

UNIT 8

RATIO AND PROPORTION

(A) Main Concepts and Results

- Ratio, Proportion and Unitary Method.
- The comparison of two numbers or quantities by division is known as the **ratio**. Symbol ‘:’ is used to denote ratio.
- For a ratio, the two quantities must be in the same unit. If they are not, they should be expressed in the same unit before the ratio is taken.
- A ratio may be treated as a fraction.
- Two ratios are **equivalent**, if the fractions corresponding to them are equivalent.
- Four quantities are said to be in **proportion**, if the ratio of the first and the second quantities is equal to the ratio of the third and the fourth quantities. The symbol ‘::’ or ‘=’ is used to equate the two ratios.
- The order of terms in a proportion is important. For example 3, 8, 24, 64 are in proportion but 3, 8, 64, 24 are not in proportion.
- The method in which first we find the value of one unit and then the value of the required number of units is known as **unitary method**.

(B) Solved Examples

In examples 1 and 2, write the correct answer from the given four options:

Example 1. The ratio of Rs 8 to 80 paise is

- (A) 1 : 10 (B) 10 : 1 (C) 1 : 1 (D) 100 : 1

Solution: Correct answer is (B)

(Hint: 1 Rupee = 100 paise)

Example 2. The length and breadth of a steel tape are 10m and 2.4cm, respectively. The ratio of the length to the breadth is

- (A) 5 : 1.2 (B) 25 : 6 (C) 625 : 6 (D) 1250 : 3

Solution: Correct answer is (D)

(Hint: 10m = 10×100 cm)

Example 3. Find the missing number in the box in the following proportion:

$$\square : 8 :: 12 : 32$$

Solution: $12:32 = \frac{12}{32} = \frac{3 \times 4}{8 \times 4} = \frac{3}{8} = 3:8$

We have, $\square : 8 = 3 : 8$ (Given)

So, the missing number in \square is 3.

Example 4. State whether the given statements are true or false:

(a) $12 : 18 = 28 : 56$

(b) 25 persons : 130 persons = 15kg : 78kg

Solution: (a) False, Because

$$12:18 = \frac{12}{18} = \frac{2}{3} = 2:3$$

and $28:56 = \frac{28}{56} = \frac{1}{2} = 1:2$

These are not equal.

(b) True, Because

$$25 \text{ persons} : 130 \text{ persons} = 5: 26$$

$$\text{and } 15\text{kg} : 78\text{kg} = 5: 26$$

These are equal.

Example 5. Fill in the blanks:

If two ratios are _____, then they are in proportion.

Solution: Equal/same.

Example 6. Find the ratio of the shaded portion to the unshaded portion in Fig. 8.1

Solution: Number of squares in the shaded portion = 15

Number of squares in the unshaded portion = 33

So, the ratio of the shaded portion to the unshaded portion = 15 : 33

$$= \frac{15}{33} = \frac{5 \times 3}{11 \times 3} = \frac{5}{11} = 5:11$$

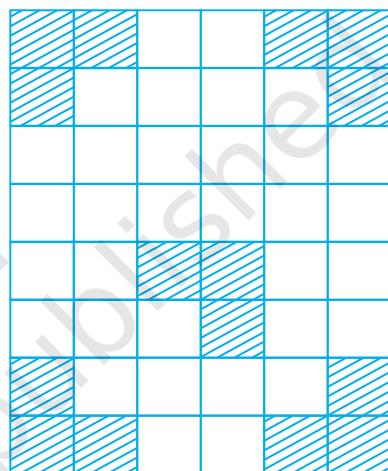


Fig. 8.1

Example 7. Income of Rahim is Rs 12000 per month and that of Ami is Rs 191520 per annum. If the monthly expenditure of each of them is Rs 9960 per month find the ratio of their savings.

Solution: Savings of Rahim per month = Rs $(12000 - 9960)$
= Rs 2040

$$\text{Monthly income of Ami} = \text{Rs } \frac{191520}{12} = \text{Rs } 15960$$

$$\text{Savings of Ami per month} = \text{Rs } (15960 - 9960)
= \text{Rs } 6000$$

Therefore, ratio of savings of Rahim and Ami
= 2040 : 6000 = 17:50

Example 8. 20 tons of iron costs Rs 600000. Find the cost of 560kg of iron.

Solution: 1 ton = 1000kg

$$\text{Therefore, } 20 \text{ tons} = 20000\text{kg}$$

Now, cost of 20000kg iron = Rs 600000

$$\text{Therefore, cost of 1kg iron} = \text{Rs } \frac{600000}{20000} = \text{Rs } 30$$

Therefore, cost of 560kg iron = Rs 30 × 560 = Rs 16800

(C) Exercise

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) $\frac{b}{b+g}$ (B) $\frac{g}{b+g}$ (C) $\frac{b}{g}$ (D) $\frac{b+g}{b}$
10. If a bus travels 160 km in 4 hours and a train travels 320 km 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. $\frac{3}{5} = \frac{\square}{20}$

12. $\frac{\square}{18} = \frac{2}{9}$

13. $\frac{8}{\square} = \frac{3.2}{4}$

14. $\frac{\square}{45} = \frac{16}{40} = \frac{24}{\square}$

15. $\frac{16}{36} = \frac{\square}{63} = \frac{36}{\square} = \frac{\square}{117}$

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. $20\text{m} : 70\text{m} = \text{Rs } 8 : \text{Rs } _____$.
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. 8.2 (In which each square is of unit length) for questions 39 and 40:

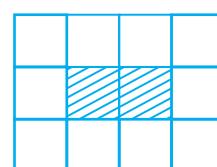


Fig. 8.2

- 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.

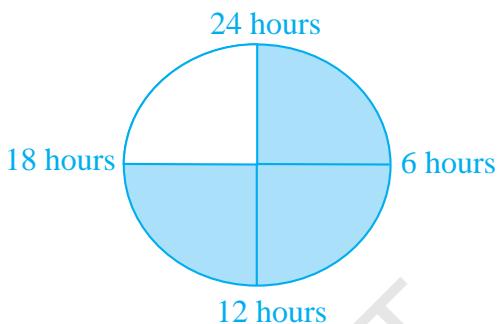


Fig. 8.3

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.

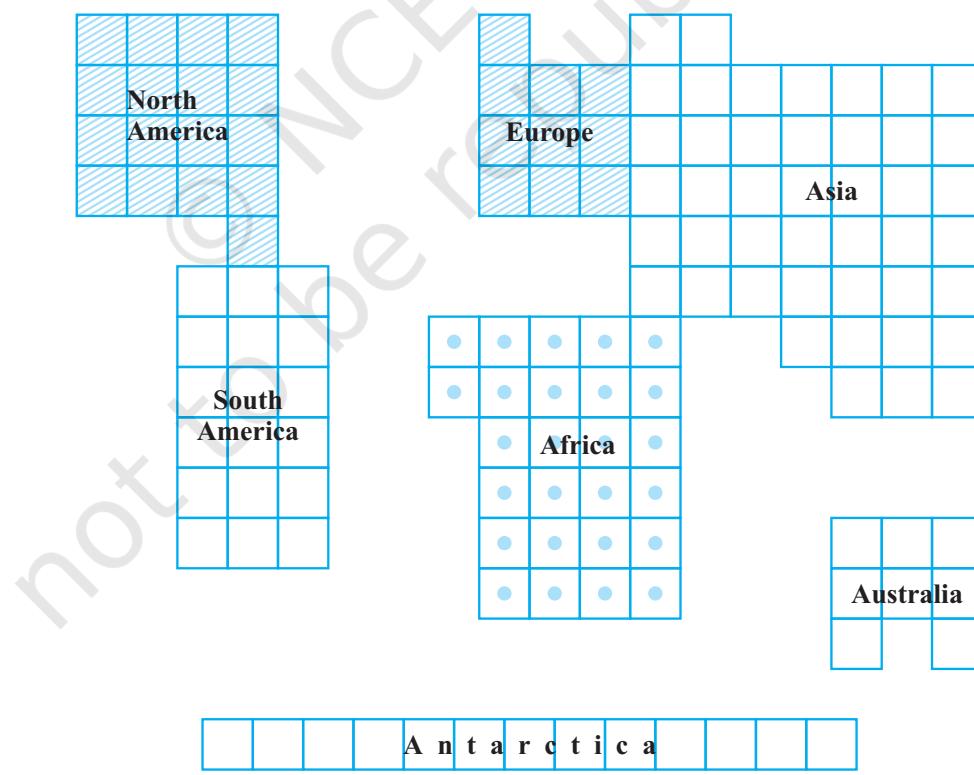
- 58.** A scooter travels 120km in 3 hours and a train travels 120km in 2 hours.

Find the ratio of their speeds.

$$(\text{Hint : Speed} = \frac{\text{distance travelled}}{\text{time taken}})$$

- 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
- the number of English newspapers to the number of Hindi newspapers.
 - 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
- the number of Hindu students to the number of Christian students.

- (b) the number of Muslim students to the total number of students.
- 65.** When Chinmay visted chowpati at Mumbai on a holiday, he observed that the ratio of North Indian food stalls to South Indian food stalls is 5:4. If the total number of food stalls is 117, find the number of each type of food stalls.
- 66.** At the parking stand of Ramleela ground, Kartik counted that there are 115 cycles, 75 scooters and 45 bikes. Find the ratio of the number of cycles to the total number of vehicles.
- 67.** A train takes 2 hours to travel from Ajmer to Jaipur, which are 130km apart. How much time will it take to travel from Delhi to Bhopal which are 780km apart if the train is travelling at the uniform speed?
- 68.** The length and breadth of a school ground are 150m and 90m respectively, while the length and breadth of a mela ground are 210m and 126m, respectively. Are these measurements in proportion?



(Comparative areas of the continents)

Fig. 8.4

- 69.** In Fig. 8.4, the comparative areas of the continents are given:
What is the ratio of the areas of
 (a) Africa to Europe
 (b) Australia to Asia
 (c) Antarctica to Combined area of North America and South America.
- 70.** A tea merchant blends two varieties of tea costing her Rs 234 and Rs 130 per kg in the ratio of their costs. If the weight of the mixture is 84kg, then find the weight of each variety of tea.
- 71.** An alloy contains only zinc and copper and they are in the ratio of 7:9. If the weight of the alloy is 8kg, then find the weight of copper in the alloy.
- 72.** In the following figure, each division represents 1cm:



Fig. 8.5

Express numerically the ratios of the following distances:

$$(i) \ AC : AF \quad (ii) \ AG : AD \quad (iii) \ BF : AI \quad (iv) \ CE : DI$$

- 73.** Find two numbers whose sum is 100 and whose ratio is 9 :16.
- 74.** In Fig. 8.6 (i) and Fig. 8.6 (ii), find the ratio of the area of the shaded portion to that of the whole figure:

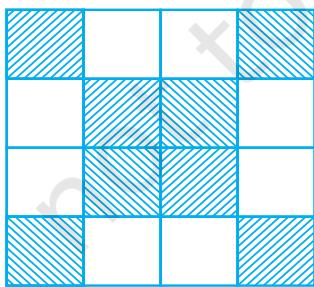


Fig. 8.6 (i)

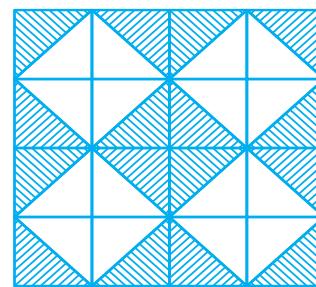


Fig. 8.6 (ii)

- 75.** A typist has to type a manuscript of 40 pages. She has typed 30 pages of the manuscript. What is the ratio of the number of pages typed to the number of pages left?

- 76.** In a floral design made from tiles each of dimensions 40cm by 60cm (See Fig. 8.7), find the ratios of:
- the perimeter of shaded portion to the perimeter of the whole design.
 - the area of the shaded portion to the area of the unshaded portion.

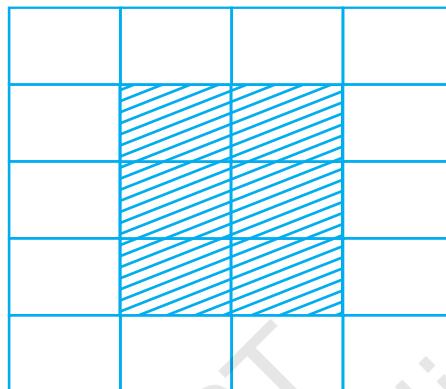


Fig. 8.7

- 77.** In Fig. 8.8, what is the ratio of the areas of
- shaded portion I to shaded portion II ?

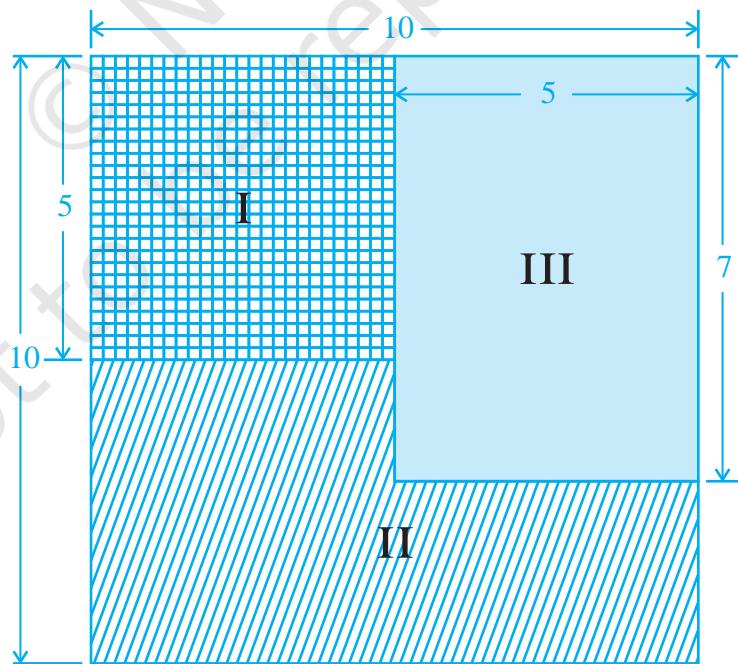


Fig. 8.8

- (b) shaded portion II to shaded portion III?
- (c) shaded portions I and II taken together and shaded portion III?
- 78.** A car can travel 240km in 15 litres of petrol. How much distance will it travel in 25 litres of petrol?
- 79.** Bachhu Manjhi earns Rs 24000 in 8 months. At this rate,
- how much does he earn in one year?
 - in how many months does he earn Rs 42000?
- 80.** The yield of wheat from 8 hectares of land is 360 quintals. Find the number of hectares of land required for a yield of 540 quintals?
- 81.** The earth rotates 360° about its axis in about 24 hours. By how much degree will it rotate in 2 hours?
- 82.** Shivangi is suffering from anaemia as haemoglobin level in her blood is lower than the normal range. Doctor advised her to take one iron tablet two times a day. If the cost of 10 tablets is Rs 17, then what amount will she be required to pay for her medical bill for 15 days?
- 83.** The quarterly school fee in Kendriya Vidyalaya for Class VI is Rs 540. What will be the fee for seven months?
- 84.** In an election, the votes cast for two of the candidates were in the ratio $5 : 7$. If the successful candidate received 20734 votes, how many votes did his opponent receive?
- 85.** A metal pipe 3 metre long was found to weigh 7.6kg. What would be the weight of the same kind of 7.8m long pipe?
- 86.** A recipe for raspberry jelly calls for 5 cups of raspberry juice and $2\frac{1}{2}$ cups of sugar. Find the amount of sugar needed for 6 cups of the juice?
- 87.** A farmer planted 1890 tomato plants in a field in rows each having 63 plants. A certain type of worm destroyed 18 plants in each row. How many plants did the worm destroy in the whole field?

- 88.** Length and breadth of the floor of a room are 5m and 3m, respectively. forty tiles, each with area $\frac{1}{16}$ m² are used to cover the floor partially. Find the ratio of the tiled and the non tiled portion of the floor.
- 89.** A carpenter had a board which measured 3m × 2m. She cut out a rectangular piece of 250cm × 90cm. What is the ratio of the area of cut out piece and the remaining piece?

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Average Questions with solutions PDF

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Here are some tips for solving Average questions: Identify the key information in the question, Use the appropriate formula as there are many different formulas that can be used to calculate the average. Practice solving a variety of average questions, Use shortcuts and formulas.

So, we have attached 10 questions of Average for you to practice with. You should aim to solve these questions in less than half a minute for each.

Practice Questions on Average

You can also download the Average questions and answers pdf. Just click on the **Download PDF** button. So let's start with the very first question.

Q:1 The average temperature of a city on five consecutive days was 36.32°C . If the average temperature on first three days and last three days were 36°C and 37°C . What is the temperature on the third day? (in $^{\circ}\text{C}$)

1. 36.2
2. 36.8
3. 37.4
4. 37.8

(Difficulty: 4, Estimated Time: 25 Seconds) An easy one to start with!

Q:2 The average run of 20 innings of a batsman is 58. If he makes 305 runs in the last five innings, find the average run of remaining innings.

1. 59
2. 58
3. 57
4. 56

(Difficulty: 4, Estimated Time: 25 Seconds) It is not an easy one but I think now you're prepared for it. Did you guess it right?



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Q:3 Average height of a group of 12 persons is 5 feet 3 inch. If 3 persons from the group are replaced by a person whose height is 6 feet, the average height becomes 5 feet 3.6 inch. Find the average height of 3 persons who left.

1. 5 feet 3 inch

2. 5 feet 4 inch

3. 5 feet 2 inch

4. 5 feet 4.5 inch

(Difficulty: 3, Estimated Time: 20 Seconds) Another easy one, make sure to solve these with accuracy!

Q:4 Find the average of all co-prime numbers of 5 between 25 and 30.

1. 28.5

2. 27.5

3. 28

4. 27

(Difficulty: 2, Estimated Time: 15 Seconds) This was quite easy!

Q:5 If a 39-year-old man is replaced by a new man, then the average age of 28 men increases by 1.5 years. What is the age of the new man?

1. 79 years

2. 54 years

3. 81 years

4. 41 years

(Difficulty: 3, Estimated Time: 20 Seconds) We're halfway through. Have you got all your questions correct so far?

Q:6 What is the average of first 20 multiples of 21 and first 20 multiples of 25?

1. 235.5

2. 238.5

3. 241.5

4. 245.5

(Difficulty: 4, Estimated Time: 30 Seconds) These questions are quite common!



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Q:7 The average of the 9 persons increases by 2.25 kg when one of them is replaced with another person whose weight is 45 Kg. Find the weight of the replaced person.

1. 65 kg
2. 47.25 kg
3. 65.25 kg
4. 85.75 kg

(Difficulty: 4, Estimated Time: 25 Seconds) A Question of seconds!

Q:8 If a hostel's mess owner expends Rs.5000 on vegetables, Rs.3000 on spices, and Rs.6500 on gas services per month for 50 students then, what is the monthly average expenditure per student of his hostel's mess?

1. 270
2. 280
3. 285
4. 290

(Difficulty: 4, Estimated Time: 25 Seconds) Tough questions alert!

Q:9 What is the ratio of the average of the first 5 multiples of 3 and the first 3 multiples of 5?

1. 9 : 10
2. 10 : 13
3. 7 : 11
4. 11 : 14

(Difficulty: 3, Estimated Time: 20 Seconds) Practice and get fast with your calculations!

Q:10 The average expenditure of Raj for January to June is Rs. 8400 and he spends Rs. 2400 in January and Rs. 3000 in July. What is his average expenditure for the months of February to July?

1. Rs. 8400
2. Rs. 8500
3. Rs. 7800
4. Rs. 6800



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(Difficulty: 2, Estimated Time: 15 Seconds) Did you guess them all correctly?

Answer Key

Let's check out your score in this test.

1. (3)	2. (3)	3. (2)	4. (2)	5. (3)
6. (3)	7. (3)	8. (4)	9. (1)	10. (2)

Comment below your score, considering each question has 1 mark only. If you scored 8 to 10, congratulations! You are one step closer to selection. If you have scored 5 to 8 marks, then you are doing well, keep it up. If you have scored less than 5 marks then you need to work a little harder on this subject. But don't worry, we are here to help you master the subject.

Let's check the answers and solutions and try to find out what went wrong.

Answers and Solutions

Q:1 The correct answer is **Option 3 i.e. 37.4**.

The sum of temperatures on the first 3 days + The sum of temperatures on the last three days = The sum of temperatures on 5 days + The temperature on 3rd day

Sum = Average × Number of observations

$$\Rightarrow 36 \times 3 + 37 \times 3 = 36.32 \times 5 + \text{Temperature on third day}$$

$$\Rightarrow 219 = 181.6 + \text{Temperature on the third day}$$

$$\text{Temperature on third day} = 37.4^\circ \text{ C}$$

Q:2 The correct answer is **option 3 i.e. 57**

The average run of 20 innings = 58

Total run in five innings = 305

Total run in 20 innings = $58 \times 20 = 1160$

The run of remaining 15 innings = $1160 - 305 = 855$

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The average run of 15 innings = $855/15 = 57$

Q:3 The correct answer is **option 2 i.e. 5 feet 4 inch.**

We can see:

The average height is increased from 5 feet 3 inch to 5 feet 3.6 inch.

Converting into decimal:

$$5 \text{ feet } 3 \text{ inch} = 5 + 3/12 = 5.25$$

$$5 \text{ feet } 3.6 \text{ inch} = 5 + 3.6/12 = 5.3$$

Hence, it is increased by 0.05

Suppose 'x' is the average height of 3 persons who left.

So, Decreased total height

$$= 12 \times 5.25 - 3x + 6.0$$

$$\text{So, } 12 \times 5.25 - 3x + 6.0 = 5.3 \times 10$$

$$\Rightarrow 63 - 3x + 6.0 = 53$$

$$\Rightarrow 3x = 16$$

$$\Rightarrow x = 5.33 \text{ or } 5 \text{ feet } 4 \text{ inch}$$

Q:4 The correct answer is **option 2 i.e. 27.5.**

Co-Prime Number

Two **numbers** are **coprime** if their highest common factor (or greatest common divisor) is 1

m = sum of the terms/number of terms

Where, m = Average

The co-prime no. of 5 between 25 to 30 is 26, 27, 28, 29

$$\text{Average} = \frac{(26+27+28+29)}{4} = \frac{110}{4}$$

$$= 27.5$$



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Q:5 The correct answer is **Option 3 i.e. 81 years.**

Average age \times Number of Men = Total age

Let initially the average age of 28 men be x.

Total age of 28 men = $28x$

A 39 year old man is replaced by a new man -

New Total age = $28 \times (x + 1.5)$

$28 \times (x + 1.5) - 28x$ = Age of the New man - 39

$28x + 42 - 28x$ = Age of the New man - 39

Age of the New man - 39 = 42

Age of the New man = $42 + 39 = 81$ years

Q:6 The correct answer is **option 3 i.e. 241.5**

Average of first 'n' multiples of a = $\{2a + (n - 1)a\} / 2$ [∴ Sum of A.P. = $n/2 \times \{2a + (n - 1)d\}$]

Average of first 20 multiples of 21 = $\{2 \times 21 + 19 \times 21\} / 2 = 441/2 \Rightarrow 220.5$

Average of first 20 multiples of 25 = $\{2 \times 25 + 19 \times 25\} / 2 = 525/2 \Rightarrow 262.5$

Since both have 20 number of observation

Final average = $(220.5 + 262.5) / 2$

$\Rightarrow 483/2$

$\Rightarrow 241.5$

Q:7 The correct answer is **option 3 i.e 65.25 kg.**

Average increased = $(9 \times 2.25) = 20.25$ kg

Weight of the new person = $(45 + 20.25) = 65.25$ kg



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Average Questions with solutions PDF

Q:8 The correct answer is **option 4 i.e. 290.**

Total expenditure = (vegetables + spices + gas services)

Total expenditure = $(5000 + 3000 + 6500) = 14500$

Average Expenditure per student = $14500/50 = \text{Rs. } 290$

Q:9 The correct answer is **Option 1 i.e. 9 : 10.**

Average = Sum of all the numbers/Total numbers

First 5 multiples of 3 = 3, 6, 9, 12, 15

First 3 multiples of 5 = 5, 10, 15

Average of first 5 multiples of 3 = $(3 + 6 + 9 + 12 + 15)/5 = 45/5 = 9$

Average of first 3 multiples of 5 = $(5 + 10 + 15)/3 = 30/3 = 10$

Required ratio = Average of first 5 multiples of 3 : Average of first 3 multiples of 5 = 9 : 10

Q:10 The correct answer is **option 2 i.e. Rs. 8500**

\Rightarrow Average expenditure of Raj from Jan to June = Total expenditure/6 = 8400

\Rightarrow Total expenditure = $8400 \times 6 = 50400$

Total expenditure from Feb to June = $50400 - 2400 = 48000$

\Rightarrow Total expenditure from Feb to July = $48000 + 3000 = 51000$

\Rightarrow Average expenditure from Feb to July = $51000/6 = 8500$

\therefore The required average expenditure of Raj from Feb to July is Rs. 8500

So, this is it for today. We will meet again with another new topic. Till then, you can practice the questions again by downloading the PDF of Average.