

## Ratio and Proportions

7

1m	2m	3m	4m	5m	6m	Total
1(K)	1(K)	1(K)	–	1(U)	–	11

### 1 MARK QUESTIONS

(Knowledge)

- Find the inverse ratio of 2:3
- A house consumes 20 kgs of rice and 5 kgs of wheat. Compare the consumption of rice and wheat in the form of the ratio.
- Find the compound ratio of 3:5 and 4:7
- Find the compound ratio of the ratios 1 : 2, 2 : 3 and 3 : 4
- Find the value of x if  $32 : x = 75 : 50$
- A house consumes 30 kgs of wheat and 4 kg of sugar compare the consumption of wheat and sugar in the form of ratio.
- Find the compound ratio of 3 : 4 and 4 : 7
- Find the duplicate ratio of 5 : 4
- Find the triplicate ratio of 3 : 5
- Find the subduplicate ratio of 9 : 49
- Find the subtriplicate ratio of 125 : 64
- Find the fourth proportional of 6, 14, 15
- Find the mean proportional of 9 and 16
- Find x if  $5 : 20 = 3 : x$
- Find the mean proportional to  $\frac{1}{16}$  and  $\frac{1}{25}$
- Find the third proportional to 3, 12.
- Find the third proportional to 2.4, 3.6
- Find the fourth proportional to 1.5, 4.5, 3.5.
- Find the fourth proportional to  $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$
- Find the ratio of 3 hours to 45 minutes.

## BASIC MATHEMATICS

### 2 MARK QUESTIONS

(Knowledge)

1. Find the sub-duplicate and sub-triplicate ratio of 1 : 64
2. Find the ratio between two numbers such as their sum is 50 and their difference is 8.
3. Two numbers are in the ratio 3 : 5. If 5 is added to each, they are in the ratio 2:3. Find the numbers.
4. What must be added to each term in the ratio 5 : 6, so that it becomes 8 : 9?
5. The angles of a triangle are in the ratio 2 : 3 : 4. Find the angles.
6. An article is sold at 20% gain on the cost price. Find the ratio of the selling price and cost price.
7. Divide ₹ 6000 in the ratio 3 : 4 : 5
8. Find the ratio between two numbers such that their sum is 40 and their difference is 8.
9. A ratio is the lowest term is 3 : 8. If the difference between the quantities is 25. Find the quantities.
10. Two numbers are in the ratio 3 : 5. If 5 is added to each, they are in the ratio. 2 : 3 find the numbers.
11. What must be added to each term in the ratio 2 : 3 so that it becomes 5 : 6.
12. What must be added to each term in the ratio 4 : 5 so that it becomes 7 : 8.
13. What must be subtracted from each term in the ratio 7 : 4 so that it becomes 5 : 2.
14. If  $a : b = 2 : 3$ ,  $b : c = 3 : 5$  and  $c : d = 5 : 7$  find  $a : d$ .
15. If  $a : b = 2 : 3$  and  $b : c = 6 : 13$  Find  $a : b : c$ .

### 3 MARK QUESTIONS

(Knowledge)

1. If  $a : b = 2 : 3$   
 $x : y = 4 : 5$   
Find  $5ax + 3by : 10ax + 4by$
2. If  $x : y = 2 : 3$  find  $\frac{2x^2 + 5y^2}{x^2 + y^2}$
3. x, y and z play cricket. The runs scored by x and y are in the ratio of 3 : 2. y's runs to z's runs are in the ratio 3 : 2. Together they all score 342 runs. How many runs did each score?
4. Three numbers are in the ratio 2 : 3 : 4. If the sum of their squares is 1856. Find the numbers.

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5. Divide 1800 in the ratio 3 : 4 : 5
6. If  $x : y = 3 : 4$  find  $\frac{2x^2 + 3y^2}{x^2 + y^2}$
7. If  $a : b = 2 : 3$  and  $x : y = 4 : 7$   
Find  $\frac{5ax + 4by}{8ax + 3by}$
8. The angles of a triangle are in the ratio 3 : 4 : 5. Find the angles.
9. An article is sold at 40% gain on the cost price. Find the ratio of the selling price and cost price.
10. If the monthly incomes of A and B are in the ratio 3 : 4 and their expenditures are in the ratio 1 : 2. If each saves ₹ 1000 find the monthly incomes.
11. If the monthly incomes of A and B are in the ratio 3 : 4 and their expenditure are in the ratio 1 : 2. If each saves ₹ 2000. Find their monthly incomes.
12. Two numbers are in the ratio 6 : 7. If the difference of their squares is 117. Find the numbers.
13. Two numbers are in the ratio 3 : 4. If the sum of their squares is 900 find the two numbers.
14. In a fort, there was ration for 560 soldiers that would last the soldiers for 70 days. After 20 days, 60 soldiers left the fort. For how many days the remaining ration can support the remaining soldiers?
15. Find the numbers which added to the terms numerator and denominator of  $\frac{25}{37}$  make it  $\frac{5}{6}$ .
16. The ages of a father and his son are in the ratio 6 : 1. After 14 years their age will be in the ratio 8 : 3 what are their present ages?
17. If ₹120 maintain a family of 4 persons for 30 days. How long ₹300 maintain a family of 6 persons?
18. A mixture contains milk and water in the ratio 5 : 1 on adding 5 litres of water, the ratio of milk and water becomes 5 : 2, Find the quantity of milk in the original mixture.
19. 500 workers can finish a work in 8 days. How many workers will finish the same work in 5 days.
20. 3 carpenters can earn ₹360 in 6 days working at 9 hours a day. How much will 8 carpenters can earn in 12 days working 6 hours a day?
21. If ten persons can do a job in 30 days. In how many days can fifteen persons do the same job?
22. 5 men each working 9 hours a day can finish a work in 30 days. How many men are required to finish eight times the work in 25 days each working 8 hours a day?
23. If 10 men or 20 boys can do a piece of work in 30 days, how long will 30 boys and 5 men take to do the same work?

## BASIC MATHEMATICS

### 5 MARK QUESTIONS

(Understanding)

1. Distribute 632 amongst A, B and C in such a way that 'B' will have 20% more than 'A' and 'C' has 20% less than 'B'.
2. Divide 1,647 into three parts such that  $\frac{3}{7}$ th of the first,  $\frac{2}{3}$ rd of the second and  $\frac{4}{5}$ th of the third are equal.
3. ₹ 5625 is divided among A, B and C so that A receives one half as much as B and C together receive and B receives one fourth of what A and C together receive. Find the share of A, B and C
4. The monthly incomes of A and B are in the ratio 9 : 7 and those of B and C are in the ratio 3 : 2. If 10% of A's income and 15% of C's incomes differ by Rs. 18. Find the incomes of A, B and C.
5. Divide ₹1890 into three parts such that three times of the first, five times of the second and six times the third are equal.
6. Divide ₹3262 among x, y and z such that if ₹ 35, ₹15 and ₹12 are deducted from their respective shares, the remainder are in the ratio 3 : 5 : 8.
7. If  $x : y = 2 : 3$  Find the value of  $\frac{2x^3 + 3y^3}{x^3 + y^3}$
8. Divide 5880 into three parts, such that 'B' receives twice as 'A' and C receives  $\frac{5}{6}$  of what B receives.
9. Divide 6000 into three parts in the ratio  $\frac{1}{2} : \frac{1}{3} : \frac{1}{6}$
10. Four numbers formed by adding 1, 5, 10 and 15 to a certain number are in proportion. Find the number?
11. If 8 men and 16 boys can do a piece of work in 6 days and 12 men and 24 boys can do the same work in 8 days. In how many days can 16 men and 20 boys do it.
12. If two men and four women can do a work in 33 days and 3 men and 5 women can do the same work in 24 days. How long shall 5 men and 2 women take to do the same work?
13. Two taps can separately fill a tank in 12 min and 15 minutes respectively. The tank when full can be emptied by a drain pipe in 20 minutes. When the tank was empty, all the three were opened simultaneously. In what time will the tank be filled up?

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14. A jar contains two liquids X and Y in the ratio 7 : 5. When 6 litres of the mixture is drawn and the jar is filled with the same quantity of Y, the ratio of X and Y becomes 7 : 9. Find the quantity X in the jar initially.
15. Walking 4 kmph a student reaches his college 5 minutes late and if he walks at 5 kmph, he reaches 2½ minutes early. What is the distance from his house to the college?
16. If ten persons can do a job in 60 days. In how many days can twenty persons do the same job?
17. 8 men and 16 women can finish a job in 6 days but 12 men & 24 women can finish it in 8 days. How many days will 26 men and 20 women take to finish the job?
18. 4 men or 12 boys can do a piece of work in 5 days by working 8 hours per day. In how many days 2 men & 4 boys can do the same piece of work working 12 hours a day.

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