

EXERCISE-I**OBJECTIVE TYPE**

- Q.1** If the cost of 8 Shirts is Rs. 4000, then find the cost of 3 shirts.
(A) Rs. 1000 (B) Rs. 1200 (C) Rs. 1500 (D) Rs. 500
- Q.2** A scooter travels 60 km in 2 hours. How long will it take to travel 300 km ?
(A) 5 hr. (B) 8 hr. (C) 10 hr. (D) 12 hr.
- Q.3** The length and breadth of rectangle are 45 cm and 30 cm find the ratio of breadth to length.
(A) 2 : 3 (B) 3 : 2 (C) 5 : 3 (D) 3 : 5
- Q.4** Find the ratio of 5 days to 60 hours.
(A) 1 : 2 (B) 12 : 1 (C) 1 : 12 (D) 2 : 1
- Q.5** Which one is not the equivalent ratio of 3 : 5
(A) 6 : 10 (B) 12 : 25 (C) 9 : 15 (D) 15 : 25
- Q.6** If Rs. 75 is divided in the ratio 2 : 3 between Shinchhan and Nimavari, then find Nimavari share.
(A) Rs. 30 (B) Rs. 45 (C) Rs. 60 (D) Rs. 50
- Q.7** If $3 : x :: 12 : 20$, find the value of x.
(A) 5 (B) 6 (C) 7 (D) 8
- Q.8** The greatest ratio among the following ratios is :
(A) 2 : 3 (B) 40 : 25 (C) 5 : 8 (D) 75 : 21
- Q.9** A perpendicular rod of length of 12 cm make 8 cm. long shadow on the ground. At the same time a tower makes 40 meter long shadow on the ground. The height of the tower will be
(A) 60 meter (B) 40 meter (C) 50 meter (D) 30 meter
- Q.10** If $\frac{x}{y} = \frac{3}{2}$, then $\frac{x+y}{x-y}$ is equal to :
(A) $\frac{4}{3}$ (B) $\frac{1}{2}$ (C) $\frac{5}{4}$ (D) 5
- Q.11** Which of the following are in proportion ?
(A) 6, 8, 2, 3 (B) 5, 10, 2, 4 (C) 9, 4, 5, 3 (D) 8, 5, 3, 6
- Q.12** a, b, c, d are said to be in proportion if :
(A) $a \times c = b \times d$ (B) $a \times b = c \times d$ (C) $a \times d = b \times c$ (D) None of these
- Q.13** Ratio 9 : 12 is same as :
(A) 8 : 14 (B) 4 : 3 (C) 3 : 4 (D) 1 : 4
- Q.14** If $x : 15 :: 8 : 3$, then the value of x :
(A) 8 (B) 32 (C) 40 (D) 20
- Q.15** The ratio of 75 paise to Rs. 5 is :
(A) 15 : 1 (B) 1 : 15 (C) 3 : 20 (D) 20 : 3
- Q.16** 25, 45, 45, y are in proportion then value of y is :
(A) 225 (B) 5 (C) 81 (D) 45

- Q.17** There are 18 boys and 14 girls in a class. The ratio of girls to boys is :
(A) 9 : 7 (B) 7 : 9 (C) 9 : 14 (D) 18 : 7
- Q.18** The simplest form of 9 : 15 is :
(A) 9 : 5 (B) 15 : 9 (C) 3 : 5 (D) 5 : 3
- Q.19** On comparing 7 : 21 and 3 : 5, we find that the smaller ratio is :
(A) 7 : 21 (B) 3 : 1 (C) 1 : 3 (D) (A) and (C) both
- Q.20** In a basket containing 40 apples, 15 were found to be rotten. Find the ratio of rotten to fresh apples.
(A) 7 : 3 (B) 3 : 5 (C) 8 : 3 (D) 3 : 8

SUBJECTIVE TYPE

- Q.1** The price ratio of one scooter and one cycle is 9 : 5. If the value of scooter is 4200 Rs. more than cycle, then find the price of cycle.
- Q.2** Fill in the missing numbers :
 $\frac{9}{12} = \frac{\quad}{48} = \frac{3}{\quad}$
- Q.3** Present age of father is 50 years and that of his son is 15 year. Find the ratio of
(i) present age of father to the present age of son.
(ii) age of father to the age of son, when son was 10 year old.
- Q.4** Shinchan earns Rs. 1000 in 5 days. How much will he earn in 15 days ?
- Q.5** In a year, Harry earns Rs. 3,00,000 and saves 1,20,000. Find the ratio of
(i) Money that Harry earn to the money he saves.
(ii) Money that he save to the money he spends.
- Q.6** In a school, out of 4000 students, 2400 are girls. Find the ratio of :
(i) Number of girls to the total number of students.
(ii) Number of boys to the number of girls.
- Q.7** Are 30,40,45 and 60 in proportion.
- Q.8** Shanta bought 72 kg wheat for Rs. 324. How many kilogram of wheat could she have bought if she had spent only Rs. 144.
- Q.9** 20 balloons have to be divided between Amit and Anshu in the ratio 2 : 3. How many does each receive?
- Q.10** A profit of Rs. 3000 is to be divided between three persons A, B and C in the ratio 3 : 4 : 5. Find the share of each.
- Q.11** In an election between two candidates A and B, 30,000 votes polled. A won the election with the margin of 400 votes. Find the ratio of votes polled in favour of each candidates.
- Q.12** A bullock-cart travels 35 km in 5 hours and a car travels 120 km in 2 hours. Find the ratio of their speeds.
- Q.13** The angles of a triangle are in the ratio 3 : 2 : 1. Find the angles.
- Q.14** 1 score of pencils cost Rs. 12.50. How many pencils can be bought for Rs. 15? (1 Score = 20)
- Q.15** 4.5 g of an alloy of copper and zinc contains 3.5 g of copper. What weight of copper will be there in 18.9 g of the alloy.

ANSWER KEY**OBJECTIVE :**

- | | | | |
|-------|-------|-------|-------|
| 1. C | 2. C | 3. A | 4. D |
| 5. B | 6. B | 7. A | 8. D |
| 9. A | 10. D | 11. B | 12. C |
| 13. C | 14. C | 15. C | 16. C |
| 17. B | 18. C | 19. D | 20. B |

SUBJECTIVE :

1. Cycle cost Rs.5250

2. $\frac{9}{12} = \frac{9 \times 4}{12 \times 4} = \frac{36}{48}$; $\frac{9}{12} = \frac{9 \div 3}{12 \div 3} = \frac{3}{4}$

3. (i) $\frac{50}{15} = \frac{10}{3}$

(ii) When son was 10 at that time father was

= 45 year so required ratio = $\frac{45}{10} = \frac{9}{2}$

4. Earning is 5 days = Rs.1000

Earning in 1 day = $\frac{1000}{5}$ = Rs.200

∴ Earning in 15 days = Rs.200 × 15
= Rs.3000

Thus, Shinchuan earns Rs.3000 in 15 days

5. Earning = 3,00,000

Save = 1,20,000

Expenses = Earning - Save

= 3,00,000 - 1,20,000 = 1,80,000

(i) $\frac{\text{Earn}}{\text{Save}} = \frac{3,00,000}{1,20,000} = \frac{5}{2}$

(ii) $\frac{\text{Save}}{\text{Spend}} = \frac{1,20,000}{1,80,000} = \frac{2}{3}$

6. No. of girls = 2400

No. of boys = 4000 - 2400 = 1600

(i) $\frac{\text{No. of girls}}{\text{No. of students}} = \frac{2400}{4000} = \frac{3}{5}$

(ii) $\frac{\text{No. of boys}}{\text{No. of girls}} = \frac{1600}{2400} = \frac{2}{3}$

7. We have,

Product of extremes = 30 × 60 = 1800

Product of means = 40 × 45 = 1800

Clearly, Product of extremes = Product of means

Hence, 30, 40, 45 and 60 are in proportion

8. Let the quantity of wheat that she purchased for Rs.144 be x kg.

1st quantity : 2nd quantity :: 1st cost : 2nd cost
72 : x :: 324 : 144

Product of extreme = 72 × 144

Product of the middle terms = 324x

$x = \frac{72 \times 144}{324} = 32 \text{ kg}$

9. 8, 12

10. Rs.750, Rs.1000 Rs.1250

11. 38 : 37

12. 7 : 60

13. 90°, 60°, 30°

14. 24 pencil

15. 14.7 gram

EXERCISE-I

In questions 1 to 10, only one of the four options is correct. Write the correct one.

1. The ratio of 8 books to 20 books is
(A) 2 : 5 (B) 5 : 2 (C) 4 : 5 (D) 5 : 4
2. The ratio of the number of sides of a square to the number of edges of a cube is
(A) 1 : 2 (B) 3 : 2 (C) 4 : 1 (D) 1 : 3
3. A picture is 60cm wide and 1.8m long. The ratio of its width to its perimeter in lowest form is
(A) 1 : 2 (B) 1 : 3 (C) 1 : 4 (D) 1 : 8
4. Neelam's annual income is Rs. 288000. Her annual savings amount to Rs. 36000. The ratio of her savings to her expenditure is
(A) 1 : 8 (B) 1 : 7 (C) 1 : 6 (D) 1 : 5
5. Mathematics textbook for Class VI has 320 pages. The chapter 'symmetry' runs from page 261 to page 272. The ratio of the number of pages of this chapter to the total number of pages of the book is
(A) 11 : 320 (B) 3 : 40 (C) 3 : 80 (D) 272 : 320
6. In a box, the ratio of red marbles to blue marbles is 7:4. Which of the following could be the total number of marbles in the box?
(A) 18 (B) 19 (C) 21 (D) 22
7. On a shelf, books with green cover and that with brown cover are in the ratio 2:3. If there are 18 books with green cover, then the number of books with brown cover is
(A) 12 (B) 24 (C) 27 (D) 36
8. The greatest ratio among the ratios 2 : 3, 5 : 8, 75 : 121 and 40 : 25 is
(A) 2 : 3 (B) 5 : 8 (C) 75 : 121 (D) 40 : 25
9. There are 'b' boys and 'g' girls in a class. The ratio of the number of boys to the total number of students in the class is:
(A) $b/b + g$ (B) $g / b + b$ (C) b/g (D) $b + g / b$
10. If a bus travels 160 km in 4 hours and a train travels 320km in 5 hours at uniform speeds, then the ratio of the distances travelled by them in one hour is
(A) 1 : 2 (B) 4 : 5 (C) 5 : 8 (D) 8 : 5

In questions 11 to 15, find the missing number in the box in each of the proportions:

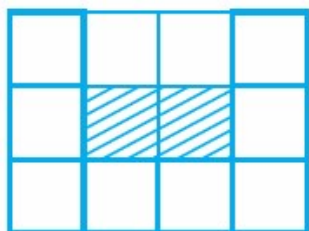
11. $\frac{3}{5} = \frac{\quad}{20}$
12. $\frac{\quad}{18} = \frac{2}{9}$
13. $\frac{8}{\quad} = \frac{3.2}{4}$
14. $\frac{\quad}{45} = \frac{16}{40} = \frac{24}{\quad}$
15. $\frac{16}{36} = \frac{\quad}{63} = \frac{36}{117}$

In questions 16 to 34, state whether the given statements are true (T) or false (F).

16. $\frac{3}{8} = \frac{15}{40}$
17. $4 : 7 = 20 : 35$
18. $0.2 : 5 = 2 : 0.5$
19. $3 : 33 = 33 : 333$
20. $15\text{m} : 40\text{m} = 35\text{m} : 65\text{m}$
21. $27\text{cm}^2 : 57\text{cm}^2 = 18\text{cm} : 38\text{cm}$
22. $5\text{kg} : 7.5\text{kg} = \text{Rs } 7.50 : \text{Rs } 5$
23. $20\text{g} : 100\text{g} = 1\text{metre} : 500\text{cm}$
24. $12\text{ hours} : 30\text{ hours} = 8\text{km} : 20\text{km}$
25. The ratio of 10kg to 100kg is 1:10
26. The ratio of 150cm to 1metre is 1:1.5.
27. $25\text{kg} : 20\text{g} = 50\text{kg} : 40\text{g}$
28. The ratio of 1 hour to one day is 1:1.
29. The ratio 4 : 16 is in its lowest form.
30. The ratio 5 : 4 is different from the ratio 4 : 5.
31. A ratio will always be more than 1.
32. A ratio can be equal to 1.
33. If $b : a = c : d$, then a, b, c, d are in proportion.
34. The two terms of a ratio can be in two different units.

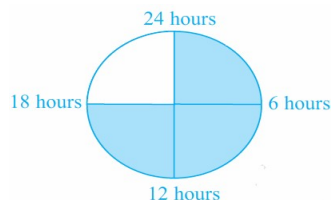
In questions 35 to 46, fill in the blanks to make the statements true.

35. A ratio is a form of comparison by _____.
36. $20\text{m} : 70\text{m} = \text{Rs } 8 : \text{Rs } \underline{\hspace{2cm}}$.
37. There is a number in the box \square such that $\square, 24, 9, 12$ are in proportion. The number in the box is _____.
38. If two ratios are equal, then they are in _____.



Use Fig. 2.1 (In which each square is of unit length) for questions 39 and 40:

39. The ratio of the perimeter of the boundary of the shaded portion to the perimeter of the whole figure is _____.
40. The ratio of the area of the shaded portion to that of the whole figure is _____.
41. Sleeping time of a python in a 24 hour clock is represented by the shaded portion in Fig. 8.3.



The ratio of sleeping time to awaking time is _____.

42. A ratio expressed in lowest form has no common factor other than _____ in its terms.
43. To find the ratio of two quantities, they must be expressed in _____ units.
44. Ratio of 5 paise to 25 paise is the same as the ratio of 20 paise to _____.
45. Saturn and Jupiter take 9 hours 56 minutes and 10 hours 40 minutes, respectively for one spin on their axes. The ratio of the time taken by Saturn and Jupiter in lowest form is _____.
46. 10g of caustic soda dissolved in 100mL of water makes a solution of caustic soda. Amount of caustic soda needed for 1 litre of water to make the same type of solution is _____.
47. The marked price of a table is Rs 625 and its sale price is Rs 500. What is the ratio of the sale price to the marked price?
48. Which pair of ratios are equal? And why?
- (i) $\frac{2}{3}, \frac{4}{6}$ (ii) $\frac{8}{4}, \frac{2}{1}$ (iii) $\frac{4}{5}, \frac{12}{20}$
49. Which ratio is larger 10 : 21 or 21 : 93?
50. Reshma prepared 18kg of *Burfi* by mixing *Khoya* with sugar in the ratio of 7 : 2. How much *Khoya* did she use?
51. A line segment 56cm long is to be divided into two parts in the ratio of 2 : 5. Find the length of each part.
52. The number of milk teeth in human beings is 20 and the number of permanent teeth is 32. Find the ratio of the number of milk teeth to the number of permanent teeth.
53. Sex ratio is defined as the number of females per 1000 males in the population. Find the sex ratio if there are 3732 females per 4000 males in a town.
54. In a year, Ravi earns Rs 360000 and paid Rs 24000 as income tax. Find the ratio of his
(a) income to income tax.
(b) income tax to income after paying income tax.
55. Ramesh earns Rs 28000 per month. His wife Rama earns Rs 36000 per month. Find the ratio of
(a) Ramesh's earnings to their total earnings
(b) Rama's earnings to their total earnings.
56. Of the 288 persons working in a company, 112 are men and the remaining are women. Find the ratio of the number of

- (a) men to that of women.
 (b) men to the total number of persons.
 (c) women to the total number of persons.
57. A rectangular sheet of paper is of length 1.2m and width 21cm. Find the ratio of width of the paper to its length.
58. A scooter travels 120km in 3 hours and a train travels 120km in 2 hours. Find the ratio of their speeds.

$$[\text{speed} = \frac{\text{distance}}{\text{time taken}}]$$
59. An office opens at 9 a.m. and closes at 5.30 p.m. with a lunch break of 30 minutes. What is the ratio of lunch break to the total period in the office?
60. The shadow of a 3m long stick is 4m long. At the same time of the day, if the shadow of a flagstaff is 24m long, how tall is the flagstaff?
61. A recipe calls for 1 cup of milk for every $2\frac{1}{2}$ cups of flour to make a cake that would feed 6 persons. How many cups of both flour and milk will be needed to make a similar cake for 8 people?
62. In a school, the ratio of the number of large classrooms to small classrooms is 3:4. If the number of small rooms is 20, then find the number of large rooms.
63. Samira sells newspapers at Janpath crossing daily. On a particular day, she had 312 newspapers out of which 216 are in English and remaining in Hindi. Find the ratio of
 (a) the number of English newspapers to the number of Hindi newspapers.
 (b) the number of Hindi newspapers to the total number of newspapers.
64. The students of a school belong to different religious backgrounds. The number of Hindu students is 288, the number of Muslim students is 252, the number of Sikh students is 144 and the number of Christian students is 72. Find the ratio of
 (a) the number of Hindu students to the number of Christian students.

ANSWER KEY

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|---------------------------|---------------------------------------|-----------|---------------------------|-------------|-----------|------------|
| 1. (A) | 2. (D) | 3. (D) | 4. (A) | 5. (C) | 6. (D) | 7. (C) |
| 8. (D) | 9. (A) | 10. (C) | 11. 12 | 12. 4 | 13. 10 | 14. 18, 60 |
| 15. 28, 81, 52 | 16. T | 17. T | 18. F | 19. F | 20. F | |
| 21. T | 22. F | 23. T | 24. T | 25. T | 26. F | 27. T |
| 28. F | 29. F | 30. T | 31. F | 32. T | 33. F | 34. F |
| 35. division | 36. 28 | 37. 18 | 38. proportion | 39. 3 : 7 | 40. 1 : 6 | |
| 41. 3 : 1 | 42. one | 43. same | 44. 100 paise OR 1 Rupee | | | |
| 45. 149 : 160 | 46. 100gm | 47. 4 : 5 | 48. (i) and (ii) | 49. 10 : 21 | 50. 14kg | |
| 51. 16cm and 40cm | 52. 5 : 8 | 53. 933 | 54. (a) 15 : 1 (b) 1 : 14 | | | |
| 55. (a) 7 : 16 (b) 9 : 16 | 56. (a) 7 : 11 (b) 7 : 18 (c) 11 : 18 | | | | | |

57. 7 : 40 58. 2 : 3 59. 1 : 17 60. 18 m 61. $4\frac{2}{3}$ cups 62. 15
63. (a) 9 : 4 (b) 4 : 13
64. (a) 4 : 1 (b) 1 : 3

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