \text{ years}$$

∴ Manoj's present age

$$= 3/11 \times 66 = 18 \text{ years}$$

**49.**(5) Jahnvi's present age

$$= 33 - 9 = 24 \text{ years}$$

∴ Aarti's present age

$$= 24 - 9 = 15 \text{ years}$$

Now, Aarti : Savita

$$= 5 : x$$

$$= 15 : 3x$$

∴ Savita's present age

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

$$\therefore 3x - 15 = 24$$

$$= 3x = 24 + 15 = 39$$

$$= x = 39/3 = 13$$

**50.**(3) Let the amount received by P, Q and R be Rs. 3x,

Rs. 5x and Rs. 7x respectively.

$$\therefore 7x - 5x = 4000$$

$$x = 4000 / 2 = 2000$$

∴ Amount received by P and Q together = 8x

$$= 8 \times 2000 = \text{Rs. } 16000$$

**51.**(4) Abhinav's investment

$$= \text{Rs. } 6000$$

$$\text{Sunil's investment} = 70 \times 6000/100$$

$$= \text{Rs. } 4200$$

$$\text{Rita's investment} = 4200 \times 125/100$$

$$= \text{Rs. } 5250$$

∴ Required ratio

$$= 5250 : (6000 + 4200 + 5250)$$

$$= 5250 : 15450 = 35 : 103$$

$$\mathbf{52.}(5) (9 - x)/(15 - x) = (15 - x)/(27 - x)$$

$$= 243 - 9x - 27x + x^2$$

$$225 - 30x + x^2$$

$$= 6x = 243 - 225 = 18$$

$$= x = 3$$

**53.**(1) Let the amount be Rs. x,

$$\therefore (3/9 - 2/14)x = 40$$

$$= (1/3 - 1/7)x = 40 = (7 - 3/21)x = 40$$

$$= x = (40 \times 21)/4 = \text{Rs. } 210$$

**54.**(1) If the total amount be Rs. x<sub>1</sub>, then

$$2x/15 = 4908$$

$$x = (4908 \times 15)/2 = \text{Rs. } 36810$$

∴ Required difference

$$= 7 - 6/15 \times 36810 = \text{Rs. } 2454$$

**55.**(1) Four years ago,

Let, Father's age = 10x years

Son's age = 3x years

$$\therefore 10x + 3x + 8 = 60$$

$$= 13x = 60 - 8 = 52$$

$$= x = 4$$

∴ Required difference

$$= 7x = 7 \times 4 = 28 \text{ years}$$

**56.**(1)  $x = y + 52$

$$z = y - 26$$

$$\therefore x + Y + z = 221$$

$$= y + 52 + y + y - 26 = 221$$

$$= 3y = 221 - 26 = 195$$

$$y = 195/3 = 65$$

$$\therefore x = 65 + 52 = 117$$

$$z = 65 - 26 = 39$$

$$\therefore x : y : z = 117 : 65 : 39$$

$$= 9 : 5 : 3$$

**57.**(2) Number of boys = x (let)

Number of girls = y (let)

$$\therefore (45 \times x + 36 \times y) / (x + y)$$

$$= 42.25$$

$$= 45x + 36y = 42.25x + 42.25y$$

$$= 45x - 42.25x = 42.25y - 36y$$

$$= 2.75x = 6.25y$$

$$= x/y = 6.25/2.75 = 25/11$$

**58.**(1) Let, First number = x

Second number = y

$$\therefore x \times 50/100 = y \times \frac{3}{4}$$

$$= x/2 = y \times \frac{3}{4}$$

$$= x/2 = \frac{3}{4} \times 2 = 3/2 \text{ or } 3 : 2$$

**59.**(1) Let, Mahesh = 3x years

Ajay = 2x years

After 8 years,

$$(3x + 8)/(2x + 8) = 11/8$$

$$= 24x + 64 = 22x + 88$$



$$2x = 88 - 64 = 24$$

$$= x = 12$$

$$\therefore \text{Ajay's age} = 2x = 2 \times 12$$

$$= 24 \text{ years}$$

$$\therefore \text{Age of Mahesh's son}$$

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

**60.**(1) In 64 litres of mixture,

$$\text{Milk} = \frac{7}{10} \times 64 = 44.8 \text{ litres}$$

$$\text{Water} = 64 - 44.8 = 19.2 \text{ litres}$$

In 8 litres of mixture,

$$\text{Milk} = \frac{7}{10} \times 8 = 5.6 \text{ litres}$$

$$\text{Water} = 2.4 \text{ litres}$$

In resulting mixture

$$\text{milk} = 44.8 - 5.6 + 12$$

$$= 51.2 \text{ litres}$$

$$\text{Water} = 19.2 - 2.4$$

$$= 16.8 \text{ litres}$$

$$\therefore \text{Required ratio} = 51.2 : 16.8$$

$$= 64 : 21$$

**61.**(1) Ratio of amount collected

$$= (14 \times 2) : (12 \times 3) : (10 \times 5)$$

$$= 28 : 36 : 50 = 14 : 18 : 25$$

$$\text{Sum of ratio} = 14 + 18 + 25$$

$$= 57$$

$$\therefore \text{Amount collected on day one}$$

$$= \frac{14}{57} \times 4560 = \text{Rs. } 1120$$

**62.**(4) P's present age = 8x years

$$Q's \text{ present age} = 5x \text{ years}$$

After 4 years,

$$\frac{(8x + 4)}{(5x + 4)} = \frac{4}{3}$$

$$= \frac{24x + 12}{15x + 20} = \frac{20x + 16}{15x + 20}$$

$$= \frac{24x - 20x}{15x - 20x} = \frac{4x}{-5x} = \frac{4}{-5}$$

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

$$x = 1$$

$$P's \text{ age } 7 \text{ years hence} = 8x + 7$$

$$= 8 + 7 = 15 \text{ years}$$

$$\text{Required ratio} = 15 : 5 = 3 : 1$$

**63.**(2) Present age of younger child = x years

Present age of older child

$$= (x + 8) \text{ years}$$

Sum of the present ages of 4 member family

$$= (4 \times 40 + 4 \times 15) \text{ years}$$

$$= (160 + 60) \text{ years} = 220 \text{ years}$$

Sum of present ages of 6 members

$$= 6 \times 40 = 240 \text{ years}$$

$$\therefore \text{Sum of the present ages of children}$$

$$= 240 - 220 = 20 \text{ years}$$

$$\therefore x + x + 8 = 20$$

$$= 2x + 8 = 20$$

$$x = 6 \text{ years}$$

$$\therefore \text{Present age of older child}$$

$$= 6 + 8 = 14 \text{ years}$$

$$\therefore \text{Required ratio} = 14 : 6$$

$$= 7 : 3$$

**64.**(1) 4 years ago,

$$A's \text{ age} = 10 \text{ years,}$$

$$B's \text{ age} = 3x \text{ years}$$

$$\therefore A's \text{ present age}$$

$$= (10x + 4) \text{ years}$$

$$B's \text{ present age} = (3x + 4) \text{ years}$$

According to the question,

$$\frac{(10x + 4 + 8)}{2} - \frac{(3x + 4 + 8)}{2}$$

$$= -2$$

$$= \frac{10x + 12}{2} - \frac{(3x + 12)}{2} = 2$$

$$= \frac{10x + 12 - 3x - 12}{2} = 2$$

$$= \frac{7x}{2} = 2$$

$$= 7x = 4$$

$$x = \frac{4}{7}$$

$$\therefore B's \text{ present age} = 3x + 4$$

$$= 3 \times \frac{4}{7} + 4 = 10 \text{ years}$$

**65.**(5) Bob's present age = x years (let)

$$\therefore \text{Abby's present age}$$

$$= (x + 8) \text{ years}$$

According to the question,

After to the question, After 4 years

$$\frac{(x + 4)}{(x + 12)} = \frac{4}{5}$$

$$= \frac{5x + 20}{5x + 60} = \frac{4x + 16}{5x + 60}$$

$$= \frac{5x - 4x}{5x - 60} = \frac{4x - 16}{5x - 60}$$

$$x = 28 \text{ years}$$

**66.**(5) Total number of students in college A = 5x

Total number of students in college B = 8x

In college B,

$$\text{Boys} = \frac{5}{8} \times 8x = 5x$$

Boys who study commerce

$$= 5x \times \frac{60}{100} = 3x$$

Boys in other streams

$$= 5x - 3x = 2x$$

$$\therefore 2x = 800$$

$$x = 400$$

\therefore Total number of students in college A

$$= 5x = 5 \times 400 = 2000$$

**67.**(3) A : B = 3 : 4

$$A : C = 1 : 2 = 3 : 6$$

$$\therefore A : B : C = 3 : 4 : 6$$

6 years hence,

$$3x + 4x + 6x + 18 = 96$$

$$= 13x + 18 = 96$$

$$= 13x = 96 - 18 = 78$$

$$= x = \frac{78}{13} = 6$$

$$\therefore A's \text{ present age}$$

$$= 3x = 18 \text{ years}$$

**68.**(3) Let A's present age be x years.

$$\therefore B's \text{ present age} = (x + 8) \text{ years}$$

$$C's \text{ present age} = (x + 16) \text{ years}$$

After 12 years,

$$A's \text{ age} / C's \text{ age} = \frac{5}{9}$$

$$= \frac{(x + 12)}{(x + 16 + 12)}$$

$$= \frac{5}{9}$$

$$= \frac{9x + 108}{9x + 28} = \frac{5x + 60}{9x + 28}$$

$$= \frac{9x - 5x}{9x - 28} = \frac{4x - 60}{9x - 28}$$

$$= \frac{4x}{9x - 28} = \frac{4x - 60}{9x - 28}$$

$$\therefore \text{Sum of the present age of A, B and C}$$

$$= x + x + 8 + x + 16$$

$$= 3x + 24 = 3 \times 8 + 24$$

$$= 48 \text{ years}$$

**69.**(5) According to the question,

$$B = A + 3 = A + B - 3$$

$$\text{and } B = C - 3 = C + B - 3$$

$$\text{Again, after 3 years, } \frac{(B - 3 + 3)}{(B + 3 + 3)} = \frac{4}{5}$$

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

$$= \frac{5B}{5B + 30} = \frac{4B}{5B + 30}$$

$$= \frac{5B - 4B}{5B + 30} = \frac{B}{5B + 30}$$



$= B = 24$   
 $\therefore A + B + C$   
 $= B - 3 + B + B + 3$   
 $= 3B = 3 \times 24 = 72$  years  
**70.**(5) Ranjana's present age  
 $= 15x$  years  
 Rakhi's present age  $= 17x$  years  
 After 6 years,  
 $(15x + 6)/(17x + 6) = 9/10$   
 $= 153x + 54 = 150x + 60$   
 $= 153x - 150x = 60 - 54$   
 $= 3x = 6$   
 $x = 2$

$\therefore$  Ranjana's age after 6 years  
 $= 15x + 6$   
 $= (15 \times 2 + 6)$  years  $= 36$  years

**71.**(5) 7 boys + 2 men  
 $= 3$  boys + 3 men  
 $= 4$  boys = 1 man

$\therefore$  Required ratio  $= 1 : 4$

**72.**(3)  $A : B = 3 : 4$

$A : C = 1 : 2$

$= 3 : 6$

$\therefore A : B : C = 3 : 4 : 6$

According to the question,

After 6 years

Sum of ages of A, B and C  $= 96$

$= 3x + 4x + 6x + 18 = 96$

$= 13x = 96 - 18 = 78$

$= x = 78/13 = 6$

$\therefore$  A's present age  $= 3x$

$= 3 \times 6 = 18$  years

**73.**(3) Ram's present age

$= (4x + 4)$  years

Sonu's present age

$= (9x + 4)$  years

According to the question,

$4x + 4 + 10 = 9x + 4 - 10$

$= 4x + 14 = 14 + 6 = 5x = 20$

$= x = 4$

$\therefore$  Tina's present age  $= 4x + 14$

$= 4 \times 4 + 14 = 30$  years

**74.**(3) Let the first number be  $x$  and the second number be  $y$ .

$x + y = 1000/3\%$  of  $y$ .

$x + y = [1000/(3 \times 1000)]y$

$x + y = 10/3 y$

$3x + 3y = 10y$

$3x = 7y$

$x/y = 7/3 = 7 : 3$

**75.**(1) Let P's share be  $6x$

Q's share be  $19x$  and

R's share be  $7x$ .

Total sum  $= 6x + 19x + 7x = 32x$

$6x : 19x + 200 : 7x - 200$

$= 3 : 10 : 3$

We can write

$6x = 7x - 200$

$x = 200$

$\therefore$  Total Sum  $= 32x = \text{Rs. } 6400$

**76.**(5) Ratio of no. boys: Girls  $= 2 : 3$

Let the no. of boys  $= 2x$

Then the no. of girls  $= 3x$

No. of boys after 20% increase

$= 1.20 \times 2x = 2.4x$ .

No. of girls after 10% increase

$= 1.10 \times 3x = 3.3x$

Required ratio  $= 2.4x/3.3x$

$= 8/11 = 8 : 11$

**77.**(3)  $A : B = 5 : 8$

Let A's income be  $5x$  and B's income be  $8x$

According to question

$(5x + 25)/8x = 5/4$

$= 5(x + 5)/4 \times 2x = 5/4$

$= (x + 4)/2x = 1$

$x + 5 = 2x$

$x = 5$

B's income  $= 8x = 8 \times 5$

Rs. 40 lakhs

**78.**(4) Let the earnings of A and B Rs.  $4x$  and  $7x$  respectively.

After 50% of  $4x$

After 25% decrease

B's earning  $= 75\%$  of  $7x$

Ratio  $= 150\%$  of  $4x : 75\%$  of  $7x$

$= 8 : 7$

But their total earnings are unknown. Hence A's earning's can't be known.

**79.**(2) Let the salaries of A, B and C be Rs.  $2x$ , Rs.  $3x$  and  $5x$  respectively.

After respective increase of 15%, 10% and 20% their salaries will be

$115 \times 2x/100$ ,  $110 \times 3x/100$  and  $120 \times 5x/100$

$\therefore$  Required ratio

$= 115 \times 2x/100 : 110 \times 3x/100 : 120 \times 5x/100$

$= 23 : 33 : 60$

**80.**(5) Let the present age of Seema and Naresh be  $5x$  and  $7x$  years respectively.

According to the question,

$(5x + 5)/7x + 5 = 3/4$

$= 21x + 15 = 20x + 20$

$= x = 20 - 15 = 5$

$\therefore$  Naresh's present age

$= 7x$  years  $= 7 \times 5 = 35$  years

**81.**(3)  $(A + B)$ 's 1 day's work  $= 1/15$

$(B + C)$ 's 1 day's work  $= 1/20$

$(C + A)$ 's 1 day's work  $= 1/30$

On adding all three,

$2(A + B + C)$ 's 1 day's work

$= 1/15 + 1/20 + 1/30$

$= (4 + 3 + 2)/60 = 9/60 = 3/20$

$\therefore (A + B + C)$ 's 1 day's work  $= 3/40$

$\therefore$  A's 1 day's work  $= 3/40 - 1/20$

$= 3 - 2/40 = 1/40$

$\therefore$  Time taken by A  $= 40$  day's C 1 day's work

$= 3/40 - 1/15$

$= (9 - 8)/120 = 1/120$

$\therefore$  Time taken by C  $= 120$  days Required ratio

$= 40 : 120$

$= 1 : 3$

**82.**(2) Let the original sum be Rs.  $x$ ,

Sum of the ratios

$$= 3 + 5 + 9 + 13 = 30$$

$$\therefore C's \text{ share} = 9x/30 = 3x/10$$

$$A's \text{ share} = 3x/30 = x/10$$

According to the question

$$3x/10 - x/10 = 2412$$

$$= 2x/10 = 2412$$

$$= x = 2412 \times 5 = \text{Rs. } 12060$$

$\therefore$  Amount received by B and together

$$= \text{Rs. } (5 + 13)/30 \times 12060 = \text{Rs. } 7236$$

**83.**(5) Let the present age of Khushi and Jagriti be  $5x$  and  $8x$  years respectively.

After 8 years,

$$5x + 8/8x + 8 = \frac{3}{4}$$

$$= 24x + 24 = 20x + 32$$

$$= 4x = 32 - 24 = 8$$

$$= x = 8/4 = 2$$

$\therefore$  Required difference

$$= (8x - 5x)\text{years}$$

$$= 3x = 3 \times 2 = 6 \text{ years}$$

**84.**(3) Let the age of the mother and daughter be  $7x$  and  $x$  years respectively.

$$\therefore \text{Four years ago, } (7x - 4)/(x - 4) = 19/1$$

$$= 19x - 76 = 7x - 4$$

$$= 12x = 72 = x = 6$$

$\therefore$  Mother's age after four years

$$= 7x + 4 = 7 \times 6 + 4 = 46 \text{ years}$$

**85.**(1) Let the original amount invested in Debts and Equity fund be  $4x$  and  $5x$  respectively.

Dividend at the end of the year

$$= 9x \times 30/100 = 27x/10$$

Total investment after one year

$$= \text{Rs. } (9x + 27x/10) = \text{Rs. } (117x/10)$$

Total investment after one year

$$= \text{Rs. } [9x + (27x/10)] = \text{Rs. } (117x/10)$$

$$\therefore 7/13 \times 117x/10$$

$$= 94500$$

$$= x = (94500 \times 13 \times 10)/(7 \times 117)$$

$$= 15000$$

$\therefore$  The original amount invested in Equity funds =  $5x$

$$= 5 \times 75000$$

$$= \text{Rs. } 75000$$