

BOOST UP PDFS | Quantitative Aptitude | Ratio and Proportion (Moderate Level Part-1)

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1. 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

2. An amount of money is divided among P, Q and R in ratio of 3: 5: 7, respectively. If the amount received by R is Rs. 4000 more than the amount received by Q, what will be the total amount received by P and Q together?

- a. Rs. 8000
- b. Rs. 12000
- c. Rs. 16000
- d. Cannot be determined
- e. None of these

3. A sum of money is divided among A, B, C and D in the ratio 2 : 3 : 7 : 11. If the share of C is Rs 2755

more than A, then the sum of money by B and D together is?

- a. Rs. 4408
- b. Rs. 5510
- c. Rs. 6612
- d. Rs. 7714
- e. None of these

4. The sides of a triangle are in the ratio $1/2:1/3:1/4$ and its perimeter is 104 cm. The length of the longest side is (in cm)

- a. 26
- b. 32
- c. 48
- d. 52
- e. None of these

5. In a company, ratio of male to female employees 7 : 3 and the monthly salary of a male employee is 60% of the total number of employees and monthly salary of a female employee is 90% salary of a male employee. If the total salary of male and female employee is Rs.5238000 then find the number of employees in the company.

- a. 3000

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- b. 4000
- c. 3250
- d. 3150
- e. None of these

6. 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 schools A, B and C?

- a. 13:25:15
- b. 20:25:13
- c. 15:25:13
- d. Cannot be determine
- e. None of these

7. 360 is contained in a box. The box has 1 rs, 50 paise and 25 paise coins in the ratio of 2:3:4. Find the total number of 25 paise and 50 paise coins.

- a. 570
- b. 640
- c. 560
- d. 520
- e. None of these

8. 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?

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

9. A plot has to be divided among A , B and C in the ratio 2 : 3 : 5 respectively. If the area of plot received by C is 6000 m² more than the area of plot received by B, then find the total area of plot received by A and B.

- a. 15000 m²
- b. 30000 m²
- c. 10000 m²
- d. 13000 m²
- e. None of these

10. The sides of a rectangle are in the ratio 2: 3 and its area is 486sq.m. Find the perimeter of the rectangle.

- a. 95 m
- b. 90 m
- c. 105 m
- d. 100 m
- e. None of these

11. The cost of diamond varies directly as the square of its weight. A diamond broke into four pieces with weights in the ratio 1 : 2 : 3 : 4. if the loss in the total value of the diamond was Rs. 70,000. The price of the original diamond was?

- a. Rs. 100000

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b. Rs. 140000

c. Rs. 150000

d. Rs. 175000

e. None of these

12. 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's is Rs. 2850 more than the share of B, then what is the total amount of money of A and D together?

a. Rs. 5676

b. Rs. 6192

c. Rs. 6708

d. Rs. 7224

e. None of these

13. A bag contains Rs.1, 50 paise and 25 paise coins in the ratio of 4 : 3 : 2. If the total value is Rs.30, how many 25 paise coins are present in the bag?

a. 5 coins

b. 10 coins

c. 30 coins

d. 20 coins

e. None of these

14. A, B and C are partners of a company. During a particular year A received one-third of the profit. B received one-fourth of a profit and C received the remaining Rs.5000. How much did A receive?

a. Rs.5000

b. Rs.4000

c. Rs.3000

d. Rs.1000

e. None of these

15. Niki & Sonu started a business with initial investment of Rs 1300 and Rs 1500 respectively. After 5 months, Niki added Rs 200. After 4 months, Sonu added Rs 500 and after another 3 months, Sonu added Rs 1000. If at the end of the year, they earned the profit of Rs 35200. Calculate Niki's share of profit-

a. 14600

b. 13600

c. 13000

d. 15600

e. None of these

16. A man spends Rs.1810 for buying bed sheets at Rs.200 each and pillows at Rs.70 each. What will be the ratio of bed sheets to pillows when maximum numbers of bed sheets are bought?

a. 3:8

b. 8:3

c. 9:1

d. 1:9

e. None of these

17. 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.4000 more than the amount received by Q, what will be the total amount received by P and Q together?

a. Rs.8000

b. Rs.12000

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c. Rs.16000

d. Cannot be determined

e. None of these

18. If x runs are second by A, y runs by B and z runs by C, then $x : y = y : z = 3 : 2$. If total number of runs scored by A, B and C is 342, the runs scored by each would be respectively

a. 144, 96, 64

b. 162, 108, 72

c. 180, 120, 80

d. 189, 126, 84

e. None of these

19. Deepak, Deepika, Dheeraj enter into a partnership with share in the ratio $7/2:4/3:6/5$. After 4 months, Deepak increases his share by 50%. If the total profit at the end of one year be 43200, then Dheeraj's share in the profit is ?

a. 4200

b. 3686

c. 7200

d. 8640

e. None of these

20. Equal quantities of three mixtures of milk and water are mixed in the ratio of 1:2, 2:3 and 3:4. The ratio of water and milk in the mixture is?

a. 193:122

b. 122:193

c. 61:97

d. 137:178

e. None of these

21. A box has 1 rupee, 50 paise and 25 paise coin in the ratio 3 : 2 : 5 worth Rs. 252. The number of 25 paise coins in the box is?

a. 96

b. 144

c. 240

d. 48

e. None of these

22. An outgoing batch of students wants to gift books worth Rs 4,200 to their teachers. If the boys, offer to pay 50% more than the girls and an external sponsors gives three times the boy's contribution, then how much should the boys donate?

a. Rs 600

b. Rs 840

c. Rs 900

d. Rs 1,200

e. None of these

23. In a cricket match there are three types of tickets A, B and C each costing Rs. 1000, Rs. 500 and Rs. 200 respectively. The ratio of ticket sold of category A, B and C is 3 : 2 : 5. If the total collection from selling the tickets is Rs. 2.5 crore. Find the total number of tickets sold?

a. 5000

b. 4800

c. 50000

d. 52000

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e. None of these

24. 180 sweets are divided among friends A, B, C and D in which B and C are brothers also such that sweets divided between A and B are in the ratio 2 : 3, between B and C in the ratio 2 : 5 and between C and D in ratio 3 : 4. What is the number of sweets received by the brothers together?

- a. 78
- b. 84
- c. 92
- d. 102
- e. 88

25. A bag contains Rs. 102 in the form of rupees, 50 paise and 10 paise coins in the ratio 3 : 4 : 10. The number of 10 paise coins is?

- a. 340
- b. 60
- c. 80
- d. 170
- e. None of these

26. The ratio of males and females in a city is 7 : 8 respectively and the percentage of children among males and females is 25% and 20% respectively. If the number of adult females in the city is 1, 56, 800. What is the total population?

- a. 245000
- b. 367500
- c. 396000
- d. 271500

e. None of these

27. A man leaves Rs. 8600 to be divided among 5 sons, 4 daughters and 2 nephews. If each daughter receives four times as much as each nephew and each son receives five times as much as each nephew, how much does each daughter receive?

- a. Rs. 100
- b. Rs. 600
- c. Rs. 800
- d. Rs. 1000
- e. None of these

28. A man ordered a pairs of black socks and some pairs of brown socks. The price of a black socks is double that of a brown pair. While preparing the bill the clerk interchanged the number of black and brown pairs by mistake which increased the bill by 50%. The ratio of the number of black and brown pairs of socks in the original order was?

- a. 2 : 1
- b. 1 : 4
- c. 1 : 2
- d. 4 : 1
- e. None of these

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

- a. Rs. 4800
- b. Rs. 12800

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c. Rs. 3200

d. Data inadequate

e. None of these

30. In a college the ratio of boys to girls is 31:23 respectively. When 75 more girls join the college this ratio becomes 124:107. How many more girls should join the college to make the number of boys and girls equal?

a. 75

b. 90

c. 60

d. 85

e. None of these

31. The value of a diamond is directly proportional to the square of its weight. A diamond unfortunately breaks into three pieces with weights in the ratio 3:4:5 thus a loss of Rs.9.4 lakh is incurred. What is the actual value of diamond?

a. 28.8 lakh

b. 13.5 lakh

c. 14.4 lakh

d. 18.8 lakh

e. None of these

32. A canister holds 36 litres of mixture of milk and water in the ratio 3 : 1. 15 litres of milk is added to the canister. The new ratio of the mixture is:

a. 12 : 5

b. 14 : 3

c. 7 : 4

d. 9 : 4

e. None of these

33. Parthi, Thyagu and Kavin enter into a partnership. Parthi invests 5 times as much as Thyagu's investment and Thyagu invests $\frac{3}{7}$ th of Kavin's investment. If the total profit at the end of the year is Rs. 112500, then find the share of Thyagu?

a. Rs. 15000

b. Rs. 14000

c. Rs. 13500

d. Rs. 14500

e. None of these

34. P, Q and R invested in the ratio of 6 : 5 : 9. After 5 months, Q invested the same amount as before but P and R withdraw $\frac{2}{7}$ th and $\frac{1}{3}$ rd of the initial investment respectively. Find the share of R, if the total profit at the end of the year is Rs. 108900?

a. Rs. 35600

b. Rs. 41750

c. Rs. 37800

d. Rs. 39150

e. None of these

35. A, B and C entered into a partnership by investing in the ratio of 4 : 2: 3. At the end of the year, the total profit is in the ratio of 12 : 4 : 9. Find the ratio of period of time they invested in the business?

a. 3 : 2 : 3

b. 5 : 2 : 4

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c. 2 : 5 : 3

d. 7 : 4 : 5

e. None of these

36. P, Q and R enter into a business by investing in the ratio of 4 : 7 : 9. After 6 months, R withdraw half of his capital. The initial investment of P is Rs. 28000. If the total profit at the end of the year is Rs. 88750, then find the share of Q?

a. Rs. 21000

b. Rs. 27500

c. Rs. 35000

d. Rs. 30500

e. None of these

37. Akash, Prithvi and Chitra started the business by investing in the ratio of 7 : 5 : 6. If 20% of the profit goes to charity, then the remaining will be shared by three of them. The share of Prithvi is Rs. 32000. Find the total profit?

a. Rs. 126000

b. Rs. 132000

c. Rs. 156000

d. Rs. 144000

e. None of these

38. Praveen and Raghav started a business by investing Rs. 24000 and Rs. 36000 respectively. Praveen is a working partner and Raghav is a sleeping partner in a business. Praveen receives 10 % of profits for managing the business. Find the share

of Praveen, if the total profit at the end of the year is Rs. 50000?

a. Rs. 24000

b. Rs. 21000

c. Rs. 23000

d. Rs. 27000

e. None of these

39. A starts a business with a capital of Rs. 25000. B joins the business 5 months after the start of the business and C joins the business after 8 months. At the end of the year their respective shares is in ratio of 30: 21: 16. What is the sum of amount invested by B and C together?

a. Rs. 70000

b. Rs. 68000

c. Rs. 74000

d. Rs. 65000

e. None of these

40. P, Q and R started a business by investing Rs. 27000, Rs. 35000 and Rs. 42000 respectively. After 6 months, P withdraws half of his investment but Q invested 20 % of initial investment more. Find the share of R, if the total profit at the end of the year is Rs. 84630?

a. Rs. 31750

b. Rs. 35280

c. Rs. 33560

d. Rs. 30270

e. None of these

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41. Rahul, Vinay and Prabhu started a business by investing in the ratio of 4: 7: 9. After 5 months, Rahul invested Rs. 15000 more and after 4 months, Vinay invested Rs. 10000 more. At the end of the year, their profits are in the ratio of 39: 58: 72. Find the initial investment of Vinay?

- a. Rs. 65000
- b. Rs. 72000
- c. Rs. 78000
- d. Rs. 70000
- e. None of these

42. A, B and C entered into a partnership by investing Rs. 30000, Rs. 25000 and Rs. 40000 respectively. After 4 months, A withdraws two-fifth of the amount and B invested Rs. 15000 more. And after 3 months C withdraws three-fifth of the amount. Find the total profit at the end of the year, if the share of B is Rs. 70000?

- a. Rs. 174000
- b. Rs. 188000
- c. Rs. 172000
- d. Rs. 164000
- e. None of these

43. Arun, Kathir and Manoj entered into a partnership to construct a building by investing in the ratio of 4 : 6 : 7. After one year, Arun invested Rs. 80000 more and after one year, Manoj invested Rs. 120000 more. At the end of 3 years, their profits are

shared in the ratio of 28 : 18 : 33. Find the initial investment of Kathir?

- a. Rs. 45000
- b. Rs. 40000
- c. Rs. 55000
- d. Rs. 60000
- e. None of these

44. A, B and C started a business by investing Rs. 15000, Rs. 18000 and Rs. 22000 respectively. After 3 months, A invested 20 % more than the initial investment and B invested Rs. 2000 more. And After 4 months, C withdraws Rs. 7000. Find the total profit at the end of the year, if the share of B is Rs. 58500?

- a. 154000
- b. 157500
- c. 167500
- d. 145600
- e. 128500

45. P, Q and R started a business with an investment of 1500, 1750 and 2250 respectively. After three months P increases his capital by 15%, Q decreases by 10% and for last three months all of them investment Rs.1000 more. Find the profit earned by R at the end of the year if the total profit is 52710

- a. 24000
- b. 21000
- c. 21500
- d. 13500
- e. None of these

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46. Kishore, Krishna & kavin enter into a car business. Kishore invests some money at the beginning. Krishna invests thrice of kishore investment for 8 months & Kavin invests 4 times of kishore investment for 10 months. If the annual profit be Rs.38000. Kavin's share is?

- a. Rs. 10000
- b. Rs. 20000
- c. Rs. 30000
- d. Rs. 40000
- e. None of these

47. Keerthi and her friend kavi invested in the ratio 7:5 in a business. If 16% of the profit is given to charity and Keerthi's share is Rs.2352 then what will be the total profit ?

- a. Rs.1600
- b. Rs.2400
- c. Rs.3600
- d. Rs.4800
- e. None of these

48. X started a hotel business in 2014 by investing Rs.25,000. She invested Rs. 10,000 as additional amount in 2015 and her friend Y joined her with an amount of Rs.35000. X invested another Rs. 10,000 in 2016 and Z joined them with Rs. 35,000. At the end of these 3 years, they earned a profit of Rs. 1,50,000. Find Y's share?

- a. Rs.20,000
- b. Rs.30,000

c. Rs.40,000

d. Rs.50,000

e. None of these

49. P, Q and R enter into a partnership with a capital of Rs.360, Rs.180 and Rs.240 respectively. After 3 months all of them increased 10% of their capital. And After another 3 months, all they reduced by 20% of their capital. Find the total profit if Q received two-third of total profit

- a. Rs.240
- b. Rs.150
- c. Rs.280
- d. Data insufficient
- e. None of these

50. A began a small business by investing a certain amount of money. After four months from the start of business, 'B' joins the business with an amount which is Rs.6000 less than A's initial investment. 'c' joins the business after seven months from the start of the business with an amount which is 2000 less than A's initial investment. At the end of the year total investment reported was Rs.1,42,000. What will be A's share if B received Rs.8000 as profit share?

- a. 48000
- b. 46500
- c. 46000
- d. 42000
- e. None of these

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Answer with Solution

Solution (1-50)

1. E

Let the original number of students in arts and science faculties be $5x$ and $8x$ respectively.

According to the question,

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

$$24x + 240 = 20x + 600$$

$$4x = 360$$

$$\Rightarrow x = 90$$

$$\text{Original number of students} = 5x + 8x = 13x$$

$$= 13 \times 90 = 1170$$

2. C

$$\text{Ratio} = 3: 5: 7 = 3x: 5x: 7x$$

$$R = 4000 + Q$$

$$R - Q = 4000$$

$$X(7 - 5) = 4000$$

$$X = 2000$$

$$P = 3 \times 2000 = 6000$$

$$Q = 5 \times 2000 = 10000$$

$$R = 7 \times 2000 = 14000$$

$$\text{Total amount received by P and Q} = 6000 + 10000 =$$

$$\text{Rs.16000}$$

3. D

Ratio of money divided among A, B, C and D is $2 : 3 : 7 : 11$

Let x be the common factor in the given ratio,

$$2x : 3x : 7x : 11x$$

Difference in ratio value between C and A

$$\Rightarrow 7x - 2x = 5x$$

$$\text{Actual difference} = 2755$$

$$X = 551$$

$$\text{Ratio of B and D together} = 3x + 11x = 14x$$

$$\text{Total amount of B and D together} = 14 \times 551$$

$$= \text{Rs. 7714}$$

4. C

The ratio between sides of triangle is $1/2: 1/3: 1/4$

$$\text{Let, first side}/2 = \text{second side}/3 = \text{third side}/4 = x$$

$$\Rightarrow x/2 + x/3 + x/4 = 104$$

$$\Rightarrow 6x + 4x + 3x = 12 \times 104$$

$$\Rightarrow 13x = 12 \times 104$$

$$\Rightarrow x = 96$$

$$\text{Longest side is } x/2 = 48$$

5. A

Total number of male and female are $7x$ and $3x$

$$\text{Salary of a male} = 60\% \text{ of } 10x = 6x$$

$$\text{Salary of a female} = 90\% \text{ Salary of a male} = 90\% \text{ of } 6x = 5.4x$$

$$\text{Total salary} = 7x \times 6x + 3x \times 5.4x = 5238000$$

$$58.2x^2 = 5238000$$

$$X^2 = 90000$$

$$X = 300$$

$$\text{Total employees} = 10x = 10 \times 300 = 3000$$

6. C

The ratio of the number of students studying in school A, B and C is $5: 8: 4$, respectively.

New value according to the question

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$$5 * 120/100 : 8 * 125/100 : 4 * 130/100$$

$$\Rightarrow 60 : 100 : 52 = 15 : 25 : 13$$

7. C

Total amount=360

Ratio $\Rightarrow 2 : 3 : 4$

$2x \ 3x \ 4x$

$$\Rightarrow 2x * 1 + 3x * (50/100) + 4x * (25/100) = 360$$

$$\Rightarrow 200x + 150x + 100x = 3600$$

$$\Rightarrow 450x = 36000$$

$$\Rightarrow x = 80$$

The no of 25paise and 50 paise coins are, $3x + 4x = 7x = 560$

8. A

Let X boys and x girls joined the group.

According to the question,

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

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

$$\Rightarrow x = 15$$

Total number of the members in the group

$$= 25 + 20 + 30 = 75$$

9. A

Let the area of plot received by A, B and C be $2x$, $3x$ and $5x$ respectively.

As per statement,

$$3x + 6000 = 5x$$

On simplification,

$$X = 3000$$

Area of plot received by A and B together,

$$= 2x + 3x$$

$$= 5x$$

$$= 5 * 3000$$

$$= 15000 \text{ m}^2$$

10. B

Let $2x$ and $3x$ be the sides of the rectangle

We know that, area of rectangle = $l * b$

$$2x * 3x = 486$$

$$6x^2 = 486$$

$$x^2 = 81$$

$$x = 9$$

Therefore, length = $2x = 2 * 9 = 18\text{m}$

Breadth = $3x = 3 * 9 = 27\text{m}$

Therefore, perimeter of the rectangle = $2(l + b)$

$$= 2(18 + 27)$$

$$= 90 \text{ m}$$

11. A

Let the weight of the pieces of diamond be x , $2x$, $3x$, $4x$

Total weight of diamond = $x + 2x + 3x + 4x = 10x$.

Price $\propto (\text{weight})^2$

$\Rightarrow \text{Price} = k(\text{weight})^2$; Where, K is constant

$$\text{Original price} = k(10x)^2$$

$$\text{Price of pieces} = (kx^2 + 4kx^2 + 9kx^2 + 16kx^2) = 30kx^2$$

$$\text{Loss in price} = 100kx^2 - 30kx^2 = 70kx^2$$

which is given as 70,000.

$$70kx^2 = 70000$$

$$\Rightarrow kx^2 = 1000$$

$$\text{Original price} = 100kx^2 = 100 * 1000 = 100000$$

12. E

Ratio of A, B, C and D is 3:4:9:10 respectively,

According to the question,

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$$C = 2850 + 4x$$

$$\Rightarrow 9x = 2850 + 4x$$

$$\Rightarrow 5x = 2850$$

$$\Rightarrow x = 570$$

$$\Rightarrow \text{Total amount of A and D together} = 3x + 10x = 13x =$$

$$13 * 570 = \text{Rs. } 7410$$

13. B

Let number of Rs.1 coins = $4x$

And number of 50 paise coins = $3x$

And number of 25 paise coins = $2x$

Therefore, total value of the coins = $1 * 4x + 0.5 * 3x +$

$$0.25 * 2x$$

$$\text{Therefore, } 30 = 4x + 1.5x + 0.5x = 6x$$

$$\Rightarrow x = 5$$

Hence, Number of 25 paise coins present in the bag = $2x$

$$= 2 * 5 = 10 \text{ coins}$$

14. B

Let the total profit = Rs. A

Therefore, A's share = $A/3$

B's share = $A/4$

Therefore, C's share = $A - A/3 - A/4$

$$5000 = A - 7A/12 = 5A/12$$

$$\Rightarrow A = 12000$$

$$\text{Hence, A's share} = A/3 = 12000 / 3 = \text{Rs. } 4000$$

15. B

$$\text{Niki: Sonu} = 1300*5 + 1500*7: 1500*4 + 2000*3 + 3000*5$$

$$= 17000: 27000 = 17: 27$$

$$\text{Niki's share} = 17*35200/44 = 13600$$

16. B

The man can't purchase more than 8 bedsheets

$$\text{So cost of 8 bedsheets} = 8 * 200 = 1600$$

$$\text{Remaining amount} = 1810 - 1600 = 210$$

And in Rs.210 the man can purchase $210/70 = 3$ pillows

$$\text{Required ratio} = 8:3$$

17. C

Difference of amount received by R and Q = $7 - 5 = 2$

Total amount received by P and Q = $3 + 5 = 8$

And 2 = Rs.4000

$$\text{Hence } 8 = 4000/2 * 8 = \text{Rs. } 16000$$

18. B

$$x : y = 3 : 2 = 9 : 6$$

$$y : z = 3 : 2 = 6 : 4$$

$$\therefore x : y : z = 9 : 6 : 4$$

$$9a + 6a + 4a = 342 \Rightarrow 19a = 342 \Rightarrow a = 342 / 19 = 18$$

$$A = 18 * 9 = 162$$

$$B = 18 * 6 = 108$$

$$C = 18 * 4 = 72$$

19. C

$$\text{Given ratio} = 7/2 : 4/3 : 6/5 = 105 : 40 : 36$$

Ratio of investments (i.e. ratio of profit) =

$$[105 * 4 + (150 \% \text{ of } 105) * 8] : (40 * 12) : (36 * 12) =$$

$$1680 : 480 : 432 = 35 : 10 : 9$$

$$\Rightarrow \text{Dheeraj's share in the profit} = 9 / (35 + 10 + 9) * 43200 =$$

$$7200$$

20. A

$$\text{Proportion of milk in the mixture} = A : B : C = 1/3 : 2/5 : 3/7$$

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$$35/105 : 42/105 : 45/105$$

Quantity of milk in new mixture = $35 + 42 + 45 = 122$
litre

Quantity of water in new mixture = $(105 \times 3) - 122 =$
193 litre

Therefore, the ratio of water is to milk = $193 : 122$

21. C

Let the ratio of coins be $3x : 2x : 5x$.

Then at $x = 1$

Rupee Rs. 1 50p 25p

Coins 3 2 5

Sum 3 1 1.25

Rs. $5.25 \times 48 = 252$

So, 25 paisa coins, $5 \times 48 = 240$

22. C

The ratio of the share girls: boys: sponsors = $1:1.5:4.5$

So the proportion to boy's share = $1.5/7$

Hence, the boys would donate = $1.5/7 \times 4200 = \text{Rs } 900$

23. C

Number A : B : C = $3 : 2 : 5$

Let A = $3x$, B = $2x$, C = $5x$

Then $(1000 \times 3x) + (500 \times 2x) + (200 \times 5x) =$
 25000000

$5000x = 25000000$

$x = 5000$

Total tickets = $3x + 2x + 5x = 10x$

= $10 \times 5000 = 50000$

24. B

$A/B = N1/D1$ $B/C = N2/D2$ $C/D = N3/D3$

$A : B : C : D = N1 \times N2 \times N3 : D1 \times N2 \times N3 : D1 \times D2 \times N3 :$
 $D1 \times D2 \times D3$

$A/B = 2/3$ $B/C = 2/5$ $C/D = 3/4$

$A : B : C : D$

$2 \times 2 \times 3 : 3 \times 2 \times 3 : 3 \times 5 \times 3 : 3 \times 5 \times 4$

$4 : 6 : 15 : 20$

B and C together = $[(6+15)/(4+6+15+20)] \times 180 = 84$

25. D

Ratio of the number of coins of 1 rupee : 50 paisa : 10
paisa = $3 : 4 : 10$

Ratio of total values of coins of 1 rupee : 50 paisa : 10
paisa = $(100 \times 3) : (50 \times 4) : (10 \times 10)$
= $300 : 200 : 100 = 3 : 2 : 1$

Total value of 10 paisa coins is Rs. 102

= $[1 / (3 + 2 + 1)] \times \text{Rs. } 102 = \text{Rs. } 102 / 6$

= Rs. 17 = 1700 paisa

No. of 10 paisa coins = $1700 / 10 = 170$

26. B

Let no. of males and females be $7x$ and $8x$.

Percentage of children among females = 20%

So, 80% of females are adults,

$(80 / 100)(8x) = 156800$

$x = 156800 \times (100 / (80 \times 8)) = 24500$

Total population = $7x + 8x = 15x = 15(24500) = 367500$

27. C

Let each nephew receives Rs. x

Son : Daughter : Nephew = $5x : 4x : x$

5 sons : 4 daughters : 2 Nephews = $25x : 16x : 2x$

And $25x + 16x + 2x = \text{Rs. } 8600$

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$$43x = \text{Rs. } 8600$$

$$x = \text{Rs. } 200$$

$$\text{Required answer} = 4 \times 200 = \text{RS. } 800$$

28. B

$$\text{Number of brown socks} = x$$

$$\text{Price of brown socks} = \text{Rs. } y \text{ per pair}$$

$$\text{Price of black socks} = \text{Rs. } 2y \text{ per pair}$$

$$4y + x \times 2y$$

$$= (150 / 100) (4 \times 2y + xy) = 4 + 2x = 3/2 (8 + x)$$

$$= 8 + 4x = 24 + 3x \Rightarrow x = 24 - 8 = 16$$

$$\text{Required ratio} = 4 : 16 = 1 : 4.$$

29. E

$$\text{Let the shares of P, Q and R be } 6x, 19x \text{ and } 7x.$$

$$\text{By given condition, R's new share} = 7x - 200$$

$$\text{Q's new share} = 19x + 200$$

$$\text{New ratio} = 6x : 19x + 200 : 7x - 200 = 3 : 10 : 3$$

$$P : R = 6x : 7x - 200 = 3 : 3$$

$$6x = 7x - 200$$

$$x = 200$$

$$\text{Total sum} = 6x + 19x + 7x = 32x = 6400$$

30. D

$$\begin{array}{r} \text{ATQ,} \\ \frac{31x}{23x + 75} = \frac{124}{107} \\ \Rightarrow x = 20 \end{array}$$

$$\Rightarrow \text{No. of boys} = 31 \times 20 = 620$$

$$\& \text{ no. of Girls} = 23 \times 20 + 75 = 535$$

$$\therefore \text{No. of more Girls required} = 620 - 535 = 85$$

31. C

$$\text{The ratio of broken parts by weight} = 3x : 4x : 5x$$

$$\text{Therefore value of broken parts of diamond} = (3x)^2 + (4x)^2 + (5x)^2 = 50x^2$$

$$\text{The value of original diamond} = (3x + 4x + 5x)^2 = 144x^2$$

$$\text{Therefore, loss in value} = 144x^2 - 50x^2 = 9.4 \text{ lakh}$$

$$94x^2 = 940000$$

$$x^2 = 10000$$

$$\text{Hence the actual value of the diamond} = 144x^2 = 144 \times 10000$$

$$= 14.4 \text{ lakh}$$

32. B

$$\text{Milk : water} = 3 : 1$$

$$\text{Quantity of Milk} = 36 \times 3/4 = 27 \text{ litres}$$

$$\text{Quantity of water} = 36 \times 1/4 = 9 \text{ litres}$$

$$\text{When 15 litres of milk is added then,}$$

$$\text{Milk} = 27 + 15 = 42 \text{ litres}$$

$$\text{Required ratio} = 42 : 9 = 14 : 3$$

33. C

$$\text{The investment of Parthi and Thyagu} = 5 : 1$$

$$\text{Thyagu's investment} = (3/7) \times \text{Kavin's investment}$$

$$\text{The investment of Thyagu and Kavin} = 3 : 7$$

$$\text{The investment of Parthi, Thyagu and Kavin} = 15 : 3 : 7$$

$$\text{Here, the period is not given. So,}$$

$$\text{The ratio of investment} = \text{The ratio of profit}$$

$$\text{Total profit} = \text{Rs. } 112500$$

$$25's = 112500$$

$$1's = 4500$$

$$\text{The share of Thyagu} = 3's = \text{Rs. } 13500$$

34. D

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The share of P, Q and R,

$$=> [6*5 + 6*(5/7)*7] : [5*5 + 10*7] : [9*5 + 9*(2/3)*7]$$

$$=> [30 + 30] : [25 + 70] : [45 + 42]$$

$$=> 60 : 95 : 87$$

$$242's = 108900$$

$$1's = 450$$

$$\text{The share of R} = 87's = \text{Rs. } 39150$$

35. A

$$\text{The ratio of investment} = 4 : 2 : 3$$

$$\text{The ratio of profit} = 12 : 4 : 9$$

Ratio of investment * Ratio of Period = The ratio of Profit

$$\text{Ratio of Period} = \frac{\text{The ratio of Profit}}{\text{Ratio of investment}}$$

According to the question,

$$=> (12/4) : (4/2) : (9/3)$$

$$=> 3 : 2 : 3$$

36. C

$$\text{The investment ratio of P, Q and R} = 4 : 7 : 9$$

$$\text{The initial investment of P} = \text{Rs. } 28000$$

$$4's = 28000$$

$$1's = 7000$$

$$\text{Initial investment of Q} = 49000$$

$$\text{Initial investment of R} = 63000$$

The share of P, Q and R

$$=> [28000*12] : [49000*12] : [63000*6 + 31500*6]$$

$$=> 336000 : 588000 : 567000$$

$$=> 16 : 28 : 27$$

$$\text{Total profit} = \text{Rs. } 88750$$

$$71's = 88750$$

$$1's = 1250$$

$$\text{The share of Q} = 28's = 28*1250 = \text{Rs. } 35000$$

37. D

$$\text{Investment ratio} = 7 : 5 : 6$$

$$\text{Prithvi's share} = 32000$$

$$5's = 32000$$

$$1's = 6400$$

$$18's = 6400*18 = 115200$$

$$80 \% \text{ of total profit} = 115200$$

$$(80/100)*\text{total profit} = 115200$$

$$\text{Total profit} = 115200*(100/80) = \text{Rs. } 144000$$

38. C

The share of Praveen and Raghav

$$=> 24000 : 36000$$

$$=> 2 : 3$$

Praveen receives 10 % of profits for managing the business.

$$=> 50000*(10/100) = 5000$$

$$\text{Remaining} = 50000 - 5000 = 45000$$

$$5's = 45000$$

$$1's = 9000$$

$$\text{The share of Praveen} = 5000 + 18000 = \text{Rs. } 23000$$

39. A

Let the initial investment of B and C be x and y,

Ratios of profits =>

$$[25000*12] : [7x] : [4y] = 30 : 21 : 16$$

$$30's = 25000*12$$

$$1's = 10000$$

$$21's = 210000$$

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$$16's = 160000$$

Capital of B

$$=> 7x = 210000$$

$$=> x = \text{Rs. } 30000$$

Capital of C

$$=> 4y = 160000$$

$$=> y = 160000/4 = \text{Rs. } 40000$$

$$\text{Total Money invested by B and C} = 30000 + 40000 = \text{Rs. } 70000$$

40. B

The share of P, Q and R

$$=> [27000*6 + 13500*6] : [35000*6 + 35000*(120/100)*6] : [42000*12]$$

$$=> 243000 : 462000 : 504000$$

$$=> 81 : 154 : 168$$

$$403's = 84630$$

$$1's = 210$$

$$\text{The share of R} = 168's = \text{Rs. } 35280$$

41. D

The share of Rahul, Vinay and Prabhu

$$[4x*5 + (4x + 15000)*7] : [7x*9 + (7x + 10000)*3] : [9x*12] = 39 : 58 : 72$$

$$(20x + 28x + 105000) : [63x + 21x + 30000] : [108x] = 39 : 58 : 72$$

$$(48x + 105000) : (84x + 30000) : 108x = 39 : 58 : 72$$

$$(84x + 30000)/108x = (58/72)$$

$$84x + 30000 = 87x$$

$$3x = 30000$$

$$X = 10000$$

$$\text{Initial investment of Vinay} = 7x = \text{Rs. } 70000$$

42. A

The share of A, B and C

$$=> [30000*4 + 30000*(3/5)*8] : [25000*4 + 40000*8] : [40000*7 + 40000*(2/5)*5]$$

$$=> 264000 : 420000 : 360000$$

$$=> 22 : 35 : 30$$

$$35's = 70000$$

$$1's = 2000$$

$$\text{Total profit} = 87's = 87*2000 = \text{Rs. } 174000$$

43. D

The share of Arun, Kathir and Manoj

$$[4x*1 + (4x + 80000)*2] : [6x*3] : [7x*2 + (7x + 120000)*1] = 28 : 18 : 33$$

$$[4x + 8x + 160000] : [18x] : [14x + 7x + 120000] = 28 : 18 : 33$$

$$(12x + 160000) : (18x) : (21x + 120000) = 28 : 18 : 33$$

$$=> (12x + 160000)/(18x) = (28/18)$$

$$=> 12x + 160000 = 28x$$

$$=> 160000 = 28x - 12x$$

$$=> 16x = 160000$$

$$=> x = 10000$$

$$\text{Initial investment of Kathir} = 6x = \text{Rs. } 60000$$

44. C

The share of A, B and C

$$=> [15000*3 + 15000*(120/100)*9] : [18000*3 + 20000*9] : [22000*7 + 15000*5]$$

$$=> 207000 : 234000 : 229000$$

$$=> 207 : 234 : 229$$

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The share of B = Rs. 58500

234's = 58500

1's = 250

Total profit = 670's = Rs. 167500

45. B

Profit ratio = $[1500 \times 3 + 1500 \times 115/100 \times 6 + 2500 \times 3]$:

$[1750 \times 3 + 1750 \times 90 \times 6/100 + 2750 \times 3]$: $[2250 \times 9 + 3250 \times 3]$

= 22350: 22950: 30000

= 149: 153: 200

= $52710/502 \times 200$ = Rs. 21000

46. B

Let Kishore's investment be Rs. x

Then ratio of capitals,

$= (x \times 12) : (3x \times 8) : (4x \times 10)$

= $12x : 24x : 40x$

= 6:12:20

= 3:6:10

Kavin's share = Rs. $(38000 \times 10/19)$

= Rs. (2000×10)

= Rs. 20000

Hence required answer is Rs. 20000.

47. D

Let the total profit be Rs. 100

16% of profit is for charity,

Keerthi's share = Rs. $[(100-16) \times (7/12)]$

= $[84 \times (7/12)]$

= Rs. 49

If Keerthi's share is Rs. 49 then the total profit = Rs. 100.

If Keerthi's share is Rs. 2352 then total profit =

Rs. $[(100/49) \times 2352]$

= Rs. 100×48

= Rs. 4800.

Hence the required answer is Rs. 4800

(or)

Keerthi and her friend Kavi invested in the ratio 7:5

7's = 2352

1's = 336

12's = 4032

84 % of profit = 4032

$(84/100) \times \text{Total profit} = 4032$

Total profit = $4032 \times (100/84) = 4800$

48. D

X invested Rs. 25,000 for 12 months, Rs. (25000 + 10000)

for 12 months and Rs. (25000 + 10000 + 10000) for 12 months.

i.e., she invested Rs. 25,000 for 12 months, Rs. 35000 for 12 months and Rs. 45000 for 12 months.

Y invested Rs. 35000 for 2 years;

i.e., Rs. 35000 for 24 months

And, Z invested Rs. 35000 for 1 year;

i.e., Rs. 35000 for 12 months.

Their investing ratio:

X: Y: Z = $(25,000 \times 12 + 35000 \times 12 + 45000 \times 12) : (35000 \times 24) : (35000 \times 12)$

= $(300000 + 420000 + 540000) : (840,000) : (420,000)$

= 1260000:840000:420000

= 126:84:42

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$$= 3:2:1$$

Total profit for 3 years = Rs.1,50,000

Therefore, Y's share = Rs.(1,50,000 x 2 / (3+2+1))

$$= \text{Rs.}(1,50,000 \times 2/6)$$

$$= \text{Rs.}50,000$$

49. D

The given data is insufficient to answer the question

50. A

A's amount x

B's investment = x-6000

C's investment = x-2000

$$12x + 8(x-6000) + 5(x-2000) = 142000$$

$$12x + 8x - 48000 + 5x - 10000 = 142000$$

$$25x = 142000 + 58000$$

$$X = (142000 + 58000) / 25$$

$$= 8000$$

Ratio of the profit = ratio of investment

$$12:8:5 = 16000:8000:5000$$

$$96:16:30 = 48:8:15$$

Profit of B = 8y = 8000

$$Y = 1000 ;$$

A's Share = 48000