



रेलवे भर्ती बोर्ड / RAILWAY RECRUITMENT BOARD
सी०ई०एन० ०९/२०२५-७ वें सीपीसी वेतन मैट्रिक्स के लेवल १ में विभिन्न पदों हेतु
CEN 09/2025 - Various Posts in Level 1 of 7th CPC Pay Matrix



RRB Group D 2025

Level-1 · CEN 09/2025 · Mathematics — Topic-wise

English

28 Chapters · 1071 Questions · Official Answer Key

About this Compilation

Every **Mathematics** question asked across all shifts of the **RRB Group D (Level-1) 2025** examination (CEN 09/2025), regrouped by **chapter** instead of by shift, so you can revise one topic end to end. The correct option is marked as per the official answer key.

129 duplicate questions removed. RRB repeated these word-for-word across different shifts. They appear once here, so a chapter never prints the same question twice - the shift-wise and section-wise books still carry every occurrence.

How to use

- Use the **Index** to jump to any chapter (clickable).
- Within a chapter, questions on the same idea are placed together.
- The correct answer is highlighted in green with a tick.
- The same paper is also available shift-wise and section-wise at rank.qmaths.in.



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Number System and Simplification

39 Questions • Answer Key

Q1 Divisibility missing digit

Find the smallest digit value for A such that 58A4 is divisible by 4.

A. 4

B. 2

C. 6

D. 0

**Q2** Divisibility missing digit

If a 7-digit number 91056A4 is completely divisible by 3, what is the least value of A?

A. 10

B. 5

C. 1

D. 2

**Q3** Divisibility missing digit

If a 7-digit number 87321A6 is completely divisible by 6, what is the least value of A?

A. 0

B. 3

C. 1

D. 2

**Q4** Divisibility missing digit

If a 7-digit number 65873A8 is completely divisible by 22, what is the value of A?

A. 7

B. 1

C. 2

D. 3

**Q5** Divisibility missing digit

The 7-digit number 92A224B is divisible by 3. What is the minimum value of (A + B)?

A. 6

B. 3

C. 1

D. 2

**Q6** Divisibility missing digit

What is the least value that must be assigned to A so that the number 455A1280 is divisible by 30?

A. 3

B. 5

C. 4

D. 2

**Q7** Divisibility missing digit

If a 7-digit number 48085A7 is completely divisible by 3, what is the least value of A?

A. 7

B. 8

C. 4

D. 1

**Q8** Divisibility missing digit

The 7-digit number 84A614B is divisible by 3. What is the minimum value of (A + B)?

A. 5

B. 1

C. 4

D. 2

**Q9** Divisibility missing digit

What is the least value that must be assigned to A so that the 8-digit number 456A3264 is divisible by 12?

A. 3

B. 4

C. 0

D. 6

**Q10** Divisibility missing digit

What is the value that must be assigned to A so that the 8-digit number 378A6070 is divisible by 18?

A. 6

B. 5

C. 8

D. 3



Q11 Divisibility missing digit

The 7-digit number 22A675B is divisible by 3. What is the minimum value of (A + B)?

A. 2



B. 4

C. 7

D. 6

Q12 Divisibility missing digit

What is the value that must be assigned to A so that the 8-digit number 753A3228 is divisible by 18?

A. 2

B. 6



C. 9

D. 5

Q13 Divisibility missing digit

What is the least value that must be assigned to A so that the number 717A0280 is divisible by 3?

A. 2



B. 8

C. 5

D. 1

Q14 Divisibility missing digit

The 7-digit number 45A216B is divisible by 3. What is the minimum value of (A + B)?

A. 3

B. 2

C. 0



D. 5

Q15 Divisibility missing digit

If a 7-digit number 29009A6 is completely divisible by 7, what is the least value of A?

A. 1

B. 5

C. 2



D. 9

Q16 Divisibility missing digit

The 7-digit number 39A122B is divisible by 3. What is the minimum value of (A + B)?

A. 3

B. 6

C. 1



D. 2

Q17 Divisibility missing digit

What is the least value that must be assigned to A so that the number 456A2384 is divisible by 16?

A. 0



B. 5

C. 4

D. 2

Q18 Divisibility remainder

Find the smallest number that should be added to 97306 to make it divisible by 6.

A. 3

B. 1

C. 2



D. 0

Q19 Divisibility rules

Which of the following numbers is divisible by 9?

A. 4,317

B. 5,328



C. 3,624

D. 6,018

Q20 Divisibility rules

The number 1408 is divisible by which of the following numbers?

A. 13

B. 24

C. 21

D. 22



Q21 Divisibility rules

The number 13167 is divisible by which of the following numbers?

A. 69

B. 63



C. 61

D. 67

Q22 Divisibility rules

The number 4488 is divisible by which of the following numbers?

A. 26

B. 19

C. 30

D. 22

**Q23 Missing digit divisibility**

What is the value that must be assigned to A so that the 8-digit number 541A4888 is divisible by 9?

A. 9

B. 2

C. 7



D. 1

Q24 Missing digit divisibility

What is the least value that must be assigned to A so that the 8-digit number 910A3076 is divisible by 6?

A. 1



B. 6

C. 5

D. 4

Q25 Missing digit divisibility

What is the least value that must be assigned to A so that the 8-digit number 796A6351 is divisible by 3?

A. 5

B. 1

C. 3

D. 2

**Q26 Missing digit divisibility**

The 7-digit number 86A238B is divisible by 3. What is the minimum value of (A + B)?

A. 0



B. 3

C. 5

D. 4

Q27 Missing digit divisibility

What is the least value that must be assigned to A so that the 8-digit number 109A7760 is divisible by 16?

A. 4

B. 0



C. 2

D. 5

Q28 Missing digit divisibility

Find the least value of $(3K^2 - 2)$ for which six digits number 7K8508 is divisible by 6.

A. 10



B. 17

C. 8

D. 14

Q29 Missing digit divisibility

The 7-digit number 36A836B is divisible by 3. What is the minimum value of (A + B)?

A. 5

B. 1



C. 6

D. 4

Q30 Missing digit divisibility

What is the least value that must be assigned to A so that the number 604A4744 is divisible by 3?

A. 1



B. 4

C. 7

D. 8



Q31 Missing digit divisibility

What is the value that must be assigned to A so that the number 391A6922 is divisible by 11?

A. 7

B. 3



C. 6

D. 5

Q32 Missing digit divisibility

What is the least value that must be assigned to A so that the number 469A1423 is divisible by 3?

A. 4

B. 1



C. 6

D. 5

Q33 Missing digit divisibility

What is the least value that must be assigned to A so that the number 506A2404 is divisible by 3?

A. 4

B. 0



C. 3

D. 6

Q34 Missing digit divisibility

What is the least value that must be assigned to A so that the number 659A9422 is divisible by 3?

A. 2



B. 7

C. 4

D. 1

Q35 Missing digit divisibility

The 7-digit number 69A840B is divisible by 12, What is the maximum value of (A + B)?

A. 11

B. 16

C. 15



D. 10

Q36 Prime numbers

The sum of three prime numbers is 112. If one number exceeds the other by 36, what is the product of these numbers?

A. 5678

B. 4516

C. 4826

D. 5402

**Q37 Prime numbers**

The number of students in a class is a prime number greater than 50 but less than 58. How many students are there in the class?

A. 53



B. 52

C. 55

D. 57

Q38 Prime numbers

A molecular compound contains atoms A and B, where their counts per molecule are the 5th and 7th prime numbers from starting, respectively. The compound consists of 10 identical molecules. After a reaction, the number of B atoms per molecule doubles, and C atoms (equal to the 3rd prime number from starting) are added. What is the total number of A, B, and C atoms in all 10 molecules after the reaction?

A. 500



B. 690

C. 550

D. 330

Q39 Prime numbers

What is the sum of all prime numbers between 0 and 32?

A. 132

B. 131

C. 161

D. 160



Number System and Simplification

30 Questions • Answer Key

Q1 Co-prime numbers

Which of the following pairs of numbers are co-prime?

A. 49, 217

B. 119, 239



C. 30, 201

D. 48, 111

Q2 Co-prime numbers

Which of the following number pairs is NOT co-prime?

A. (137, 221)

B. (143, 286)



C. (211, 337)

D. (101, 107)

Q3 Coprime numbers property

Which of the following statements is always true?

A. Two prime numbers are never coprime.

B. Two even numbers are always coprime.

C. Multiples of the same number are always coprime.

D. Two consecutive integers are always coprime.



Q4 Coprime numbers property

Which of the following pairs of numbers is co-prime with each other?

A. 24 and 51

B. 63 and 91

C. 96 and 111

D. 101 and 77



Q5 HCF LCM of ratio numbers

Three numbers are in the ratio 4 : 5 : 6 and their HCF is 13. Find their LCM.

A. 686

B. 1080

C. 780



D. 960

Q6 HCF LCM of ratio numbers

If the ratio of two numbers is 4 : 9, and their HCF is 34, then their LCM is:

A. 1214

B. 1224



C. 1227

D. 1250

Q7 HCF LCM of ratio numbers

Three numbers are in the ratio 3 : 14 : 13, and their LCM is 5460. Their HCF is:

A. 59

B. 5

C. 10



D. 36

Q8 HCF LCM product

The HCF of two numbers is 18 and their LCM is 540. If one number is 90, find the other number.

A. 108



B. 96

C. 54

D. 120

Q9 HCF and LCM combined

What is the HCF of 432 and the LCM of 120 and 150?

A. 24



B. 12

C. 8

D. 16

Q10 HCF and LCM combined

What is the sum of the HCF and the LCM of 19 and 57?

A. 57

B. 66

C. 76



D. 95



Q11 HCF of numbers

Find the HCF of the numbers 252, 396, and 524.

- A. 9
- B. 36
- C. 4
- D. 12

**Q12 HCF of numbers**

Find the HCF of 6, 33, 42, 114, 210.

- A. 1
- B. 7
- C. 2
- D. 3

**Q13 HCF of numbers**

If the side (in cm) of a regular pentagon is equal to the HCF of 18 and 27, then what is the perimeter (in cm) of the pentagon?

- A. 45
- B. 27
- C. 36
- D. 54

**Q14 HCF word problem**

A school wants to distribute 60 pencils and 75 erasers to students, such that all of them get an equal number of pencils and an equal number of erasers with no items left over. What is the maximum number of students who can receive this gift?

- A. 10
- B. 15
- C. 5
- D. 25

**Q15 HCF word problem**

Three ropes of lengths 12 m, 18 m, and 24 m are to be cut into pieces of equal length, with no rope left unused. What is the greatest possible length of each piece (in meters)?

- A. 6
- B. 3
- C. 12
- D. 9

**Q16 HCF word problem**

Find the greatest number that divides 85, 153, and 221 leaving the same remainder in each case.

- A. 68
- B. 38
- C. 60
- D. 34

**Q17 HCF word problem**

What is the minimum number of identical square tiles required to completely floor a room measuring 4m x 3.2 m?

- A. 9
- B. 40
- C. 18
- D. 20

**Q18 LCM from ratio and HCF**

The ratio of two numbers is 21:5 and their HCF is 50. What will be their LCM?

- A. 5260
- B. 5220
- C. 5240
- D. 5250

**Q19 LCM of numbers**

The LCM of 48 and 68 is

- A. 684
- B. 816
- C. 864
- D. 786

**Q20 LCM word problem**

A blue light blinks every 6 seconds and a red light blinks every 9 seconds. After how many seconds will both lights blink together again?

- A. 9 seconds
- B. 18 seconds
- C. 3 seconds
- D. 12 seconds



Q21 LCM word problem

Rahul visits the library every 6 days, Priya visits every 8 days, and Amit visits every 12 days. If all three meet at the library today, after how many days will they all next meet there?

- A. 16 days
- B. 20 days
- C. 24 days
- D. 28 days

**Q22 LCM word problem**

Find the greatest number of 4 digits which is divisible by 12, 24, 45 and 60.

- A. 9,450
- B. 9,720
- C. 9,600
- D. 9,256

**Q23 LCM word problem**

Two bells ring at intervals of 9 minutes and 10 minutes, respectively. If they ring together at 8:00 AM, after how many minutes will they next ring together again?

- A. 90 minutes
- B. 60 minutes
- C. 45 minutes
- D. 100 minutes

**Q24 LCM word problem**

Two security lights flash at regular intervals, one every 36 minutes and the other every 54 minutes. If both lights flash together at 8:00 AM, when will they flash together again?

- A. 9:08 AM
- B. 9:38 AM
- C. 9:28 AM
- D. 9:48 AM

**Q25 Product of HCF and LCM**

The product of the HCF and LCM of two numbers is 1944. Find the second number, if the first number is 54.

- A. 24
- B. 42
- C. 48
- D. 36

**Q26 Product of HCF and LCM**

The HCF and the LCM of two numbers are 4 and 288, respectively. If one of the numbers is 32, then what is the other number?

- A. 24
- B. 18
- C. 36
- D. 48

**Q27 Product of HCF and LCM**

Two numbers are 12 and 18. What is the product of their HCF and LCM?

- A. 216
- B. 324
- C. 108
- D. 432

**Q28 Product of HCF and LCM**

The HCF of two numbers is 11 and their LCM is 1870. If one number is 22, then find the unit's digit of the other number.

- A. 4
- B. 7
- C. 3
- D. 5

**Q29 Product of HCF and LCM**

The HCF and LCM of two numbers are 16 and 96, respectively. If one of the numbers is 48, then the other number is:

- A. 28
- B. 34
- C. 30
- D. 32

**Q30 Product of HCF and LCM**

The product of two natural numbers is 1421. Their HCF is 7. Find the ratio of the LCM and HCF of the numbers.

- A. 27:1
- B. 23:7
- C. 29:7
- D. 29:1



Number System and Simplification

14 Questions • Answer Key

Q1 BODMAS evaluation

Simplify $32 - 5 \text{ of } (17 - 12) + 4 \times 7 - 6 \div 3$.

A. 33



B. 32

C. 31

D. 35

Q2 BODMAS evaluation

Evaluate: $16 - 5 \times 3 + 19$

A. 19

B. 18

C. 22

D. 20



Q3 BODMAS evaluation

Simplify: $272 \div 17 \times 1.5 + 13 - 5$

A. 32



B. 29

C. 33

D. 28

Q4 BODMAS evaluation

Evaluate: $16 - 5 \times 3 + 18$

A. 17

B. 18

C. 21

D. 19



Q8 BODMAS numeric evaluation

Simplify: $3^3 \times 3^2$.A. 3^6 B. 3^5 C. 3^1 D. 3^8

Q5 BODMAS numeric evaluation

Evaluate: $16 - 5 \times 4 + 4$

A. 0



B. -1

C. 2

D. -2

Q6 BODMAS numeric evaluation

Evaluate: $16 - 5 \times 4 + 5$

A. 1



B. 3

C. 0

D. -1

Q7 BODMAS with decimals

Simplify: $0.65 \div 0.13 + 3.5 - 2.825$

A. 5.175

B. 5.375

C. 5.875

D. 5.675



Q9 BODMAS numeric evaluation

Simplify the following expression:

$$\frac{(36-6)^2}{3 \times 2} + 4 \times (5-3)^3$$

A. 172

B. 184

C. 176

D. 182

**Q10** BODMAS with fractions

Simplify: $\frac{\frac{7}{2} \div \frac{3}{2} \times \frac{5}{2}}{8 \div \frac{5}{2} \text{ of } \frac{1}{2}} \div \frac{25}{8}$.

A. $\frac{11}{24}$ B. $\frac{5}{24}$ C. $\frac{13}{24}$ D. $\frac{7}{24}$ **Q11** Recurring decimal to fraction

If the decimal number $0.\overline{15201}$ can be expressed in the form of $\frac{a}{b}$ where a and b are co-primes, then find the value of

$$\sqrt{b-a+281}.$$

A. 98

B. 120

C. 105

D. 145

**Q12** Unrecoverable question text

Find the value of $\frac{\sqrt{1+\sin 4\theta}}{\sqrt{1-\sin 4\theta}}$.

A. $\sec 4\theta - \tan 4\theta$ B. $\tan 4\theta + \cot 4\theta$ C. $-\sec 4\theta + \tan 4\theta$ D. $\sec 4\theta + \tan 4\theta$ 

Q13 Value of expression

$$\frac{\sqrt{264} \times \sqrt{330} \times \sqrt{1125}}{\sqrt{1296} \times \sqrt{400}}$$

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A. $\frac{11}{2}$

B. $\frac{38}{3}$

C. $\frac{55}{4}$



D. $\frac{89}{6}$

Q14 Value of expression

Simplify the following:

$$\left(\frac{3^4 \times 3^{-2}}{3^{-1}} \right)^2 \div 3^5$$

A. 1

B. $\frac{1}{3}$

C. 3



D. $\frac{2}{3}$



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Q1 Average of consecutive numbers

What will be the average of 5, 6, 7, 8, 9,, 66, 67, 68, 69, 70, 71?

A. 36

B. 34

C. 38



D. 32

Q2 Average of consecutive numbers

The average of 4 consecutive odd numbers is 36. The sum of the largest and smallest numbers among them is:

A. 66

B. 68

C. 72



D. 74

Q3 Average of remaining items

The average temperature of first 3 days in a week was 36°C and the average temperature of this week was 35°C . Then the average temperature of last 4 days in this week was:

A. 34°C B. 35°C C. 34.25°C D. 35.5°C **Q4** Average of remaining items

In a class, the average score of 25 students is 80. If the average score of 15 of these students is 85, what is the average score of the remaining students?

A. 72

B. 72.5



C. 73

D. 73.5

Q5 Average of remaining items

During the first half of 2024, Sulekha consumed 2.2 kg of sugar on average each month (January to June). Over the course of 2024, she consumed 2.5 kg of sugar on average each month. Between July and December of 2024, her average sugar intake was:

A. 2.8 kg



B. 2.5 kg

C. 2.2 kg

D. 2.7 kg

Q6 Average of series

The average of the first 8 consecutive even numbers starting from 24 is:

A. 30

B. 31



C. 32

D. 33

Q7 Average of series

The mean of n observations 1, 4, 9, 16, ..., n^2 is 130. What is the value of n ?

A. 15

B. 19



C. 20

D. 13

Q8 Average of subgroups

The average daily wage of 90 workers in a factory is ₹140, and the average daily wage of female workers is ₹130. If one-third of the workers are male, what is the average daily wage of the male workers?

A. ₹164

B. ₹160



C. ₹152

D. ₹156



Q9 Average of subgroups

A 5-member family consists of grandparents, parents, and one grandchild. The average age of the grandparents is 76 years, that of the parents is 40 years, and the age of the grandchild is 8 years. What is the average age of the family?

A. 44 years

B. 48 years ✓

C. 46 years

D. 42 years

Q10 Average of subgroups

The average age of 90 students in a class is 21 years. The average age of 30 of them is 23 years, and that of another 30 is 25 years. What is the average age of the remaining students?

A. 15 years ✓

B. 18 years

C. 17 years

D. 14 years

Q11 Average of subgroups

The average age of A, B, C, D, and E is 55 years. The average age of A and B is 45 years, and the average age of C and D is 57 years. The age of E is:

A. 68 years

B. 76 years

C. 66 years

D. 71 years ✓

Q12 Average of subgroups

The average monthly expenditure of a family is ₹3,200 during the first three months, ₹3,550 during the next four months, and ₹4,120 during the last five months of the year. If the total savings during the year was ₹2,265, what is the average monthly income?

A. ₹4,380

B. ₹4,234.60

C. ₹3,880

D. ₹3,888.75 ✓

Q13 Average of subgroups

The mean marks obtained by 350 students in a subject are 75. The mean of top 100 students was found to be 85 and the mean of last 100 students was found to be 65. The mean marks of the remaining 150 students are:

A. 65

B. 75 ✓

C. 85

D. 55

Q14 Average of subgroups

A library has an average number of 612 visitors on Sundays and 240 on other days. The average number of visitors per day in a month of 30 days beginning with a Sunday is:

A. 310

B. 298

C. 315

D. 302 ✓

Q15 Average with unknown

If the mean of three values $3x$, $2x+6$ and $2x+1$ is 7, then find x .

A. 2 ✓

B. 6

C. 4

D. 8

Q16 Combined average

The average marks of 20 students is 60, and that of another 30 students is 80. What is the combined average marks obtained per student?

A. 68

B. 70

C. 72 ✓

D. 74

Q17 Correction in average

In a classroom survey, the average weight of 36 students was recorded as 50 kg. Later, it was found that one student's weight had been wrongly entered as 73 kg instead of 37 kg. What is the correct average weight of the class?

A. 50 kg

B. 49 kg ✓

C. 48 kg

D. 47 kg



Q18 Maximum and minimum mean

In a group of 10 students, the mean of the lowest 9 scores is 46 while the mean of the highest 9 scores is 50. For the entire group of 10 students, the maximum possible mean exceeds the minimum possible mean by:

- A. 4.3
- B. 3.6
- C. 3.4
- D. 3.2

**Q19** Middle value from averages

The average marks of 21 students is 32. If the first 10 students' average marks is 30 and the last 10 students' average marks is 31, find the marks of the 11th student.

- A. 60
- B. 62
- C. 65
- D. 64

**Q20** New average after addition

The average seats secured by a political party in the last 5 elections is 23. If the party secures 47 seats in the current elections, find the new average seats secured by this political party in the six elections.

- A. 27
- B. 28
- C. 29
- D. 30

**Q21** Replacement in average

The average weight of 12 children increases by 1.5 kg when a new child comes in place of one child who weighed 42 kg. What might be the weight of the new child?

- A. 61 kg
- B. 62 kg
- C. 59 kg
- D. 60 kg

**Q22** Replacement in average

The average weight of 3 women is increased by 4 kg, when one of them whose weight is 102 kg, is replaced by another woman. What is the weight of the new woman?

- A. 116 kg
- B. 118 kg
- C. 112 kg
- D. 114 kg

**Q23** Simple average of numbers

What is the average of the numbers 4, 8, and 12?

- A. 8
- B. 6
- C. 12
- D. 10

**Q24** Simple average of numbers

What is the average of 2, 4, 6, and 8?

- A. 4
- B. 7
- C. 6
- D. 5

**Q25** Simple average of numbers

Calculate the mean of the following numbers: 283, 261, 253, 175, 186 and 192

- A. 235
- B. 220
- C. 230
- D. 225

**Q26** Simple average of numbers

Find the average of 453, 397, 332 and 84.

- A. 316.5
- B. 306.5
- C. 326.5
- D. 336.5

**Q27** Weighted average

The numbers 1, 3, and 14 are assigned weights 3, 1, and 1, respectively. Find their weighted arithmetic mean.

- A. 4
- B. 3
- C. 8
- D. 6



Q28 Weighted average

A student scored 60 and 80 in two tests with weights 2 and 3, respectively. What is the weighted average score?

A. 73

B. 72



C. 75

D. 70

Q29 Weighted average

A factory buys 10 machines: 6 of Machine A, 4 of Machine B. Their prices are ₹20300 and ₹87000, respectively. Find the average cost of the machines.

A. ₹46960

B. ₹46980



C. ₹46970

D. ₹46990

Q30 Weighted average

In a survey, 4 people rated a product 5 and 6 people rated it 3. What is the weighted average rating?

A. 3.5

B. 3.8



C. 4.2

D. 4.0

Q31 Weighted average

The numbers 4, 8, and 10 are assigned weights 2, 3, and 5, respectively. Find their weighted arithmetic mean.

A. 6.5

B. 7.4

C. 8.2



D. 9.1

Q32 Weighted average

In an examination the weights assigned to the scores in Mathematics and Science are 2 and 3, respectively. A student scores 50 in Mathematics and 70 in Science. What is his weighted average score in the examination?

A. 60

B. 62



C. 64

D. 58

Q33 Weighted average

A student scores 80 on an assignment that carries a weight of 40%, and 70 on a project that carries a weight of 60%. What is the weighted average score?

A. 72

B. 70

C. 74



D. 80

Q34 Weighted average

The weights assigned to four subjects are 2, 3, 4 and 1, respectively. A student scores 60, 70, 80 and 90 in these subjects. What is the weighted mean of the marks?

A. 78

B. 64

C. 68

D. 74

**Q35 Weighted average**

A school has four grades. The average marks scored in Grade 9, Grade 10, Grade 11, and Grade 12 are 65, 70, 70, and 74, respectively. The number of students in each corresponding grade are 40, 45, 35, and 50. What is the weighted arithmetic mean marks for all students across the grades?

A. 73

B. 70



C. 69

D. 68

Q36 Weighted average

A class has boys and girls in the ratio 3:2. In a test, the average marks of the boys are 70 and those of the girls are 80. Find the average marks of the whole class.

A. 72

B. 74



C. 75

D. 76



Q37 Weighted average

Find the weighted arithmetic mean of the first 6 multiples of 8, where each multiple's weight is half of its value. Give your answer correct to two decimal places.

A. 25.36

B. 34.67



C. 52.52

D. 43.67

Q38 Weighted average

A school has two sections A and B, with 30 and 40 students, respectively. The average score in a Mathematics test of section A is 75, while the average score of section B is 80. What is the average score (rounded off to two decimal places) of the entire class?

A. 76.54

B. 78.53

C. 79.57

D. 77.86

**Q39 Weighted average**

The average score of a cricketer in four matches is 45 and in six other matches is 65. Find the average score in all ten matches.

A. 56

B. 57



C. 58

D. 55

Q40 Weighted average

The average of the marks obtained by 25 boys and 20 girls in a class is 73. If the girls' average marks are 4.5 more than the boys' average marks, find the total marks scored by all the girls.

A. 1450

B. 1570

C. 1510



D. 1550

Q41 Combined average

If the average temperature of the first 3 days of a week is 38.5°C and the average temperature of the last 4 days is 39.2°C , find the average temperature of the entire week.

A. 38.8°C

B. 38.9°C



C. 38.6°C

D. 39°C

Q42 Sum from average

The average of five numbers is 18.45. What is the sum of the five numbers?

A. 90.25

B. 95.25

C. 92.25



D. 84.25

Q43 Weighted average

Ravi buys 2 kg of apples at ₹100 per kg and 3 kg of bananas at ₹60 per kg. What is the average price per kg of the fruits he bought?

A. ₹76



B. ₹80

C. ₹70

D. ₹72



Q1 Basic percentage value

In an election, a total of 8,000 votes were cast. Candidate X received 55% of the total votes. Find the number of votes received by candidate X.

A. 4,000

B. 4,400 

C. 4,600

D. 4,200

Q2 Basic percentage value

In a school election, 10% of the students did not vote. If the total number of students was 2,000, how many students voted?

A. 1,900

B. 1,800 

C. 1,700

D. 1,600

Q3 Basic percentage value

In an election, Candidate A received 60% of the total votes while Candidate B received the remaining votes. If the total votes were 5,000, how many votes did Candidate B receive?

A. 3,000

B. 1,500

C. 2,000 

D. 2,400

Q4 Combined percentage change

The cost of a washing machine is 50% less than the cost of a TV. If the cost of the washing machine increases by 76% and that of the TV decreases by 37%, then what is the percentage change in the total cost of 4 washing machines and 3 TVs?

A. Decrease by 5%

B. Increase by 8.2% 

C. Increase by 13%

D. Decrease by 16%

Q5 Combined percentage change

The cost of a washing machine is 50% less than the cost of a TV. If the cost of the washing machine increases by 83% and that of the TV decreases by 38%, then what is the percentage change in the total cost of 8 washing machines and 4 TVs?

A. Decrease by 19%

B. Decrease by 27%

C. Increase by 26%

D. Increase by 22.5% **Q6 Dimension change constant area**

The length of a rectangle is increased by 40%. By what percentage must the breadth be decreased to keep the area constant? (Rounded off to 2 decimal places)

A. 28.57% 

B. 30.57%

C. 27.57%

D. 31.57%

Q7 Election votes percentage

There are only two candidates contesting the election. A person who got 25% votes lost by 500 votes. Assuming that there were no invalid votes, the total number of votes casted are:

A. 4000

B. 2000

C. 3000

D. 1000 **Q8 Election votes percentage**

In an election between two candidates, one candidate received 28% of the total votes but lost the election by a margin of 649 votes. If all the votes cast were valid, find the total number of votes cast.

A. 1495

B. 1465

C. 1485

D. 1475 

Q9 Election votes percentage

In an election between two candidates, the candidate who got 59% of valid votes won by a majority of 450 votes. Find the total valid votes.

A. 2456

B. 2500



C. 2540

D. 2350

Q10 Election votes percentage

In a town, 75% of the registered voters cast their votes in an election contested by candidates X and Y. Candidate X won the election by 840 votes. If candidate Y had received 50% more votes, the election would have resulted in a tie. Find the total number of registered voters in the town.

A. 5230

B. 4800

C. 5600



D. 5700

Q11 Election votes percentage

In an election between two candidates, 10% of the total votes were declared invalid, and all valid votes were cast in favour of either of the two candidates. If the winner secured 53% of the valid votes and won the election by 1,620 votes, find the total number of votes polled.

A. 27,000

B. 32,000

C. 28,000

D. 30,000

**Q12 Election votes percentage**

In an election between two candidates 80 % of the registered voters cast their vote and 10 % of the votes polled were found invalid. Winning candidate got 55% of the valid votes and won the election by a margin of 378votes. How many voters were registered?

A. 5250



B. 5251

C. 5249

D. 5253

Q13 Election votes percentage

In an election, A gets 63.2% of the votes polled. If the total number of voted polled is 5000, how many votes did A get?

A. 2580

B. 3580

C. 2760

D. 3160

**Q14 Election votes percentage**

In an election between two candidates, 18% of the registered voters did not cast their votes, and 750 of the votes cast were declared invalid. The winning candidate secured 70% of the valid votes and won by a margin of 4,620 votes. Find the total number of registered voters.

A. 15,600

B. 16,200

C. 16,700

D. 15,000

**Q15 Election votes percentage**

In an election contested by two candidates, 25% of the registered voters did not cast their votes, and 795 of the votes cast were declared invalid. The winning candidate secured 70% of the valid votes and defeated the other candidate by a margin of 3,600 votes. Find the total number of voters on the electoral roll.

A. 12,680

B. 12,090

C. 13,060



D. 13,456

Q16 Error percent in area

In measuring the sides of a rectangular park, if one side is taken 6% in excess and the other is taken 5% in deficit, what is the error percent in the area calculation?

A. 0.7% increase



B. 0.7% decrease

C. No change

D. 0.2% increase



Q17 Income expenditure savings

The income of Raman is ₹70,000. He saves 26% of his income. If his income increases by 32% and expenditure increases by 45%, then his savings will:

- A. increase by ₹909
- B. increase by ₹913
- C. decrease by ₹908
- D. decrease by ₹910

**Q18 Income expenditure savings**

The income of Raman is ₹34,000. He saves 5.5% of his income. If his income increases by 17% and expenditure increases by 10%, then his savings will:

- A. decrease by ₹10,285
- B. increase by ₹2,567
- C. increase by ₹10,284
- D. decrease by ₹2,657

**Q19 Income expenditure savings**

The income of Raman is ₹61,500. He saves 17% of his income. If his income increases by 38% and expenditure increases by 20%, then his savings will:

- A. decrease by ₹13,159
- B. increase by ₹13,156
- C. increase by ₹13,161
- D. decrease by ₹13,165

**Q20 Income expenditure savings**

The income of Raman is ₹25,000. He saves 25.5% of his income. If his income increases by 20% and expenditure increases by 40%, then his savings will:

- A. decrease by ₹2,450
- B. decrease by ₹2,452
- C. increase by ₹2,446
- D. increase by ₹2,453

**Q21 Income expenditure savings**

The income of Raman is ₹43,800. He saves 20% of his income. If his income increases by 36% and expenditure increases by 40%, then his savings will:

- A. increase by ₹1,757
- B. increase by ₹1,752
- C. decrease by ₹1,748
- D. decrease by ₹1,753

**Q22 Income expenditure savings**

The income of Raman is ₹12,000. He saves 27% of his income. If his income increases by 20% and expenditure increases by 15%, then his savings will:

- A. increase by ₹1,086
- B. decrease by ₹1,085
- C. increase by ₹1,088
- D. decrease by ₹1,089

**Q23 Income expenditure savings**

The income of Raman is ₹83,000. He saves 16% of his income. If his income increases by 22% and expenditure increases by 25%, then his savings will:

- A. decrease by ₹828
- B. increase by ₹830
- C. decrease by ₹833
- D. increase by ₹827

**Q24 Income expenditure savings**

The income of Raman is ₹49,000. He saves 27.5% of his income. If his income increases by 34% and expenditure increases by 20%, then his savings will:

- A. increase by ₹9,555
- B. increase by ₹9,559
- C. decrease by ₹9,556
- D. decrease by ₹9,550

**Q25 Income expenditure savings**

The income of Raman is ₹70,900. He saves 12% of his income. If his income increases by 39% and expenditure increases by 50%, then his savings will:

- A. decrease by ₹3,550
- B. increase by ₹3,548
- C. decrease by ₹3,545
- D. increase by ₹3,546

**Q26 Income expenditure savings**

The income of Raman is ₹10,200. He saves 30% of his income. If his income increases by 14% and expenditure increases by 40%, then his savings will:

- A. increase by ₹1,429
- B. decrease by ₹1,428
- C. decrease by ₹1,427
- D. increase by ₹1,430



Q27 Income expenditure savings

Vikram saves $r\%$ of his earnings. If his earnings increase by 22% and his expenditure increases by 16%, his savings grow by 40%. What is the value of r ?

A. 22

B. 16

C. 25



D. 27

Q28 Income expenditure savings

The income of Raman is ₹91,700. He saves 20% of his income. If his income increases by 19% and expenditure increases by 35%, then his savings will:

A. increase by ₹8,249

B. decrease by ₹8,253



C. increase by ₹8,255

D. decrease by ₹8,252

Q29 Income expenditure savings

The income of Raman is ₹43,500. He saves 17% of his income. If his income increases by 18% and expenditure increases by 20%, then his savings will:

A. increase by ₹606

B. decrease by ₹604

C. increase by ₹609



D. decrease by ₹608

Q30 Income expenditure savings

The income of Raman is ₹68,500. He saves 22.5% of his income. If his income increases by 14% and expenditure increases by 40%, then his savings will:

A. decrease by ₹11,647

B. increase by ₹11,647

C. increase by ₹11,642

D. decrease by ₹11,645

**Q31 Income expenditure savings**

Anita saves $y\%$ of her income. If her income increases by 30% and her expenditure increases by 20%, her savings increase by 40%. What is the value of y ?

A. 50



B. 43

C. 42

D. 48

Q32 Income expenditure savings

Raman's income is ₹50,400, and he saves 7.5% of it. If his income increases by 26% and his expenditure increases by 20%, then by how much percent will his savings increase?

A. 100%



B. 50%

C. 125%

D. 75%

Q33 Income expenditure savings

The income of Raman is ₹43,000. He saves 26% of his income. If his income increases by 20% and expenditure increases by 40%, then his savings will:

A. increase by ₹4,131

B. decrease by ₹4,128



C. increase by ₹4,133

D. decrease by ₹4,133

Q34 Income expenditure savings

The income of Raman is ₹68,800. He saves 18.5% of his income. If his income increases by 17% and expenditure increases by 25%, then his savings will:

A. decrease by ₹2,325

B. decrease by ₹2,322



C. increase by ₹2,325

D. increase by ₹2,319

Q35 Income expenditure savings

The expenditure of Sudha is 100% more than her savings. If her expenditure decreases by 2% and savings increase by 22%, then by what percentage does her income increase?

A. 2%

B. 6%



C. 1%

D. 3%

Q36 Income expenditure savings

The expenditure of Sudha is 150% more than her savings. If her expenditure decreases by 7% and savings increase by 21%, then by what percent does her income increase?

A. 6%

B. 3%

C. 1%



D. 5%



Q37 Income expenditure savings

The expenditure of Sudha is 100% more than her savings. If her expenditure decreases by 4% and savings increase by 35%, then by what percent does her income increase?

- A. 14%
- B. 12%
- C. 11%
- D. 9%

**Q38 Income expenditure savings**

Nirmal's monthly salary is ₹15,000. He spends ₹6,000 on house rent and ₹1,500 on utility bills and saves the remaining amount each month. If, during his birthday month, he spends his entire monthly savings on his birthday celebration, find his total savings (in ₹) for the year.

- A. 67,500
- B. 82,500
- C. 90,000
- D. 75,000

**Q39 Income expenditure savings**

Sachin's monthly salary is ₹15,000. He spends ₹5,500 on house rent and ₹2,000 on utility bills, and saves the remaining amount each month. If, during his birthday month, he spends his entire monthly savings on his birthday celebration, find his total savings (in ₹) for the year.

- A. 90,000
- B. 75,000
- C. 67,500
- D. 82,500

**Q40 Income expenditure savings**

The expenditure of Sudha is 150% more than her savings. If her expenditure decreases by 3% and savings increase by 21.5%, then by what percent does her income increase?

- A. 1%
- B. 4%
- C. 6%
- D. 3%

**Q41 Income expenditure savings**

The expenditure of Sudha is 150% more than her savings. If her expenditure decreases by 12% and savings increase by 37%, then by what percent does her income increase?

- A. 7%
- B. 5%
- C. 2%
- D. 3%

**Q42 Income expenditure savings**

Kiran's monthly salary is ₹15,000. He spends ₹5,500 on house rent and ₹3,000 on utility bills, and saves the remaining amount each month. If, during his birthday month, he spends his entire monthly savings on his birthday celebration, find his total savings (in ₹) for the year.

- A. 71,500
- B. 65,000
- C. 58,500
- D. 78,000

**Q43 Income expenditure savings**

Sheela earns ₹48,000 per month. She spends 75% of her income and saves the rest. If her expenditure increases by 10%, what will be her new monthly savings (in ₹)?

- A. 12,000
- B. 10,800
- C. 9,600
- D. 8,400

**Q44 Income expenditure savings**

Keshav's monthly salary is ₹15,000. He spends ₹5,500 on house rent and ₹2,500 on utility bills and saves the remaining amount each month. If, during his birthday month, he spends his entire monthly savings on his birthday celebration, find his total savings (in ₹) for the year.

- A. 70,000
- B. 77,000
- C. 84,000
- D. 63,000



Q45 Income expenditure savings

The expenditure of Sudha is 100% more than her savings. If her expenditure decreases by 6% and savings increase by 18%, then by what percentage does her income increase?

A. 7%

B. 6%

C. 2%



D. 5%

Q46 Income from savings

Priya spends 27% of her income on house rent, 22% on groceries, and 18% on education. If she saves ₹12,400 per month, what is her monthly income (rounded off to the nearest integer)?

A. ₹37,356

B. ₹37,446

C. ₹37,216

D. ₹37,576

**Q47 Income from savings**

Rajan spends 60% of his income on household expenses. From the remaining income, he saves 50%. If his savings are ₹8,000, what is his total income?

A. ₹40,000



B. ₹32,000

C. ₹35,000

D. ₹45,000

Q48 Numbers from percentage equality

The sum of two numbers is 1040. If the bigger number is decreased by 4% and the smaller number is increased by 12%, then the numbers obtained are equal. Find the two numbers.

A. 500, 640

B. 560, 480



C. 600, 440

D. 520, 520

Q49 Percentage change in cost

The cost of a washing machine is 50% less than the cost of a TV. If the cost of the washing machine increases by 60% and that of the TV decreases by 11%, then what is the percentage change in the total cost of 6 washing machines and 2 TVs?

A. Decrease by 33%

B. Decrease by 29%

C. Increase by 31.6%



D. Increase by 26%

Q50 Percentage change in cost

The cost of a washing machine is 40% less than the cost of a TV. If the cost of the washing machine increases by 80% and that of the TV decreases by 22%, then what is the percentage change in the total cost of 7 washing machines and 6 TVs?

A. Decrease by 18%

B. Increase by 24%

C. Decrease by 15%

D. Increase by 20%

**Q51 Percentage change in cost**

The cost of a washing machine is 50% less than the cost of a TV. If the cost of the washing machine increases by 81% and that of the TV decreases by 47%, then what is the percentage change in the total cost of 4 washing machines and 3 TVs?

A. Decrease by 2.1%

B. Increase by 4.2%



C. Decrease by 5.4%

D. Increase by 3.2%

Q52 Percentage change in cost

The cost of a washing machine is 44% less than the cost of a TV. If the cost of the washing machine increases by 78% and that of the TV decreases by 70%, then what is the percentage change in the total cost of 7 washing machines and 2 TVs?

A. Increase by 21%

B. Decrease by 30%

C. Decrease by 34%

D. Increase by 28%



Q53 Percentage change in cost

The cost of a washing machine is 23% less than the cost of a TV. If the cost of the washing machine increases by 73% and that of the TV decreases by 54%, then what is the percentage change in the total cost of 6 washing machines and 3 TVs?

A. Increase by 23%



B. Decrease by 22%

C. Decrease by 26%

D. Increase by 20%

Q54 Percentage decrease

The population of a town decreased from 80,000 to 72,000. Find the percentage decrease in population.

A. 10%



B. 12%

C. 15%

D. 8%

Q55 Percentage decrease

If the price of a pen decreases from ₹24 to ₹18, the percentage decrease is:

A. 25%



B. 5%

C. 35%

D. 15%

Q56 Percentage decrease

The salary of an employee decreased from ₹50,000 to ₹45,000. Find the percentage decrease in salary.

A. 8%

B. 15%

C. 12%

D. 10%

**Q57 Percentage increase**

The production of a factory increased from 1,200 units to 1,500 units. Find the percentage increase in production.

A. 22%

B. 20%

C. 25%



D. 30%

Q58 Percentage increase

The price of a mobile phone increased from ₹20,000 to ₹24,000. Find the percentage increase in price.

A. 20%



B. 18%

C. 25%

D. 15%

Q59 Percentage increase

What is the percentage increase in the population of a town that increases from 70,000 to 71,435 in a year?

A. 2.15%

B. 2.05%



C. 2.0%

D. 2.25%

Q60 Percentage increase

The monthly income of a person is ₹9,770. If his income is increased by 27%, then what will be his new monthly income?

A. ₹12,507.50

B. ₹12,407.90



C. ₹12,307.50

D. ₹12,207.90

Q61 Percentage increase

The profit of a company is increased from ₹11,10,000 to ₹13,10,000 in one year. Calculate the percentage increase in the profit of the company (rounded off to two decimal places).

A. 18.26%

B. 18.02%



C. 18.12%

D. 18.47%

Q62 Percentage increase

The population of a city is increased from 64,000 to 93,500 in a year. Calculate the percentage increase in the population (rounded off to two decimal places).

A. 46.64%

B. 46.09%



C. 46.39%

D. 46.56%



Q63 Percentage increase

The population of a town is increased from 60,000 to 61,260. What is the percentage increase?

A. 2.1%



B. 2.0%

C. 2.2%

D. 2.3%

Q64 Percentage increase

The monthly income of a person is ₹7,545. If his income is increased by 20%, then what will be his new monthly income?

A. ₹9,054



B. ₹9,056

C. ₹9,052

D. ₹9,058

Q65 Percentage of a number

A family with a monthly income of ₹60,000 spends 30% of this amount on food. What is the monetary value of this expenditure?

A. ₹15,000

B. ₹12,000

C. ₹18,000



D. ₹10,000

Q66 Percentage of population

The population of a district is 3,35,000, out of which 2,14,000 are males. 31% of the population is literate. If 31% males are literate, then what percentage of females are literate?

A. 33%

B. 28%

C. 30%

D. 31%

**Q67 Percentage of population**

The population of a district is 3,54,000, out of which 2,30,000 are males. 17% of the population is literate. If 17% males are literate, then what percentage of females are literate?

A. 17%



B. 16%

C. 20%

D. 15%

Q68 Population growth

A city's population increases by 15% in the first year and by 20% in the second year. If the original population was 50,000, find the population after 2 years.

A. 69,900

B. 68,800

C. 68,000

D. 69,000

**Q69 Population growth**

A city has a population of 80,000. The population increases by 10% in the first year, decreases by 5% in the second year, and again increases by 20% in the third year. What is the final population?

A. 1,00,320



B. 1,07,320

C. 1,01,320

D. 1,10,320

Q70 Price and consumption change

The price of petrol increases by 10%. By what percentage must a person reduce consumption so that the total expenditure on petrol increases by only 5%? (Round off your answer to two decimal places.)

A. 4.15%

B. 4.45%

C. 4.55%



D. 4.35%

Q71 Ratio from percentages

Two numbers are, respectively, 15% and 40% more than the third number. What is the ratio between the two numbers?

A. 24 : 28

B. 20 : 28

C. 23 : 28



D. 23 : 26

Q72 Savings percentage

A family earns ₹50,000 per month and spends ₹35,000. What percentage of the income is saved?

A. 30%



B. 25%

C. 20%

D. 15%



Q73 Savings percentage

Ravi spends 80% of his monthly income. If his monthly income is ₹25,000, find his monthly savings.

A. ₹5,000



B. ₹6,000

C. ₹7,000

D. ₹4,000

Q74 Savings percentage

A person spends 70% of his income and saves ₹6,000. Find his total income.

A. ₹18,000

B. ₹20,000



C. ₹22,000

D. ₹24,000

Q75 Successive percentage change

A company's revenue increases by 40% in one quarter and then decreases by 20% in the next. If the initial revenue was ₹1,00,000, what is the final revenue?

A. ₹1,08,000

B. ₹1,14,000

C. ₹1,12,000



D. ₹1,20,000

Q76 Successive percentage change

The price of a laptop increases by 20% in the first year and again by 10% in the second year. If the original price was ₹50,000, find the final price after two years.

A. ₹65,000

B. ₹67,000

C. ₹66,000



D. ₹68,000

Q77 Successive percentage change

The present salary of an officer is ₹15,000. It was increased by 10% in the first year, decreased by 20% in the second year. What was his salary at the end of the second year?

A. ₹13,600

B. ₹13,400

C. ₹13,200



D. ₹13,800

Q78 Successive percentage change

A trader purchases oil at ₹500 per barrel. He first increases the price by 20% and later decreases the increased price by 10%. What is the final price per barrel?

A. ₹550

B. ₹560

C. ₹540



D. ₹500

Q79 Successive percentage change

The price of an article is increased by 36%. After this increase, it is decreased by 30%. If the final price of the article is ₹132 less than the original price, find the original price of the article.

A. ₹2,940

B. ₹2,280

C. ₹2,460

D. ₹2,750

**Q80 Successive percentage change**

A city's tree plantation drive increased the number of trees by 40%. A storm destroyed 30% of the new trees. The number of trees destroyed in the storm is what percent of the original tree count?

A. 9%

B. 12%



C. 15%

D. 18%

Q81 Successive percentage change

A store raises the price of a jacket from ₹1,200 to ₹1,440, then offers a discount that reduces the price to ₹1,296. What is the overall percentage change from the original price to the final price?

A. 10% increase

B. 8% increase



C. 10% decrease

D. 8% decrease



Q82 Successive percentage change

The price of fuel decreases successively by 10%, 20%, and 15% over three consecutive months. In the fourth month, the price increases by 40%. Find the overall percentage decrease in the price of fuel at the end of the fourth month compared to its original price.

A. 13.42%

B. 12.65%

C. 15.33%

D. 14.32% ✓

Q83 Successive percentage change

The price of a commodity is increased by 30% and later decreased by 30%. What is the overall percentage change in the price of the commodity?

A. 18% decrease

B. Neither increase nor decrease

C. 9% decrease ✓

D. 9% increase

Q84 Successive percentage change

A number is first increased by 20% and then decreased by 12%. Find the net percentage increase or decrease in the number.

A. 4.8% decrease

B. 5.2% increase

C. 5.6% increase ✓

D. 4.3% decrease

Q85 Successive percentage change

An item undergoes two successive price increases of 12% each. Find the single equivalent percentage increase in the price of the item.

A. 24%

B. 25.44% ✓

C. 22%

D. 24.44%

Q86 Successive percentage change

A number is first increased by 45%, then decreased by 20%, again increased by 10%, and then decreased by 25%. What is the overall increase/decrease percentage in the number?

A. 4.3% increase

B. 4.3% decrease ✓

C. 4.1% decrease

D. 5.2% increase

Q87 Successive percentage change

A number is first increased by 30%, and then decreased by 20%. What is the overall percentage change in the number?

A. Decrease of 4%

B. Increase of 10%

C. Decrease of 8%

D. Increase of 4% ✓

Q88 Successive percentage change

A number is increased by 25% and then decreased by 10%. By what percent does the number increase?

A. 12.5% ✓

B. 13.9%

C. 15.6%

D. 10.4%

Q89 Successive percentage change

Arvind's income at first increased by 19% and later on increased again by 10%. Find the total percentage increase.

A. 28.2%

B. 30%

C. 30.9% ✓

D. 29%

Q90 Successive percentage change

A car was originally priced at ₹5,00,000. After a 12% price increase, it is now being sold for ₹5,60,000. If the price is further decreased by 5%, what is the final price of the car?

A. ₹5,25,000

B. ₹5,30,000

C. ₹5,32,000 ✓

D. ₹5,35,000



Q91 Successive percentage change

Income of Peter was ₹6,000. The company he worked for came under loss and his salary was reduced by 20%. After a year, the company gave him a 30% increase on the reduced income. Compare Peter's final income with his original income and calculate by how much more or less his final income is.

- A. Less by ₹200
- B. Less by ₹240
- C. More by ₹240
- D. More by ₹200

Q92 Successive percentage spending

A man loses 22% of his money. After spending 25% of the remaining amount, he has ₹7,137 left. What was the amount of money he originally had?

- A. ₹12,100
- B. ₹12,300
- C. ₹12,400
- D. ₹12,200

Q93 Successive percentage spending

An officer spends 10% of his salary on house rent. From the remaining amount, he spends 50% on conveyance. He is left with ₹20,556. What was his total salary?

- A. ₹47,680
- B. ₹48,680
- C. ₹45,680
- D. ₹46,680

Q97 Dimension change constant volume

The radius of a cylinder is increased by $33\frac{1}{3}\%$ and its height is decreased by $x\%$ such that the volume of the cylinder remains unchanged. Find x .

- A. 41.25
- B. 42.5
- C. 43.75
- D. 44.15

Q94 Successive percentage spending

A man spends 45% of his monthly salary on the household, 20% of the remaining on transport and saves the remaining amount of ₹88,000. What is his monthly salary (in ₹)?

- A. 2,40,000
- B. 2,50,000
- C. 2,00,000
- D. 2,22,500

Q95 Value from percentage

If 36 is subtracted from a number, it reduces to 90% of the original number. What is the number?

- A. 480
- B. 360
- C. 840
- D. 630

Q96 Value from percentage

The salary of Margaret is increased by 12%. If her new salary becomes ₹22,400, find the original salary of Margaret.

- A. ₹20,000
- B. ₹19,800
- C. ₹21,500
- D. ₹19,500



Q98 Savings percentage

A man spends ₹3654 per month and saves $12\frac{1}{2}\%$ of his income. His monthly income is

A. ₹4176



B. ₹4186

C. ₹4196

D. ₹4166



Arithmetic

65 Questions • Answer Key

Q1 Coins in ratio

A bag contains 50-paise, ₹1, and ₹2 coins in the ratio 2 : 5 : 8. If the total value of all the coins is ₹352, find the total number of coins in the bag.

A. 260

B. 240



C. 215

D. 235

Q2 Combined ratio revenue

A long-distance train has passengers in first class, second class, and sleeper class in the ratio 2 : 3 : 5. The ticket fares for these three classes are in the ratio 8 : 7 : 3. If the total revenue collected from ticket sales is ₹96,200, find the amount of revenue generated from second-class tickets.

A. ₹38,850



B. ₹42,000

C. ₹39,800

D. ₹42,600

Q3 Combining ratios

If $x : y = 3 : 5$ and $y : z = 2 : 3$, find the value of $x : y : z$.

A. 3 : 5 : 7

B. 6 : 10 : 15



C. 3 : 7 : 5

D. 1 : 2 : 3

Q4 Combining ratios

The sum of three numbers is 455. The ratio of the first number to the second number is 2:3, and the ratio of the second number to the third number is 4:5. Find the first number

A. 102

B. 108

C. 106

D. 104



Q5 Combining ratios

If $x:(y+z)=3:8$, $y:(x+z)=4:11$, and $x+y+z=4950$, then find the value of $z-y$.

A. 1080

B. 720

C. 840

D. 960



Q6 Combining ratios

If $(a + b):(b + c):(c + a) = 4:6:10$ and $a + b + c = 40$, what is the value of a ?

A. 22

B. 8

C. 16



D. 18

Q7 Comparing ratios

Arrange the following ratios in descending order.
2: 5, 3: 8, 5: 6, 4: 7

A. 5: 6 > 3: 8 > 2: 5 > 4: 7

B. 5: 6 > 3: 8 > 4: 7 > 2: 5

C. 5: 6 > 4: 7 > 2: 5 > 3: 8



D. 5: 6 > 4: 7 > 3: 8 > 2: 5

Q8 Comparing ratios

What is the correct ascending order of the following ratios:
12:13, 25:26, 2:3, 5:6?

A. 5:6, 2:3, 12:13, 25:26

B. 2:3, 5:6, 12:13, 25:26



C. 2:3, 5:6, 25:26, 12:13

D. 2:3, 12:13, 5:6, 25:26

Q9 Comparing ratios

Which of the following ratios is the greatest?

A. 7:10

B. 4:5



C. 5:7

D. 3:4



Q10 Continued proportion

If $(2x + 5)$, $(3x + 7)$ and $(4x + 9)$ are in continued proportion, find the values of x .

A. $x = 2, -2$

B. $x = 3, -3$

C. $x = 2, 2$

D. $x = -2, -2$ ✓

Q11 Divide sum in ratio

A sum of money is divided among P, Q, and R in the ratio 2:3:5. If R gets Rs. 290 more than Q, what is the total sum?

A. Rs. 1200

B. Rs. 900

C. Rs. 1100

D. Rs. 1450 ✓

Q12 Divide sum in ratio

A sum of money is divided amongst A, B, C and D in the ratio of 3 : 7 : 9 : 13. If the share of D is ₹6,890, then what will be the share of A (in ₹)?

A. 1,500

B. 1,590 ✓

C. 1,560

D. 1,530

Q13 Divide sum in ratio

A recipe requires flour, sugar, and butter in the ratio 3:2:1. If the total quantity of ingredients used is 18 cups, how many cups of sugar are needed?

A. 6 ✓

B. 9

C. 12

D. 3

Q14 Divide sum in ratio

The expenses of three friends, A, B, and C, are in the ratio 2 : 3 : 5. If total expenses are ₹2,000, find B's share.

A. ₹550

B. ₹600 ✓

C. ₹500

D. ₹700

Q15 Divide sum in ratio

A chemist needs to prepare 250 ml of a solution by mixing two liquids in the ratio 5 : 3. How much (in ml) of the second liquid should be used?

A. 125.25

B. 93.75 ✓

C. 62.25

D. 156.25

Q16 Divide sum in ratio

Some laddoos are packed in four boxes, A, B, C, and D, in the ratio 5:6:8:3. If box C has 225 more laddoos than box A, how many laddoos are there in box D?

A. 375

B. 300

C. 275

D. 225 ✓

Q17 Dividing in given ratio

If the ratio of two numbers is 4 : 7 and their sum is 33, what is the smaller number?

A. 16

B. 24

C. 20

D. 12 ✓

Q18 Dividing in given ratio

In a local club election, the two candidates received votes in the ratio 7 : 5. If the total number of votes cast was 360, how many votes did the winning candidate receive?

A. 210 ✓

B. 180

C. 240

D. 200

Q19 Dividing in given ratio

The ratio of two numbers is 2 : 5. If their sum is 49, find the larger of the two numbers.

A. 42

B. 14

C. 25

D. 35 ✓



Q20 Dividing in given ratio

Ravi, Sohan, Raghu and Ani distributed a sum of money amongst themselves in the ratio of 7 : 4 : 6 : 3. If Raghu's share is ₹1,800 more than Ani's share, then what is Sohan's share?

A. ₹2,300

B. ₹2,400

C. ₹2,200

D. ₹2,500

Q21 Dividing in given ratio

A certain sum is divided into two parts in the ratio 8 : 5. If one part is ₹306 more than the other, then find the sum (in ₹).

A. 1,326

B. 816

C. 510

D. 1,122

Q22 Dividing in given ratio

The number 243 is divided into three parts such that half of the first part, one-third of the second part, and one-fourth of the third part are equal. Find the value of the largest part.

A. 98

B. 112

C. 108

D. 88

Q23 Dividing in given ratio

In a coding assessment conducted by a tech company, the scores of Candidate X and Candidate Y are in the ratio 12 : 15. If Candidate Y scored 75 marks, then find the score obtained by Candidate X.

A. 65

B. 60

C. 50

D. 55

Q24 Fourth proportional

Find the fourth proportional to 8.6, 10.75, and 6.

A. 7

B. 7.2

C. 7.5

D. 7.25

Q25 Fourth proportional

If the numbers 25, 35, 45.2, and x are in proportion, find the value of x.

A. 63.28

B. 52.56

C. 70.78

D. 56.23

Q26 Fourth proportional

Find the fourth proportional to 2.5, 4, and 10.

A. 12

B. 16

C. 14

D. 18

Q27 Fourth proportional

Find the fourth proportional to the numbers 8, 32 and 17.

A. 56

B. 68

C. 46

D. 58

Q28 Fourth proportional

If 7, 14.2, 21.7, and x are in proportion, what is the value of x?

A. 44.02

B. 48.08

C. 50.12

D. 46.04

Q29 Fourth proportional

If 15, 45, 24 are the first three terms of a proportion, find the fourth term.

A. 72

B. 68

C. 75

D. 74



Q30 Fourth proportional

Find the value of x if 1.2, 1.8, 2.7 and x are in proportion.

A. 3.55

B. 4.55

C. 4.05



D. 3.05

Q31 Fourth proportional

Four numbers a , b , c , d are in proportion. If $a = 32$, $b = 72$, and $c = 180$, what is the value of d ?

A. 405



B. 400

C. 415

D. 410

Q32 Fourth proportional

Find the fourth proportional to 6, 9, and 15.

A. 18.5

B. 25.5

C. 21.5

D. 22.5

**Q33 Fourth proportional**

In a proportion, the first, second and third proportionals are respectively 6, 24 and 11. If the fourth proportional is $(x^2 - 7x)$, find the positive value of x .

A. 44

B. 11



C. 28

D. 4

Q34 Income expenditure ratio

The incomes of A and B are in the ratio 5:7 and their expenditures are in the ratio 3:5. If each saves Rs. 4200, what is the income of A?

A. Rs. 10500



B. Rs. 12000

C. Rs. 14000

D. Rs. 8000

Q35 Mean proportional

Which value is the mean proportional between 18 and 45?

A. $20\sqrt{7}$

B. $9\sqrt{10}$



C. $25\sqrt{5}$

D. $10\sqrt{17}$

Q36 Mean proportional

If 7 and 20 are two numbers, what is their mean proportional?

A. $10\sqrt{15}$

B. $16\sqrt{5}$

C. $2\sqrt{35}$



D. $14\sqrt{10}$

Q37 Mean proportional

Find the number which when subtracted from 11 and 67 will give 21 as their mean proportional.

A. 8

B. 3

C. 6

D. 4

**Q38 Mean proportional**

The width of a rectangle is 16 cm. If the length is the mean proportional between 9 cm and 16 cm, find the length of the rectangle.

A. 16 cm

B. 18 cm

C. 12 cm



D. 9 cm

Q39 Mean proportional

The mean proportional between two numbers is 42. If one of the numbers is 31, find the other number. (Round to the nearest whole number).

A. 57



B. 55

C. 56

D. 58



Q40 Mean proportional

If the mean proportional between two numbers is 12 and one of the numbers is 8, what is the other number?

A. 18



B. 36

C. 9

D. 24

Q41 Mean proportional

If 4, 8, x and 12 are in proportion, then what is the mean proportion between $(x + 3)$ and $(x + 30)$?

A. 14

B. 16

C. 18



D. 15

Q42 Proportion missing term

If 12.8, 6.4, x and 1.6 are in proportion, what is the value of x ?

A. 3.2



B. 2.4

C. 2.8

D. 3.6

Q43 Proportion of four numbers

If x , 2.6, 5.2 and 10.4 are in proportion, what is the value of x ?

A. 1.3



B. 1.8

C. 1.2

D. 2.4

Q44 Quantity from ratio

A paint mixture is made by mixing blue and white paint in the ratio 7 : 2. If a painter uses 315 liters of blue paint, how much total paint mixture will be prepared?

A. 350 liters

B. 405 liters



C. 420 liters

D. 490 liters

Q45 Quantity from ratio

The ratio of two numbers is 6 : 11. If the smaller number is 18, find the larger number.

A. 27

B. 30

C. 33



D. 22

Q46 Quantity from ratio

A recipe requires flour and sugar in the ratio 3 : 2. If a baker uses 600 grams of flour, how much quantity (in grams) of sugar is needed?

A. 450

B. 500

C. 400



D. 360

Q47 Quantity from ratio

The ratio of two numbers is 3 : 5. If the first number is 24, what is the second number?

A. 36

B. 42

C. 38

D. 40

**Q48 Ratio after change**

Two numbers are in the ratio 2:3. If 8 is subtracted from each number, the resulting ratio becomes 1:2. What was the original larger number?

A. 16

B. 18

C. 24



D. 12

Q49 Ratio after change

The ratio of two numbers is 2 : 9. If 4 is added to the smaller number and 3 is added to the greater number, the ratio becomes 1 : 4. Find the original greater number.

A. 127

B. 120

C. 115

D. 117



Q50 Ratio after percentage change

The salaries of P, Q, and R are in the ratio 3 : 4 : 5. Their salaries are increased by 5%, 10%, and 15%, respectively. Find the new ratio of their salaries after the increases.

A. 53 : 88 : 105

B. 63 : 88 : 115



C. 63 : 78 : 115

D. 63 : 84 : 115

Q51 Ratio change problem

The ratio of men to women in a hall is 5 : 3. If 24 more women join and 12 men leave, the ratio becomes 3 : 2. Find the number of men originally present.

A. 440

B. 520

C. 480



D. 360

Q52 Ratio change problem

Two numbers are in the ratio 7:9. If 21 is added to each number, the ratio becomes 3:4. Find the numbers.

A. -147, -189



B. -98, -126

C. -84, -108

D. -91, -117

Q53 Ratio change problem

A class has 60 students, and the ratio of boys to girls is 2:3. If 2 boys and 3 girls are added to the class, what is the new ratio of boys to girls?

A. 3:2

B. 4:3

C. 2:3



D. 3:4

Q54 Ratio from equation

Three-fifths of a certain number is equivalent to 70% of another number. What is the ratio of the first number to the second number?

A. 5 : 6

B. 4 : 5

C. 6 : 7

D. 7 : 6

**Q55 Ratio word problem**

Three numbers are in the ratio 4:5:6. If the sum of the largest and smallest numbers is 165 more than the third number, what is the largest number?

A. 192

B. 198



C. 194

D. 196

Q56 Ratio word problem

Three numbers are in the ratio 2:3:4. If the sum of their cubes is 2673, then the largest number is:

A. 15

B. 9

C. 12



D. 6

Q57 Unitary method

If one dozen notebooks cost ₹360, then what will be the cost of 5 such notebooks?

A. ₹160

B. ₹150



C. ₹120

D. ₹180

Q58 Unitary method

If 5 notebooks cost ₹125, what will be the cost of 8 such notebooks?

A. ₹150

B. ₹120

C. ₹200



D. ₹180

Q59 Unitary method

Ram purchases 8 pens for ₹240 and 6 pencils for ₹54. How much money does he need to buy 1 pen and 3 pencils?

A. ₹57



B. ₹48

C. ₹78

D. ₹69



Q60 Unitary method

If 6 pencils cost ₹42, what will be the cost of 14 pencils?

A. ₹98



B. ₹84

C. ₹90

D. ₹100

Q61 Unitary method

The cost of 7 meters of cloth is ₹840. What will be the cost of 11 meters of the same cloth?

A. ₹1,320



B. ₹1,120

C. ₹1,200

D. ₹1,260

Q62 Fourth proportional

The fourth proportional to three numbers is 36. The first two numbers are 8 and 12. Find the third number.

A. 18

B. 24



C. 21

D. 28

Q63 Mean proportional

Find the mean proportional of 6.5 and 24.

A. $2\sqrt{39}$



B. $3\sqrt{39}$

C. $4\sqrt{39}$

D. $\sqrt{39}$

Q64 Ratio after change

Two numbers are in the ratio 4:7. If the larger number is decreased by 10 and the smaller number is increased by 10, the numbers become equal. What is the original larger number?

A. $48\frac{3}{5}$

B. $46\frac{2}{3}$



C. $42\frac{1}{3}$

D. $44\frac{2}{5}$

Q65 Ratio expression evaluation

If $a:b:c:d = \sqrt{4} : \sqrt{3} : \sqrt{2} : 1$, then what is the value of $\left(\frac{-a^2 + b^2 + c^2 + d^2}{a^2 - b^2 + c^2 - d^2} \right)$?

A. 2

B. 1



C. -1

D. -2



Arithmetic

22 Questions • Answer Key

Q1 Adding to change concentration

430 grams of sugar solution has 20% of sugar in it. How much sugar should be added to make it 50% in the solution?

- A. 248 grams
- B. 258 grams ✓
- C. 278 grams
- D. 268 grams

Q2 Alligation of concentrations

Three types of milk, A, B, and C, have concentrations of 12%, 18%, and 24%, respectively. If they are mixed in the ratio 2 : 4 : p to create a mixture with a 20% concentration, what is the value of p?

- A. 3
- B. 4
- C. 2
- D. 6 ✓

Q3 Alligation on profit

A merchant has 2650 kg of rice, one part of which he sells at 36% profit and the rest at 16% profit. He gains 28% on the whole. Find the quantity sold at 16%.

- A. 1020 kg
- B. 1060 kg ✓
- C. 1040 kg
- D. 1080 kg

Q4 Alligation ratio

In a digital design company, there are only graphic designers and content writers. The average monthly salary of the graphic designers is ₹520, while those of the content writers is ₹420. If the average monthly salary of all employees is ₹500, then what percentage of the company's employees are graphic designers, and are content writers, respectively?

- A. 30% and 70%
- B. 80% and 20% ✓
- C. 70% and 30%
- D. 20% and 80%

Q5 Alligation ratio

A shopkeeper mixes two varieties of rice costing ₹40 per kg and ₹60 per kg to get a mixture worth ₹50 per kg. In what ratio did he mix the two varieties of rice?

- A. 1:1 ✓
- B. 1:2
- C. 2:1
- D. 3:2

Q6 Alligation ratio

The average weight of all the students of a class is 36.5 kg. The average weight of all the boys in the class is 40 kg and that of all the girls is 32.3 kg. The ratio of the number of boys to the number of girls in the class is:

- A. 5 : 6
- B. 5 : 7
- C. 6 : 5 ✓
- D. 7 : 5

Q7 Alligation ratio

A milkman mixes water costing ₹0/litre with milk costing ₹20/litre. If the mixture is sold at ₹16/litre and there is neither gain accrued nor loss incurred in the transaction, find the ratio of milk to water in the mixture.

- A. 4 : 1 ✓
- B. 5 : 1
- C. 1 : 1
- D. 3 : 1

Q8 Alligation ratio

In what ratio must rice at ₹20/kg be mixed with rice at ₹30/kg so that the average price is ₹25/kg?

- A. 3 : 2
- B. 1 : 1 ✓
- C. 5 : 3
- D. 2 : 3



Q9 Alligation ratio

In what ratio must rice costing ₹142 per kg be mixed with wheat costing ₹154 per kg to get a mixture worth ₹146 per kg?

A. 4:1

B. 4:3

C. 3:1

D. 2:1

**Q10 Alligation rule ratio**

In what ratio should coffee costing ₹3800/kg be mixed with coffee costing ₹2750/kg so that the cost of the mixture is ₹3050/kg?

A. 3:7

B. 2:3

C. 2:5



D. 3:5

Q11 Mean price of mixture

If 4 kg of rice costing ₹40 per kg is mixed with 6 kg of rice costing ₹50 per kg, what is the price per kg of the mixture (in ₹)?

A. 46



B. 44

C. 48

D. 50

Q12 Mean price of mixture

If 2 liters of juice costing ₹30 per liter are mixed with 8 liters of juice costing ₹50 per liter, what is the price per liter (in ₹) of the mixture?

A. 50

B. 44

C. 48

D. 46

**Q13 Mean price of mixture**

A shopkeeper buys 5 kg of rice at ₹40 per kg and 15 kg of rice at ₹60 per kg. What is the average cost per kg of the mixture?

A. ₹52

B. ₹50

C. ₹45

D. ₹55

**Q14 Mean price of mixture**

10 kg of rice at ₹22.50 per kg is mixed with 10 kg of rice at ₹37.50 per kg. What is the price per kg (in ₹) of the mixture?

A. 30



B. 22

C. 28

D. 25

Q15 Mixture percentage equations

A mixture of chemicals contains chemical X and chemical Y. If 3 L of chemical Y is added, chemical X becomes 40%. If 3 L of chemical X is added instead, chemical X becomes 50%. Find the initial quantity of the mixture.

A. 21 L

B. 22 L

C. 27 L



D. 25 L

Q16 Repeated replacement

A container contains 26 litres of milk. From this container, 13 litres of milk was taken out and replaced by water. The process was further repeated one time. How much milk is now there in the container?

A. 5.5 litres

B. 3.5 litres

C. 4.5 litres

D. 6.5 litres

**Q17 Replacement in mixture**

A vessel contains liquids A and B in a ratio of 5 : 3. If 16 litres of the mixture is removed and the same quantity of liquid B is added, the ratio becomes 3 : 5. What quantity does the vessel hold?

A. 47 liters

B. 44 liters

C. 40 liters



D. 33 liters



Q18 Replacement of mixture

A chemist has 90 liters of a solution with alcohol and water in the ratio 1:2. How much water must be removed and replaced with alcohol to make the ratio 2:3?

A. 6 liters



B. 9 liters

C. 7 liters

D. 5 liters

Q19 Replacement of mixture

A vessel contains a mixture of orange juice and water in the ratio 3:5. How many litres should be replaced with water so that the ratio becomes 2:5, given the total mix is 168 L?

A. 42 L

B. 45 L

C. 38 L

D. 40 L

**Q21 Mean price of mixture**

A shopkeeper mixes two types of rice to sell as a single blend. He mixes 4 kg of Basmati rice priced at ₹120 per kg with 6 kg of Sona Masuri rice priced at ₹80 per kg. At what price per kg should he sell the mixture to make no profit or loss?

A. ₹100

B. ₹90

C. ₹88

D. ₹96

**Q22 Mixture ratio**

Rahul sells fruit juice by mixing fruit and water in the ratio of 17 : 8. Since Rahul's juice tastes good, mixture by mixing m litres of water with 153 litres of fruit, following Rahul's recipe. Find the value of m.

A. 9

B. 5

C. 3

D. 6

**Q20 Replacement of mixture**

A container holds a mixture of milk and water in the ratio 7:3. After 2 litres of the mixture are replaced with 2 litres of pure water, the new ratio of milk to water becomes 7:5. What was the initial quantity of milk present in the mixture?

A. 9.1 liters

B. 6.3 liters

C. 8.4 liters



D. 5.6 liters



Q1 Age from equations

If 2 times the mother's age is 28 years more than 7 times her daughter's age, and 5 times the daughter's age is 5 year less than the mother's age, then what is the difference (in years) between the ages of the mother and the daughter?

A. 29



B. 34

C. 25

D. 33

Q2 Age from equations

If three times the mother's present age is 24 years more than eight times her daughter's age, and three times the daughter's age is 3 years less than the mother's age, then what is the difference (in years) between the ages of the mother and the daughter?

A. 33



B. 36

C. 35

D. 28

Q3 Age from equations

A's age is 5 years more than twice B's age. If B is 8 years old, what is A's age?

A. 18 years

B. 16 years

C. 21 years



D. 19 years

Q4 Age from equations

If two times the mother's present age is 27 years more than nine times her daughter's age, and five times the daughter's age is 8 year less than the mother's age, then what is the difference (in years) between the ages of the mother and the daughter?

A. 52



B. 57

C. 49

D. 47

Q5 Age from equations

If twice the mother's present age is 30 years less than six times her daughter's present age, and five times the daughter's present age is 55 years more than the mother's present age, then what is the difference (in years) between the present ages of the mother and the daughter?

A. 30

B. 25



C. 20

D. 27

Q6 Age from equations

If twice the mother's present age is 30 years less than six times her daughter's present age, and six times the daughter's present age is 75 years more than the mother's present age, then what is the difference (in years) between their present ages?

A. 20

B. 19

C. 22

D. 25

**Q7 Age from equations**

Twice the mother's present age is equal to four times her daughter's present age. The sum of their present ages is 72 years. What is the difference (in years) between their present ages?

A. 26

B. 19

C. 24



D. 21

Q8 Past and future ages

7 years ago, Saumya was twice as old as Isha. Five years from now, the sum of their ages will be 66. Find the present age of Isha.

A. 25 years

B. 20 years

C. 28 years

D. 21 years



Q9 Past and future ages

Three years ago, Mr. Sohan Lal was four times as old as his grandson. In eight years, his age will be thrice that of his grandson. Find the present age of Mr. Sohan Lal.

- A. 95 years
- B. 85 years
- C. 78 years
- D. 91 years

**Q10 Past and future ages**

Six years ago, A's age was half of what his age will be six years from now. What is A's present age?

- A. 24 years
- B. 13 years
- C. 12 years
- D. 18 years

**Q11 Past and future ages**

10 years ago, Elephant was five times older than Giraffe. Five years from now, the age of Elephant will be twice the age of the Giraffe. What was the sum of the age of Elephant and Giraffe five years ago?

- A. 35 years
- B. 50 years
- C. 45 years
- D. 40 years

**Q12 Past and future ages**

Two years ago, Rohit's age was four times that of his son. Five years from now, the ratio of Rohit's age to his son's age will be 5 : 2. What will be the age of his son five years from now?

- A. 18 years
- B. 9 years
- C. 13 years
- D. 14 years

**Q13 Present age from equations**

Eight years hence, Rajeev's age will be twice the age of Sumit. Four years ago, he was six times as old as Sumit. Find Sumit's age 10 years from now.

- A. 16 years
- B. 17 years
- C. 19 years
- D. 21 years

**Q14 Present age from equations**

5 years ago, the age of a mother was 12 years more than thrice her daughter's age. After how many years from now, will she be thrice her daughter's age?

- A. 1 year
- B. 4 years
- C. 2 years
- D. 3 years

**Q15 Present age from equations**

In 8 years, Dhruv will be twice as old as Divya. Four years ago, he was four times as old as Divya. Find the present age of Dhruv.

- A. 26 years
- B. 20 years
- C. 28 years
- D. 30 years

**Q16 Present age from past**

A's age 6 years ago was half of what it will be 6 years from now. What is A's present age (in years)?

- A. 24
- B. 18
- C. 12
- D. 30

**Q17 Ratio of ages**

B is as much younger to A as he is elder to C. The ratio of the ages of A and C is 9 : 8 and sum of their ages is 68. What is the difference between the ages of A and B?

- A. 2
- B. 5
- C. 4
- D. 6

**Q18 Ratio of ages**

If the ratio of the present age of Anusha to the present age of Vishnu is 8:5 and the sum of their present ages is 78 years, find the present age of Vishnu.

- A. 32 years
- B. 30 years
- C. 34 years
- D. 36 years



Q19 Ratio of ages

The ratio of the ages of Riya to Suman is 2:3. After 6 years from now, the ratio becomes 4:5. What is Riya's present age?

A. 6 years



B. 10 years

C. 8 years

D. 4 years

Q20 Ratio of ages

The ratio of the present ages of Anil and Rohit is 7 : 9. After 8 years, the ratio will become 9 : 11. What is Anil's present age?

A. 42

B. 28



C. 21

D. 35

Q21 Ratio of ages

The present ages of two brothers are in the ratio 3 : 5. After 12 years from now, their ages will be in the ratio 9 : 11. What is the current age of the younger brother?

A. 6 years



B. 10 years

C. 18 years

D. 12 years

Q22 Ratio of ages

The ratio of Manushi's and Nanina's present ages is 4 : 9. After 6 years, the ratio of their ages will be 6 : 11. What is Nanina's present age?

A. 24 years

B. 26 years

C. 27 years



D. 25 years

Q23 Ratio of ages

The ratio of the present ages of A and B is 5 : 7. Ten years later, the ratio becomes 7 : 9. What is A's present age?

A. 35 years

B. 30 years

C. 25 years



D. 40 years

Q24 Ratio of ages

The mean of the present ages of a father and his son is 31 years. After 20 years, the father will be twice as old as his son. What is the ratio of the present ages of the son and the father?

A. 2 : 5

B. 5 : 21

C. 3 : 7

D. 7 : 24

**Q25 Ratio of ages**

The ratio of the ages of Aisha and her mother is 2 : 5, and the ratio of the ages of Aisha's mother to her brother is 7 : 1. If Aisha's brother is 9 years younger than Aisha, what was Aisha's mother's age five years ago?

A. 30 years



B. 35 years

C. 40 years

D. 25 years

Q26 Ratio of ages

The present ages of a father and his son are in the ratio 9 : 4. After 10 years, the ratio of their ages will be 11 : 6. What is the father's present age?

A. 36 years

B. 54 years

C. 45 years



D. 27 years

Q27 Sum of ages

A is 4 years older than B. After 5 years, the sum of their ages will be 50. Find B's present age.

A. 26 years

B. 8 years

C. 18 years



D. 16 years

Q28 Sum of ages

The sum of the ages of a father and his son is 50. If the father is 4 times the son's age, find the son's age.

A. 14 years

B. 10 years



C. 12 years

D. 16 years



Q29 Present age from equations

X's age is 20% more than Y's age. If the sum of their ages is 20 more than the difference of their ages, find their respective ages (in years).

A. 12 , 10



B. 10 , 14

C. 12 , 14

D. 10 , 13

Q30 Present age from equations

A man is 24 years older than his son. In two years from now, his age will be twice the age of his son. The present age of his son is

A. 26 years

B. 22 years



C. 21 years

D. 25 years

Q31 Present age from past

The sum of the present ages of a mother and her daughter is 50 years. Five years ago, the mother was seven times as old as her daughter. What is the present age of the daughter?

A. 12 years

B. 14 years

C. 11 years

D. 10 years



Arithmetic

46 Questions • Answer Key

Q1 Dishonest dealer profit

A dishonest dealer professes to sell his goods at C.P, but he cheats by 7% while purchasing and 9% while selling. What percent of profit does he gain?

- A. 14%
- B. 12.25%
- C. 17.20%
- D. 16.63%

**Q2 Find cost price**

An article is sold at a profit of 20%. If the selling price had been increased by ₹100, the profit percentage would have doubled. What was the cost price of the article?

- A. ₹250
- B. ₹500
- C. ₹400
- D. ₹200

**Q3 Find cost price**

Ramesh bought two identical washing machines. He sold one at a profit of 20% and the other at a loss of 10%. If the total selling price of both machines was ₹33,600, what was the cost price of each washing machine?

- A. ₹16,000
- B. ₹16,800
- C. ₹18,000
- D. ₹15,800

**Q4 Find cost price**

On selling a laptop at a 10% loss and a desktop at a 15% gain, Rita gains ₹8,000 in total. If she sells the laptop at a 10% gain and the desktop at a 20% gain, she gains ₹20,000 in total. Find the cost price (in ₹) of the laptop.

- A. 36,000
- B. 60,000
- C. 40,000
- D. 80,000

**Q5 Gain from articles relation**

By selling 24 articles, a shopkeeper gains the selling price of 12 articles. What is his gain percentage?

- A. 100%
- B. 150%
- C. 50%
- D. 200%

**Q6 Items per rupee profit**

A shopkeeper sells 21 chocolates for ₹1 and makes a profit of 100%. How many chocolates did he purchase for ₹1?

- A. 42
- B. 43
- C. 63
- D. 69

**Q7 Items per rupee profit**

A vendor sells 22 chocolates for ₹1 and makes a profit of 50%. How many chocolates did he buy for ₹1?

- A. 35
- B. 44
- C. 33
- D. 39

**Q8 Items per rupee profit**

A vendor sold 20 chocolates for one rupee and made a profit of 100%. How many chocolates did he originally purchase for one rupee?

- A. 46
- B. 40
- C. 44
- D. 42



Q9 Items per rupee profit

A vendor purchases lemons at the rate of 27 lemons for ₹1. At what rate (number of lemons per ₹1) should he sell them in order to gain 80%?

A. 16

B. 15



C. 17

D. 19

Q10 Items per rupee profit

A vendor buys lemons at the rate of 28 for ₹1. How many lemons should he sell for ₹1 to earn a profit of 75%?

A. 18

B. 16



C. 20

D. 17

Q11 Items per rupee profit

A vendor bought lemons at 28 for a rupee. How many must he sell for a rupee to gain 40%?

A. 21

B. 22

C. 20



D. 24

Q12 Loss percentage basic

If the cost price of an article is ₹500 and is sold at ₹400, then find the loss percentage.

A. 80%

B. 25%

C. 20%



D. 100%

Q13 Loss percentage basic

A beautician buys some beauty products worth ₹9,500 but later sells them for ₹7,885. Find her loss percentage.

A. 17%



B. 19%

C. 11%

D. 13%

Q14 Markup profit percentage

A manufacturer fixes his selling price at 70% above the cost of production. If the cost of production increases by 10% and the manufacturer increases his selling price by 10%, what is the new profit percentage?

A. 73%

B. 72%

C. 71%

D. 70%

**Q15 Overall profit or loss**

A shopkeeper buys two watches for ₹1,200 each. He sells the first watch at a profit of 15% and the second watch at a loss of 10%. He then gives ₹100 cashback to the buyer who bought the first watch. What is the shopkeeper's overall profit or loss?

A. ₹60 profit

B. ₹15 profit

C. ₹30 loss

D. ₹40 loss

**Q16 Overall profit or loss**

Mukesh, a trader, buys a certain number of pens at ₹5 per pen. He sells two-thirds of the pens at a 25% profit and the remaining pens at a 10% loss. If the overall profit made by Mukesh is ₹360, how many pens did he buy?

A. 530

B. 580

C. 550

D. 540

**Q17 Overall profit percentage**

Rajesh started a business with ₹50,000. In the first year, he made a profit of 20%. He reinvested all the money (original + profit) in the second year. In the second year, he suffered a loss of 15%. At the end of the second year, he sold his remaining business assets and received an additional ₹8,000 as goodwill. What is his overall profit or loss percentage on his original investment?

A. 20% profit

B. 18% profit



C. 12% loss

D. 15% loss



Q18 Profit from bulk sale

A vendor buys 41 laptop bags for ₹21,115 and sells them at 26 for ₹13,520. How many laptop bags should be bought and sold, at this rate, to earn a total profit of ₹8,845?

- A. 1757
- B. 1745
- C. 1760
- D. 1769

**Q19 Profit from bulk sale**

A vendor buys 39 laptop bags for ₹33,033 and sells them at 32 for ₹27,552. How many laptop bags should be bought and sold, at this rate, to earn a total profit of ₹7,154?

- A. 529
- B. 501
- C. 491
- D. 511

**Q20 Profit from bulk sale**

A vendor buys 19 laptop bags for ₹43,149 and sells them at 17 for ₹38,658. How many laptop bags should be bought and sold, at this rate, to earn a total profit of ₹5,487?

- A. 1849
- B. 1829
- C. 1840
- D. 1835

**Q21 Profit from bulk sale**

A vendor buys 22 laptop bags for ₹43,670 and sells them at 20 for ₹39,760. How many laptop bags should be bought and sold at this rate, to earn a total profit of ₹1,227?

- A. 409
- B. 388
- C. 397
- D. 417

**Q22 Profit percentage basic**

A trader buys an article for ₹350 and sells it for ₹420. Find his profit percentage.

- A. 20%
- B. 15%
- C. 30%
- D. 25%

**Q23 Profit percentage basic**

A residential plot is purchased for ₹6,28,200 and sold for ₹7,09,866. What is the profit percentage?

- A. 13%
- B. 17%
- C. 11%
- D. 19%

**Q24 Profit percentage basic**

A shopkeeper buys some pencils at 6 for ₹35 and sells them at 10 for ₹65. His profit percentage (rounded off to 2 decimal places) is %.

- A. 13.14
- B. 13.41
- C. 11.34
- D. 11.43

**Q25 Profit percentage change**

A manufacturer fixes his selling price at 25% over the cost of production. If the cost of production goes up by 50%, and the manufacturer raises his selling price by 68%, find the profit percentage.

- A. 39%
- B. 40%
- C. 41%
- D. 45%

**Q26 Profit percentage change**

A manufacturer fixes his selling price at 72% above the cost of production. If the cost of production increases by 50% and the manufacturer raises his selling price by 50%, find the new profit percentage.

- A. 75%
- B. 71%
- C. 69%
- D. 72%

**Q27 Successive profit and loss**

A dealer sells an article at a 25% profit. The buyer then sells it at a 10% loss. If the original cost price was ₹1,200, what is 40% of the final selling price of the article?

- A. ₹630
- B. ₹480
- C. ₹600
- D. ₹540



Q28 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 5%. Biru spent ₹118 on its transportation and sold it to Minu at a profit of 40%. If Minu bought it for ₹1,841, then what is the value of x?

A. ₹1,260



B. ₹1,251

C. ₹1,261

D. ₹1,225

Q29 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 25%. Biru spent ₹157 on its transportation and sold it to Minu at a profit of 40%. If Minu bought it for ₹1,715, then what is the value of x (in ₹)?

A. 1,424



B. 1,446

C. 1,414

D. 1,408

Q30 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 5%. Biru spent ₹152 on its transportation and sold it to Minu at a profit of 56%. If Minu bought it for ₹1,482, then what is the value of x?

A. 820

B. 880

C. 840



D. 860

Q31 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 30%. Biru spent ₹130 on its transportation and sold it to Minu at a profit of 50%. If Minu bought it for ₹1,287, then what is the value of x?

A. 1,040



B. 1,022

C. 1,044

D. 1,072

Q32 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 11%. Biru spent ₹180 on its transportation and sold it to Minu at a profit of 60%. If Minu bought it for ₹1,000, then what is the value of x?

A. 452

B. 500



C. 494

D. 503

Q33 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 15%. Biru spent ₹101 on its transportation and sold it to Minu at a profit of 50%. If Minu bought it for ₹1,554, then what is the value of x?

A. 1,068

B. 1,100



C. 1,126

D. 1,087

Q34 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 16%. Biru spent ₹147 on its transportation and sold it to Minu at a profit of 40%. If Minu bought it for ₹1,617, then what is the value of x?

A. 1,186

B. 1,227

C. 1,204

D. 1,200

**Q35 Successive profit and loss**

Arvind bought an article for ₹x. He sold it to Biru at a loss of 20%. Biru spent ₹140 on its transportation and sold it to Minu at a profit of 46%. If Minu bought it for ₹1,752, then what is the value of x?

A. 1,357

B. 1,344

C. 1,356

D. 1,325



Q36 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 25%. Biru spent ₹183 on its transportation and sold it to Minu at a profit of 45%. If Minu bought it for ₹1,479, then what is the value of x?

A. 1,116



B. 1,079

C. 1,092

D. 1,067

Q37 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 19%. Biru spent ₹166 on its transportation and sold it to Minu at a profit of 35%. If Minu bought it for ₹1,755, then what is the value of x?

A. 1,400



B. 1,350

C. 1,500

D. 1,450

Q38 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 26%. Biru spent ₹102 on its transportation and sold it to Minu at a profit of 50%. If Minu bought it for ₹1,374, then what is the value of x?

A. 1,060

B. 1,100



C. 1,080

D. 1,120

Q39 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 15%. Biru spent ₹157 on its transportation and sold it to Minu at a profit of 40%. If Minu bought it for ₹1,505, then what is the value of x?

A. 1,180

B. 1,060

C. 1,080



D. 1,160

Q40 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 27%. Biru spent ₹163 on its transportation and sold it to Minu at a profit of 60%. If Minu bought it for ₹1,896, then what is the value of x?

A. 1,382

B. 1,400



C. 1,388

D. 1,386

Q41 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 10%. Biru spent ₹135 on its transportation and sold it to Minu at a profit of 50%. If Minu bought it for ₹1,728, then what is the value of x?

A. 1,140

B. 1,150

C. 1,080

D. 1,130

**Q42 Successive profit and loss**

Renu purchased an old scooter for ₹14,500 and spent ₹3,500 on its repair. Then he sold it at a profit of ₹3,500 to Rohit. Rohit got the scooter painted for ₹1,200 and sold it to Mukesh at 10% profit. What amount did Mukesh pay for the scooter?

A. ₹24,970



B. ₹24,530

C. ₹23,840

D. ₹25,240

Q43 Successive profit and loss

Arvind bought an article for ₹x. He sold it to Biru at a loss of 15%. Biru spent ₹122 on its transportation and sold it to Minu at a profit of 50%. If Minu bought it for ₹1968, then what is the value of x?

A. 1200

B. 1400



C. 1800

D. 1600



Q44 Successive profit and loss

Rajat sells a property to his friend at 10% loss. If the friend sells it for 10,80,000 and gains 20%, then for how much did Rajat buy the property?

- A. 9,00,000
- B. 9,20,000
- C. 10,00,000
- D. 9,80,000

**Q45** False weight profit

A dishonest shopkeeper promises to sell his goods at cost price. However, he uses a weight that actually weighs 20% less than what is written on it. Find his profit percentage.

- A. 24.6%
- B. 23.62%
- C. 25%
- D. 26.02%

**Q46** Overall profit or loss

A merchant buys 10 identical items at a total cost of ₹6,000. He sells 6 of them at a 15% profit and the remaining 4 at a 10% loss. Find the overall profit or loss percentage.

- A. 10% loss
- B. 5% profit
- C. 5% loss
- D. 10% profit



Q1 Equivalent discount

A shop marks an article with ₹1,375. The shop runs a scheme: on buying two identical articles, a customer gets 20% off on the first and 40% off on the second. If a customer buys two, what is the effective percentage discount on the total bill?

A. 24%

B. 27%

C. 30%



D. 25%

Q2 Markup and discount price

A shopkeeper increases the price of an article by 20% above the cost price and then offers a discount of 25% on the new price. Later, he again increases the discounted price by 10%. If the cost price of the article was ₹500, what is the final price of the article?

A. ₹490

B. ₹485

C. ₹495



D. ₹510

Q3 Markup and discount profit

A shopkeeper marks the price of an article at 44% above its cost price and then offers two successive discounts of 39% each. What is his loss percentage? (Round off to the nearest integer)

A. 45%

B. 48%

C. 47%

D. 46%

**Q4 Markup and discount profit**

A shopkeeper marks an article 20% above the cost price and then allows a 15% discount on the marked price. What is the overall profit or loss percentage?

A. 4% loss

B. 4% profit

C. 1% loss

D. 2% profit

**Q5 Markup and discount profit**

A trader marks his goods at 45% above the cost price and allows a discount of 17% on it. If he gains $x\%$, then value of x is:

A. 19.35

B. 22.35

C. 21.35

D. 20.35

**Q6 Markup and discount profit**

A shopkeeper gains 25% by selling an item at a 37.5% discount on its marked price. If the cost price increases by 20% and the shopkeeper wishes to maintain the same profit percentage, what discount should he offer?

A. 22%

B. 24%

C. 25%



D. 23%

Q7 Markup and discount profit

A dealer buys two articles X and Y for ₹2,500 each. He marks each of them at the same price. He sells X by giving two successive discounts of 84% and 37% and still earns ₹947 as profit. If he sells Y at a single discount of 86%, then what is the profit percentage on Y?

A. 90.5%

B. 91.5%



C. 91%

D. 90%

Q8 Successive discount

The marked price of a cooker is the same at four shops I, II, III and IV. Shop I allows two successive discounts of 87% and 66%, shop II allows successive discounts of 56% and 30%, shop III allows successive discounts of 23% and 69% and shop IV allows successive discounts of 97%, 45%, and 27% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. III

B. IV



C. I

D. II



Q9 Successive discount

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 68% and 24%, shop II allows successive discounts of 37% and 55%, shop III allows successive discounts of 89% and 10% and shop IV allows successive discounts of 41%, 90% and 48% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. I

B. IV



C. III

D. II

Q10 Successive discount

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 63% and 42%, shop II allows successive discounts of 43% and 88%, shop III allows successive discounts of 52% and 34% and shop IV allows successive discounts of 33%, 61% and 51% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. IV

B. I

C. III

D. II

**Q11 Successive discount**

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 18% and 65%, shop II allows successive discounts of 56% and 86%, shop III allows successive discounts of 53% and 69% and shop IV allows successive discounts of 15%, 60% and 65% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. II



B. I

C. III

D. IV

Q12 Successive discount

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 84% and 97%, shop II allows successive discounts of 42% and 94%, shop III allows successive discounts of 50% and 85% and shop IV allows successive discounts of 89%, 37% and 82% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. I



B. II

C. III

D. IV

Q13 Successive discount

The marked price of a cooker is the same at four shops I, II, III and IV. Shop I allows two successive discounts of 73% and 16%, shop II allows successive discounts of 59% and 18%, shop III allows successive discounts of 49% and 66% and shop IV allows successive discounts of 84%, 67%, and 94% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. II

B. III

C. IV



D. I

Q14 Successive discount

The marked price of a cooker is the same at four shops I, II, III and IV. Shop I allows two successive discounts of 17% and 35%, shop II allows successive discounts of 99% and 23%, shop III allows successive discounts of 31% and 98% and shop IV allows successive discounts of 66%, 30%, and 37% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. II



B. I

C. III

D. IV



Q15 Successive discount

A shopkeeper offers the following discount schemes on toys, all having the same marked price:

- (A) Successive discounts of 45% and 6% on any number of toys purchased.
(B) Successive discounts of 17%, 49%, and 6% on any number of toys purchased.
(C) A discount of 47% on the first 8 toys and a discount of 25% on each toy thereafter.
(D) Buy 9 toys and get 8 toys free of cost.

A customer wants to buy 9 toys. Which of the above schemes is least beneficial to her?

A. D

B. A

C. C



D. B

Q16 Successive discount

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 85% and 18%, shop II allows successive discounts of 84% and 34%, shop III allows successive discounts of 52% and 11% and shop IV allows successive discounts of 84%, 31% and 94% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. IV



B. I

C. III

D. II

Q17 Successive discount

The marked price of a cooker is the same at four shops I, II, III and IV. Shop I allows two successive discounts of 73% and 79%, shop II allows successive discounts of 49% and 32%, shop III allows successive discounts of 14% and 92% and shop IV allows successive discounts of 76%, 49%, and 55% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. I

B. II

C. IV



D. III

Q18 Successive discount

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 99% and 40%, shop II allows successive discounts of 53% and 52%, shop III allows successive discounts of 52% and 10% and shop IV allows successive discounts of 51%, 85% and 68% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. II

B. IV

C. III

D. I

**Q19 Successive discount**

A wholesaler marked school uniforms at ₹1,200 each. He offered a 25% trade discount to a retailer. The retailer also received a scheme discount of 1 uniform free for every 5 purchased. Additionally, if the payment was made within 10 days, a cash discount of 8% on the billed amount (after trade discount) was offered. If the retailer received 72 uniforms in total and made the payment within 10 days, find the effective price per uniform in rupees.

A. ₹668

B. ₹700

C. ₹672

D. ₹690

**Q20 Successive discount**

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 74% and 72%, shop II allows successive discounts of 12% and 70%, shop III allows successive discounts of 51% and 92% and shop IV allows successive discounts of 29%, 78% and 56% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. II

B. III



C. I

D. IV



Q21 Successive discount

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 66% and 81%, shop II allows successive discounts of 42% and 41%, shop III allows successive discounts of 57% and 99% and shop IV allows successive discounts of 35%, 32% and 15% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. IV

B. III



C. I

D. II

Q22 Successive discount

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 12% and 37%, shop II allows successive discounts of 54% and 63%, shop III allows successive discounts of 28% and 83% and shop IV allows successive discounts of 19%, 59% and 25% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. I

B. III



C. IV

D. II

Q23 Successive discount

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 90% and 41%, shop II allows successive discounts of 19% and 65%, shop III allows successive discounts of 24% and 13% and shop IV allows successive discounts of 78%, 73% and 12% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. I

B. III

C. IV



D. II

Q24 Successive discount

A laptop is sold for ₹45,000 after two successive discounts of 25% and 20% on the marked price. Find the original marked price of the laptop.

A. ₹72,000

B. ₹68,000

C. ₹78,000

D. ₹75,000

**Q25 Successive discount**

The marked price of a cooker is the same at four shops I, II, III and IV. Shop I allows two successive discounts of 46% and 13%, shop II allows successive discounts of 55% and 69%, shop III allows successive discounts of 47% and 68% and shop IV allows successive discounts of 91%, 98% and 18% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. I

B. III

C. II

D. IV

**Q26 Successive discount**

The marked price of a cooker is the same at four shops I, II, III and IV. Shop I allows two successive discounts of 97% and 13%, shop II allows successive discounts of 43% and 31%, shop III allows successive discounts of 73% and 14% and shop IV allows successive discounts of 97%, 83% and 24% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. III

B. II

C. IV



D. I

Q27 Successive discount

A shopkeeper offers the following schemes on toys of the same marked price.

(A) Successive discounts of 3% and 7% on any number of toys bought.

(B) Successive discounts of 8%, 39% and 26% on any number of toys bought.

(C) 11% discount on the first 4 toys and 32% discount on each toy thereon.

(D) 4 toys free of cost on buying 5 toys.

A customer wants to buy 5 toys. Which of the above schemes is the least beneficial to her?

A. B

B. A



C. D

D. C



Q28 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV.

Shop I allows two successive discounts of 46% and 13%, shop II allows successive discounts of 55% and 69%, shop III allows successive discounts of 47% and 68%, and shop IV allows successive discounts of 91%, 98%, and 18% on the marked price of the cooker.

Which shop is selling the cooker at the lowest price?

A. III

B. IV



C. I

D. II

Q29 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV.

Shop I allows two successive discounts of 78% and 25%, shop II allows successive discounts of 83% and 29%, shop III allows successive discounts of 33% and 81%, and shop IV allows successive discounts of 84%, 83%, and 82% on the marked price of the cooker.

Which shop is selling the cooker at the lowest price?

A. III

B. IV



C. I

D. II

Q30 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV.

Shop I allows two successive discounts of 46% and 62%, shop II allows successive discounts of 16% and 77%, shop III allows successive discounts of 74% and 54%, and shop IV allows successive discounts of 12%, 98%, and 86% on the marked price of the cooker.

Which shop is selling the cooker at the lowest price?

A. IV



B. II

C. I

D. III

Q31 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV.

Shop I allows two successive discounts of 80% and 44%, shop II allows successive discounts of 58% and 62%, shop III allows successive discounts of 67% and 85%, and shop IV allows successive discounts of 41%, 91%, and 74% on the marked price of the cooker.

Which shop is selling the cooker at the lowest price?

A. I

B. IV



C. III

D. II

Q32 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV.

Shop I allows two successive discounts of 78% and 43%, shop II allows successive discounts of 74% and 83%, shop III allows successive discounts of 15% and 93%, and shop IV allows successive discounts of 93%, 84%, and 42% on the marked price of the cooker.

Which shop is selling the cooker at the lowest price?

A. III

B. I

C. IV



D. II

Q33 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 59% and 97%, shop II allows successive discounts of 67% and 14%, shop III allows successive discounts of 13% and 18% and shop IV allows successive discounts of 80%, 46%, and 90% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. I

B. II

C. III

D. IV



Q34 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV.

Shop I allows two successive discounts of 32% and 67%, shop II allows successive discounts of 98% and 40%, shop III allows successive discounts of 37% and 74%, and shop IV allows successive discounts of 29%, 47%, and 92% on the marked price of the cooker.

Which shop is selling the cooker at the lowest price?

A. II



B. I

C. III

D. IV

Q35 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 87% and 14%, shop II allows successive discounts of 16% and 92%, shop III allows successive discounts of 60% and 35% and shop IV allows successive discounts of 58%, 29%, and 87% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. III

B. IV



C. II

D. I

Q36 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 12% and 79%, shop II allows successive discounts of 33% and 19%, shop III allows successive discounts of 38% and 39% and shop IV allows successive discounts of 55%, 79%, and 34% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. I

B. IV



C. II

D. III

Q37 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 13% and 60%, shop II allows successive discounts of 56% and 12%, shop III allows successive discounts of 60% and 28% and shop IV allows successive discounts of 33%, 16%, and 89% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. III

B. IV



C. I

D. II

Q38 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 23% and 92%, shop II allows successive discounts of 88% and 47%, shop III allows successive discounts of 11% and 28% and shop IV allows successive discounts of 63%, 76% and 86% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. III

B. I

C. IV



D. II

Q39 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 19% and 59%, shop II allows successive discounts of 11% and 94%, shop III allows successive discounts of 25% and 70% and shop IV allows successive discounts of 96%, 44% and 25% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. II

B. I

C. III

D. IV



Q40 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 58% and 36%, shop II allows successive discounts of 73% and 91%, shop III allows successive discounts of 76% and 88% and shop IV allows successive discounts of 79%, 68% and 96% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. I

B. IV



C. II

D. III

Q41 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 66% and 88%, shop II allows successive discounts of 78% and 70%, shop III allows successive discounts of 89% and 35% and shop IV allows successive discounts of 27%, 65% and 59% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. III

B. IV

C. II

D. I

**Q42 Successive discount comparison**

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 85% and 27%, shop II allows successive discounts of 78% and 19%, shop III allows successive discounts of 24% and 27% and shop IV allows successive discounts of 24%, 94% and 74% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. I

B. II

C. IV



D. III

Q43 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 54% and 61%, shop II allows successive discounts of 17% and 49%, shop III allows successive discounts of 25% and 36% and shop IV allows successive discounts of 95%, 20% and 68% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. IV



B. III

C. I

D. II

Q44 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV.

Shop I allows two successive discounts of 90% and 61%, shop II allows successive discounts of 15% and 98%, shop III allows successive discounts of 28% and 99%, and shop IV allows successive discounts of 91%, 37%, and 95% on the marked price of the cooker.

Which shop is selling the cooker at the lowest price?

A. II

B. III

C. I

D. IV

**Q45 Successive discount comparison**

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 57% and 29%, shop II allows successive discounts of 76% and 35%, shop III allows successive discounts of 53% and 86% and shop IV allows successive discounts of 58%, 13% and 12% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. III



B. II

C. IV

D. I



Q46 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 14% and 87%, shop II allows successive discounts of 96% and 76%, shop III allows successive discounts of 22% and 92% and shop IV allows successive discounts of 16%, 89% and 57% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. II



B. I

C. III

D. IV

Q47 Successive discount comparison

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 18% and 51%, shop II allows successive discounts of 59% and 89%, shop III allows successive discounts of 57% and 40% and shop IV allows successive discounts of 68%, 69% and 27% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. III

B. I

C. IV

D. II

**Q48 Successive discount comparison**

The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 28% and 93%, shop II allows successive discounts of 41% and 13%, shop III allows successive discounts of 19% and 67% and shop IV allows successive discounts of 31%, 59% and 25% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

A. II

B. I



C. IV

D. III

Q49 Successive to single discount

A trader gains 72% by selling an article after two successive discounts of 50% and 14% on its marked price. If the cost price of the article is increased by 36%, then what single discount should he now give on the same marked price to get the same profit percentage as earlier?

A. 41.52%



B. 40.56%

C. 47.46%

D. 46.78%

Q50 Successive to single discount

A trader gains 50% by selling an article after two successive discounts of 25% and 80% on its marked price. If the cost price of the article is increased by 74%, then what single discount should he now give on the same marked price to get the same profit percentage as earlier?

A. 69.5%

B. 72.62%

C. 73.9%



D. 66.56%

Q51 Markup and discount profit

A dealer buys an article at a discount of 25% on its list price and marks it at 35% above the list price. If he allows a discount of 20% on the new marked price, find his profit percent.

A. 44%



B. 34%

C. 42%

D. 36%



Q52 Markup and discount profit

A shopkeeper gains ₹56 on a toy after allowing 23% discount on its marked price. If his gain is 10%,

A. ₹800



B. ₹805

C. ₹770

D. ₹870



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Arithmetic

18 Questions • Answer Key

Q1 Profit share by capital

Three partners, A, B, and C, invest ₹25,000, ₹35,000, and ₹60,000, respectively. If the total profit is ₹66,000, what is the share of C?

A. ₹33,000



B. ₹37,000

C. ₹39,000

D. ₹35,000

Q2 Profit share by capital

P, Q, and R start a business together, investing amounts in the ratio 4:5:6. If the total profit is divided among them in the same ratio and Q receives ₹15,000, what is the total profit?

A. ₹51,000

B. ₹54,000

C. ₹60,000

D. ₹45,000



Q3 Profit share by capital

At the start of the year, A invested ₹12,000 and B invested ₹18,000 in a business. At the end of the year, the profit is ₹15,000. What is B's share (in ₹) in the profit?

A. 6,000

B. 9,000



C. 7,000

D. 8,000

Q4 Profit share by capital

Three friends, Amit, Sumit, and Rohit, invested ₹4,000, ₹6,000, and ₹8,000, respectively, to start a business. At the end of the year, they made a profit of ₹9,000. What is Sumit's share in the profit?

A. ₹2,000

B. ₹4,500

C. ₹4,000

D. ₹3,000



Q5 Profit share by capital

A, B, and C invest ₹5,000, ₹7,000, and ₹8,000 in a business. If profit is ₹4,000, find A's share.

A. ₹1,100

B. ₹1,400

C. ₹1,000



D. ₹1,200

Q6 Profit share by capital

Rishabh and Neha started a business together. Rishabh invested ₹21,000 and Neha invested ₹35,000. At the end of two years, they earned a profit of ₹10,000. Find the share of Neha in the total profit.

A. ₹6,205

B. ₹6,025

C. ₹6,520

D. ₹6,250



Q7 Profit share by capital

Three business partners, A, B, and C, agree to divide their total profit for a certain year in the ratios 3 : 4 : 5. If B's share was ₹24,000, what was the total profit of the business partners for the year?

A. ₹56,000

B. ₹64,000

C. ₹72,000



D. ₹76,000

Q8 Profit sharing ratio

A and B invest ₹24,000 and ₹36,000, respectively, in a business for the same period. Find the ratio in which the profit should be divided between A and B.

A. 3 : 2

B. 2 : 3



C. 5 : 4

D. 4 : 5



Q9 Profit sharing ratio

Rohit, Pallavi, and Simran invest ₹56,800, ₹36,200 and ₹48,600 in a garment business. If the total profit at the end of the year is ₹5,60,028, find Rohit's share of profit.

- A. ₹2,24,800
- B. ₹2,24,500
- C. ₹2,18,644
- D. ₹2,24,644

**Q10 Profit sharing ratio**

A and B jointly start a business. The investment of A is equal to three times the investment of B. Find the share of A in the annual profit of ₹5,524.

- A. ₹4,143
- B. ₹4,113
- C. ₹4,123
- D. ₹4,133

**Q11 Profit sharing scheme**

Two partners, A and B, invested ₹1,50,000 and ₹1,80,000, respectively, in a business. They agreed to distribute 50% of the profit equally and the remaining 50% in proportion to their capital investments. If B receives ₹46,000 as his share of the total profit, find the total profit.

- A. ₹96,000
- B. ₹86,000
- C. ₹88,000
- D. ₹98,000

**Q12 Time weighted partnership**

Jatin and Kiran start a business by investing ₹1,20,000 and ₹80,000, respectively. After 8 months, Jatin withdraws ₹20,000. If the total profit at the end of the year is ₹29,000, find Kiran's share of the profit.

- A. ₹14,000
- B. ₹18,000
- C. ₹12,000
- D. ₹17,000

**Q13 Time weighted partnership**

Deepak and Esha invest ₹40,000 and ₹60,000 in a partnership, respectively. Deepak withdraws all his money after 6 months, while Esha keeps her money invested for the entire year. If the total profit at the end of the year is ₹22,000, find Deepak's share of the profit.

- A. ₹6,500
- B. ₹7,200
- C. ₹8,000
- D. ₹5,500

**Q14 Time weighted partnership**

A and B started a business in partnership by investing ₹20,000 and ₹15,000, respectively. After six months, C joined them with ₹20,000. What will be B's share in the total profit of ₹20,000 earned at the end of 2 years from the start of the business?

- A. ₹7,200
- B. ₹5,400
- C. ₹6,000
- D. ₹6,800

**Q15 Time-based profit share**

Amit and Bharat started a business with investments of ₹40,000 and ₹55,000, respectively. After 6 months, Chetan joined with ₹60,000. If the annual profit is ₹47,400, what is Bharat's share?

- A. ₹20,886
- B. ₹20,856
- C. ₹20,716
- D. ₹20,756

**Q16 Time-based profit share**

Three partners, P, Q, and R, start a business by investing capital in the ratio 5 : 4 : 3. At the end of one year, the business earns a total profit of Rs. 48,000. If Q withdraws his investment after 6 months, while P and R keep their investments in the business for the entire year, what amount of profit should Q receive?

- A. Rs. 9,600
- B. Rs. 8,000
- C. Rs. 6,000
- D. Rs. 12,000



Q17 Time-based profit share

X and Y start a partnership with investments of Rs. 70,000 and Rs 50,000, respectively. After 6 months, Y invests an additional Rs 20,000. If the total profit after a year is 58,500, what is Y's share?

A. Rs 24,000

B. Rs 29,000

C. Rs 25,000

D. Rs 27,000



Q18 Time-based profit share

A, B, and C started a business, each investing ₹10000. After 4 months, A withdraws ₹3000, B withdraws ₹4000, and C invests ₹3000 more. At the end of the one year, a total profit was ₹65600. Find the share of C at the end of the year.

A. ₹24600

B. ₹22700

C. ₹28800



D. ₹29800



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Q1 Equal installments

A person borrowed an amount of ₹15 lakhs at a simple interest rate of 7% per annum for 5 years. If he wants to pay the total amount in equal monthly installments, then find the monthly installment.

- A. ₹44,000
- B. ₹41,640
- C. ₹33,750
- D. ₹32,600

**Q2 Equal installments**

Mr. X borrowed an amount of ₹50,000 for 40 months. If he repaid ₹1,625 as monthly installment, then find the simple rate of interest.

- A. 9%
- B. 8%
- C. 7.5%
- D. 6.8%

**Q3 Find principal from SI**

If the simple interest earned on a sum for 3 years at 5% per annum is ₹1,500, what was the sum?

- A. ₹10,000
- B. ₹8,000
- C. ₹9,000
- D. ₹7,000

**Q4 Find principal from SI**

What sum (in ₹) will earn a simple interest of ₹960 in 4 years at 8% per year rate of interest?

- A. 4800
- B. 1500
- C. 3000
- D. 6000

**Q5 Find principal from SI**

A sum of money amounts to ₹56,000 in 5 years at 20% simple interest per annum. The sum (in ₹) is:

- A. 28,000
- B. 31,000
- C. 35,000
- D. 25,000

**Q6 Find principal from SI**

What sum (in ₹) will earn a simple interest of ₹960 in 4 years at 12% per year rate of interest?

- A. 1000
- B. 2000
- C. 6000
- D. 4000

**Q7 Find principal from SI**

Padmini borrowed a certain amount for 5 years at the simple interest rate of 10% per annum. If the total amount to be paid after 5 years is ₹24,000, then find the principal amount.

- A. ₹15,800
- B. ₹18,000
- C. ₹17,400
- D. ₹16,000

**Q8 Find simple interest**

What is the simple interest on a sum of ₹10,000 at 5% per annum for 2 years?

- A. ₹1,200
- B. ₹1,500
- C. ₹800
- D. ₹1,000



Q9 Find simple interest

What would be the annual interest (in ₹) accrued on a deposit of ₹20,000 in a bank that pays a 5% per annum rate of simple interest?

- A. 1500
- B. 1800
- C. 1200
- D. 1000

**Q10 Find simple interest**

Find the simple interest (in ₹) on a sum of ₹500 borrowed for 3.5 years at a rate of interest of 16% per annum.

- A. 260
- B. 280
- C. 380
- D. 330

**Q11 Find simple interest**

Find the simple interest (in ₹) on a sum of ₹500 borrowed for 3.5 years at the rate of 8% per annum.

- A. 240
- B. 140
- C. 120
- D. 190

**Q12 Find simple interest**

Find the simple interest (in ₹) on a sum of ₹500 borrowed for 4.5 years at a rate of interest of 12% per annum.

- A. 320
- B. 250
- C. 270
- D. 370

**Q13 Find simple interest**

Find the simple interest (in ₹) on a sum of ₹550 borrowed for 2.5 years at a rate of interest of 4% per annum.

- A. 155
- B. 55
- C. 105
- D. 35

**Q14 Find simple interest**

Find the simple interest (in ₹) on a sum of ₹500 borrowed for 3.5 years at a rate of interest of 29% per annum.

- A. 450
- B. 400
- C. 330
- D. 350

**Q15 Find simple interest**

Find the simple interest (in ₹) on a sum of ₹550 borrowed for 2.5 years at a rate of interest of 12% per annum.

- A. 155
- B. 165
- C. 150
- D. 145

**Q16 Find simple interest**

Find the simple interest (in ₹) if a sum of ₹550 is borrowed for 2.5 years at 20% per annum rate of interest.

- A. 375
- B. 255
- C. 275
- D. 325

**Q17 Find simple interest**

Find the simple interest (in ₹) if a sum of ₹550 is borrowed for 3.5 years at 4% per annum rate of interest.

- A. 77
- B. 177
- C. 127
- D. 57

**Q18 Find simple interest**

Find the simple interest (in ₹) if a sum of ₹550 is borrowed for 3.5 years at 16% per annum rate of interest.

- A. 308
- B. 408
- C. 288
- D. 358



Q19 Find time from SI

What is the time (in years) required for a sum of ₹12,000 at 6% per annum simple interest to earn ₹2,160?

- A. 2 years
- B. 2.5 years
- C. 3.5 years
- D. 3 years

**Q20 Ratio of interest rates**

The simple interest earned on three different sums is in the ratio 5 : 7 : 9. The sums are in the ratio 10 : 14 : 15, and the time periods are in the ratio 3 : 4 : 5. What is the ratio of the rates of interest?

- A. 100 : 75 : 72
- B. 100 : 78 : 64
- C. 100 : 75 : 64
- D. 100 : 78 : 72

**Q21 Simple interest calculation**

Find the simple interest (in ₹) if a sum of ₹550 is borrowed for 3.5 years at 12% per annum rate of interest.

- A. 331
- B. 211
- C. 281
- D. 231

**Q22 Simple interest calculation**

Find the simple interest (in ₹) if a sum of ₹550 is borrowed for 3.5 years at 20% per annum rate of interest.

- A. 365
- B. 385
- C. 435
- D. 485

**Q23 Simple interest calculation**

Find the simple interest (in ₹) if a sum of ₹550 is borrowed for 3.5 years at 8% per annum rate of interest.

- A. 154
- B. 204
- C. 134
- D. 254

**Q24 Simple interest calculation**

Find the simple interest (in ₹) on a sum of ₹600 borrowed for 2.5 years at a rate of interest of 4% per annum.

- A. 60
- B. 50
- C. 40
- D. 70

**Q25 Simple interest calculation**

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 6% per month in 10 months.

- A. 60
- B. 720
- C. 80
- D. 120

**Q26 Simple interest calculation**

Find the simple interest (in ₹) if a sum of ₹600 is borrowed for 2.5 years at 12% per annum rate of interest.

- A. 180
- B. 280
- C. 160
- D. 230

**Q27 Simple interest calculation**

Find the simple interest (in ₹) if a sum of ₹600 is borrowed for 2.5 years at 8% per annum rate of interest.

- A. 170
- B. 120
- C. 100
- D. 220

**Q28 Simple interest calculation**

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 6% per month in 12 months.

- A. 864
- B. 144
- C. 92
- D. 72



Q29 Simple interest calculation

Find the simple interest (in ₹) on ₹1,200 at an interest rate of 6% per month in 11 months.

A. 792



B. 86

C. 132

D. 66

Q30 Simple interest calculation

Find the simple interest (in ₹) on ₹1,500 at an interest rate of 3% per month in 1 month.

A. 7.50

B. 3.75

C. 45



D. 23.75

Q31 Simple interest calculation

Find the simple interest (in ₹) on ₹1,500 at an interest rate of 3% per month in 2 months.

A. 27.50

B. 7.50

C. 90



D. 15

Q32 Simple interest calculation

Find the simple interest (in ₹) on ₹1,500 at an interest rate of 3% per month in 4 months.

A. 15

B. 35

C. 30

D. 180

**Q33 Simple interest calculation**

Find the simple interest (in ₹) on ₹1,500 at an interest rate of 3% per month in 3 months.

A. 31.25

B. 11.25

C. 135



D. 22.50

Q34 Simple interest calculation

Find the simple interest (in ₹) on ₹1,500 at an interest rate of 3% per month in 5 months.

A. 225



B. 38.75

C. 37.5

D. 18.75

Q35 Simple interest calculation

Find the simple interest (in ₹) on ₹1,500 at an interest rate of 3% per month in 7 months.

A. 46.25

B. 315



C. 52.5

D. 26.25

Q36 Simple interest calculation

Find the simple interest (in ₹) on ₹1,500 at an interest rate of 3% per month in 6 months.

A. 45

B. 270



C. 42.5

D. 22.5

Q37 Simple interest difference

Two banks, A and B, offered loans at 3.5% and 8.5% per annum, respectively. Tushar borrowed an amount of ₹4,60,000 from each bank. Find the positive difference between the amounts (in ₹) of simple interest paid to the two banks by Tushar after 4 years.

A. 91,500

B. 93,000

C. 92,000



D. 93,500

Q38 Simple interest difference

Two banks, A and B, offered loans at 3.5% and 8.5% per annum, respectively. David borrowed an amount of ₹4,80,000 from each bank. Find the positive difference between the amounts (in ₹) of simple interest paid to the two banks by David after 3 years.

A. 73,000

B. 73,500

C. 71,500

D. 72,000



Q39 Simple interest difference

Two banks, A and B, offered loans at 3.5% and 8.5% per annum, respectively. Atul borrowed an amount of ₹4,80,000 from each bank. Find the positive difference between the amounts (in ₹) of simple interest paid to the two banks by Atul after 2 years.

A. 47,500

B. 49,500

C. 48,000



D. 49,000

Q40 Simple interest difference

Two banks, A and B, offered loans at 3.5% and 8.5% per annum, respectively. Shivam borrowed an amount of ₹2,40,000 from each bank. Find the positive difference between the amounts (in ₹) of simple interest paid to the two banks by Shivam after 4 years.

A. 49,000

B. 49,500

C. 48,000



D. 47,500

Q41 Simple interest difference

Two banks, A and B, offered loans at 3.5% and 8.5% per annum, respectively. Akshay borrowed an amount of ₹4,60,000 from each bank. Find the positive difference between the amounts (in ₹) of simple interest paid to the two banks by Akshay after 3 years.

A. 70,000

B. 70,500

C. 68,500

D. 69,000

**Q42 Simple interest difference**

Two banks, A and B, offered loans at 3.5% and 8.5% per annum, respectively. Ashish borrowed an amount of ₹4,60,000 from each bank. Find the positive difference between the amounts (in ₹) of simple interest paid to the two banks by Ashish after 2 years.

A. 45,500

B. 46,000



C. 47,500

D. 47,000

Q43 Simple interest difference

Two banks, A and B, offered loans at 3.5% and 8% per annum, respectively. Sachin borrowed an amount of ₹3,00,000 from each bank. Find the positive difference between the amounts (in ₹) of simple interest paid to the two banks by Sachin after 3 years.

A. 41,500

B. 42,000

C. 40,000

D. 40,500

**Q44 Simple interest difference**

Two banks, A and B, offered loans at 3.5% and 8% per annum, respectively. Rupesh borrowed an amount of ₹3,00,000 from each bank. Find the positive difference between the amounts of simple interest (in ₹) paid to the two banks by Rupesh after 2 years.

A. 28,500

B. 26,500

C. 28,000

D. 27,000

**Q45 Find rate from SI**

If the simple interest on ₹4,000 for 3 years is ₹960, what is the rate of interest per annum?

A. 8%



B. 7%

C. 9%

D. 6%



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Q46 Find rate from SI

A sum of ₹800 invested on simple interest becomes ₹1,200 in 8 years. Find the rate of interest per annum.

A. 6.5%

B. $\frac{25}{4}\%$



C. 6%

D. $6\frac{1}{3}\%$

Q47 Find simple interest

Riya deposited ₹5,000 in a bank at a rate of 6% per annum. What will be the simple interest earned after 3 years?

A. ₹600

B. ₹1000

C. ₹750

D. ₹900

**Q48** Find time from SI

If ₹2,500 earns a simple interest of ₹500 at a rate of 5% per annum, how long was the money invested?

A. 3 years

B. 4 years



C. 6 years

D. 5 years



Q1 Amount at compound interest

Find the amount obtained on ₹2,000 after 2 years at 12% per annum compound interest, compounded annually.

A. ₹2,508.80



B. ₹2,450.80

C. ₹2,520.80

D. ₹2,608.80

Q2 Amount at compound interest

Sachin deposited a sum of ₹14,525 at 20% rate of interest per annum, compounded annually. The total amount received by Sachin after 2 years is:

A. ₹21,073

B. ₹20,720

C. ₹20,916



D. ₹20,910

Q3 Amount at compound interest

Naresh deposited a sum of ₹58,000 at 20% rate of interest per annum, compounded annually. The total amount received by Naresh after 2 years is:

A. ₹83,119

B. ₹83,159

C. ₹83,229

D. ₹83,520

**Q4 Amount at compound interest**

Jaspreet deposited a sum of ₹64,750 at 20% rate of interest per annum, compounded annually. The total amount received by Jaspreet after 2 years is:

A. ₹92,875

B. ₹93,080

C. ₹93,240



D. ₹93,349

Q5 Annual compounding

Mahesh deposited a certain sum of money at 20% rate of interest per annum, compounded annually. At the end of 2 years, Mahesh received a total amount of ₹26,316. What was the sum of money deposited by Mahesh?

A. ₹18,539

B. ₹18,607

C. ₹18,275



D. ₹17,872

Q6 Annual compounding

What is the compound interest on ₹1,500 at 12% per annum (compounded annually) for 3 years? (Rounded off to the nearest integer)

A. ₹605

B. ₹612

C. ₹610

D. ₹607

**Q7 Annual compounding**

Yuvraj deposited a certain sum of money at 20% rate of interest per annum, compounded annually. At the end of 2 years, Yuvraj received a total amount of ₹34,668. What was the sum of money deposited by Yuvraj?

A. ₹23,641

B. ₹23,925

C. ₹23,790

D. ₹24,075

**Q8 Annual compounding**

What will be the compound interest on a sum of ₹10,176 after 3 years at the rate of 25% per annum, interest being compounded annually?

A. ₹9,699



B. ₹9,999

C. ₹9,799

D. ₹9,899



Q9 Annual compounding

A sum of ₹1,000 is invested for 2 years at 10% per annum compound interest, compounded annually. Find the compound interest earned at the end of 2 years (in ₹).

A. 200

B. 210



C. 220

D. 230

Q10 Annual compounding

Mahesh deposited a certain sum of money at 20% rate of interest per annum, compounded annually. At the end of 2 years, Mahesh received a total amount of ₹18,000. What was the sum of money deposited by Mahesh?

A. ₹12,129

B. ₹12,800

C. ₹12,996

D. ₹12,500

**Q11 Annual compounding**

What will be the compound interest on a sum of ₹10,124 after 2 years at the rate of 25% per annum, interest being compounded annually?

A. ₹5,894.75

B. ₹5,994.75

C. ₹5,794.75

D. ₹5,694.75

**Q12 CI SI difference**

If the difference between compound interest (compounded annually) and simple interest for a sum at 5% per annum for 2 years is ₹5, what is the sum (in ₹)?

A. 2,500

B. 1,000

C. 2,000



D. 1,500

Q13 CI SI difference

A sum of ₹5,000 is invested for 2 years at 8% per annum. Find the difference between the compound interest and the simple interest (in ₹), if the interest is compounded annually.

A. ₹80

B. ₹32



C. ₹50

D. ₹20

Q14 CI SI difference

A sum of ₹2,000 is invested for 3 years at 5% per annum. Find the difference between the compound interest and the simple interest (in ₹), if the interest is compounded annually.

A. 5.25

B. 20.25

C. 15.25



D. 10.25

Q15 CI SI difference

The difference between the compound interest and simple interest on a certain sum at 8% per annum for $1\frac{1}{2}$ years, compounded half-yearly, is ₹36. What is the principal amount? (Rounded off to the nearest integer.)

A. ₹7,401



B. ₹7,404

C. ₹7,411

D. ₹7,201

Q16 CI SI difference

A sum of ₹1,000 is invested for 2 years at 10% per annum. Find the difference between the compound interest and the simple interest (in ₹), if the interest is compounded annually.

A. 20

B. 10



C. 30

D. 40

Q17 CI SI difference

The difference between the compound interest (compounded annually) and the simple interest if ₹21400 is deposited at 5% rate of interest per annum for 2 years is:

A. ₹46.60

B. ₹56.50

C. ₹53.50



D. ₹56.40



Q18 CI and SI combined

What is 24% of the sum of the compound interest earned on ₹12,500 at 10% per annum for 2 years and the simple interest earned on ₹47,500 at 13% per annum for 2 years?

A. ₹2,596

B. ₹2,594

C. ₹3,594



D. ₹3,596

Q19 CI difference two rates

A sum of ₹30,000 is invested in each of two different schemes for 2 years. The first scheme offers compound interest at 8% per annum, compounded annually, while the second scheme offers compound interest at 6% per annum, compounded annually. Find the difference between the compound interest earned from the two schemes.

A. ₹1284



B. ₹1087

C. ₹1344

D. ₹1210

Q20 CI from SI

The simple interest on a sum of money at 5% per annum for 3 years is ₹1,200. Find the compound interest on the same sum for the same period at the same rate, if interest is compounded annually.

A. ₹1,621

B. ₹1,612

C. ₹1,216

D. ₹1,261

**Q21 CI from SI relation**

The compound interest on a sum for two years is ₹1,560 and the corresponding simple interest is ₹1,500. Find the compound interest on the same sum at the same rate of interest for three years.

A. ₹2,466.50

B. ₹2,245.60

C. ₹2,345.30

D. ₹2,434.80

**Q22 CI from SI relation**

The compound interest on a sum for two years is ₹1,560 and the corresponding simple interest is ₹1,500. Find the compound interest on the same sum at the same rate of interest for 3 years.

A. ₹2634.80

B. ₹2260.20

C. ₹2456.40

D. ₹2434.80

**Q23 CI minus SI difference**

The difference between compound interest and simple interest at a rate of 5% per annum over a period of 2 years on an amount of ₹15,000 is:

A. ₹37.50



B. ₹33.60

C. ₹42.10

D. ₹41.90

Q24 CI minus SI difference

The difference between compound interest (compounded annually) and simple interest for 3 years at the rate of 18% per annum is ₹25,758. What is the principal lent?

A. ₹3,50,000

B. ₹3,00,000

C. ₹4,00,000

D. ₹2,50,000

**Q25 CI minus SI difference**

The difference between compound interest, compounded annually and simple interest at the same rate of interest R% per annum on an amount of ₹20,000 for 2 years is ₹162. What is the value of R?

A. 8

B. 6

C. 7

D. 9

**Q26 CI minus SI difference**

A person finds that the compound interest on a sum at 5% per annum for three years is greater than the simple interest by ₹61. What is the sum?

A. ₹8,200

B. ₹7,890

C. ₹9,400

D. ₹8,000



Q27 CI minus SI difference

The difference between compound interest (compounded annually) and simple interest for 3 years at the rate of 20% per annum is ₹624. What is the principal lent?

A. ₹3,775

B. ₹5,975

C. ₹4,875



D. ₹6,075

Q28 Compound growth rate

A plant grows by 12.5% per annum. If its current height is 64 cm, what will be its height after 2 years, assuming the growth is compounded annually?

A. 85 cm

B. 81 cm



C. 80 cm

D. 88 cm

Q29 Compound growth rate

If the population of a city was 42,500 and it grew at a rate of 2% per annum compounded annually, what would the population be after 2 years?

A. 40,400

B. 44,217



C. 40,800

D. 41,616

Q30 Compound growth rate

A town's population increases by 25% every year. If the current population is 16,000, what will be the population after 3 years?

A. 30,250

B. 32,000

C. 28,800

D. 31,250

**Q31** Compounding period change

A certain sum amounts to ₹31,944 at a compound interest rate of 15% per annum in 2 years, with interest compounded every 8 months. What will be the amount payable (in ₹) on the same sum at the same rate and for the same time, if the interest is compounded yearly?

A. 31,740



B. 32,113

C. 33,001

D. 32,510

Q32 Depreciation

A machine is purchased for ₹18,200 and its value decreases by 10% every year. If the depreciation is compounded annually, what will be the value of the machine after 2 years?

A. ₹16,480

B. ₹13,424

C. ₹15,200

D. ₹14,742

**Q33** Depreciation

A car costing ₹2,20,000 depreciates at 5% per annum compounded annually. What is its value (in ₹) after 2 years?

A. 1,98,550



B. 1,85,500

C. 1,80,500

D. 1,75,000

Q34 Depreciation

A company car loses 20% of its value each year. Three years later, the car is worth ₹32,768. What was the initial value of the car?

A. ₹59,800

B. ₹67,800

C. ₹61,200

D. ₹64,000

**Q35** Depreciation

A bike is purchased for ₹1,20,000. If it depreciates by 18% in the first year and 7% in the second year, what is its value after two years?

A. ₹89,450

B. ₹91,512



C. ₹90,340

D. ₹98,230



Q36 Equal amounts division

Arun had ₹1,681 with him. He divided this amount between his sons, Mahesh and Vijay, and asked them to invest it at a rate of 5% per annum, compounded annually. It was observed that Mahesh and Vijay received the same amount after 14 years and 15 years, respectively. How much money (in ₹) did Arun give to Mahesh?

A. 861



B. 711

C. 820

D. 920

Q37 Equal amounts division

Rishi has ₹1,681, which he distributes between his two sons, Shan and Piyush. He instructs them to invest their respective amounts at a compound interest rate of 5% per annum, compounded annually. After 13 years, Shan's investment matures to the same amount as Piyush's investment after 14 years. Determine the amount (in ₹) that Rishi gave to Shan.

A. 861



B. 820

C. 711

D. 920

Q38 Equal amounts division

Divide ₹16,165 between Prateek and Siva Prasad such that Prateek's share at the end of 3 years is equal to Siva Prasad's share at the end of 5 years, with compound interest at 20% per annum, compounded annually. Then Prateek's share is:

A. ₹9144

B. ₹7021

C. ₹9540



D. ₹6625

Q39 Equal amounts division

Gopal had ₹1,681 with him. He divided this amount between his sons, Akshay and Arjun, and asked them to invest their respective shares at a rate of 5% per annum, compounded annually. It was observed that Akshay and Arjun received the same amount after 15 years and 16 years, respectively. How much (in ₹) did Gopal give to Akshay?

A. 711

B. 920

C. 820

D. 861

**Q40 Equal amounts division**

Piyush has ₹1,681 with him. He divided this amount between his sons, Manoj and Anand, and asked them to invest their respective shares at a rate of 5% per annum, compounded annually. It was observed that Manoj and Anand received the same amount after 16 years and 17 years, respectively. How much (in ₹) did Piyush give Manoj?

A. 711

B. 861



C. 820

D. 920

Q41 Equal amounts division

Arun has a sum of ₹1,681 with him. He divides this amount between his two sons, Mahesh and Vijay. Mahesh invests his share at 5% per annum, compounded annually, for 17 years, while Vijay invests his share at the same rate for 18 years. After the respective periods, both receive equal amounts. Find the amount (in ₹) given to Mahesh.

A. 711

B. 820

C. 920

D. 861

**Q42 Equal amounts division**

Pravin has ₹1,701, which he divides between his two sons, Rishi and Shan. He asks them to invest their respective shares at a compound interest rate of 10% per annum, compounded annually. It is observed that Rishi's investment after 17 years equals Shan's investment after 18 years. Find the amount (in ₹) that Pravin gave to Rishi.

A. 910

B. 891



C. 741

D. 810

Q43 Equal amounts division

Pravin has ₹1,701, which he divides between his two sons, Rishi and Shan. He asks them to invest their respective shares at a compound interest rate of 10% per annum, compounded annually. It is observed that Rishi's investment after 18 years equals Shan's investment after 19 years. Find the amount (in ₹) that Pravin gave to Rishi.

A. 910

B. 741

C. 810

D. 891



Q44 Equal amounts division

Krish has ₹1681 with him. He divided it amongst his sons Veer and Nitin and asked them to invest it at 5% rate of compound interest per annum, compounded annually. It was seen that Veer and Nitin got same amount after 12 and 13 years respectively. How much (in ₹) did Krish give to Veer?

A. 861



B. 711

C. 920

D. 820

Q45 Find compound interest

Find the compound interest on ₹8,324 at 5% per annum for 2 years, compounded annually.

A. ₹853.21



B. ₹841.11

C. ₹865.31

D. ₹875.41

Q46 Find compound interest

What will be the compound interest on a sum of ₹7,625 after 3 years at the rate of 20% per annum, interest being compounded annually?

A. ₹5,551



B. ₹5,571

C. ₹5,561

D. ₹5,581

Q47 Find compound interest

Calculate the compound interest earned on ₹2,500 for 2 years at 6% per annum, compounded annually.

A. ₹300

B. ₹309



C. ₹306

D. ₹312

Q48 Find principal from CI

A sum amounts to a compound interest, compounded annually of ₹4,837.50 in 2 years at the rate of 15% per annum. Find the principal amount.

A. ₹15,000



B. ₹13,000

C. ₹14,000

D. ₹12,000

Q49 Find principal from CI

The compound interest earned on a sum of money for 2 years at 8% per annum, compounded annually, is ₹166.40. Find the sum (in ₹).

A. 1,100

B. 1,000



C. 1,500

D. 1,200

Q50 Find principal from amount

A sum of money amounts to ₹9,016 at the rate of 12% compound interest per annum, compounded annually for 2 years. The sum of money is:

A. ₹7,163.50

B. ₹7,175.50

C. ₹7,187.50



D. ₹7,189.50

Q51 Find principal from amount

Saurav deposited a certain sum of money at the rate of 20% per annum, compounded annually. At the end of 2 years, the total amount received was ₹70,164. What was the sum of money deposited by Saurav?

A. ₹48,606

B. ₹48,931

C. ₹48,407

D. ₹48,725

**Q52 Find rate from amount**

A sum of ₹60,000 amounts to ₹71,460.96 after 3 years when interest is compounded yearly. Find the annual rate of interest.

A. 8 %

B. 5 %

C. 7 %

D. 6 %

**Q53 Find rate from amount**

A sum of ₹4,000 amounts to ₹4,410 in 2 years at compound interest, compounded annually. Find the annual rate of interest (in percentage).

A. 5%



B. 10%

C. 2.5%

D. 7.5%



Q54 Half-yearly compounding

Find the ratio of compound interest on ₹10,000 for 1 year at the rate 8% compounded half-yearly and yearly.

- A. 53 : 45
- B. 62 : 49
- C. 61 : 52
- D. 51 : 50

**Q55 Half-yearly compounding**

A sum of ₹10,000 is invested for 2 years at 20% per annum interest, compounded half-yearly. What is the compound interest earned at the end of 2 years?

(use $(1.10)^4 = 1.4641$)

- A. ₹4,641
- B. ₹4,440
- C. ₹4,660
- D. ₹4,461

**Q56 Half-yearly compounding**

The compound interest (in ₹, rounded off to the nearest tens) on ₹10,000 at the rate of 8% per annum for 1.5 years, if interest is compounded half-yearly, is:

- A. 1,250
- B. 1,150
- C. 1,350
- D. 1,450

**Q57 Half-yearly compounding**

The compound interest (in ₹, rounded off to the nearest tens) on ₹12,000 at the rate of 10% per annum for 1.5 years, if interest is compounded half-yearly, is:

- A. 1,870
- B. 1,980
- C. 1,890
- D. 1,970

**Q58 Half-yearly compounding**

Find the compound interest on ₹81,250 in one and half years at 8% per annum, the interest being compounded half-yearly.

- A. ₹10,345.40
- B. ₹10,145.20
- C. ₹10,245.30
- D. ₹10,045.10

**Q59 Half-yearly compounding**

What is the compound interest (in ₹) on a sum of ₹1,50,000 at 20% per annum for 2 years, when the interest is compounded semi-annually?

- A. 69651
- B. 66951
- C. 66915
- D. 69615

**Q60 Half-yearly compounding**

A bank offers 4.5% compound interest per annum calculated on a half-yearly basis. A customer deposits ₹8,138 each on 1 January and 1 July of a year. At the end of the year, the interest is: (correct to two decimal places)

- A. ₹540.05
- B. ₹553.43
- C. ₹538.12
- D. ₹562.53

**Q61 Half-yearly compounding**

A sum of money earns interest at a rate of 20% per annum, compounded half-yearly. An amount of ₹8,500 is invested on 1 January and another ₹8,500 is invested on 1 July of the same year. Find the total interest earned at the end of the year.

- A. ₹2,635
- B. ₹2,525
- C. ₹2,540
- D. ₹2,680

**Q62 Half-yearly compounding**

A sum of ₹5,000 is invested for 1 year at 10% per annum compound interest, compounded half-yearly. Find the compound interest earned (in ₹).

- A. 512.50
- B. 575.50
- C. 505.50
- D. 530.50



Q63 Half-yearly compounding

A sum of money earns interest at a rate of 20% per annum, compounded half-yearly. An amount of ₹4,000 is invested on 1 January and another of ₹5,500 is invested on 1 July of the same year. Find the total interest earned at the end of the year.

A. ₹1,390



B. ₹1,240

C. ₹1,280

D. ₹1,350

Q64 Half-yearly compounding

A bank offers 9.2% compound interest per annum, calculated on a half-yearly basis. A customer deposits ₹5449 each on 1 January and 1 July of a particular year. At the end of the year, the amount he would have gained by way of interest is _____.
(Round off the answer to the nearest paise.)

A. ₹763.49



B. ₹759.40

C. ₹755.50

D. ₹749.52

Q65 Half-yearly compounding

A sum of money earns interest at a rate of 20% per annum, compounded half-yearly. An amount of ₹8,000 is invested on 1 January and another of ₹4,500 is invested on 1 July of the same year. Find the total interest earned at the end of the year.

A. ₹2,280

B. ₹2,250

C. ₹2,130



D. ₹2,190

Q66 Half-yearly compounding

A bank offers 6.8% compound interest per annum calculated on a half-yearly basis. A customer deposits ₹3,485 each on 1 January and 1 July of a year. At the end of the year, the amount he would have gained by way of interest is: (round off to two decimal places)

A. ₹352.50

B. ₹348.50

C. ₹359.50



D. ₹376.50

Q67 Half-yearly compounding

A sum of ₹30,000 is invested at a rate of 20% per annum. Find the difference in the final amount after 2 years if the interest is compounded annually and compounded half-yearly.

A. ₹723



B. ₹733

C. ₹720

D. ₹713

Q68 Half-yearly compounding

What will be the amount after 1 year, if ₹1800 is invested at 20% compound interest per annum, compounded half-yearly?

A. ₹2178



B. ₹1974

C. ₹3012

D. ₹2659

Q69 Half-yearly compounding

A bank offers 6.9% compound interest per annum calculated on a half-yearly basis. A customer deposits ₹9,688 each on 1 January and 1 July of a year. At the end of the year, the amount he would have gained by way of interest is _____.
(Round your answer to the nearest paise.)

A. ₹1,025.70

B. ₹1,014.24



C. ₹1,021.44

D. ₹1,022.06

Q70 Half-yearly compounding

If a sum of ₹6,20,000 is invested for a year at 2% per annum compounded half-yearly, then find the compound interest.

A. ₹13,795

B. ₹10,682

C. ₹12,462



D. ₹11,667



Q71 Half-yearly compounding

A sum of ₹60,000 is invested for 1 year at 4% per annum, compounded half yearly. What is the compound interest earned at the end of the year?

A. ₹3,244

B. ₹2,424



C. ₹3,102

D. ₹2,999

Q72 Half-yearly compounding

A certain sum amounts to ₹1,08,864 at the rate of 40% per annum in two years, with interest compounded half-yearly. What will be the amount payable (in ₹) on the same sum at the same rate and for the same time, if the interest is compounded annually?

A. 1,07,600

B. 1,08,200

C. 1,02,900



D. 1,07,300

Q73 Half-yearly compounding

If a sum of ₹2,70,000 is invested for a year at 10% per annum compounded half-yearly, then find the compound interest.

A. ₹27,850

B. ₹25,825

C. ₹27,625

D. ₹27,675

**Q74 Half-yearly compounding**

A sum of ₹2,20,000 is invested for 1 year at 4% per annum, compounded half yearly. What is the compound interest earned at the end of the year?

A. ₹8,888



B. ₹8,648

C. ₹9,551

D. ₹9,364

Q75 Half-yearly compounding

A sum of ₹25,000 amounts to ₹29,160 in 1 year when the interest is compounded half-yearly. If the interest rate remains the same, how much interest will be earned on ₹18,000 in 1 year when the interest is compounded annually?

A. ₹1,760

B. ₹3,080

C. ₹2,880



D. ₹1,440

Q76 Half-yearly compounding

A student wants to invest a sum of ₹16,000 at an annual interest rate of 3% per annum compounded half yearly. Calculate the compound interest received after 2 years. [Given $(1.015)^4 = 1.0614$]

A. ₹982.40



B. ₹782.40

C. ₹880.20

D. ₹900.10

Q77 Principal from two amounts

If a certain amount of money is compounded semi-annually and becomes ₹1,600 after 3 years and ₹6,400 after 6 years, what is the principal amount?

A. ₹440

B. ₹400



C. ₹375

D. ₹410

Q78 Principal from two amounts

A sum of money amounts to ₹1,200 after 4 years and ₹2,400 after 8 years at compound interest. What is the principal?

A. ₹640

B. ₹598

C. ₹575

D. ₹600



Q79 Quarterly compounding

The compound interest earned in 1 year on ₹2,50,000 at the rate of 40% per annum, compounded quarterly, is:

A. ₹1,16,025



B. ₹1,16,033

C. ₹1,15,931

D. ₹1,16,416

Q80 Rate and time changed

The compound interest on a sum of ₹10000 for 2 years is ₹2544, when the interest is compounded annually. If the rate of interest per annum is halved and the time duration is doubled, then the compound interest (in ₹, correct to nearest paise) will be:

A. 2742.67

B. 2642.77

C. 2724.67

D. 2624.77

**Q81** Rate under compounding

At what rate per cent per annum will a sum of money multiply itself by 46 times in 2 years, interest being compounded annually? (Give your answer correct to one decimal place)

A. 570.4

B. 588.5

C. 578.2



D. 582.2

Q82 Rate under compounding

Radhika invested ₹5,800 at compound interest, compounded annually, for 2 years. If the compound interest earned at the end of 2 years is ₹594.50, find the annual rate of interest.

A. 4%

B. 5%



C. 6.3%

D. 5.6%

Q83 Rate under compounding

At what rate per cent per annum will a sum of money multiply itself by 20 times in 2 years, interest being compounded annually? (Give your answer correct to one decimal place)

A. 345.6

B. 347.2



C. 340.3

D. 353.1

Q84 Rate under compounding

At what rate of interest per annum will a sum of money become 40 times its original amount in 2 years, if the interest is compounded annually? (Give your answer correct to one decimal place.)

A. 532.5%



B. 537.9%

C. 529.3%

D. 538.3%

Q85 Rate under compounding

At what rate of interest per annum will a sum of money become 57 times its original amount in 2 years, if the interest is compounded annually? (Round off your answer to the nearest integer.)

A. 653%

B. 660%

C. 655%



D. 662%

Q86 Rate under compounding

A certain amount of money grows to ₹752 at the end of 20 years and to ₹7,896 at the end of 21 years at a fixed annual compound interest rate. Find the annual rate of compound interest.

A. 9.5%

B. 8.5%

C. 950%



D. 850%



Q87 Rate under compounding

At what rate per cent per annum will a certain sum of money multiply itself by 4 times in 2 years, interest being compounded annually?

- A. 75
- B. 100
- C. 50
- D. 200

**Q88 Rate under compounding**

At what rate percent per annum will a certain sum of money multiply itself by 9 times in 2 years, the interest being compounded annually?

- A. 75
- B. 100
- C. 200
- D. 150

**Q89 SI and CI relation**

A certain sum of money is invested at simple interest for 3 years at 3% per annum. The simple interest earned is equal to half of the compound interest earned on ₹6,000 invested for 2 years at 6% per annum, compounded annually. Find the sum invested at simple interest.

- A. ₹4,120
- B. ₹4,350
- C. ₹3,650
- D. ₹3,890

**Q93 Half-yearly compounding**

In how many years will a sum of ₹64,000 at the rate of 10% per annum compounded semi-annually become ₹74,088?

- A. $1\frac{1}{2}$
- B. $2\frac{1}{4}$
- C. $1\frac{1}{4}$
- D. $2\frac{1}{2}$

**Q90 Sum multiplies time**

A certain sum of money becomes three times its original value in 4 years when invested at compound interest, compounded annually. In how many years will the same sum become nine times its original value at the same rate of interest?

- A. 5 years
- B. 6 years
- C. 9 years
- D. 8 years

**Q91 Time under compounding**

Sakshi invested a sum of ₹8900 at 10% per annum compound interest, compounded annually. If she received an amount of ₹10,769 after n years, the value of n is:

- A. 2
- B. 1.5
- C. 2.4
- D. 3

**Q92 Time under compounding**

Suman invested a sum of ₹3,500 at 20% per annum compound interest, compounded annually. If she received an amount of ₹6,048 after n years, the value of n is:

- A. 3
- B. 2
- C. 2.6
- D. 4



Arithmetic

31 Questions • Answer Key

Q1 Combined work equations

A and B together can complete a work in 2 days. If A works for 1 day and B works for 4 days, the work is completed. How long would B alone take to complete the work?

A. 10 days

B. 6 days ✓

C. 4 days

D. 8 days

Q2 Combined work rate

A factory has two machines, X and Y. Machine X can produce 200 units in 5 hours, and machine Y can produce 180 units in 6 hours. If both machines work together for 3 hours and then only machine X works for 2 more hours, how many units are produced in total?

A. 350 units

B. 310 units

C. 290 units ✓

D. 280 units

Q3 Combined work rate

Working alone, X takes 12 days, Y takes 15 days, and Z takes 20 days to complete a task. How many days will be required to complete the task if they work together?

A. 6 days

B. 4 days

C. 8 days

D. 5 days ✓

Q4 Combined work rate

Rishi can prepare one wooden wardrobe in 2 days, and Shan can prepare the same wardrobe in 4 days. If they work together, in how many days will they prepare 126 wardrobes of the same kind?

A. 164

B. 170

C. 172

D. 168 ✓

Q5 Combined work rate

A, B and C together finish a work in 2 days. If A alone can finish the same work in 4 days and B in 8 days, find how long (in days) will C take to finish twice the same work?

A. 16 ✓

B. 8

C. 17

D. 9

Q6 Combined work rate

Nitin can prepare one wooden shoe-stand in 2 days, and Pravin can prepare the same shoe-stand in 4 days. If they work together, in how many days will they prepare 117 shoe-stands?

A. 158

B. 160

C. 156 ✓

D. 152

Q7 Combined work rate

Varun can prepare one wooden table in 2 days, and Ashish can prepare the same table in 4 days. If they work together, in how many days will they prepare 123 tables of the same kind?

A. 166

B. 164 ✓

C. 168

D. 160

Q8 Combined work rate

Ashok can prepare one wooden chair in 2 days and Robin can prepare the same chair in 4 days. If they work together, in how many days will they prepare 120 chairs of the same kind?

A. 164

B. 160 ✓

C. 162

D. 156



Q9 Combined work rate

Veer can prepare one wooden table in 2 days, and Manoj can prepare the same table in 4 days. If they work together, in how many days will they prepare 111 tables?

A. 152

B. 144

C. 148



D. 150

Q10 Combined work rate

Krish can prepare one wooden wardrobe in 2 days, and Moksh can prepare the same wardrobe in 4 days. If they work together, in how many days will they prepare 114 wardrobes?

A. 148

B. 156

C. 154

D. 152

**Q11 Efficiency comparison**

Aman can complete a project alone in 27 days. Bela is 25% more efficient than Aman. They work together on the same project for 10 days. Then, Bela leaves, and Aman continues the work alone. In how many days will the project be completed?

A. 14.5 days



B. 16 days

C. 15 days

D. 13.5 days

Q12 Men and days variation

12 men can finish a task in 20 days. How many days will 30 men take to complete the same task?

A. 8 days



B. 9 days

C. 12 days

D. 11 days

Q13 Men and days variation

15 workers can build a wall in 22 days. How many days will 12 workers take to build the same wall (assuming the same efficiency).

A. 25 days

B. 30 days

C. 28.5 days

D. 27.5 days

**Q14 Men and days variation**

If 8 workers can complete a task in 12 days, how many days will 6 workers take to complete the same task?

A. 18 days

B. 15 days

C. 12 days

D. 16 days

**Q15 Men days work**

If 8 painters can paint 18 rooms in 9 days, then how many rooms can 4 painters paint in 12 days?

A. 16 rooms

B. 14 rooms

C. 18 rooms

D. 12 rooms

**Q16 Men days work**

16 typists working 8 hours a day can type 172 pages in 6 days. How many typists will be required to type 215 pages in 4 days if they work 6 hours a day?

A. 25

B. 35

C. 40



D. 20

Q17 Men days work

30 students can complete a task in 10 days working for 4 hours a day. In how many days will 80 students working 3 hours a day will complete the work?

A. 5 days



B. 4 days

C. 6 days

D. 8 days

Q18 Men days work

If 35 machines can produce a certain number of items in 24 days, how many machines are required to produce the same number of items in 14 days?

A. 60 machines



B. 62 machines

C. 58 machines

D. 61 machines



Q19 Men women work

5 men and 15 women can complete a task in 10 days, while 15 men and 5 women can complete it in 20 days. In how many days will 40 women complete the task?

- A. 10 days
- B. 30 days
- C. 4 days
- D. 15 days

**Q20 Wages in proportion**

Three workers are hired to complete a job worth ₹1,200. Worker A can finish the job alone in 8 days, Worker B in 12 days, and Worker C in 16 days. With the help of a fourth worker, they finish the job in 3 days. How much should the fourth worker be paid from the total amount?

- A. ₹222
- B. ₹221
- C. ₹225
- D. ₹226

**Q21 Work with one joining**

A can do a task in 24 days, while B can do the same task in 16 days. A begins the task and works for 6 days before B joins him. After that, they work together to complete the remaining job. In how many days is the task completed?

- A. 13.2 days
- B. 14.5 days
- C. 16.2 days
- D. 15 days

**Q22 Work with one leaving**

Anshu can do a piece of work in 16 days, and Bijeta can do the same work in 24 days. They work together for 6 days, after which Anshu leaves. In how many days will Bijeta complete the remaining work?

- A. 7
- B. 6
- C. 8
- D. 9

**Q23 Worker leaves midway**

Anshu can do a piece of work in 24 days, and Kajal can do it in 28 days. They work together for 6 days after which Anshu leaves the work, and the remaining work is completed by Kajal alone. In how many days will the entire work be completed?

- A. 28 days
- B. 18 days
- C. 21 days
- D. 24 days

**Q24 Worker leaves midway**

A person P can complete a project in 24 days, and the person Q can complete it in 36 days. They work together for 4 days, after which Q leaves. In how many days will P complete the remaining work? (Give your answer rounded off to two decimal places.)

- A. 17.33 days
- B. 17.67 days
- C. 17.87 days
- D. 17.53 days

**Q25 Worker leaves midway**

A can do the work in 6 days, B in 8 days and C in 24 days. If all three work together and C leaves after 3 days, in how many total days will the work be completed?

- A. 2.5 days
- B. 3 days
- C. 2 days
- D. 1.5 days



Q26 Combined work rate

Riya can complete a piece of work in 15 days, while Neha can complete the same work in 20 days. If both of them work together, how many days will they take to complete the work?

A. $\frac{29}{3}$ days

B. $\frac{60}{7}$ days



C. $\frac{75}{8}$ days

D. $\frac{35}{4}$ days

Q27 Combined work rate

In a class, Bhanu can do a piece of homework in 4 days, Jaya can do this work in 12 days, and Mounica can do the same work in 8 days. Working together, how many days will they take to complete the work?

A. $2\frac{9}{11}$

B. $2\frac{1}{11}$

C. $2\frac{2}{11}$



D. $2\frac{5}{11}$

Q28 Combined work rate

A and B together can do a piece of work in 15.5 days and A alone can do it in 21 days. In how much time could B alone do it?

A. $79\frac{2}{11}$ days

B. $69\frac{2}{11}$ days

C. $59\frac{2}{11}$ days



D. $89\frac{2}{11}$ days

Q29 Efficiency comparison

A can do a piece of work in 16 days. B is 60% more efficient than A. How much time will A and B together take to finish the work?

A. $3\frac{2}{7}$ days

B. $4\frac{3}{13}$ days

C. $5\frac{4}{7}$ days

D. $6\frac{2}{13}$ days



Q30 Remaining work fraction

A can do a work in 10 days and B in 15 days. They work together for 3 days. How much work is left?

A. $\frac{1}{2}$



B. $\frac{1}{4}$

C. $\frac{1}{8}$

D. $\frac{1}{10}$

Q31 Remaining work fraction

A can complete a piece of work alone in 10 days, and B can complete it alone in 30 days. They work together for 6 days. Then A leaves, and B works alone for 4 more days. What fraction of the work still remains unfinished?

A. $\frac{1}{5}$

B. $\frac{1}{15}$



C. $\frac{2}{15}$

D. $\frac{1}{10}$



Arithmetic

24 Questions • Answer Key

Q1 Filling and emptying pipes

A tap can fill a cistern in 10 hours and another tap can empty it in 20 hours. If both taps are opened, the time (in hours) taken to fill the tank will be:

- A. 15 hours
- B. 30 hours
- C. 18 hours
- D. 20 hours

**Q2** Inlet and outlet pipes

A water tank has two inlet pipes A and B, and one outlet pipe C. Pipe A alone can fill the tank in 12 hours, pipe B alone can fill it in 18 hours, and pipe C alone can empty the full tank in 24 hours. If all three pipes are opened together, in how much time will the tank be filled? (Rounded off to one decimal place)

- A. 11.2 hours
- B. 10.3 hours
- C. 9.5 hours
- D. 12.5 hours

**Q3** Leak emptying time

A pipe can fill a cistern in 8 hours. Due to a leak at the bottom, it is filled in 10 hours. In how many hours can the leak alone empty the full cistern?

- A. 40 hours
- B. 45 hours
- C. 30 hours
- D. 35 hours

**Q4** Pipes filling together

Pipe A can fill a tank in 4 hours, pipe B can fill the same tank in 8 hours and pipe C can fill the same tank in 8 hours. The time taken (in hours) by them to fill half of the same tank if they operate together is:

- A. 4
- B. 3
- C. 1
- D. 2

**Q5** Pipes filling together

Pipe A can fill a tank in 4 hours, pipe B can fill the same tank in 6 hours and pipe C can fill the same tank in 12 hours. The time taken (in hours) by them to fill half of the same tank if they operate together is:

- A. 1
- B. 3
- C. 4
- D. 2

**Q6** Pipes filling together

Pipe A can fill a tank in 4 hours, pipe B can fill the same tank in 5 hours and pipe C can fill the same tank in 20 hours. The time taken (in hours) by them to fill half of the same tank if they operate together is:

- A. 2
- B. 4
- C. 3
- D. 1

**Q7** Pipes filling together

Pipe A can fill a tank in 3 hours, pipe B can fill the same tank in 24 hours and pipe C can fill the same tank in 8 hours. The time taken (in hours) by them to fill half of the same tank if they operate together is:

- A. 3
- B. 1
- C. 4
- D. 2

**Q8** Pipes filling together

Pipe A can fill a tank in 3 hours, pipe B can fill the same tank in 42 hours and pipe C can fill the same tank in 7 hours. The time taken (in hours) by them to fill half of the same tank if they operate together is:

- A. 1
- B. 3
- C. 2
- D. 4



Q9 Pipes filling together

Pipe A can fill a tank in 3 hours, pipe B can fill the same tank in 15 hours and pipe C can fill the same tank in 10 hours. The time taken (in hours) by them to fill half of the same tank if they operate together is:

A. 3

B. 1



C. 4

D. 2

Q10 Pipes filling together

Pipe A can fill a tank in 3 hours, pipe B can fill the same tank in 18 hours and pipe C can fill the same tank in 9 hours. The time taken (in hours) by them to fill half of the same tank if they operate together is:

A. 1



B. 2

C. 4

D. 3

Q11 Pipes filling together

Pipe A can fill a tank in 3 hours, pipe B can fill the same tank in 12 hours and pipe C can fill the same tank in 12 hours. The time taken (in hours) by them to fill half of the same tank if they operate together is:

A. 4

B. 2

C. 3

D. 1

**Q12 Pipes filling together**

Pipe A can fill a tank in 3 hours, pipe B can fill the same tank in 10 hours and pipe C can fill the same tank in 15 hours. The time taken (in hours) by them to fill half of the same tank if they operate together is:

A. 2

B. 3

C. 1



D. 4

Q13 Pipes filling together

Pipe A can fill a tank in 3 hours, pipe B can fill the same tank in 8 hours and pipe C can fill the same tank in 24 hours. The time taken (in hours) by them to fill half of the same tank if they operate together is:

A. 4

B. 2

C. 3

D. 1

**Q14 Pipes filling together**

Pipe A can fill a tank in 3 hours, pipe B can fill the same tank in 9 hours and pipe C can fill the same tank in 18 hours. The time taken (in hours) by them to fill half of the same tank if they operate together is:

A. 4

B. 2

C. 3

D. 1

**Q15 Pipes filling together**

Pipe A can fill a tank in 3 hours, pipe B can fill the same tank in 7 hours and pipe C can fill the same tank in 42 hours. The time taken (in hours) by them to fill half of the same tank if they operate together is:

A. 1



B. 3

C. 4

D. 2

Q16 Pipes filling together

Pipe A can fill a tank in 6 hours, pipe B can fill the same tank in 30 hours and pipe C can fill the same tank in 20 hours. The time taken (in hours) by them to fill one-fourth of the same tank if they operate together is:

A. 1



B. 3

C. 2

D. 4



Q17 Pipes filling together

Pipe A can fill a tank in 6 hours, pipe B can fill the same tank in 48 hours and pipe C can fill the same tank in 16 hours. The time taken (in hours) by them to fill one-fourth of the same tank if they operate together is:

A. 3

B. 1



C. 4

D. 2

Q18 Pipes filling together

Pipe A can fill a tank in 6 hours, pipe B can fill the same tank in 36 hours and pipe C can fill the same tank in 18 hours. The time taken (in hours) by them to fill one-fourth of the same tank if they operate together is:

A. 3

B. 2

C. 1



D. 4

Q19 Pipes filling together

Pipe A can fill a tank in 6 hours, pipe B can fill the same tank in 28 hours and pipe C can fill the same tank in 21 hours. The time taken (in hours) by them to fill one-fourth of the same tank if they operate together is:

A. 1



B. 4

C. 3

D. 2

Q20 Pipes filling together

Pipe A can fill a tank in 6 hours, pipe B can fill the same tank in 24 hours and pipe C can fill the same tank in 24 hours. The time taken (in hours) by them to fill one-fourth of the same tank if they operate together is:

A. 2

B. 3

C. 4

D. 1

**Q21 Pipes filling together**

Pipe A can fill a tank in 6 hours, pipe B can fill the same tank in 21 hours and pipe C can fill the same tank in 28 hours. The time taken (in hours) by them to fill one-fourth of the same tank if they operate together is:

A. 2

B. 1



C. 4

D. 3

Q22 Filling and emptying pipes

Two pipes, A and B, can fill a tank in 8 hours and 14 hours, respectively. A third pipe C, can empty the completely filled tank in 12 hours. If all three pipes are opened together in an empty tank, then how long (in hours) will it take to fill the tank?

A. $9\frac{1}{19}$

B. $8\frac{11}{19}$

C. $8\frac{16}{19}$



D. $8\frac{9}{19}$



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Q23 Pipes opened later

Two pipes, A and B, can fill an empty water tank in 40 and 50 minutes, respectively. Pipe A is opened, and after 15 minutes pipe B is also opened. What is the time taken by both the pipes to fill the tank from the beginning?

A. $23\frac{4}{9}$ minutes

B. $28\frac{8}{9}$ minutes 

C. $24\frac{5}{9}$ minutes

D. $18\frac{8}{9}$ minutes

Q24 Pipes with closing tap

Two pipes A and B can fill a tank in 20 hours and 30 hours, respectively, while pipe C can empty the tank in 60 hours. All three taps are opened at the beginning. 10 hours before the tank is filled, pipe C is closed. How much total time (in hours) will it take to fill the tank?

A. $10\frac{1}{2}$

B. $12\frac{1}{4}$

C. $12\frac{1}{2}$ 

D. $10\frac{1}{4}$



Arithmetic

65 Questions • Answer Key

Q1 Average speed

Arjun travelled from place A to place B by car at a speed of 48 km/hr and returned back to place A at a speed of 60 km/hr. He then again went to place B at a speed of 72 km/hr. Find the average speed of the car for the whole journey (rounded off to two decimal places).

- A. 54.86 km/hr
- B. 50.53 km/hr
- C. 58.38 km/hr
- D. 48.31 km/hr



Q2 Average speed

A car travels from city A to city B at 30 km/hr and returns at 45 km/hr. Find the average speed for the entire trip.

- A. 36 km/hr
- B. 40 km/hr
- C. 35 km/hr
- D. 42 km/hr



Q3 Average speed

A man covered a total distance of 800 km on motor bike. For the first 12 hours, the speed was 50 km/hr and for the rest of the journey, it came down to 25 km/hr. The average speed (in km/hr) was:

- A. 48
- B. 40
- C. 42
- D. 36



Q4 Average speed

Anirudh travels 55 km at 11 km/h, 65 km at 13 km/h, and 120 km at 20 km/h. What is his average speed (in km/h)?

- A. 14
- B. 15
- C. 16
- D. 18



Q5 Average speed

A bus travels from City A to City B, which are 210 km apart. For the last 90 km, the bus increases its speed by 5 km/h than the speed that it had been traveling. If the average speed of the journey is 42 km/h, find the total time (in hours) taken for the journey if the bus travels the whole distance at the speed at which it travelled the first part of the journey.

- A. 5.62
- B. 4.67
- C. 4.75
- D. 5.25



Q6 Average speed

A cyclist covers 60 km at a speed of 20 km/h, 90 km at a speed of 30 km/h and 150 km at a speed of 25 km/h. Find the average speed of the cyclist for the entire journey.

- A. 24 km/h
- B. 25 km/h
- C. 26 km/h
- D. 27 km/h



Q7 Average speed

A car runs the first one-third of a distance at a speed of 42 km/hr, the next half of the distance at a speed of 60 km/hr and the remaining distance at a speed of 72 km/hr. Find the approximate average speed (in km/hr) of the car for the whole journey.

- A. 53.8
- B. 48.6
- C. 56
- D. 58



Q8 Average speed

A car starts at a speed of 52 km/hr and increases its speed for every 30 minutes by 7 km/hr. Find the average speed (in km/hr) of the car for 3 hours.

- A. 70.2
- B. 69.5
- C. 65.6
- D. 60.8



Q9 Average speed of journey

A tourist bus covers a distance of 500 kilometers. It travels the first 40% of the distance at a speed of 80 km/hr and the rest of the distance at 75 km/hr. If it takes a 30-minute stop for lunch during the journey, what is the average speed for the entire trip? (Rounded off to two decimal places.)

- A. 72.54 km/hr
- B. 75 km/hr
- C. 71.43 km/hr
- D. 76.92 km/hr

**Q10 Average speed of journey**

A student rides a bicycle for 12 km at an average speed of 10 km/hr. At what speed should he cover the next 10 km to have an average speed of 11 km/hr for the whole journey?

- A. 12.5 km/hr
- B. 10.8 km/hr
- C. 11 km/hr
- D. 15 km/hr

**Q11 Average speed of journey**

A car covers the first 120 km at 40 km/hr, the next 180 km at 60 km/hr, and the last 100 km at 50 km/hr. Find the average speed of the car for the entire journey.

- A. 55 km/hr
- B. 51 km/hr
- C. 53 km/hr
- D. 50 km/hr

**Q12 Average speed of journey**

One-third of a journey is covered at a speed of 56 km/hr, the next one-third of the journey is covered at a speed of 7 km/hr, and the remaining journey is covered at a speed of 14 km/hr. The average speed (in km/hr, rounded off to 1 decimal place) for the entire journey is:

- A. 7.9
- B. 18.1
- C. 13.6
- D. 12.9

**Q13 Average speed of journey**

A man travels from City A to City B at a speed of 60 km/h, then from City B to City C at 90 km/h, and finally returns directly from City C to City A at 72 km/h. If the distances between A and B and between B and C are equal, with B located between A and C, find his average speed for the entire journey.

- A. 70 km/hr
- B. 66 km/hr
- C. 68 km/hr
- D. 72 km/hr

**Q14 Average speed of journey**

One-third of a journey is covered at a speed of 62 km/hr, the next one-third of the journey is covered at a speed of 99 km/hr, and the remaining journey is covered at a speed of 51 km/hr. The average speed (in km/hr, rounded off to 1 decimal place) for the entire journey is:

- A. 61.4
- B. 60.8
- C. 62.1
- D. 65.5

**Q15 Average speed of journey**

One person travels three sides of an equilateral triangle at a speed of 12 km/hr, 24 km/hr and 8 km/hr. Find his average speed (in km/hr).

- A. 12.6
- B. 13.8
- C. 12
- D. 13.4

**Q16 Average speed of journey**

A marathon runner covers one-third of a 42 km race at a speed of 12 km/h, and the remaining two-thirds at a speed of 10.5 km/h. What is the average speed of the runner for the entire race? (Round off to two decimal places.)

- A. 11.86 km/h
- B. 10.86 km/h
- C. 11.96 km/h
- D. 10.96 km/h



Q17 Average speed of journey

A car covers a total distance of 360 km. It covers the first 120 km at 40 km/h. Of the remaining distance, it then covers one-third at 60 km/h and the rest at a constant speed v . If the car's overall average speed for the whole trip is 60 km/h, what is the value of v ?

- A. 100 km/h
- B. 85 km/h
- C. 96 km/h
- D. 90 km/h

**Q18 Average speed of journey**

A car travels at a constant speed of 40 km/hr for 30 minutes, followed by a constant speed of 60 km/h for the next 40 minutes. What is the car's average speed (in km/hr) over the entire journey, rounded off to two decimal places?

- A. 51.43
- B. 54.67
- C. 53.72
- D. 50.34

**Q19 Average speed of journey**

Ramesh travels with the speed of 60 km per hour for the first 2 hours. For the next two hours, he travels with a speed of 50 km per hour. Find the average speed (in km per hour) of his entire journey.

- A. 65
- B. 50
- C. 60
- D. 55

**Q20 Average speed of journey**

A motor bike travels at the speed of 54 km/hr for 2 hours, then it travels 70 km/hr for 3 hours, and finally travels 60 km/hr for 3 hours. What is the average speed of the motor bike for the entire trip?

- A. 64.18 km/hr
- B. 59.28 km/hr
- C. 56.83 km/hr
- D. 62.25 km/hr

**Q21 Average speed of journey**

A car travels a total distance of 180 km, divided equally into three parts of 60 km each. On the first part, it moves at a speed of 60 km/h; on the second, it slows down to 40 km/h. On the third part, its speed increases again so that the overall average speed for the entire journey becomes 54 km/h. Find the speed of the car on the third part.

- A. 75 km/h
- B. 78 km/h
- C. 90 km/h
- D. 72 km/h

**Q22 Distance from speed and time**

Jeeps leave a forest checkpoint every 10 minutes and travel at a constant speed of 24 km/h along the same trail. What is the distance (in km) between any two jeeps already on the trail?

- A. 6
- B. 5
- C. 4
- D. 3

**Q23 Journey with break**

A bus leaves City A at 7:00 a.m. and travels at 48 km/h. At 10:00 a.m., the driver stops for a 30-minute break. Then he continues at 60 km/h. Find the time he reaches City B, which is 300 km from City A.

- A. 12:56 pm
- B. 1:30 pm
- C. 1:10 pm
- D. 1:06 pm

**Q24 Late early distance**

A student is travelling to an examination center. If he travels by his bicycle at 10 km/hr, he will be 15 minutes late. If he travels by an auto at 12 km/hr, he will be 5 minutes early. What is the distance to the examination center?

- A. 15 km
- B. 24 km
- C. 20 km
- D. 18 km



Q25 Late early distance

With an average speed of 60 kmph, a bus reaches its destination on time. If it goes at an average speed of 55 kmph, then it is late by 10 minutes. The total distance of the journey is:

A. 110 km



B. 120 km

C. 100 km

D. 70 km

Q26 Meeting point problem

Akshat and Shivam start simultaneously from point P towards point Q, which is 300 km away. Akshat travels at 70 km/h, while Shivam moves at 50 km/h. After reaching point Q, Akshat immediately turns back towards point P and eventually meets Shivam on the way. At what distance from point Q do they meet?

A. 48 km

B. 50 km



C. 51 km

D. 49 km

Q27 Meeting point problem

The distance between two cities A and B is 120 km. A motorcycle rider starts from A towards B at 8 am at a speed of 21 km/h. Another motorcyclist starts from B towards A at 9 am at a speed of 34 km/h. At what time (in 12-hour clock format) will they cross each other?

A. 10:48 am



B. 11:20 am

C. 11:10 am

D. 10:15 am

Q28 Meeting point problem

Two persons, A and B, start from opposite ends of a 325 km road and travel toward each other. A's speed is 70 km/h and B's speed is 50 km/h. If A starts 30 minutes after B, how long after B's start will they meet?

A. 4 h

B. 6 h

C. 5 h

D. 3 h

**Q29 Overtaking problem**

A bus leaves Delhi for Jaipur traveling at 60 km/h. Two hours later, a car starts from Delhi towards Jaipur at 90 km/h on the same route. How long will it take the car to overtake the bus, and what distance from Delhi will the car meet the bus?

A. 4 hours, and 306 km

B. 4 hours, and 360 km



C. 3 hours, and 360 km

D. 4 hours, and 330 km

Q30 Races

In a 1 km race, A beats B by 50 m. In 800 m race, B beats C by 40 m. In a 200 m race, by what distance (in m) does A beat C?

A. 22.5

B. 25

C. 18

D. 19.5

**Q31 Relative speed meeting**

A train leaves Station A for Station B at 7:00 a.m., traveling at a speed of 80 km/h. Another train leaves Station B for Station A at 8:30 a.m., traveling at 100 km/h on the same track. If the distance between the two stations is 550 km, at what time will the two trains meet each other?

A. 10:35:20 a.m.

B. 10:52:20 a.m.

C. 10:53:20 a.m.



D. 10:53:21 a.m.

Q32 Relative speed meeting

The distance between two cities, A and B, is 250 km. A motorcyclist starts from A towards B at 6:30 a.m. at a speed of 40 km/hr. Another motorcyclist starts from B towards A at 8:30 a.m. at a speed of 50 km/hr. At what time will they cross each other?

A. 1:27:48 p.m.

B. 2:25:24 p.m.

C. 11:33:51 a.m.

D. 10:23:20 a.m.



Q33 Relative speed meeting

Two trains are running towards each other from station A and station B at speeds of 70 km/h and 80 km/h, respectively. When they meet each other, it is noticed that the second train covers 150 km more than the first train. What is the distance between the two stations?

- A. 2240 km
- B. 2230 km
- C. 2250 km
- D. 2260 km

**Q34 Relative speed meeting**

Two stations S1 and S2 are 766 km apart. One train starts from S1 at 5:20 a.m. and travels towards S2 at 74 kmph. Another train starts from S2 at 7:50 a.m. and travels towards S1 on parallel tracks at a speed of 92 kmph. At what time will they meet?

- A. 9:55 am
- B. 11:20 am
- C. 10:05 am
- D. 9:50 am

**Q35 Relative speed problem**

Buses leave a depot every 15 minutes and run along a straight highway at a constant speed of 16 km/h. A cyclist is riding towards the depot from the opposite direction on the same highway. He observes that buses cross him at regular intervals of 12 minutes. Assuming both maintain uniform speeds, what is the speed (in km/h) of the cyclist?

- A. 6
- B. 4
- C. 5
- D. 7

**Q36 Relative speed separation**

Two trains leave the same station and travel in the same direction. If the faster train moves at 54 km/h and the distance between them becomes 42 km after 6 hours, what is the speed of the slower train?

- A. 47 km/h
- B. 48 km/h
- C. 45 km/h
- D. 50 km/h

**Q37 Round trip speed equation**

A man travels from P to Q at v km/h and returns at $(v + 10)$ km/h. If the total time for the round trip is 9 hours and the distance between P and Q is 200 km, find v .

- A. 45 km/h
- B. 30 km/h
- C. 35 km/h
- D. 40 km/h

**Q38 Speed change time difference**

Sam covered a certain distance at a certain speed. Had he moved 4.5 kmph faster, he would have taken 30 minutes less. If he had moved 4.5 kmph slower, he would have taken 35 minutes more. Find the distance covered by him.

- A. 409.5 km
- B. 411.5 km
- C. 420 km
- D. 429.5 km

**Q39 Speed change time difference**

A car moving at a uniform speed covers a certain distance in 5 hours. If the speed had been 10 km/hr more, it would have taken 1 hour less. Find the actual speed of the car.

- A. 42 km/hr
- B. 45 km/hr
- C. 37 km/hr
- D. 40 km/hr

**Q40 Speed change time difference**

Car M takes 7 hours to travel from point A to point B. It would have taken 8 hours if it had travelled the same distance at a speed 23.8 km/hr less than its original speed. What is the distance between points A and B?

- A. 1330.2 km
- B. 1332.8 km
- C. 1333.9 km
- D. 1331.5 km



Q41 Speed change time difference

A delivery rider starts 6 minutes 40 seconds late but still manages to reach a destination 21 km away on time by riding 12 km/hr faster than his usual speed. What is his usual speed in km/hr?

A. 41

B. 40

C. 42



D. 43

Q42 Speed change time difference

Anusha covers a certain distance between her home and college by car. At a speed of 35 km/hr, she is late by 20 minutes. However, at a speed of 45 km/hr, she reaches her college 10 minutes early. Find the distance between her home and college.

A. 76.65 km

B. 78.75 km



C. 72.25 km

D. 74.5 km

Q43 Speed distance basic

A car travels 240 km in 4 hours. How far will it travel in 7 hours at the same speed?

A. 360 km

B. 400 km

C. 480 km

D. 420 km

**Q44 Speed time inverse**

Kaushal travelled for 16 hours 20 minutes at the speed of 90 km/h. At what speed (in km/h) should he travel to cover the same distance in 14 hours?

A. 102

B. 103

C. 104

D. 105

**Q45 Speed time inverse**

Kaushal travelled for 2 hours 55 minutes at the speed of 24 km/h. At what speed (in km/h) should he travel to cover the same distance in 5 hours?

A. 11

B. 14



C. 13

D. 12

Q46 Speed time inverse

Kaushal travelled for 1 hour 21 minutes at the speed of 80 km/h. At what speed (in km/h) should he travel to cover the same distance in 12 hours?

A. 7

B. 12

C. 8

D. 9

**Q47 Speed time inverse**

Kaushal travelled for 2 hours 45 minutes at the speed of 32 km/h. At what speed (in km/h) should he travel to cover the same distance in 4 hours?

A. 22



B. 24

C. 21

D. 19

Q48 Speed time inverse

Kaushal travelled for 12 hours 55 minutes at the speed of 24 km/h. At what speed (in km/h) should he travel to cover the same distance in 5 hours?

A. 62



B. 65

C. 60

D. 61

Q49 Speed time inverse

Kaushal travelled for 5 hours 52 minutes at the speed of 45 km/h. At what speed (in km/h) should he travel to cover the same distance in 24 hours?

A. 11



B. 12

C. 9

D. 8

Q50 Speed time inverse

Kaushal travelled for 22 hours 3 minutes at the speed of 20 km/h. At what speed (in km/h) should he travel to cover the same distance in 21 hours?

A. 19

B. 20

C. 21



D. 18



Q51 Speed time inverse

Kaushal travelled for 1 hour 40 minutes at the speed of 114 km/h. At what speed (in km/h) should he travel to cover the same distance in 5 hours?

A. 41

B. 35

C. 38



D. 40

Q52 Speed to cover distance

Kaushal travelled for 14 hours 28 minutes at the speed of 90 km/h. At what speed (in km/h) should he travel to cover the same distance in 7 hours?

A. 186



B. 184

C. 187

D. 185

Q53 Speed to cover distance

Kaushal travelled for 7 hours 31 minutes at the speed of 120 km/h. At what speed (in km/h) should he travel to cover the same distance in 22 hours?

A. 38

B. 41



C. 43

D. 39

Q54 Speed to cover distance

Kaushal travelled for 14 hours 10 minutes at the speed of 60 km/h. At what speed (in km/h) should he travel to cover the same distance in 17 hours?

A. 50



B. 51

C. 53

D. 52

Q55 Speed to cover distance

Kaushal travelled for 24 hours 56 minutes at the speed of 90 km/h. At what speed (in km/h) should he travel to cover the same distance in 17 hours?

A. 135

B. 132



C. 131

D. 130

Q56 Speed to cover distance

Kaushal travelled for 23 hours 30 minutes at the speed of 52 km/h. At what speed (in km/h) should he travel to cover the same distance in 13 hours?

A. 94



B. 95

C. 92

D. 93

Q57 Speed to cover distance

Kaushal travelled for 16 hours 15 minutes at the speed of 64 km/h. At what speed (in km/h) should he travel to cover the same distance in 10 hours?

A. 106

B. 105

C. 104



D. 103

Q58 Speed with stoppage

A train travels 20% faster than a car. Both start together from the same point and cover a distance of 72 km. The train stops for a total of 12 minutes on the way, but still reaches the destination at the same time as the car. Find the speed of the car.

A. 70 km/hr

B. 62 km/hr

C. 60 km/hr



D. 65 km/hr

Q59 Two speed journey

A covered a distance of 84 km in 8 hours. He walked part of the distance at a speed of 6 km/hr and rode a cycle for the rest at 12 km/hr. How far did he walk?

A. 12 km



B. 11 km

C. 15 km

D. 10 km



Q60 Two speed journey

Giri covers a distance of 56 km in 7 hours. He covers the distance partly on foot at a speed of 6 km/h and partly on a bicycle at a speed of 11 km/h. What is the distance covered by him on the bicycle?

A. 30.8 km



B. 30.7 km

C. 30.2 km

D. 30.5 km

Q61 Two speed journey

A man drives to a town at 45 km/hr and returns by the same route at 60 km/hr. The total time taken is 7 hours. Find the distance to the town from the starting point.

A. 182 km

B. 175 km

C. 165 km

D. 180 km

**Q62 Average speed**

Sumanth covers a certain distance by car, driving at 29 km/hr, and he returns to the starting point riding on a scooter with a speed of 28 km/hr. Find the average speed for the whole journey.

A. $26\frac{28}{57}$ km/hr

B. $27\frac{28}{57}$ km/hr

C. $28\frac{28}{57}$ km/hr



D. $29\frac{28}{57}$ km/hr

Q63 Average speed

An aircraft covered a distance of 1440 km from place A to place B in $10\frac{1}{2}$ hours. The aircraft stopped for 10 minutes and 20 minutes, respectively. What is the average speed of the aircraft?

A. 144 km/hr



B. 140 km/hr

C. 148 km/hr

D. 154 km/hr

Q64 Average speed of journey

A bus covers $\frac{1}{10}$ of a distance from one place to another at a speed of 25 km/hr, $\frac{1}{5}$ of the distance at the speed of 8 km/hr. At what speed would it be supposed to cover the remaining distance to have an average speed of 15.625 km/hr?

A. 25 km/hr

B. 8 km/hr

C. 20 km/hr



D. 10 km/hr



Q65 Speed change time difference

Ramesh takes 10 hours longer than Suresh to cover a distance of 120 km. However, if Ramesh were to double his speed, he would take 8 hours less than Suresh. What is Ramesh's original speed?

A. $3\frac{1}{3}$ km/hr



B. $7\frac{5}{7}$ km/hr

C. $5\frac{1}{5}$ km/hr

D. $4\frac{3}{4}$ km/hr



Q1 Relative speed crossing

Two trains are travelling in opposite directions at 108 km/h and 90 km/h. If the length of the faster train is 550 metres, then find the time taken by the faster train to cross a man standing in the slower train.

- A. 15 seconds
- B. 12 seconds
- C. 10 seconds
- D. 11 seconds

**Q2** Train crossing bridge

A train with a speed of 126 km/hr crosses a bridge in 50 seconds. Another train 150 m longer than the first train, crosses the same bridge at 90 km/hr. The time (in seconds) taken by the second train to cross the bridge, is:

- A. 70
- B. 68
- C. 76
- D. 74

**Q3** Train crossing platform

A train running at 63 km/h takes 30 sec to pass a platform. Next it takes 18 sec to pass a man cycling at 9 km/h in the same direction in which the train is going. The ratio of the length of the train to the length of the platform is:

- A. 18 : 17
- B. 10 : 9
- C. 8 : 7
- D. 21 : 19

**Q4** Train crossing platform

A train passes a station platform in 70 seconds and a man standing on the platform in 40 seconds. If the speed of the train is 90 km/hr, calculate the length of the platform.

- A. 780 m
- B. 760 m
- C. 750 m
- D. 720 m

**Q5** Trains meeting time ratio

Two trains, P and Q, start from stations S and T towards each other. They take 4 hours 48 minutes and 3 hours 20 minutes to reach T and S, respectively. If train P is running at 45 km/hr, then the speed of train Q is:

- A. 60 km/hr
- B. 45 km/hr
- C. 50 km/hr
- D. 54 km/hr

**Q6** Trains same direction

Two trains of equal length cross a pole in 12 seconds and 18 seconds, respectively. If they move in the same direction, find the time taken by the faster train to come from behind and completely cross the other train.

- A. 60 seconds
- B. 72 seconds
- C. 66 seconds
- D. 75 seconds

**Q7** Two trains crossing

A 200-meter long train running at 72 km/hr crosses another 250-meter long train running in the opposite direction in 9 seconds. How long will the second train take to cross a 350-meter long platform?

- A. 20 seconds
- B. 15 seconds
- C. 19 seconds
- D. 18 seconds

**Q8** Two trains crossing

Two 80-m and 120-m long trains are running in opposite directions at the speeds of 50 km/hr and 30 km/hr, respectively. Calculate the time taken by the trains to cross each other.

- A. 8 seconds
- B. 12 seconds
- C. 9 seconds
- D. 10 seconds



Q9 Two trains crossing

Two trains are travelling toward each other on parallel tracks. The first train is 430 metres long and travels at a speed of 120 km/h. The second train is 570 metres long and travels at a speed of 85 km/h. The distance between the two trains when they start is 20 km. Find out how much time it will take for the two trains to completely pass each other (rounded off to the nearest second).

A. 393 seconds

B. 389 seconds

C. 369 seconds



D. 343 seconds

Q10 Two trains crossing

Two trains are moving in opposite directions at the speeds of 80 kmph and 70 kmph. Their lengths are 1.20 km and 0.8 km, respectively. The time taken by the slower train to cross the faster train (in seconds) is:

A. 50

B. 40

C. 48



D. 42

Q11 Two trains crossing

Two trains, 200 m and 160 m long are running in opposite directions at speeds of 78 km/h and 66 km/h, respectively. In how much time will they completely cross each other from the moment they meet?

A. 8 seconds

B. 9 seconds



C. 7 seconds

D. 6 seconds

Q12 Two trains opposite direction

A train, 150 m long, running at 60 km/h passes another train, which is twice as fast as this train and is running on a parallel line in the opposite direction, in 8 seconds. Find the length (in m) of the second train.

A. 320

B. 280

C. 250



D. 300

Q13 Two trains opposite direction

A train 500 m long and traveling at 72 km/h crosses another train 410 m long and moving at 54 km/h in the opposite direction. How much time will it take for the trains to completely cross each other?

A. 18 seconds

B. 26 seconds



C. 32 seconds

D. 40 seconds

Q14 Two trains opposite direction

Two trains, one 120 m long and the other 180 m long, are running in opposite directions at 45 km/hr and 54 km/hr, respectively. How long will they take to cross each other completely? [Give your answer in seconds, correct to one place after decimal.]

A. 12.0 s

B. 10.9 s



C. 9.5 s

D. 11.5 s

Q15 Two trains opposite direction

A train, 320 m in length, running at a speed of 62 km/hr takes 16 seconds to cross another train running at a speed of 46 km/hr in the opposite direction on parallel lines. Find the length (in m) of the second train.

A. 200

B. 220

C. 180

D. 160

**Q16 Two trains opposite direction**

Two trains, 240 m and 280 m in length, respectively, are running towards each other on parallel lines, one at the speed of 70 km/hr and another at 74 km/hr. Find the time (in seconds) they will take to cross each other.

A. 16

B. 12

C. 13



D. 14



Q17 Two trains opposite direction

Two trains, 310 m and 320 m long, run on parallel tracks in opposite directions. The first runs at 67 km/h and the second at 59 km/h. How long will they take to cross each other?

A. 12 seconds

B. 16 seconds

C. 14 seconds

D. 18 seconds

**Q18 Two trains same direction**

Two trains are running on parallel tracks in the same direction. The first train, 150 m long, moves at a speed of 54 km/hr, while the second train, 120 m long, runs at 36 km/hr. How long will it take for the first train, coming from behind, to pass the second train completely?

A. 36 s

B. 45 s

C. 54 s



D. 40 s

Q19 Two trains same direction

A train, 150 m in length, running at a speed of 72 km/hr crosses another train thrice as fast as this train and running in the same direction on parallel lines in 10 seconds. Find the length (in m) of the second train.

A. 300

B. 250



C. 280

D. 320

Q20 Two trains same direction

Two trains, 210 m and 150 m long, are running in the same direction. The faster train, moving at 60 km/h, overtakes the slower train in 30 seconds. Find the speed of the slower train.

A. 17.2 km/h

B. 15.6 km/h

C. 20 km/h

D. 16.8 km/h



Arithmetic

12 Questions • Answer Key

Q1 Downstream and upstream time

A man can row at 9.5 km/h in still water. When the river flows at 2 km/h, it takes him 4 hours to row to a certain place and return. How far is the place? (Round off the answer to two decimal places.)

A. 16.08 km

B. 18.16 km ✓

C. 17.12 km

D. 15.06 km

Q2 Downstream and upstream time

A ship takes 15.5 hours for travelling downstream from point M to point N and coming back to a point P midway between M and N. If the speed of the stream is 3.5 kmph and the speed of the ship in still water is 11.5 kmph, what is the distance between M and N?

A. 105 km

B. 110 km

C. 118 km

D. 120 km ✓

Q3 Downstream upstream ratio

A boat travels a certain distance. The ratio of the time taken by the boat to travel downstream to the time taken to travel upstream is 5:7. If the downstream speed is 21 km/h, find the speed of the boat in still water.

A. 13 km/h

B. 9 km/h

C. 18 km/h ✓

D. 12 km/h

Q4 Downstream upstream ratio

S1, S2 and S3 are three shops in a straight line on a river, which flows at a constant speed from S1 towards S3. S2 is equidistant between S1 and S3. Seerat rows his boat to purchase an item from S1 to S2 and back in 12.5 hours and he can row from shop S1 to S3 in 9.5 hours. Compare the speed of his boat in still water to that of the river.

A. 25 : 6 ✓

B. 8:1

C. 8:3

D. 25 : 8

Q5 Round trip distance

A man can row at 9 km/h in still water. When the river flows at 5 km/h, it takes him 2.4 hours to row to a certain place and return. How far is the place? (Rounded off to 2 decimal places)

A. 7.47 km ✓

B. 6.42 km

C. 9.54 km

D. 8.18 km

Q6 Speed in still water

A boatman is rowing on a river. He takes 4 hours to travel upstream and 2.5 hours to travel downstream. If the speed of the river's current is 3 km/h, what is the boat's speed in still water?

A. 11 km/h

B. 14 km/h

C. 12 km/h

D. 13 km/h ✓

Q7 Speed in still water

A boatman can travel 22 km downstream and 15 km upstream in 3 hours and 20 minutes. He can also travel 14 km downstream and 12 km upstream in 2 hours and 24 minutes. What is the speed of the boat in still water? (Round off your answer to two decimal places.)

A. 11.15 km/h ✓

B. 13.50 km/h

C. 13.15 km/h

D. 11.75 km/h

Q8 Speed in still water

A motorboat travels 72 km downstream in 3 hours. The same boat takes 4 hours to cover 48 km upstream. What is the speed of the motorboat in still water?

A. 15 km/hr

B. 20 km/hr

C. 18 km/hr ✓

D. 16 km/hr



Q9 Speed of stream

A boat travels 45 km upstream in 9 hours and 72 km downstream in 6 hours. Find the speed of the stream.

A. 3.5 km/hr



B. 2.5 km/hr

C. 1.5 km/hr

D. 2 km/hr

Q10 Upstream downstream time

A boat can travel 48 km downstream in 3 hours and can come back the same distance upstream in 4 hours. At these speeds if the boat goes 15 km downstream, then rests for 30 mins, and returns 15 km upstream, find the total time (including the resting time) taken by the boat to complete this round trip.

A. 2 h 11 min 15 s

B. 2 h 41 min 15 s



C. 3 h 11 min 15 s

D. 2 h 56 min 15 s

Q11 Upstream downstream time

The ratio of the speed of a boat to the speed of the current of water is 36 : 5. The boat goes a certain distance downstream in 5 hours 10 minutes. How much time will it take to come back against the stream?

A. 6 hours 50 minutes



B. 6 hours 20 minutes

C. 6 hours 30 minutes

D. 5 hours 50 minutes

Q12 Speed of current

A man can row at 8.5 km/h in still water. He finds it takes twice as long to row upstream as downstream for the same distance. Find the speed of the current.

A. $2\frac{5}{6}$ km/hr



B. $3\frac{5}{7}$ km/hr

C. $1\frac{7}{8}$ km/hr

D. $4\frac{3}{4}$ km/hr



Algebra

23 Questions • Answer Key

Q1 Comparing powers

Arrange the following in descending order: 16^6 , 27^4 , 5^{12} .

A. $512 > 166 > 274$ ✓B. $274 > 166 > 512$ C. $274 > 512 > 166$ D. $166 > 512 > 274$

Q2 Exponent equation solving

Given that $113^{0.99} = x$, $113^{0.77} = y$ and $x^z = y^2$, then the value of z is close to:

A. 1.48

B. 1.56 ✓

C. 3.04

D. 2.89

Q3 Exponent equation solving

Given that $17^{0.3} = x$, $17^{0.5} = y$ and $x^z = y^5$, then the value of z is close to:

A. 8.33 ✓

B. 7.67

C. 10.33

D. 8.67

Q4 Exponent equation solving

Given that $102^{0.77} = x$, $102^{0.44} = y$ and $x^z = y^8$, then the value of z is close to:

A. 3.44

B. 5.23

C. 4.57 ✓

D. 6.05

Q5 Exponent equation solving

Given that $69^{0.96} = x$, $69^{0.75} = y$ and $x^z = y^2$, then the value of z is close to:

A. 0.85

B. 1.56 ✓

C. 3.48

D. 2.93

Q6 Exponent equation solving

Given that $148^{0.27} = x$, $148^{0.51} = y$ and $x^z = y^6$, then the value of z is close to:

A. 13.37

B. 10.11

C. 11.33 ✓

D. 12.22

Q7 Exponent equation solving

Given that $109^{0.64} = x$, $109^{0.83} = y$ and $x^z = y^5$, then the value of z is close to:

A. 6.48 ✓

B. 7.82

C. 7.91

D. 5.06

Q8 Exponent equation solving

Given that $39^{0.66} = x$, $39^{0.23} = y$ and $x^z = y^2$, then the value of z is close to:

A. 0.64

B. 0.69 ✓

C. 1.62

D. 0.12

Q9 Exponent equation solving

Given that $43^{0.92} = x$, $43^{0.69} = y$ and $x^z = y^6$, then the value of z is:

A. 4.5 ✓

B. 6.5

C. 3.5

D. 5.5

Q10 Exponent equation solving

Given that $86^{0.2} = x$, $86^{0.35} = y$ and $x^z = y^9$, then the value of z is:

A. 16.25

B. 14.75

C. 17.25

D. 15.75 ✓



Q11 Exponent equation solving

Given that $140^{0.86} = x$, $140^{0.74} = y$ and $x^z = y^7$, then the value of z is close to:

A. 4.38

B. 5.94

C. 8.01

D. 6.02

**Q12 Exponent equation solving**

Given that $109^{0.71} = x$, $109^{0.47} = y$ and $x^z = y^{10}$, then the value of z is close to:

A. 6.62



B. 6.04

C. 5.77

D. 9.19

Q13 Exponent equation solving

Given that $122^{0.86} = x$, $122^{0.22} = y$ and $x^z = y^7$, then the value of z is close to:

A. 1.79



B. 2.11

C. 4.46

D. 0.56

Q14 Exponent equation solving

Given that $27^{0.48} = x$, $27^{0.86} = y$ and $x^z = y^{10}$, then the value of z is close to:

A. 20.86

B. 17.92



C. 18.65

D. 17.02

Q15 Laws of indices

Given that $106^{0.02} = x$, $106^{0.59} = y$ and $x^z = y^9$, then the value of z is:

A. 263.5

B. 265.5



C. 266.5

D. 264.5

Q16 Laws of indices

Given that $94^{0.8} = x$, $94^{0.03} = y$ and $x^z = y^2$, then the value of z is:

A. 0.075



B. 0.625

C. 1.225

D. 1.175

Q17 Laws of indices

Given that $116^{0.26} = x$, $116^{0.1} = y$ and $x^z = y^4$, then the value of z is close to:

A. 1.54



B. 2.42

C. 0.58

D. 3.39

Q18 Laws of indices

Given that $52^{0.21} = x$, $52^{0.18} = y$ and $x^z = y^{10}$, then the value of z is close to:

A. 7.97

B. 6.58

C. 8.57



D. 9.66

Q19 Laws of indices

Given that $81^{0.4} = x$, $81^{0.78} = y$ and $x^z = y^2$, then the value of z is:

A. 3.9



B. 4.9

C. 1.9

D. 2.9

Q20 Laws of indices

Given that $24^{0.64} = x$, $24^{0.05} = y$ and $x^z = y^3$, then the value of z is close to:

A. 1.75

B. 1.89

C. 0.91

D. 0.23



Q21 Laws of indices

Given that $102^{0.63} = x$, $102^{0.94} = y$ and $x^z = y^5$, then the value of z is close to:

A. 9.71

B. 6.41

C. 7.46



D. 8.63

Q22 Laws of indices

If $x = 5^3 \times 5^2$, then what is the value of $x \div 5^4$?

A. 25

B. 15

C. 10

D. 5

**Q23** Laws of indices

Simplify:

$$(7^7 \times 7^{-5} \div 7^{-4}) \div \left(7^0 \times 7^{-2} \text{ of } \left(\frac{1}{7} \right)^{-5} \right)$$

A. 343



B. 7

C. 1

D. 49



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Algebra

20 Questions • Answer Key

Q1 Algebraic expression evaluation

If $x = 3$, what is the value of the expression $x^2 + 2x + 1$?

A. 18

B. 14

C. 12

D. 16



Q2 Algebraic identity evaluation

If $a + b = 9$ and $ab = 13$, then the value of $(a^2 + b^2)(a^3 + b^3)$ is:

A. 20,390

B. 20,190

C. 20,590

D. 20,790



Q3 Algebraic identity evaluation

If $a - b = 9$ and $ab = 13$, then the value of $a^3 - b^3$ is:

A. 1,080

B. 1,020

C. 1,040

D. 1,060



Q4 Algebraic identity expansion

Simplify:

$$(2a + 3b)^2 - (2a - 3b)^2$$

A. 18ab

B. 20ab

C. 25ab

D. 24ab



Q5 Algebraic identity expansion

Simplify: $(2x + 3y)(2x - 3y)$ A. $4x^2 - 9y^2$ B. $4x^2 + 9y^2$ C. $4x^2 - 6xy - 9y^2$ D. $4x^2 + 6xy - 9y^2$ 

Q6 Algebraic identity expansion

What is the value of $(x + 2)^2 - (x - 2)^2$ when $x = 1$?

A. 12

B. 4

C. 16

D. 8



Q7 Algebraic identity expansion

Simplify the following expression:

$$(2a + 3b + 4c)^2 + (2a - 3b - 4c)^2 - 8a^2 - 18b^2 - 32c^2$$

A. 12bc

B. 48bc

C. 16ac

D. 24ab



Q8 Algebraic identity expansion

Simplify: $(a + b)^2 - (a - b)^2$

A. 4ab

B. 2ab

C. $a^2 - b^2$ D. $a^2 + b^2$ 

Q9 Algebraic identity expansion

 $(x + 3)^2$ is equal to:A. $x^2 + 6x + 3$ B. $x^2 + 6x + 9$ C. $x^2 + 3x + 9$ D. $x^2 + 9x + 6$ 

Q10 Algebraic identity expansion

Simplify the expression: $(x + 3)^2 - x^2 - 9 - 6x$

A. 6x

B. 3x

C. 0

D. 9



Q11 Algebraic identity expansionSimplify: $(3a + 2b)^2 + (3a - 2b)^2 - 2(9a^2 + 4b^2)$

A. 2

B. 0



C. -1

D. 1

Q12 Three variable identityIf $a + b + c = 6$, $abc = -60$ and $a^3 + b^3 + c^3 = 162$, find the value of $ab + bc + ca$.

A. -21

B. -7



C. 11

D. 14

Q13 Algebraic identity expansion

Simplify the following expression.

$$(2x + 3y)^2 - (2x - 3y)^2 + 12xy$$

A. 24xy

B. 60xy

C. 36xy



D. 48xy

Q14 Algebraic identity expansionExpand $(a - p + m)^2$ A. $a^2 - p^2 + m^2 - 2ap - 2pm + 2am$ B. $a^2 + p^2 - m^2 - 2ap - 2pm + 2am$ C. $a^2 - p^2 - m^2 - 2ap - 2pm + 2am$ D. $a^2 + p^2 + m^2 - 2ap - 2pm + 2am$ **Q15** Linear equation solving

What is the value of x if

$$\sqrt{\sqrt{x+3}} = 2$$

A. 8

B. 13



C. 14

D. 9



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Q16 Linear equation two variables

Two rectangular fields have lengths x and y meters respectively, where $x > y$. The sum of their lengths is equal to three times the difference of their lengths. What is the value of $\frac{3xy}{2(x^2 - y^2)}$?

A. $1\frac{1}{3}$

B. $\frac{2}{3}$

C. $1\frac{2}{3}$

D. 1

**Q17** Perfect square identity

To a square plot having an area of $x \text{ m}^2$, a strip having an area of $\frac{1}{4}\sqrt{x} \text{ m}^2$ and a patch having an area of $a^2 \text{ m}^2$ are added. If the total area can now be expressed as a perfect square using powers of x and constants, find the positive value of a .

A. $\frac{1}{8}$

B. $\frac{1}{2}$

C. $\frac{1}{4}$

D. $\frac{1}{16}$

**Q18** Statement to equation

Which of the following equations represent the statement, "one fifth of m is twice of one third of n "?

A. $\frac{2m}{3} = 5n$

B. $\frac{m}{3} = \frac{2n}{5}$

C. $\frac{2m}{3} = \frac{n}{5}$

D. $\frac{m}{5} = \frac{2n}{3}$



Q19 Value of expression

If $\sec^2 \alpha = \frac{4ab}{(a+b)^2}$, then:

A. $a = b$



B. $a = -b$

C. $a = \frac{1}{b}$

D. $a = -\frac{1}{b}$

Q20 Value of expression

If $\frac{\sin^2 \theta}{\tan^2 \theta - \sin^2 \theta} = \frac{1}{3}$, $0^\circ < \theta < 90^\circ$, then the value of $(\cot \theta + \operatorname{cosec} \theta)$ is:

A. $2 + \sqrt{3}$

B. $3\sqrt{3}$

C. $\sqrt{3}$



D. $1 - \sqrt{3}$



Q1 Area from vertices

Find the area of a triangle whose vertices are A(3,2), B(11,6), and C(7,14).

- A. 32 unit²
- B. 36 unit²
- C. 40 unit² ✓
- D. 42 unit²

Q2 Congruent triangles

Two triangles LMN and OPQ are congruent. If the area of $\triangle LMN$ is 74 cm², then the area of $\triangle OPQ$ will be:

- A. 74 cm² ✓
- B. 37 cm²
- C. 148 cm²
- D. 18.5 cm²

Q3 Midpoint theorem triangles

X and Y are the midpoints of sides AB and AC, respectively, of triangle ABC. If BC = 9 cm, AB = 11 cm and AC = 14 cm, then what is the ratio of the perimeters of trapezium XBCY to triangle ABC to triangle AXY?

- A. 26 : 17 : 34
- B. 26 : 34 : 17 ✓
- C. 17 : 26 : 34
- D. 34 : 17 : 26

Q4 Midpoint theorem triangles

In $\triangle ABC$, D, E and F are the mid-points of sides AB, BC and CA, respectively. Four triangles, $\triangle ADF$, $\triangle BDE$, $\triangle CEF$ and $\triangle DEF$ are formed by using A, B, C, D, E and F.

The following observations are made about these four triangles.

- All the four triangles have equal perimeter.
- All the four triangles have equal area.

Which of the following is true regarding the given observations?

- A. Both (i) and (ii) are true. ✓
- B. Neither (i) nor (ii) is true.
- C. Only (i) is true.
- D. Only (ii) is true.

Q5 Parallel lines transversal

Two parallel lines are cut by a transversal. If one angle is $(3x + 10)^\circ$, and its corresponding angle is $(5x - 30)^\circ$, find the value of x.

- A. 20 ✓
- B. 25
- C. 18
- D. 15

Q6 Similar triangles area ratio

In triangle ABC, $\angle A = 30^\circ$, $\angle B = 60^\circ$ and $\angle C = 90^\circ$. In triangle DEF, $\angle D = 30^\circ$, $\angle E = 60^\circ$ and $\angle F = 90^\circ$. If AB:DE = 2:3, what is the ratio of the areas of the two triangles?

- A. 4:9 ✓
- B. 2:1
- C. 3:5
- D. 1:2

Q7 Similar triangles length

PQR is a triangle and D is a point on side QR. If QR=16 cm, QD=12 cm and $\angle QPR = \angle PDR$, then find the length of PR.

- A. 64 cm
- B. 4 cm
- C. 8 cm ✓
- D. 28 cm

Q8 Similar triangles shadow

Raghu is 140 cm tall. He is standing 180 cm away from a lamp post. His shadow from the light is 70 cm long. Find the height of the lamp post.

- A. 500 cm ✓
- B. 250 cm
- C. 300 cm
- D. 350 cm



Q9 Triangle area ratio

In triangle PQR, the sides PQ and PR are fixed with lengths 26 cm and 17 cm, respectively. Point S lies on side QR such that the ratio $QS:SR = 3:5$. The area of triangle PQS is 120 cm^2 . Find the area of triangle PQR.

A. 308 cm^2

B. 320 cm^2 ✓

C. 322.5 cm^2

D. 315 cm^2

Q10 Parallel lines transversal

Two parallel lines are cut by a transversal. If one of the interior angles measures 70° , find the measure of the consecutive interior angle on the same side of the transversal.

A. 35°

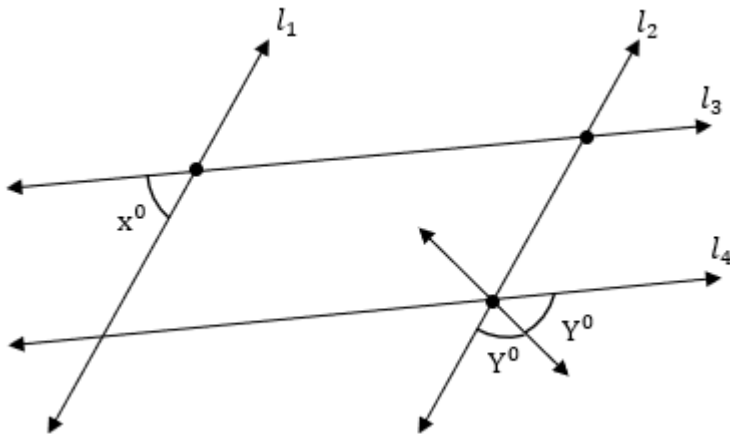
B. 110° ✓

C. 70°

D. 140°

Q11 Parallel lines transversal

Consider the following figure:



If $l_1 \parallel l_2$ and $l_3 \parallel l_4$, then which one of the following relations is correct?

A. $2Y^\circ + x^\circ = 180^\circ$ ✓

B. $Y^\circ + 2x^\circ = 180^\circ$

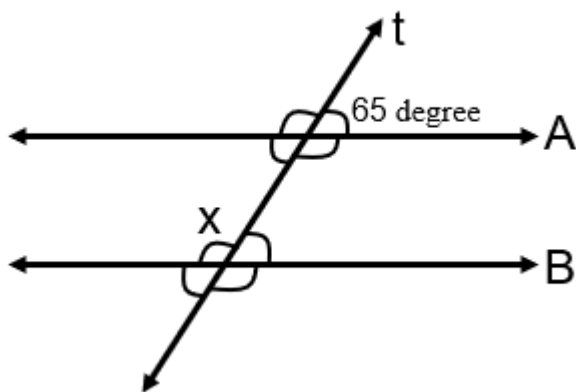
C. $Y^\circ + x^\circ = 180^\circ$

D. $2Y^\circ = x^\circ$



Q12 Parallel lines transversal

Find the value of x if A and B are two parallel lines.

A. 55° B. 115° ✓C. 105° D. 90° **Q13** Parallel lines transversal

AA' and BB' are two parallel straight lines. CC' is a transversal line intersecting AA' and BB' at the If $\angle B'EC' = 127^\circ$ and $\angle CDA' = (7x - 3)^\circ$, then what is the value of x ?

A. 6

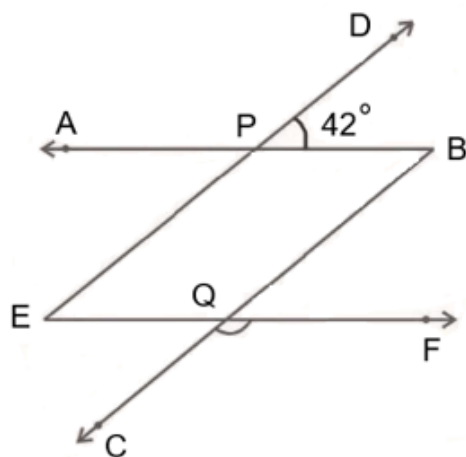
B. 5

C. 8 ✓

D. 7

Q14 Parallel lines transversal

In the given figure, $AB \parallel EF$, $ED \parallel CB$ and $\angle BPD$ is 42° . What is the measure of $\angle CQF$?

A. 38° B. 138° ✓C. 42° D. 142° 

Q15 Triangle congruence criteria

In $\triangle XYZ$ and $\triangle PQR$, if $XY = PQ$ and $YZ = QR$, then one can infer that $\triangle XYZ \cong \triangle PQR$ when:

A. $\angle XYZ = \angle PQR$



B. $\angle YXZ = \angle QPR$

C. $\angle XZY = \angle QPR$

D. $\angle XZY = \angle PRQ$



Q1 Chord distance from centre

The length of the diameter of a circle is 26 cm and the length of a chord of the circle is 10 cm. Find the distance (in cm) of the chord from the centre of the circle.

A. 16

B. 18

C. 12



D. 14

Q2 Chord length in circle

In a circle of radius 5 cm, AB and AC are two equal chords such that $AB = AC = 7$ cm. What is the length of the chord BC? (Rounded off to 3 decimal places.)

A. 9.992 cm

B. 9.990 cm

C. 9.998 cm



D. 9.996 cm

Q3 Circle chord angles

Two chords AB and CD of a circle whose centre is O, meet at the point E. If angle $AOC = 54^\circ$ and angle $BOD = 48^\circ$, then the value of angle BED is:

A. 51° B. 50° C. 52° D. 53° **Q4 Circle chord length**

Find the length of the chord which is at a distance of 4 cm from the centre of a circle whose radius is 5 cm.

A. 10 cm

B. 3 cm

C. 8 cm

D. 6 cm

**Q5 Common tangent length**

The distance between the centres of two circles having radii 11 cm and 5 cm, is 10 cm. The length of the direct common tangent of the two circles is:

A. 16 cm

B. 12 cm

C. 8 cm



D. 4 cm

Q6 Common tangent length

The distance between the centres of two circles having radii 5 cm and 25 cm is 29 cm. Find the length (in cm) of the direct common tangent.

A. 21



B. 27

C. 28

D. 13

Q7 Common tangents count

Two circles with centres C_1 and C_2 have radii r_1 and r_2 , respectively. If the distance between their centres is equal to $r_2 - r_1$, then how many common tangents can be drawn to the two circles?

A. 2

B. 3

C. 1



D. 0

Q8 Parallelogram angles

In a parallelogram ABCD, the diagonals intersect at O. $\angle BCA = 38^\circ$ and $\angle CAB = 27^\circ$. Find $\angle AOD$ if $\angle ADO : \angle CDO = 2 : 3$.

A. 86° B. 102° C. 96° D. 92° 

Q9 Polygon sides and diagonals

Let A be a regular polygon such that the sum of the interior angles of A is 2340° . Find the number of diagonals of A.

- A. 86
- B. 90
- C. 100
- D. 120

**Q10 Regular polygon angles**

Let A be a regular polygon such that each interior angle of A exceeds its exterior angle by 120° . Find the number of sides of A.

- A. 18
- B. 10
- C. 12
- D. 15

**Q11 Rhombus properties**

Which of the following statements about a rhombus is incorrect?

- A. The diagonals of a rhombus do not bisect the opposite angles.
- B. The diagonals of a rhombus intersect at right angles
- C. Each side of a rhombus is equal in length.
- D. The opposite angles of a rhombus are equal.

**Q14 Circle chord length**

In a circle, a diameter AB and a chord PQ (which is not a diameter) intersect perpendicularly at a point X. If $AX : XB = 3 : 2$ and the radius of the circle is 5 cm, then what is the length (in cm) of the chord PQ?

- A. $2\sqrt{6}$
- B. $4\sqrt{6}$
- C. $3\sqrt{6}$
- D. $5\sqrt{6}$

**Q12 Tangent length**

A tangent is drawn to a circle of radius 12 cm from a point situated at a distance of 13 cm from the centre of the circle. The length of the tangent will be:

- A. 12 cm
- B. 6 cm
- C. 8 cm
- D. 5 cm

**Q13 Trapezium area ratio**

In a trapezium ABCD, $AB \parallel CD$ and $AB = 16$ cm, $CD = 8$ cm. What is the ratio of the areas of $\triangle ABC$ and $\triangle ACD$?

- A. 4:3
- B. 1:2
- C. 2:1
- D. 3:5



Q15 Circle radius from chord

AB is the diameter of a circle with centre O. From a point X on its circumference, a perpendicular XY is dropped on AB such that it intersects AB at Y. If BY = 5 cm and XY = 7 cm, what is the circumference (in cm) of the circle?

A. $\frac{67}{7}\pi$

B. $\frac{37}{5}\pi$

C. $\frac{74}{5}\pi$



D. $\frac{47}{8}\pi$

Q16 Regular polygon angles

The difference between the measures of an interior angle and an exterior angle of a regular polygon is n and the ratio of the interior angle to the exterior angle is $p : r$, then $n + p + r$ is:

A. multiple of 6

B. multiple of 9

C. multiple of 7

D. multiple of 5



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Q1 Area of rhombus

Consider an equilateral quadrilateral whose angle bisectors intersect at right angles. One side of the quadrilateral measures 10 cm, and one of its perpendicular diagonals is 12 cm. Find half of the area of the quadrilateral.

A. 48 cm²B. 96 cm²C. 52 cm²D. 50 cm²**Q2 Area of rhombus**

The diagonals of a rhombus measure 30 cm and 40 cm. Find the area and perimeter of the rhombus.

A. Perimeter = 100 cm, Area = 500 cm²B. Perimeter = 140 cm, Area = 800 cm²C. Perimeter = 130 cm, Area = 700 cm²D. Perimeter = 100 cm, Area = 600 cm²**Q3 Area of right triangle**

The hypotenuse of a right-angled triangle is 46 cm and the difference of other two sides is 26 cm. Then, the area of the triangle is:

A. 299 cm²B. 720 cm²C. 598 cm²D. 360 cm²**Q4 Area of sector**

Find the area of the sector of a circle of radius 9 cm, if the corresponding arc length is 6.3 cm.

A. 28.35 cm²B. 29.15 cm²C. 27.95 cm²D. 30.05 cm²**Q5 Area of square**

The perimeter of a square is 564 m. Its area (in m²) is:

A. 19880

B. 19892

C. 19881



D. 19841

Q6 Area of square

The perimeter of a square is 948 m. Its area (in m²) is:

A. 56,149

B. 56,169



C. 56,168

D. 56,152

Q7 Area of triangle

In an isosceles triangle UVW, UV = UW = 25 cm and VW = 14 cm, find the area of triangle UVW.

A. 180 cm²B. 192 cm²C. 154 cm²D. 168 cm²**Q8 Heron's formula area**

What is the area of a triangle with side lengths of 13 cm, 14 cm, and 15 cm?

A. 114 cm²B. 84 cm²C. 94 cm²D. 104 cm²**Q9 Heron's formula area**

Calculate the area of a triangle whose sides are 14 cm, 21 cm and 29 cm (rounded off to two decimal places).

A. 137.08 cm²B. 137.87 cm²C. 137.42 cm²D. 137.71 cm²

Q10 Path around field

A rectangular playground is 20 m longer than it is wide. A walking track of uniform width 2 m is laid all around the playground. The area of the walking track is 176 m^2 . What is the perimeter of the playground (excluding the track)?

A. 84 m

B. 80 m



C. 94 m

D. 90 m

Q11 Percentage change in area

If the height of a triangle is increased by 40% and its base is decreased by 25%, what will be the effect on its area?

A. Decreases by 5%

B. Increases by 5%



C. Increases by 2%

D. Decreases by 2%

Q12 Rectangle area perimeter

If the area of a rectangle is 12 cm^2 and its diagonal measures 5 cm, then find the perimeter of the rectangle.

A. 16 cm

B. 15 cm

C. 14 cm



D. 13 cm

Q13 Trapezium area

The area of a trapezium is $2,220 \text{ cm}^2$. Its parallel sides are 29 cm and 31 cm. If the distance between parallel sides is x cm, find the value of x.

A. 56

B. 74



C. 37

D. 62

Q14 Area of sector

The radius of a circle is 9 cm. Find the area (in cm^2) of the sector whose central angle is 72° .

(Use $\pi = \frac{22}{7}$ and round off your answer to 2 decimal places.)

A. 72.36

B. 56.82

C. 48.23

D. 50.91

**Q15 Area of square**

The perimeter of a square is 28 cm, find its area.

A. 64 cm^2

B. 28 cm^2

C. 84 cm^2

D. 49 cm^2

**Q16 Area of triangle**

Find the height of the triangle whose base is one-fourth of its height and area is 169 cm^2 .

A. 26 cm

B. 19.5 cm

C. $13\sqrt{6} \text{ cm}$

D. $26\sqrt{2} \text{ cm}$



Q17 Circle from equal area

The sides of a rectangular field are 35 m and 110 m long. Its area is equal to the area of a circular field. What is the perimeter (in m) of the circular field?

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

A. 189

B. 227

C. 222

D. 220

**Q18** Circle from equal area

The sides of a rectangular field are 63 m and 22 m long. Its area is equal to the area of a circular field. What is the perimeter (in m) of the circular field?

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

A. 132

B. 152

C. 146

D. 119

**Q19** Composite area remaining

A regular hexagonal garden has each side measuring 21 m. A circular fountain of radius 7 m is built at the centre. Find the area (rounded off to one decimal place) of the remaining garden.

$$\left(\text{Use } \pi = \frac{22}{7} \text{ and } \sqrt{3} = 1.73 \right)$$

A. 996.4 m²

B. 981.4 m²

C. 990.4 m²

D. 986.4 m²

**Q20** Heron's formula area

Find the area of a triangle whose sides are 12 cm, 10 cm and 14 cm.

A. $28\sqrt{2} \text{ cm}^2$

B. 24 cm^2

C. 28 cm^2

D. $24\sqrt{6} \text{ cm}^2$



Q21 Sector angle from area

For a circle of diameter 16 cm, the area of a sector is $\frac{16\pi}{3} \text{ cm}^2$. The angle of the sector is

A. 60° B. 15° C. 30° D. 45° **Q22** Sector perimeter cost

A circular track has a radius of 28 m. If a sector (the pie-shaped region enclosed by two radii and the arc connecting their endpoints) subtending 90° is to be fenced along its boundary three times at the rate of ₹15 per meter, the total cost of fencing is:

(Use $\pi = \frac{22}{7}$)

A. ₹5,400

B. ₹4,500 

C. ₹1,500

D. ₹1,800



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Q1 Combined solid volume

A solid cylinder of base radius 7 cm and height 12 cm has a conical cavity of the same base radius and 8 cm height. Find the volume of the remaining solid.

[Use $\pi = 22/7$ and round off your answer to two decimal places.]

A. 1417.33 cm³B. 1437.33 cm³ ✓C. 1452.33 cm³D. 1402.33 cm³**Q2 Combined solid volume**

From a solid cube of side 24 cm, a cuboidal cavity of square cross-section of side 9 cm is hollowed along one surface from one edge to the opposite edge. What is the volume (in cm³) of the remaining solid?

A. 12055

B. 8640

C. 11880 ✓

D. 13095

Q3 Cone surface area ratio

For a cone, the curved surface area is two-thirds of its total surface area. What is the ratio of its slant height to its radius?

A. 3 : 1

B. 1 : 2

C. 1 : 1

D. 2 : 1 ✓

Q4 Cone total surface area

The slant height of a cone is 25 cm, and the radius of its base is 17 cm. Find its total surface area. (Use $\pi = 22/7$.)

A. 1283 cm²B. 2244 cm² ✓C. 3300 cm²D. 2750 cm²**Q5 Cone total surface area**

A cone has a slant height of 15 cm and the radius of its base is 9 cm. A sector of a circle with a radius of 15 cm and a central angle of 120° is used to make the cone. What is the total surface area of the cone?

A. 216π cm² ✓B. 312π cm²C. 226π cm²D. 261π cm²**Q6 Cone volume and CSA**

During a craft activity, a student creates a paper model in the shape of a right circular cone. The cone has a volume of 100π cm³ and a height of 12 cm. Find the curved surface area (in cm²) of the cone. Give your answer in terms of π.

A. 60π

B. 90π

C. 65π ✓

D. 25π

Q7 Cube ratio of areas

If the volumes of two cubes are in the ratio 27 : 64, then the ratio of their total surface area is:

A. 4 : 9

B. 9 : 16 ✓

C. 4 : 25

D. 9 : 25

Q8 Cube surface area

The length of a side of a cube is (2x - 5) cm. What is total surface area of the cube?

A. 4x² - 20x + 25B. 6(4x² - 20x - 25)C. 6x² - 30x + 25D. 24x² - 120x + 150 ✓

Q9 Cube surface area

The total surface area of a cube having side 65 cm is:

- A. 25386 cm²
- B. 25350 cm² ✓
- C. 25332 cm²
- D. 25320 cm²

Q10 Cube surface area

A cube has a total surface area of 294 cm². A smaller cube is cut from one of its corners such that the edge of the smaller cube is one-third the edge of the original cube. Find the surface area of the remaining solid.

- A. 282 cm²
- B. 294 cm² ✓
- C. 306 cm²
- D. 270 cm²

Q11 Cube surface area

The total surface area of a cube having side 36 cm is:

- A. 7734 cm²
- B. 7868 cm²
- C. 7826 cm²
- D. 7776 cm² ✓

Q12 Cubes joined surface area

Two cubes, each with a volume of 216 cm³, are joined together end to end. The surface area of the resulting cuboid is:

- A. 300 cm²
- B. 495 cm²
- C. 360 cm² ✓
- D. 406 cm²

Q13 Cuboid surface area

The length and breadth of a cuboid are equal and its height is 32 cm. If the volume of the cuboid is 2048 cm³, the surface area (in cm²) of the cuboid is:

- A. 1152 ✓
- B. 1225
- C. 1296
- D. 1024

Q14 Cuboid surface area

The volume of a cube is equal to the volume of a cuboid whose length, breadth and height are in the ratio of 9:5:2. If the volume of the cube is 11,250 cm³, find the total surface area of the cuboid.

- A. 3780 cm²
- B. 3650 cm² ✓
- C. 3430 cm²
- D. 3520 cm²

Q15 Cuboid surface area

The company has two options to pack a certain item.

- Box A: Cubical box of side 5 cm
- Box B: Cuboidal box of l = 6 cm, b = 4 cm and h = 3 cm.

The cost of cardboard required to make boxes is ₹10/cm². However, box A uses 10% more cardboard while box B uses 15% more cardboard due to fold and turns.

Which box will the company prefer to minimise the total cost of cardboard and what is the cost of making it?

- A. Box B: ₹1242 ✓
- B. Box B: ₹1800
- C. Box A: ₹1500
- D. Box A: ₹1650

Q16 Cuboid volume

A cuboid has its three edges in arithmetic progression and its volume is 384 cm³. If the smallest edge measures 4 cm, find the length of the largest edge.

- A. 14 cm
- B. 32 cm
- C. 17 cm
- D. 12 cm ✓

Q17 Cuboid volume

The length, breadth and height of a cuboid are in the ratio of 8:5:3 and its total surface area is 1422 cm². Find the volume of the cuboid.

- A. 3860 cm³
- B. 3520 cm³
- C. 3780 cm³
- D. 3240 cm³ ✓



Q18 Cylinder curved surface area

A building has 8 cylindrical pillars, each with a radius of 3 m and a height of 14 m. The curved surface of each pillar is to be painted at a cost of ₹25 per square metre. Find the total cost of painting all 8 pillars. (Use $\pi = 22/7$)

A. ₹41,485

B. ₹60,600

C. ₹47,142

D. ₹52,800

**Q19 Cylinder surface and volume**

Find the volume of a cylinder whose radius is 5 cm and total surface area is 408.2 cm^2 (use $\pi = 3.14$).

A. 628 cm^3



B. 596 cm^3

C. 514 cm^3

D. 427 cm^3

Q20 Cylinder surface and volume

The sum of the radius of the base and the height of a cylinder is 48 cm. If the ratio of the curved surface area to the total surface area of the cylinder is 5:8, find the difference between the total surface area and the curved surface area of the cylinder. (Use $\pi = 3.14$)

A. $2,186.59 \text{ cm}^2$

B. $2,034.72 \text{ cm}^2$



C. $2,058.63 \text{ cm}^2$

D. $2,108.38 \text{ cm}^2$

Q21 Cylinder surface area ratio

The ratio of the total surface area to the lateral surface area of a cylinder whose radius is 20 cm and height 60 cm is:

A. 4:3



B. 2:3

C. 3:2

D. 3:4

Q22 Cylinder volume

A cylindrical tank of radius 2 m and height 7 m is completely filled with water. After 10% of the water leaks out, in a larger tank the remaining water is mixed with milk in the ratio 4 : 1. How many litres of milk is added to the water in the larger tank? (Use $\pi = 22/7$)

A. 19400

B. 19800



C. 18400

D. 17800

Q23 Cylinder volume calculation

The volume and height of a cylinder are 1232 cm^3 and 24.5 cm, respectively. Find the radius (in cm) of the cylinder. (Use $\pi = 22/7$)

A. 4



B. 5

C. 10

D. 11

Q24 Cylinder volume calculation

Two cylindrical containers have a total volume of $2,200 \text{ cm}^3$. The first cylinder has a radius of 5 cm and a height of 10 cm. If the second cylinder has the same radius, determine the height of the second cylinder. (Use $\pi = 3.14$ and round your answer to two decimal places.)

A. 20.67 cm

B. 18.03 cm



C. 19.10 cm

D. 19.85 cm

Q25 Cylinder volume change

If the height of a cylinder is doubled and radius halved, what is the change in its volume with respect to the original one?

A. Becomes half of the original



B. Becomes one-fourth of the original

C. Becomes double of the original

D. Remains the same



Q26 Diagonal of cuboid

A room is 10 meters long, 8 meters broad, and 6 meters high. The length of the longest bamboo pole that can be placed in it is (approximately):

A. 14.14 meters



B. 16.16 meters

C. 12.46 meters

D. 10.12 meters

Q27 Melting and recasting

A cylinder of height 72 cm and base radius 16 cm is melted to form a sphere. Find the radius of the sphere.

A. 22 cm

B. 26 cm

C. 24 cm



D. 20 cm

Q28 Melting and recasting

Three metal cubes with edges 3 cm, 4 cm, and 5 cm, respectively, are melted to form a single large cube. This new cube is then cut into two identical cuboids by a plane parallel to one of its faces. What is the ratio of the total surface area of the three original cubes to the total surface area of the two new cuboids?

A. 24 : 25

B. 25 : 24



C. 5 : 4

D. 50 : 49

Q29 Melting and recasting

A solid metal sphere of radius 6 cm is melted and cast into small solid cones, each having radius 3 cm and height 4 cm. How many complete cones can be formed?

A. 36

B. 30

C. 18

D. 24

**Q30 Melting and recasting**

A solid metallic right circular cone with a radius of 7 cm and a height of 28 cm is melted and recast into the shape of a sphere. Find the radius of the sphere formed.

A. 8 cm

B. 6 cm

C. 9 cm

D. 7 cm

**Q31 Melting and recasting**

A solid cone is melted and recast into a solid cylinder having the same radius as the cone. Find the ratio of the height of the cone to the height of the cylinder.

A. 1:1

B. 3:1



C. 2:3

D. 1:2

Q32 Melting and recasting

A solid cylindrical rod of radius 3 cm and height 12 cm is melted and recast into solid spheres each of radius 3 cm. How many such spheres can be made?

A. 4

B. 2

C. 1

D. 3

**Q33 Painted cube problem**

A cuboid measures 30 cm × 24 cm × 18 cm. It is painted on all its outer surfaces and then cut into small cubes of side 2 cm. How many of the small cubes have paint on exactly two faces?

A. 128

B. 120



C. 124

D. 132

Q34 Percentage change in volume

The radius of a cylinder is increased by 20% and its height is decreased by 10%. Find the percentage change in its volume.

A. 29.6% increase



B. 29.6% decrease

C. 26.9% increase

D. 26.9% decrease

Q35 Percentage change in volume

If the height and base radius of a cylinder are increased by 10% and by 5% respectively, then by what percent will its volume increase? (rounded off to 1 decimal place)

A. 20.3%

B. 22.2%

C. 21.3%



D. 24.2%



Q36 Percentage change in volume

The radius and height of the cylinder are equal. If the radius of the cylinder increased by 20% and the height of the cylinder is increased by 10%, then find the net increase in the volume of the cylinder.

A. 58.4%



B. 62.5%

C. 55.5%

D. 66.6%

Q37 Sphere cut surface area

Four litres of paint was required to paint the surface of a solid sphere. If 4 identical pieces were made of this solid sphere, then how many litres of paint would be required to paint all the surfaces of these 4 pieces?

A. 16

B. 6

C. 8



D. 12

Q38 Sphere ratio surface area

Two solid spheres are made of the same material. The weight of the larger sphere is 8 times that of the smaller sphere. If the radius of the smaller sphere is 7 cm, find the difference between the surface areas of both spheres. (Use $\pi = 22/7$)

A. 1828 cm²

B. 1888 cm²

C. 1848 cm²



D. 1868 cm²

Q39 Sphere ratio surface volume

If the surface areas of two spheres are in the ratio 900 : 1089, then the ratio of their volumes is ____.

A. 1000 : 1331



B. 1000 : 1223

C. 125 : 137

D. 125 : 591

Q40 Sphere ratio surface volume

If the volume of a solid sphere is increased by 119.7%, find the percentage increase in its surface area.

A. 56%

B. 69%



C. 81%

D. 76%

Q41 Sphere surface volume equal

The surface area of a sphere is numerically equal to the volume of the same sphere. What is the radius of the sphere?

A. 3 units



B. 9 units

C. 4 units

D. 6 units

Q42 Sphere volume and surface

If the surface area of a sphere is 28.26 cm². What is its volume? (Use $\pi = 3.14$)

A. 18.31 cm³

B. 12.24 cm³

C. 20.42 cm³

D. 14.13 cm³

**Q43 Surface area conversion**

60% of the canvas used to make a closed cylinder with a radius of 5 cm and a height of 15 cm is reused to make a conical hat with a radius of 8 cm. What is the slant height (in cm) of the conical hat?

A. 17

B. 25

C. 15



D. 13

Q44 Volume conversion

A hemispherical bowl of internal radius 15 cm is full of liquid. This liquid is to be filled into cylindrical bottles of diameter 5 cm and height 6 cm. How many bottles are required to empty the bowl completely?

A. 55

B. 58

C. 60



D. 64



Q45 Volume conversion

A cylindrical tank of radius 7 cm contains water up to a height of 20 cm. This water is poured into another cylindrical tank of radius 14 cm. What is the height of water in the second tank?

A. 8 cm

B. 5 cm



C. 6 cm

D. 7 cm

Q46 Volume of sphere

A spherical tank with radius 2 meters is filled with water up to three-fourths of its volume. How many cubic meters of water does it contain? (Use $\pi = 3.14$)

A. 33.36

B. 25.12



C. 36.84

D. 29.24

Q47 Water level rise

A cube of edge 20 cm is immersed completely in a rectangular vessel containing water. The measurements of the vessel are 25 cm $\times$ 25 cm. Find the rise (in cm) of water level.

A. 16.5

B. 20

C. 8

D. 12.8

**Q48 Water level rise**

A rectangular water tank measuring 80 cm $\times$ 60 cm $\times$ 50 cm contains water up to a height of 30 cm. A solid metal cube of edge 20 cm and a solid metal cuboid of dimensions 26 cm $\times$ 13 cm $\times$ 10 cm are dropped into the tank. Find the rise in the water level (rounded off to two decimal places).

A. 2.67 cm

B. 2.17 cm

C. 2.97 cm

D. 2.37 cm

**Q49 Combined solid volume**

A conical glass with a radius of 6 cm and height of 14 cm is filled with water up to the brim. A small conical stone with radius of 3 cm and height 7 cm is dropped into the glass, causing some water to overflow. What is the volume of water that remains in the glass?

(Take $\pi = \frac{22}{7}$)

A. 0.512 litres

B. 0.653 litres

C. 0.462 litres



D. 0.708 litres

Q50 Cone curved surface area

A tent is shaped like a cone with a height of 84 m and a base radius of 13 m. If the fabric costs ₹40 per square meter, and the total cost of the fabric used for the tent is ₹E, then find the value of $\sqrt{\frac{E}{2041}} - 4$. (Use $\pi = 3.14$)

A. 4

B. 2

C. 8



D. 6



Q51 Cone total surface area

The circumference of the base of a solid cone is 16π cm and the height of the cone is 15 cm.

The cost of painting this solid at a rate of ₹14 per square cm (Use $\pi = \frac{22}{7}$) is:

A. ₹8,921

B. ₹8,800

C. ₹8,910

D. ₹8,822

**Q52** Cone volume and CSA

The height and the slant height of a cone are 12 cm and 19 cm respectively. What is the volume of the cone? (Use $\pi = \frac{22}{7}$)

A. 2726 cm³

B. 2728 cm³

C. 2738 cm³

D. 2719 cm³

**Q53** Cone volume and CSA

The height and the slant height of a cone are 10 cm and 32 cm respectively. What is the volume of the cone? (Use $\pi = \frac{22}{7}$)

A. 9680 cm³

B. 9689 cm³

C. 9684 cm³

D. 9679 cm³

**Q54** Cuboid diagonal volume

The dimensions of a cuboid are in the ratio 1 : 2 : 3. If the length of the space diagonal of the cuboid is $\sqrt{56}$ cm, find the volume of the cuboid.

A. 46 cm³

B. 48 cm³

C. 45 cm³

D. 84 cm³

**Q55** Cuboid surface and volume

The cost of painting the outer surface of a closed cuboidal box is ₹4,340 at the rate of ₹10 per square cm. The sum of the length and the breadth of the box is 23 cm. If the height of the box is 5 cm, then the quantity of air in the box is:

A. 440 cm³

B. 484 cm³

C. 500 cm³

D. 510 cm³



Q56 Cylinder curved surface area

Mohini is making a cylindrical kaleidoscope for her science project using chart paper. If the kaleidoscope is 178 cm long and has a radius of 24.5 cm, what is the area of chart paper required to make only its curved surface? $\left(\text{Use } \pi = \frac{22}{7}\right)$

A. 27412 cm²



B. 27380 cm²

C. 27433 cm²

D. 27445 cm²

Q57 Cylinder surface and volume

A steel factory constructs a closed cylindrical tank. The entire outer surface (including top and bottom) is painted at ₹3 per cm². The total painting cost is ₹2,772. If the height of the cylinder is twice its radius, what is its volume? $\left(\text{Use } \pi = \frac{22}{7}\right)$

A. 2,282 cm³

B. 2,246 cm³

C. 2,156 cm³



D. 2,236 cm³

Q58 Cylinder surface and volume

The curved surface area of a closed cylinder is 440 cm², and its total surface area is 748 cm². Find the height of the cylinder.

$\left(\text{Use } \pi = \frac{22}{7}\right)$

A. 10 cm



B. 12 cm

C. 8 cm

D. 5 cm

Q59 Cylinder surface area cost

A cylindrical tank has radius 7 m and height 21 m. The inside surface (curved plus base) is fully painted. On the outside, the curved surface is painted except for a horizontal strip of width 1 m along the top rim; the outside base is also painted. Use $\pi = \frac{22}{7}$. The inside is painted at ₹5 per m² and the outside at ₹7 per m². What is the total painting cost?

A. ₹12,628



B. ₹12,716

C. ₹12,760

D. ₹12,672



Q60 Cylinder surface area cost

A closed metallic cylindrical box is 1.44 m high and its base radius is 56 cm. If the sheet metal costs ₹90 per m^2 , then what is the cost of the material used in the box?

(Use $\pi = \frac{22}{7}$)

A. ₹483.4

B. ₹633.6

C. ₹738.4

D. ₹855.5

**Q61** Roller area covered

A road roller makes 955 complete revolutions to level a road. If the roller has a diameter of 56 cm and a length of 0.8 m, what is the total area of the road covered?

(Take $\pi = \frac{22}{7}$)

A. 1117.56 m^2

B. 1230.28 m^2

C. 1344.64 m^2

D. 1420.35 m^2

**Q62** Sphere volume and surface

The surface area of a sphere is numerically equal to the volume of another sphere. If the radius of the first sphere is 7 cm, find the radius (in cm) of the second sphere.

A. $\sqrt[3]{147}$

B. $\sqrt{147}$

C. $\sqrt[3]{174}$

D. $\sqrt{174}$

**Q63** Sphere volume and surface

The surface area of a sphere is numerically equal to the volume of a hemisphere of radius $\frac{R}{2}$ cm. If the surface area of the

sphere is $v \text{ cm}^2$, then find the value of $\left(\frac{12v}{\pi}\right)^{\frac{1}{3}}$ in terms of R .

A. R^2

B. R^3

C. $2R$

D. R



Q64 Volume of sphere

If the surface area of a sphere is divided by its radius, the result becomes 132 cm. Find the volume of the sphere.

(Take $\pi = \frac{22}{7}$)

A. 4911 cm³

B. 4951 cm³

C. 4851 cm³



D. 5109 cm³

Q65 Volume transfer between solids

A cylindrical tank of radius 3.5 m and height 10 m is filled with water. The water is to be emptied into a cuboidal tank of length 7 m and breadth 5 m. Find the height of the water in the cuboidal tank after the entire water from the cylinder is poured into it. (Use $\pi = \frac{22}{7}$)

A. 12 m

B. 10 m

C. 11 m



D. 13 m



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Trigonometry

15 Questions • Answer Key

Q1 Trig identity evaluation

If $\cos A - \sin A = \sqrt{2} \sin A$, then what is the value of $(\cos A - \sin A)/(\cos A + \sin A)$?

A. $\cos A$ B. $\cot A$ C. $\tan A$ ✓D. $\sin A$

Q2 Trigonometric identity value

If $\sin \theta + \cos \theta = \sqrt{2}$, find the value of $\tan \theta + \cot \theta$.

A. 2 ✓

B. 5

C. 4

D. 1

Q3 Trigonometric identity value

If $3\cos^2\theta + 7\sin^2\theta = 6$, then find the value of $\sec\theta$, given that θ is an acute angle.

A. 2 ✓

B. 0

C. 1

D. 3

Q4 Trigonometric identity value

If $\sin A + \cos A = \sqrt{2}$, then the value of $\sin A - \cos A$ is:

A. 0 ✓

B. -0.6

C. 0.75

D. -0.75

Q5 Trigonometric simplification

The value of $(1 + \sec 15^\circ + \cot 75^\circ)(1 - \operatorname{cosec} 15^\circ + \tan 75^\circ)$ is equal to:

A. 0

B. 1

C. 2 ✓

D. -1

Q6 Complementary angle identity

The value of $\sin^2 42^\circ + \sin^2 48^\circ + \sec^2 30^\circ - \cot^2 45^\circ$ is:

A. $\frac{3}{4}$ B. $\frac{2}{3}$

C. 1

D. $\frac{4}{3}$ ✓

Q7 Simplify trig expression

Find the value of $(\sin A + \operatorname{cosec} A)^2 + (\cos A + \sec A)^2 + (\operatorname{cosec}^2 A - \sec^2 A)$.

A. $2\cot^2 A$ B. $7 - 2\cot^2 A$ C. $7 + 2\cot^2 A$ ✓D. $-2\cot^2 A$ 

Q8 Standard angle value

Find the value of $\sin^2 10^\circ + \sin^2 80^\circ + \tan^2 45^\circ + \sec^2 60^\circ + \sin^2 30^\circ$.

A. $\frac{15}{2}$

B. $\frac{20}{3}$

C. $\frac{25}{4}$ ✓

D. $\frac{25}{3}$

Q9 Trig identity evaluation

For an acute angle θ , if $\sin\theta + \cos\theta = \sqrt{2}$, find the value of $\sin^4\theta + \cos^4\theta$.

A. $\frac{1}{\sqrt{2}}$

B. 1

C. $\frac{1}{2}$ ✓

D. $\frac{1}{4}$

Q10 Trig identity evaluation

Which of the following identities is correct?

A. $\sec^2\theta - \tan^2\theta = 1$ ✓

B. $\operatorname{cosec}^2\theta + \cot^2\theta = 1$

C. $\sec^2\theta + \tan^2\theta = 1$

D. $\sin^2\theta - \cos^2\theta = 1$

Q11 Trig identity evaluation

If $\sin A + \cos A = m$, then what is the value of $\sin^4 A + \cos^4 A$?

A. $1 - \frac{(1-m^2)^2}{2}$ ✓

B. $1 + \frac{(1-m^2)}{2}$

C. $1 - \frac{(1-m^2)}{2}$

D. $1 + \frac{(1-m^2)^2}{2}$



Q12 Trig ratio evaluation

If θ is an acute angle and $9\sin\theta = 5$, then find the value of $\frac{2}{3}\sqrt{5 \cot^2\theta - 14 \tan^2\theta}$

A. $\sqrt{\frac{11}{5}}$



B. $\frac{5}{\sqrt{11}}$

C. $\frac{11}{\sqrt{5}}$

D. $\sqrt{\frac{5}{11}}$

Q13 Trigonometric identity value

If $\operatorname{cosec}\theta + \cot\theta = p$, $p > 1$, then find the value of $\frac{\sec\theta + 1}{\sec\theta - 1}$.

A. $2p$

B. $p^2 + 1$

C. p^2



D. $p^2 - 1$

Q14 Trigonometric ratio value

$\cos A = \frac{9}{41}$, এবং A সূক্ষ্ম কোণ হলে, $\operatorname{cosec}A \cos A + \sec A \sin A$ এর মান নির্ণয় করুন।

A. $4\frac{241}{360}$

B. $3\frac{119}{180}$

C. $5\frac{317}{360}$



D. $2\frac{131}{180}$

Q15 Trigonometric simplification

What is the value of $[(1 + \cot^2 A) + (1 + \frac{1}{\cot^2 A})] \times \sin^2 A \cos^2 A$?

A. 5

B. 4

C. 1



D. 3



Trigonometry

17 Questions • Answer Key

Q1 Angle of depression

From the top of a vertical tower of height 75 m, the angle of depression of the foot of a building is 60° , and the angle of depression of the top of the building is 30° . If the average of the heights of the tower and the building equals the height of a pole, what is the height of the pole?

- A. 65 m
- B. 62.5 m
- C. 60 m
- D. 55.5 m



Q2 Angle of elevation tower

A 5G telecom tower is installed in a smart city zone. From a point on the ground 20 m away from the base of the tower, the angle of elevation of the top of the tower is 45° . Find the height of the tower (in meters).

- A. 18 m
- B. 25 m
- C. 20 m
- D. 22 m



Q3 Broken tree problem

A tree standing on level ground is broken by a storm. The broken part bends and touches the ground, making an angle of 30° with the ground. The distance between the foot of the tree and the point where the top of the tree touches the ground is 12 m. Find the original height of the tree.

- A. $12\sqrt{2}$ m
- B. $18\sqrt{2}$ m
- C. $12\sqrt{3}$ m
- D. $18\sqrt{3}$ m



Q4 Cloud and reflection

The angle of elevation of a cloud from a point 60 m above a lake is 30° , and the angle of depression of its reflection is 60° . Find the height of the cloud.

- A. 60 m
- B. 120 m
- C. 80 m
- D. 100 m



Q5 Elevation and depression

The angle of elevation of the top of a hill at the foot of a tower is 60° and the angle of depression from the top of the tower to the foot of the hill is 30° . If the tower is 96 m high, find the difference between the height of the hill and the height of the tower.

- A. 172 m
- B. 163 m
- C. 192 m
- D. 188 m



Q6 Ladder against wall

A ladder is leaning against a vertical wall. The ladder is 25 meters long and makes an angle of 30 degrees with the ground. How high does the ladder reach up the wall?

- A. 25 meters
- B. 15 meters
- C. 21.7 meters
- D. 12.5 meters



Q7 Single angle of elevation

From a point on the ground, the angle of elevation to the top of a tree is 45° . If the point is 20 m away from the base, what is the height of the tree?

- A. 15 m
- B. 18 m
- C. 20 m
- D. 22 m



Q8 Single angle of elevation

A boy is standing at a distance of 20 m from a tree. The angle of elevation of the top of the tree from his eyes is 45° . Find the height of the tree. (Ignore the boy's height.)

- A. 20 m
- B. 10 m
- C. 40 m
- D. 15 m



Q9 Two angles of depression

As observed from the top of a 150 m high lighthouse from the sea-level, the angles of depression of two ships are 30° and 60° . If one ship is exactly behind the other on the same side of the lighthouse, then find the difference between the horizontal distances of both ships from the base of lighthouse (Use $\sqrt{3}=1.7$).

A. 183 m

B. 178 m

C. 168 m

D. 170 m

Q10 Two angles of elevation

The angles of elevation of the top of a tower from two points given on the same straight line and on the same side of the tower are 30° and 60° . If the distance between the two points is 20 m, find the height of the tower.

A. $8\sqrt{3}$ m

B. 8 m

C. $10\sqrt{3}$ m

D. 12 m

Q11 Angle of elevation tower

The angle of elevation of the top of a tower from two points on opposite sides of the tower are 30° and 60° . If the distance between the two points is 54 m, find the height of the tower.

A. $12.4\sqrt{3}$ mB. $15.8\sqrt{3}$ mC. $13.5\sqrt{3}$ mD. $14.6\sqrt{3}$ m**Q12 Angle of elevation tower**

The angle of elevation of the top of a tower from a point on the ground is 45° . Moving 24 m directly towards the base of the tower, the angle of elevation changes to 60° . What is the height of the tower?

(Use $\sqrt{3} = 1.732$, and round off your answer to two decimal places.)

A. 54.78 m

B. 55.78 m

C. 56.78 m

D. 53.78 m

Q13 Building with flagstaff

A building stands on level ground and a vertical flagstaff is fixed at the top of the building. From a point on the ground that is 30 m away from the foot of the building, the angle of elevation of the top of the building is 30° , while the angle of elevation of the top of the flagstaff is 60° . Find the height (in m) of the flagstaff.

A. $\frac{40}{\sqrt{3}}$ B. $40\sqrt{3}$ C. $20\sqrt{3}$ D. $60\sqrt{3}$ 

Q14 Elevation and depression pair

From the top of a tower, the angle of depression to a point A on ground is 30° . From the same point on the tower, the angle of elevation to a balloon vertically above point A is 60° . If the horizontal distance between the tower and point A is 40 meter, the height (in meter) of the balloon above the point A is

A. $\frac{40}{\sqrt{3}}$

B. $\frac{80}{\sqrt{3}}$ ✓

C. $\frac{160}{\sqrt{3}}$

D. $\frac{120}{\sqrt{3}}$

Q15 Single angle of elevation

The angle of elevation of the top of a building at a distance of 90 m from its foot on a horizontal plane is found to be 30° . Find the height of the building.

A. $\frac{30}{\sqrt{3}}$ m

B. $30\sqrt{3}$ m ✓

C. $60\sqrt{3}$ m

D. $90\sqrt{3}$ m

Q16 Two angles of depression

An observer on the top of a cliff, 249 m above the sea-level, observes the angles of depression of two ships to be 30° and 60° , respectively. What is the distance (in m) between the ships if they are on opposite sides of the cliff?

A. $249\sqrt{3}$

B. $249\sqrt{2}$

C. $332\sqrt{3}$ ✓

D. $332\sqrt{2}$

Q17 Two angles of elevation

A man standing at a point on level ground observes the top of a vertical tower at an angle of elevation of 30° . He then walks straight towards the tower and finds that the angle of elevation of the top becomes 60° . If the height of the tower is 45 m, find the distance walked by the man.

A. $30\sqrt{3}$ m ✓

B. 30 m

C. $60\sqrt{3}$ m

D. 60 m



Q1 Empirical relation

In a moderately skewed data distribution, the ratio of the arithmetic mean to the median is 4 : 5. If the sum of the mean and the median is 90, what is the mode of this distribution?

A. 70



B. 65

C. 75

D. 60

Q2 Empirical relation

The mean and the mode of a set of data are 46.6 and 45.1, respectively. Find the median of the data, using the empirical formula.

A. 46.7

B. 46.1



C. 46.8

D. 47.9

Q3 Empirical relation

In a moderately asymmetrical frequency distribution, the values of the mean and mode are 54.3 and 62.1, respectively. Find the median value.

A. 56.9



B. 57.2

C. 55.7

D. 57.9

Q4 Empirical relation

The mean and the mode of a set of data are 16.4 and 24, respectively. Find the median of the data, using the empirical formula. (Round off to one decimal place)

A. 20.7

B. 18.9



C. 20.4

D. 19.6

Q5 Empirical relation

For a given data, if mean is 45.76 and mode is 29.44, then find the median using empirical formula.

A. 41.34

B. 43.78

C. 42.45

D. 40.32

**Q6 Empirical relation**

The mean of a data set is 40 and the median is 35. Find the mode using the empirical relation.

A. 25



B. 30

C. 45

D. 40

Q7 Empirical relation

The mean and the mode of a set of data are 15.7 and 17, respectively. Find the median of the data, using the empirical formula. (Round off to one decimal place)

A. 15.9

B. 16.1



C. 15

D. 16.4

Q8 Empirical relation

The mean and the mode of a set of data are 40.3 and 74.9, respectively. Find the median of the data, using the empirical formula. (Round off to one decimal place)

A. 51.8



B. 52.9

C. 52.8

D. 51.2



Q9 Empirical relation

The mean and the median of a dataset are in the ratio 9:8. Using the empirical formula for moderately skewed distributions, determine the ratio of the median to the mode.

A. 3 : 2

B. 4 : 3



C. 2 : 3

D. 1 : 3

Q10 Empirical relation

The median of a moderately skewed distribution is 32 and the mean is 30. Find the mode of the data.

A. 35

B. 40

C. 36



D. 32

Q11 Empirical relation

The mean and the mode of a set of data are 62.4 and 36.8, respectively. Find the median of the data, using the empirical formula. (Round off to one decimal place)

A. 55.8

B. 55.5

C. 54.2

D. 53.9

**Q12 Empirical relation**

The mean and the mode of a set of data are 23.9 and 50.9, respectively. Find the median of the data, using the empirical formula.

A. 33.8

B. 34

C. 32.6

D. 32.9

**Q13 Empirical relation**

In a dataset, the mean is 65 and the median is 70. Find the mode of the data.

A. 80



B. 60

C. 55

D. 75

Q14 Empirical relation

The mean of a dataset is 6 more than its mode. If the median is 24, then find the mean.

A. 24

B. 30

C. 26



D. 28

Q15 Empirical relation median

The mean and the mode of a set of data are 62 and 43.6, respectively. Find the median of the data, using the empirical formula. (Round off to one decimal place)

A. 56.9

B. 55.4

C. 56.1

D. 55.9

**Q16 Empirical relation median**

The mean and the mode of a set of data are 50.7 and 66.9, respectively. Find the median of the data, using the empirical formula.

A. 56.3

B. 56.7

C. 56.1



D. 57.6

Q17 Empirical relation median

The mean and the mode of a set of data are 53.8 and 75.7, respectively. Find the median of the data, using the empirical formula.

A. 61.1



B. 60.8

C. 61.2

D. 60.5

Q18 Empirical relation median

The mean and the mode of a set of data are 44.4 and 49.7, respectively. Find the median of the data, using the empirical formula. (Round off to one decimal place)

A. 46.2



B. 47.8

C. 47.4

D. 47.7



Q19 Empirical relation median

The mean and the mode of a set of data are 65 and 79.7, respectively. Find the median of the data, using the empirical formula.

A. 69.8

B. 71.1

C. 71.7

D. 69.9

**Q20 Empirical relation mode**

The mean and median of 150 observations are 70 and 74, respectively. The value of the largest observation is 125. It was later found that it is 200 and not 125. What is the true value of mode?

A. 92

B. 78

C. 81



D. 84

Q21 Empirical relation mode

The mean of a data is 33 and its median is 37. The mode (using empirical relation) of the data is:

A. 58

B. 16

C. 108

D. 45

**Q22 Empirical relation mode**

The mean of a data is 74 and its median is 88. The mode (using empirical relation) of the data is:

A. 116



B. 91

C. 34

D. 150

Q23 Mean of grouped data

The marks obtained by 30 students of tenth class in a school in mathematics paper consisting of 100 marks are presented in the following table. Find the arithmetic mean of the data.

Class interval	No. of students
10 – 25	2
25 – 40	3
40 – 55	7
55 – 70	6
70 – 85	6
85 – 100	6

A. 76

B. 65

C. 72

D. 62

**Q24 Mean of grouped data**

A manufacturing plant employs 3,000 workers with varying hourly wages. The distribution of their wages is given below.

Wage Range (₹ per hour)	Number of Workers
Less than 3.00	150
3.01 – 4.50	580
4.51 – 6.00	900
6.01 – 7.50	500
7.51 – 9.00	600
More than 9.00	270
Total	3,000

Using the data above, determine the median hourly wage of the employees (Round off your answer to two decimal places.)

A. ₹4.74

B. ₹6.23

C. ₹5.79



D. ₹5.98

Q25 Mean of grouped data

Which of the following shows relation between x and y for the given data if mean of the data is 30?

Class Interval	Frequency
0-10	2
10-20	4
20-30	x
30-40	y
40-50	3

A. $x = y + 10$ B. $y = x + 10$ C. $x = y + 13$ D. $y = x + 13$ 

Q26 Mean of grouped data

In an office, there are 25 employees who travel to work every day. The time taken to commute to office is as follows.

Time taken (in minutes)	No. of employees
Less than 10	2
Less than 20	6
Less than 30	15
Less than 40	19
Less than 50	23
Less than 60	25

Calculate the mean time of commuting (in minutes).

A. 32

B. 29 

C. 15

D. 21

Q27 Mean of ungrouped data

Calculate the mean from the following items.

163, 141, 155, 175, 186, 206

A. 172

B. 171 

C. 173

D. 170

Q28 Mean of ungrouped data

Calculate the mean from the following items.

163, 141, 155, 175, 186

A. 160

B. 162

C. 164 

D. 166

Q29 Median of grouped data

Find the median from the following data.

Class interval x	f
20-40	4
40-60	6
60-80	10
80-100	12
100-120	8

A. 82

B. 80 

C. 78

D. 75

Q30 Median of grouped data

An insurance company obtained the following data for accident claims from a particular region. Obtain the median (in thousand rupees) from this data. (Round off to two decimal places)

Account of claim (in ₹ thousand)	Frequency
1-4	7
4-7	53
7-10	87
10-13	56
13-16	24
16-19	16
19-22	6
22-25	5

A. 4.21

B. 8.65

C. 6.11

D. 9.31 **Q31 Median of grouped data**

Which of the following best describes the median in the given set of data values?

Profit (₹)	Number of Shops
1,000-2,000	12
2,000-3,000	18
3,000-4,000	20
4,000-5,000	15
5,000-6,000	5

A. ₹3,200

B. ₹3,150

C. ₹3,300

D. ₹3,250 

Q32 Median of ungrouped data

Ten observations written in descending order are 45, 34, 32, 30, $2x - 15$, $x + 3$, 17, 15, 14, and 8. If the median is 24, then find the value of x .

A. 21

B. 24

C. 20



D. 25

Q33 Median of ungrouped data

The consumption of printing paper reams for the first 11 months of a computer operator is given as 21, 25, 30, 15, 17, 35, 28, 19, 42, 49, and 59. Find the median.

A. 26

B. 28



C. 30

D. 32

Q34 Median of ungrouped data

Find the median of the data set: 10, 13, 14, 17, 18.

A. 10

B. 17

C. 13

D. 14

**Q35 Median of ungrouped data**

From the following data, what is the value of the median?

18, 20, 21, 25, 26, 23, 29, 32, 41, 33, 39

A. 25

B. 29

C. 26



D. 32

Q36 Median of ungrouped data

The following scores were recorded in a test: 70, 85, 90, 90, 95, 100. If the highest score (100) is removed, what is the new median?

A. 85

B. 70

C. 95

D. 90

**Q37 Median of ungrouped data**

The following numbers are given in ascending order of their magnitudes.

20, 22, 25, 30, $x - 11$, $x - 8$, $x - 3$, 52, 60 and 68. Find the value of x if the median of the data is 39.

A. 48.5



B. 46.7

C. 44.6

D. 43.5

Q38 Mode of grouped data

Given the following frequency distribution table of class intervals and frequencies:

Class Intervals	Frequency
10-20	5
20-30	9
30-40	15
40-50	6

What is the mode of the distribution?

A. 40

B. 34



C. 20

D. 24

Q39 Mode of ungrouped data

Find the mode of the following data: 2, 4, 4, 6, 7, 8, 4, 6, 7, 4, 4, 5, 6

A. 4



B. 6

C. 7

D. 2

Q40 Mode of ungrouped data

The sizes of bags sold in a store during a day are given below:

10, 4, 6, 8, 7, 4, 8, 2, 9, 5, 4, 6, 9

Find the mode of the data.

A. 5

B. 2

C. 4



D. 1



Q41 Transformation of data

A dataset has a mean μ , median M , and mode m , following the empirical formula $m = 3M - 2\mu$. Each data point x undergoes a linear transformation given by $x' = kx + d$, where k and d are constants.

The transformed dataset has a new mean μ' , median M' , and mode m' .

Which of the following options correctly represents μ' , M' , and m' while ensuring that the empirical relationship remains valid?

A. $\mu' = k\mu + d$, $M' = kM + d$, $m' = km + d$ ☒

B. $\mu' = k\mu$, $M' = kM + d$, $m' = km + d$

C. $\mu' = k\mu + d$, $M' = kM + d$, $m' = k(m + d)$

D. $\mu' = k\mu + d$, $M' = kM$, $m' = km + d$

Q42 Mean of grouped data

Find the Arithmetic mean of the following data:

x_i	5	12	10	15	18
f_i	24	25	28	30	40

(Answer correct to two decimal places)

A. 16.72

B. 11.72

C. 10.66

D. 12.72 ☒

Q43 Mean of grouped data

Find the arithmetic mean of the following data (rounded off to two places of decimal).

Class interval	0-12	12-24	24-36	36-48	48-60
Frequency	6	8	10	9	12

A. 32.46

B. 31.48

C. 33.47 ☒

D. 34.48

Q44 Mean of grouped data

Find the arithmetic mean of the following data.

Class interval	0-8	8-16	16-24	24-32	32-40
Frequency	8	10	6	4	12

A. 20.4 ☒

B. 19.6

C. 22.8

D. 21.2



Q45 Mean of grouped data

If the mean of the following data is 42, then what is the value of x?

Class	10-20	20-30	30-40	40-50	50-60
Frequency	44	29	39	10	x

A. 172

B. 148



C. 175

D. 169

Q46 Mean of grouped data

What is the value of $(9x + 2y)$, if the mean of the following distribution is 68?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	4	10	x	2	y	60

A. 138

B. 151



C. 137

D. 156

Q47 Mean of grouped data

If the mean of the following data is 47, then what is the value of x?

Class	20-30	30-40	40-50	50-60	60-70
Frequency	20	29	22	32	x

A. 30

B. 53

C. 36

D. 32

**Q48 Mean of grouped data**

What is the value of $(9x + 2y)$, if mean of the following distribution is 64?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	8	20	x	6	y	80

A. 106

B. 94

C. 113



D. 99



Q49 Mean of grouped data

If the mean of the following data is 49, then what is the value of x?

Class	10-20	20-30	30-40	40-50	50-60
Frequency	50	42	37	41	x

A. 565



B. 587

C. 559

D. 547

Q50 Mean of grouped data

If the mean of the following data is 44, then what is the value of x?

Class	10-20	20-30	30-40	40-50	50-60
Frequency	36	37	26	34	x

A. 159

B. 160

C. 161

D. 177

**Q51 Mean of grouped data**

What is the value of $(2x + 7y)$, if mean of the following distribution is 53?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	7	11	x	8	y	60

A. 133



B. 127

C. 137

D. 151

Q52 Mean of grouped data

Study the table and answer the question that follows.

The following table shows the class interval and frequency of a certain distribution.

Class	0-20	20-40	40-60	60-80	80-100
Frequency	17	28	32	A	19

If the mean of the distribution is 50, then the value of A is:

A. 20

B. 24



C. 29

D. 30



Q53 Mean of grouped data

The following table shows the distribution of marks obtained by students in a test: Find the arithmetic mean of the marks using the direct method.

Marks(x)	10	15	20	25	30
Number of students	3	7	12	6	2

A. 18.5

B. 23.5

C. 19.5



D. 13.5

Q54 Mean of grouped data

If the mean of the following data is 47, then what is the value of x?

Class	20-30	30-40	40-50	50-60	60-70
Frequency	44	50	16	20	x

A. 80



B. 66

C. 68

D. 61

Q55 Mean of grouped data

What is the value of $(7x + 4y)$, if mean of the following distribution is 53?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	2	10	x	4	y	40

A. 144



B. 124

C. 133

D. 154

Q56 Mean of grouped data

The weights of 25 students are given below. Find the arithmetic mean of the data.

Weight	65	66	67	68	69
No. of Students	8	6	4	4	3

A. 56.84

B. 64.32

C. 66.52



D. 67.43



Q57 Mean of grouped data

If the mean of the following data is 46, then what is the value of x ?

Class	10-20	20-30	30-40	40-50	50-60
Frequency	24	16	25	49	x

A. 181

B. 156



C. 147

D. 137

Q58 Mean of grouped data

What is the value of $(6x + 9y)$, if mean of the following distribution is 50?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	9	16	x	2	y	70

A. 306



B. 297

C. 312

D. 301

Q59 Median of grouped data

Find the median of the given data.

Class interval	0-5	5-10	10-15	15-20	20-25	25-30
Frequency	3	7	5	4	8	6

A. 12.62

B. 18.54

C. 15.28

D. 16.875

**Q60 Median of grouped data**

Find the median of the following data.

Class interval	0-8	8-16	16-24	24-32	32-40	40-48
Frequency	5	7	12	8	10	13

A. 28.4

B. 26.2

C. 25.3

D. 27.5



Q61 Median of grouped data

The median of the following frequency distribution is:

x	1	2	3	4	5	6	7
f	8	10	11	16	20	25	15

A. 4

B. 5



C. 3

D. 6

Q62 Missing frequency from mean

What is the value of $(8x + 2y)$, if mean of the following distribution is 56?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	3	12	x	5	y	70

A. 292

B. 294

C. 302

D. 298

**Q63 Missing frequency from mean**

If the mean of the following data is 49, then what is the value of x?

Class	20-30	30-40	40-50	50-60	60-70
Frequency	24	34	15	36	x

A. 61

B. 84

C. 56



D. 77

Q64 Missing frequency from mean

What is the value of $(2x + 4y)$, if mean of the following distribution is 42?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	8	20	x	2	y	70

A. 75

B. 86



C. 100

D. 68



Q65 Missing frequency from mean

If the mean of the following data is 45, then what is the value of x?

Class	10-20	20-30	30-40	40-50	50-60
Frequency	41	46	28	12	x

A. 250

B. 238

C. 243



D. 245

Q66 Missing frequency from mean

What is the value of $(8x + 9y)$, if mean of the following distribution is 45?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	7	12	x	5	y	76

A. 423

B. 417



C. 424

D. 402

Q67 Missing frequency from mean

If the mean of the following data is 50, then what is the value of x?

Class	10-20	20-30	30-40	40-50	50-60
Frequency	39	47	44	13	x

A. 674

B. 649

C. 648

D. 653

**Q68 Missing frequency from mean**

What is the value of $(5x + 3y)$, if the mean of the following distribution is 66?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	7	20	x	8	y	85

A. 166

B. 159

C. 141

D. 156



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Q69 Missing frequency from mean

What is the value of $(6x + 9y)$, if the mean of the following distribution is 54?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	2	18	x	6	y	70

A. 309



B. 311

C. 313

D. 301

Q70 Missing frequency from mean

If the mean of the following data is 50, then what is the value of x?

Class	10-20	20-30	30-40	40-50	50-60
Frequency	17	33	25	43	x

A. 391

B. 425

C. 402



D. 411

Q71 Missing frequency from mean

What is the value of $(6x + 3y)$, if mean of the following distribution is 62?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	2	16	x	8	y	50

A. 65

B. 71

C. 77

D. 81

**Q72** Missing frequency from mean

If the mean of the following data is 47, then what is the value of x?

Class	10-20	20-30	30-40	40-50	50-60
Frequency	36	18	29	20	x

A. 242



B. 227

C. 243

D. 270



Q73 Missing frequency from mean

If the mean of the following data is 46, then what is the value of x ?

Class	10-20	20-30	30-40	40-50	50-60
Frequency	36	20	29	26	x

A. 210

B. 190

C. 209



D. 206

Q74 Missing frequency from mean

What is the value of $(4x + 2y)$, if the mean of the following distribution is 50?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	9	13	x	5	y	45

A. 34

B. 46



C. 29

D. 44

Q75 Missing frequency from mean

If the mean of the following data is 45, then what is the value of x ?

Class	20-30	30-40	40-50	50-60	60-70
Frequency	34	35	42	21	x

A. 27

B. 46

C. 42

D. 41

**Q76** Missing frequency from mean

What is the value of $(4x + 9y)$, if mean of the following distribution is 50?

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	5	17	x	7	y	41

A. 108

B. 98



C. 103

D. 87



Q77 Mode of grouped data

Calculate mode from the given data.

Class Interval	0-5	5-10	10-15	15-20	20-25
Number of states	15	10	6	7	2

A. 0.25

B. 3.75



C. 2.65

D. 1.45

Q78 Mode of grouped data

Heights (in cm) of 50 children are shown in the table below. Find the mode (in cm) of the data.

Height	50-60	60-70	70-80	80-90
Number of children	12	20	8	10

A. 64



B. 58.5

C. 60

D. 67.5

Q79 Mode of ungrouped data

The shirt size worn by a group of 280 persons is as follows:

Shirt Size	37	38	39	40	41	42	43	44
No. of persons	31	35	49	51	50	37	15	12

The model shirt size worn by the group is:

A. 39

B. 42

C. 40



D. 41



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Q1 Table data calculation

The following table shows the number of laptops sold by a company in different cities along with the price per laptop.

City	Laptops Sold	Price per Laptop (₹)
Delhi	120	45,000
Mumbai	150	48,000
Chennai	100	42,000
Kolkata	130	46,000

Find the total revenue (in ₹) generated from laptop sales in Chennai and Kolkata.

A. 1,01,80,000



B. 1,04,80,000

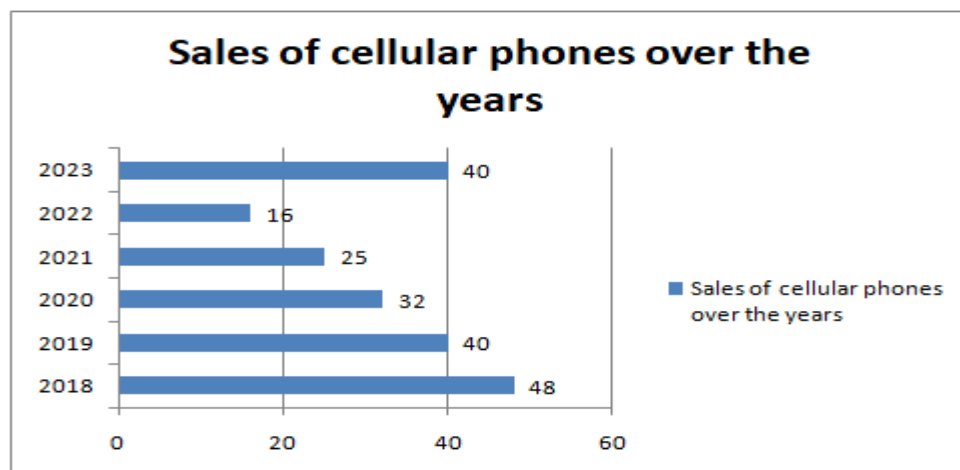
C. 1,02,80,000

D. 1,03,80,000

Q2 Bar graph averages

The bar graph below shows the sales (in thousands) of cellular phones from 2018 to 2023. Study the graph and answer the question.

Find the average sales of cellular phones (in thousands) from 2021 to 2023.



A. 26

B. 28

C. 25

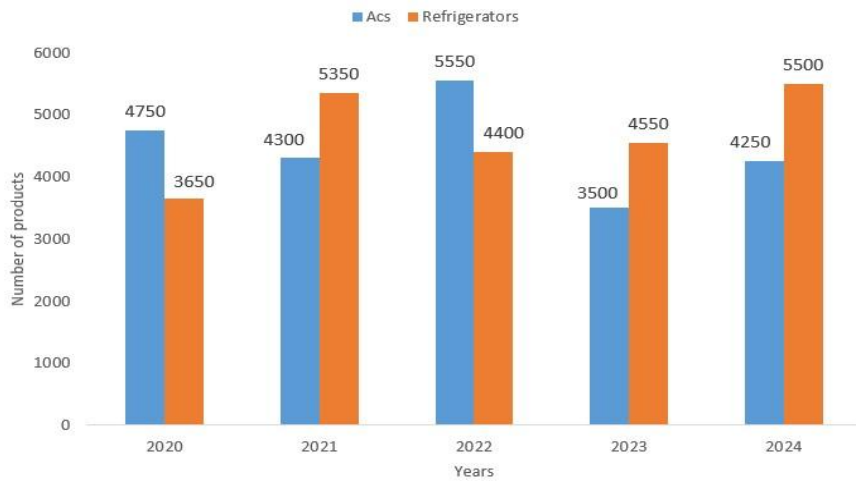
D. 27



Q3 Bar graph averages

Study the following bar diagram carefully and answer the following question.

The bar graph shows the production of electronic items (ACs and Refrigerators) in a factory during the period from 2020 to 2024.



The difference between averages of production of Refrigerators and ACs from 2021 to 2024 is:

A. 220

B. 440

C. 550

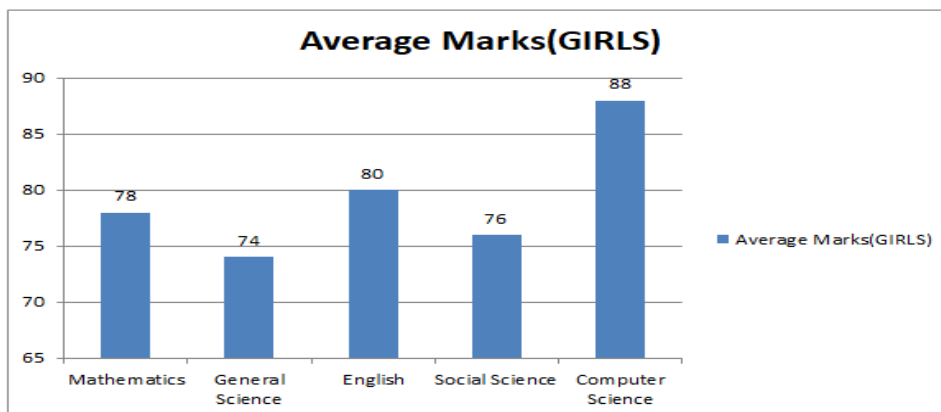
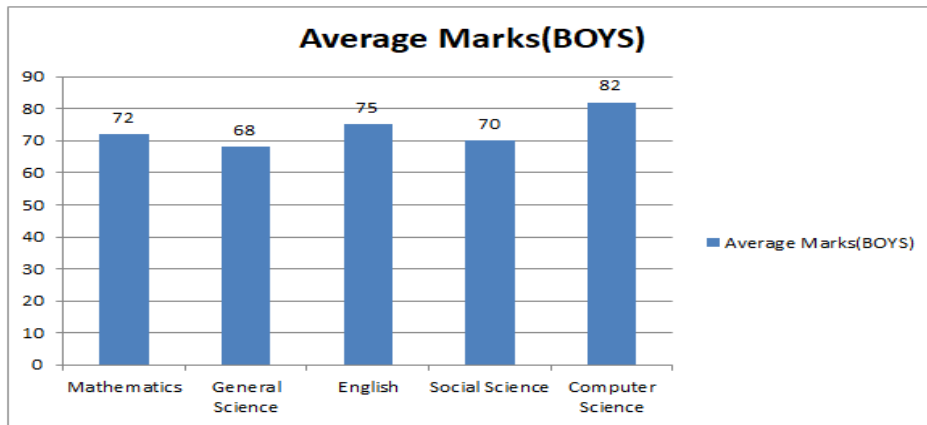


D. 330



Q4 Bar graph averages

The following bar graphs show the average marks (out of 100) in five subjects obtained by Boys and Girls in Class 8 of a school.



Compute the difference between overall average score for Girls and Boys (to one decimal place).

A. 5.6

B. 5.8



C. 5.5

D. 5.4

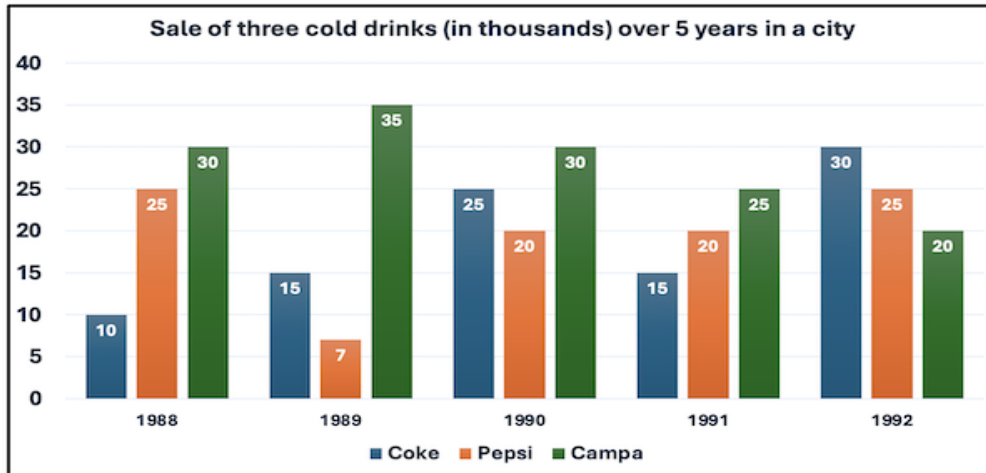


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Q5 Bar graph averages

The following bar graph shows the sale of three cold drinks (in thousands) over a period of 5 years. Study the graph carefully and answer the question that follows.



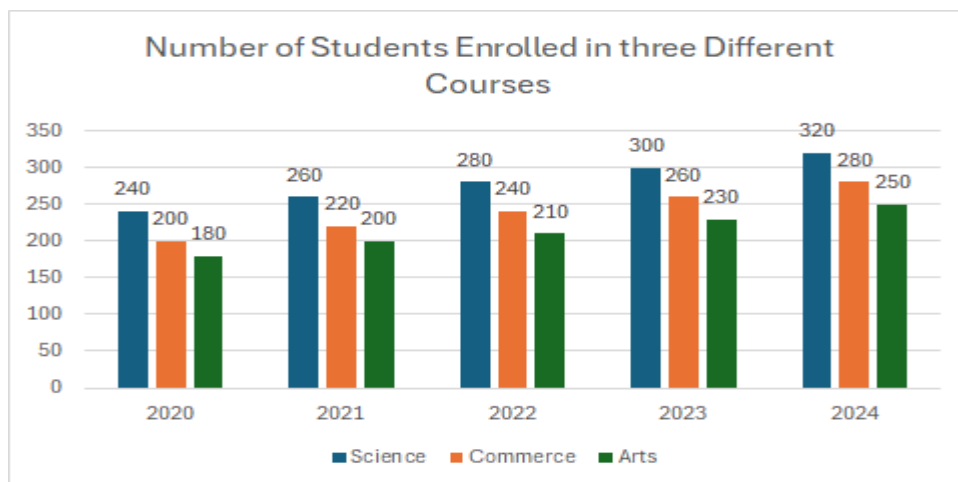
Find the maximum average annual sale of any cold drink in the given period.

- A. 32,000
- B. 26,000
- C. 24,000
- D. 28,000



Q6 Bar graph averages

The multiple bar graph below represents the number of students enrolled in three different courses (Science, Commerce and Arts) in a college over five years.



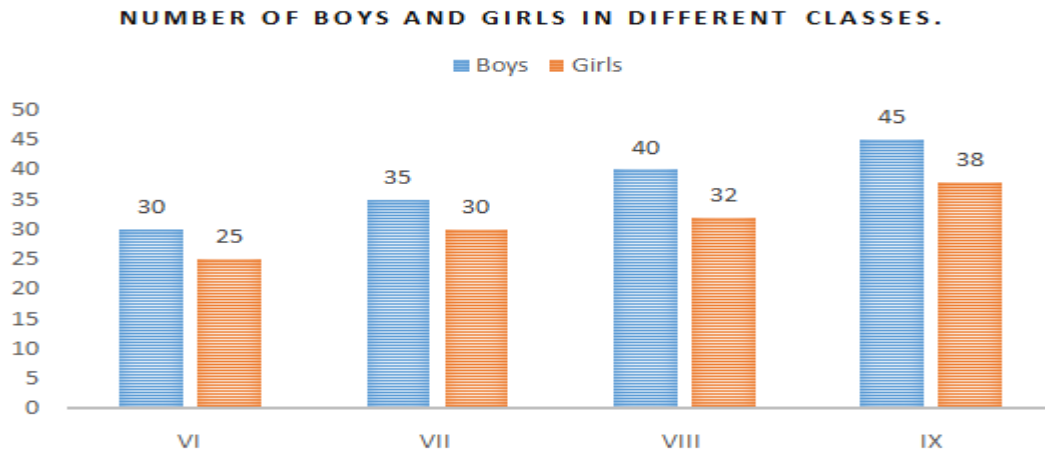
What was the average number of Commerce students enrolled over the given five years?

- A. 242
- B. 240
- C. 244
- D. 246



Q7 Bar graph percentage

The given bar graph shows the number of boys and girls in different classes. If 20% of the boys and 25% of the girls from Class VIII participate in a competition, then how many students from Class VIII participate in the competition?



A. 16



B. 17

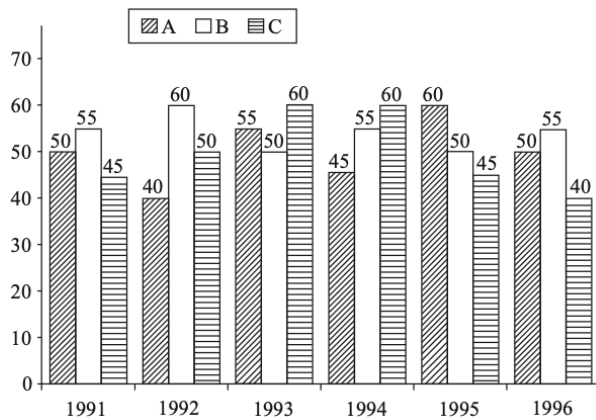
C. 14

D. 15

Q8 Bar graph percentage

Study the given graph carefully and answer the question that follows.

Production of scooters by three companies in a year (in 1000s)



What is the percentage decrease in production of scooters of company B from 1992 to 1993 rounded off to one decimal place?

A. 16.7%



B. 17.2%

C. 19.2%

D. 18.3%

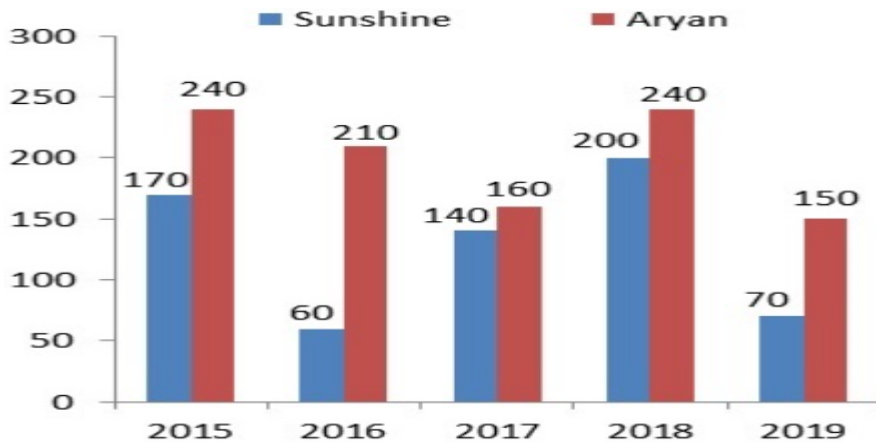


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Q9 Bar graph percentage

The given bar graph shows the total number of students enrolled each year from 2015 to 2019 in two different summer camps: Sunshine and Aryan.



The total number of students enrolled in Sunshine from 2016 to 2019 is what percentage more than the total number of students enrolled in Aryan in 2018 and 2019? (Round off your answer to two decimal places.)

A. 20.51%



B. 23.56%

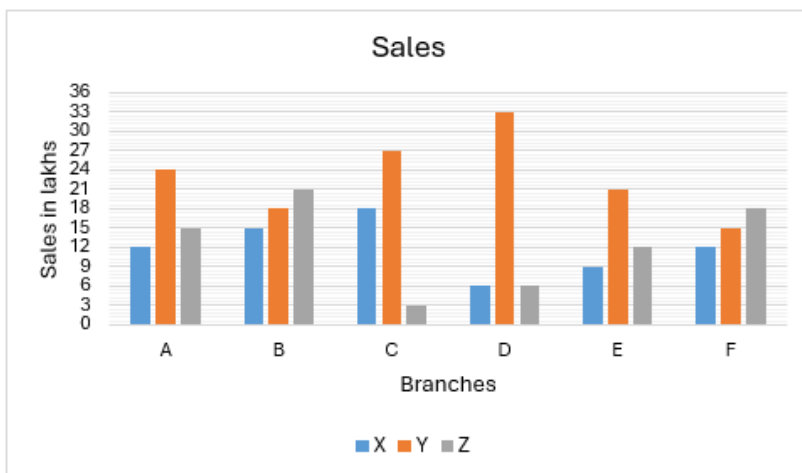
C. 21.81%

D. 22.51%

Q10 Bar graph ratio

The given graph shows the sales (in lakhs) of mobile phones of three brands, X, Y and Z, from six branches (A, B, C, D, E and F) of a company.

Study the graph and answer the question that follows.



What is the ratio of the total sales of Branch A to that of Branch D?

A. 13 : 15

B. 15 : 13

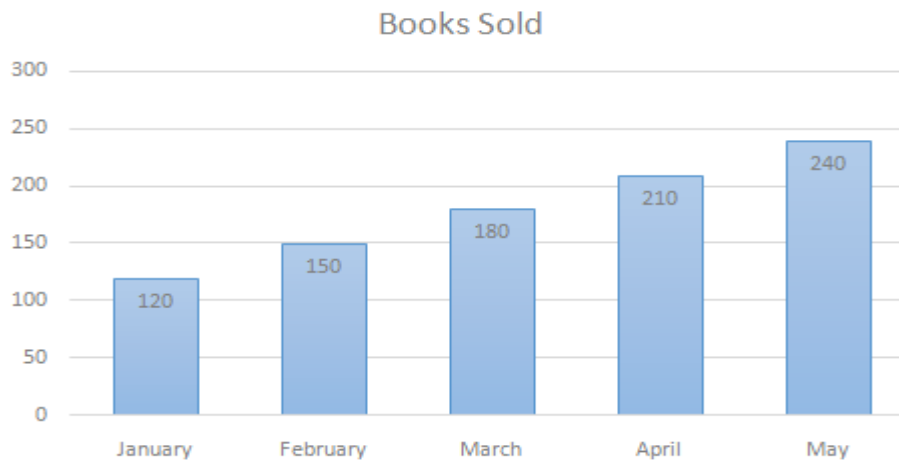
C. 15 : 17

D. 17 : 15



Q11 Bar graph reading

The given bar graph data shows the number of books sold by a store in different months. What is the increase in the number of books sold from January to May?



A. 140

B. 130

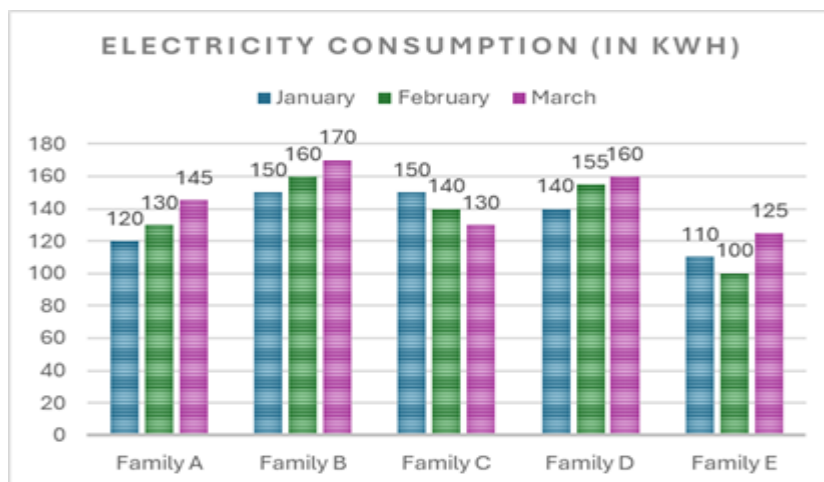
C. 120



D. 125

Q12 Bar graph reading

The given bar graph shows electricity consumption (in kWh) for five households (Family A, B, C, D, E) over a period of three months (January to March).



Which family is with the highest electricity consumption and determine how much more they consumed (in kWh) compared to the family with the lowest usage over the three-month period?

A. C, and 142

B. A, and 145

C. E, and 146

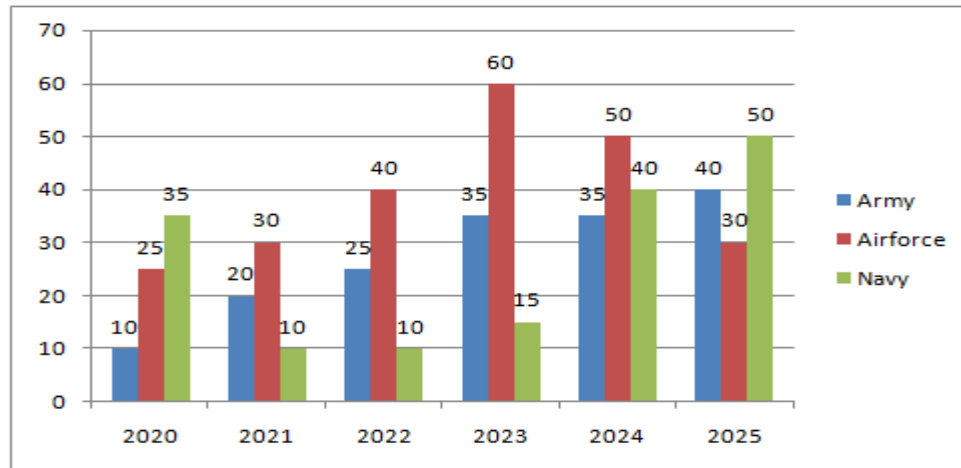
D. B, and 145



Q13 Bar graph reading

The following bar graph shows the number of soldiers recruited (in thousands) in three different forces in six different years. Study the following graph carefully to answer the question that follows.

What was the percentage increase in the number of soldiers recruited in Airforce in the year 2022 as compared to the previous year?



A. $31\frac{1}{3}\%$

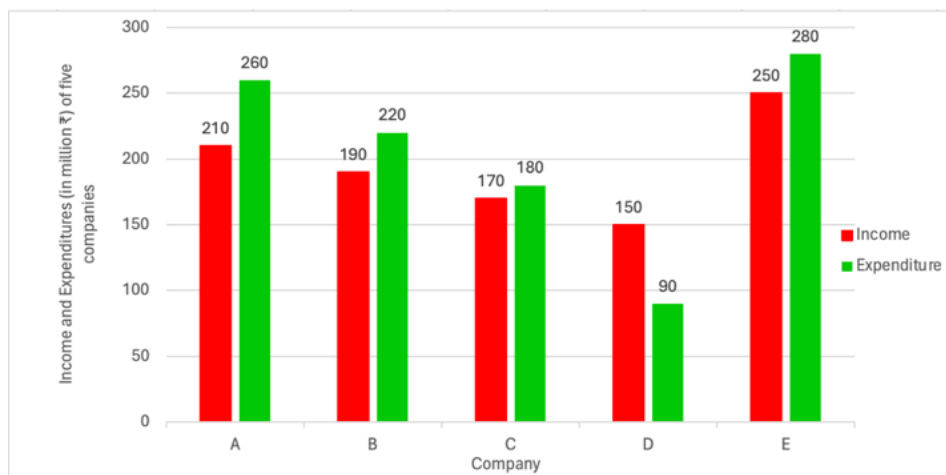
B. $30\frac{1}{3}\%$

C. $32\frac{1}{3}\%$

D. $33\frac{1}{3}\%$

**Q14 Bar graph reading**

The following bar graph shows the Income and Expenditure (in million ₹) of five companies, A, B, C, D, and E, in the year 2016. The profit or loss of a company is given by 'Profit or Loss = (Income – Expenditure)'.



What is the ratio of the combined profit or loss of companies B and C to that of A and E?

A. 1 : 2

B. 3 : 4

C. 1 : 3

D. 2 : 3

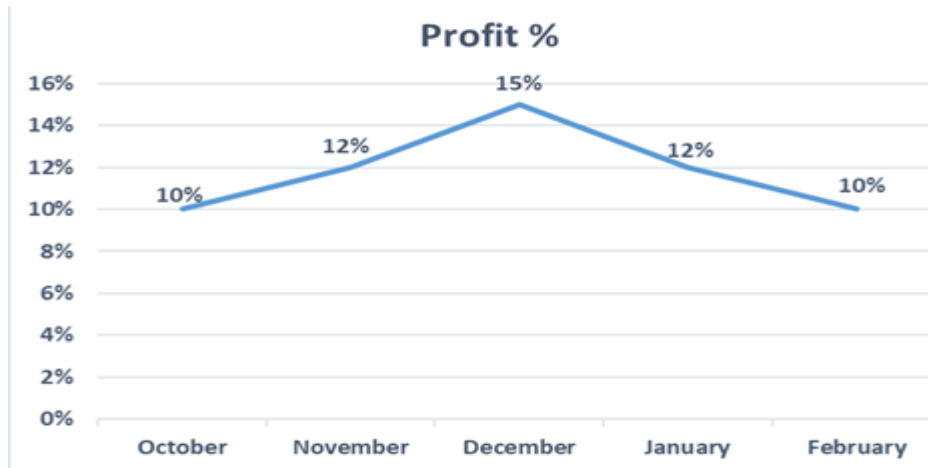


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Q15 Graph based profit

A shopkeeper sells heater rods, each having a cost price of ₹3,760. The profit margin varies depending on the demand, as shown in the given graph. If the total revenue on selling one rod every month from October to March end is ₹24,966.40, find the profit (in %) made in the month of March.



A. 7%

B. 6%

C. 5%

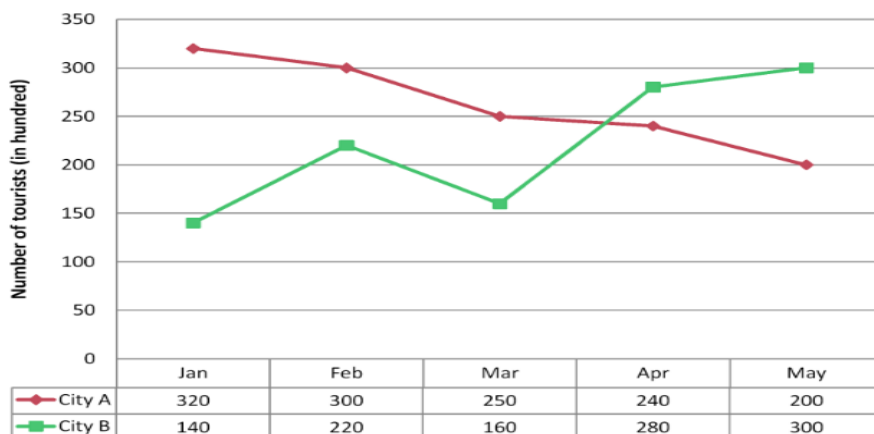


D. 10%

Q16 Line graph ratio

The given line graph shows the number of tourists (in hundreds) in two different cities, A and B, over five different months of the year 2018.

Study the line graph and answer the question that follows.



What is the ratio of the total number of tourists in City A in February and March to the total number of tourists in City B in the same months?

A. 55 : 38



B. 59 : 65

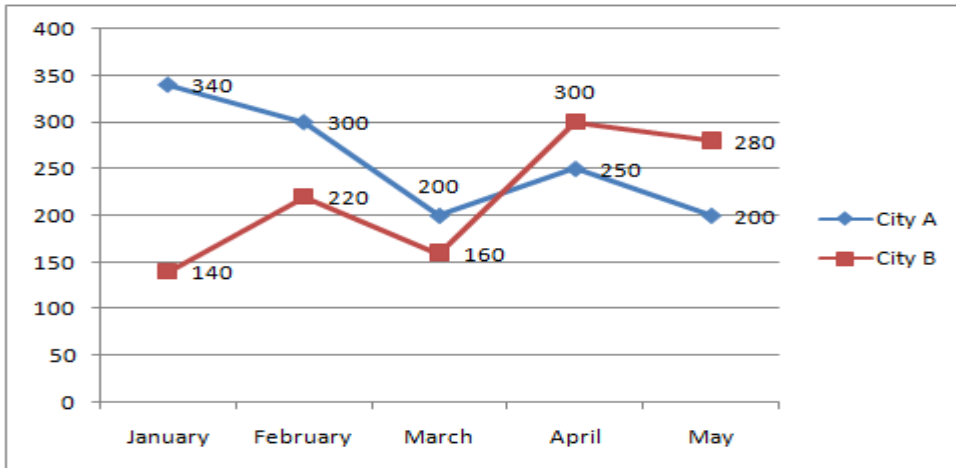
C. 71 : 80

D. 38 : 47



Q17 Line graph reading

The given line graph shows the number of tourists (in hundreds) in two cities A and B in five different months in the year 2023. Study the graph and answer the question that follows.



What is the ratio between the total number of tourists in city B in February to May to that in city A in January to February?

A. 2:3

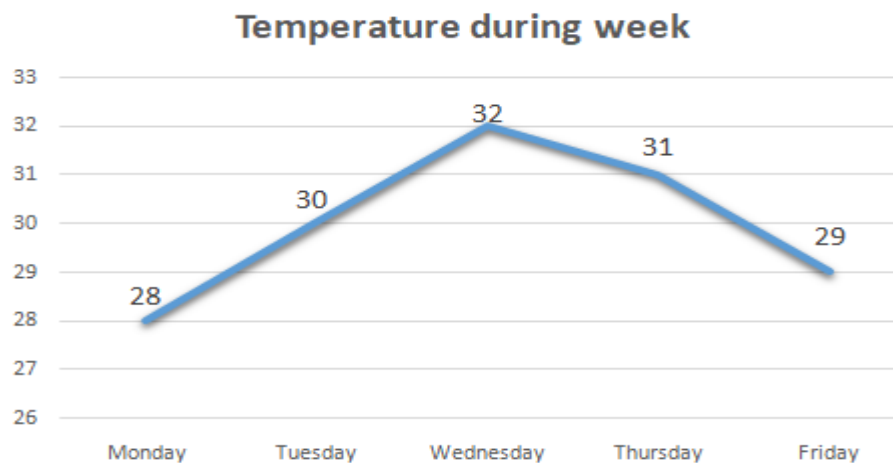
B. 5:6

C. 6:5

D. 3:2

**Q18** Line graph reading

The given line graph data shows the temperature (in °C) recorded during a week. On which day was the second highest temperature recorded?



A. Wednesday

B. Tuesday

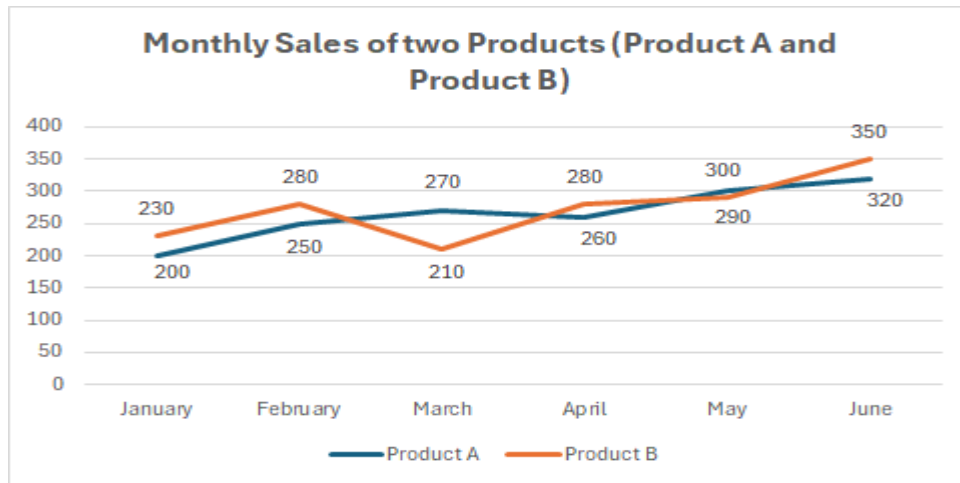
C. Friday

D. Thursday



Q19 Line graph reading

The line graph shows the monthly sales of two products (Product A and Product B) in units during the first six months of 2024.



In which month did Product B's sales exceed Product A's sales by the largest percentage?

A. May

B. April

C. June

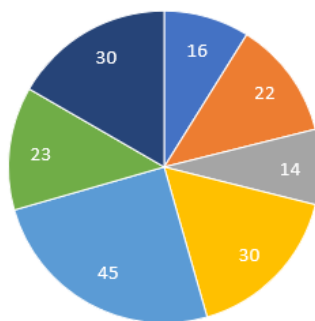
D. January



Q20 Pie chart angles

Study the data of the number of accidents on different days of a week in the given pie chart and answer the question below it.

Accidents



■ Sunday ■ Monday ■ Tuesday ■ Wednesday ■ Thursday ■ Friday ■ Saturday

If the data of Thursday is dropped and rest of the data is plotted on a pie chart, then what is the difference in angles (in degrees) made at the centre by Wednesday earlier and now?

A. 25

B. 20

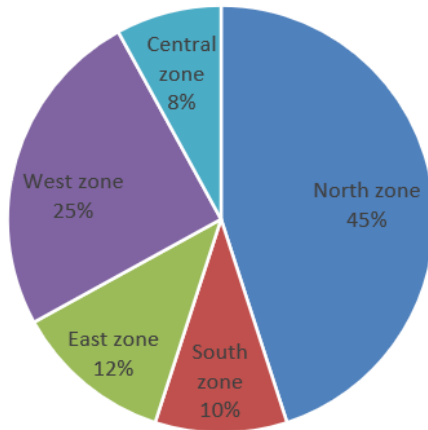
C. 45

D. 30



Q21 Pie chart angles

The given pie chart represents the percentage of a particular company's mobile phone users in five different zones of India. Study the pie chart carefully and answer the question that follows.



What is the central angle made by the central zone in the pie chart?

A. 26.2°

B. 28.8°



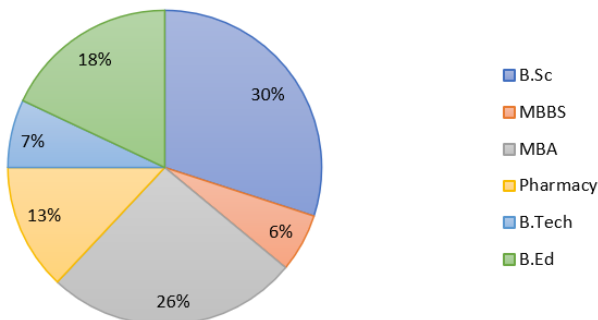
C. 27.4°

D. 30.6°

Q22 Pie chart calculation

In the following pie chart, the percentage distribution of students in different courses are shown. What is the total number of students in B.Ed., Pharmacy and MBBS together?

Total number of students = 6800



A. 2145

B. 2645

C. 2516



D. 2428



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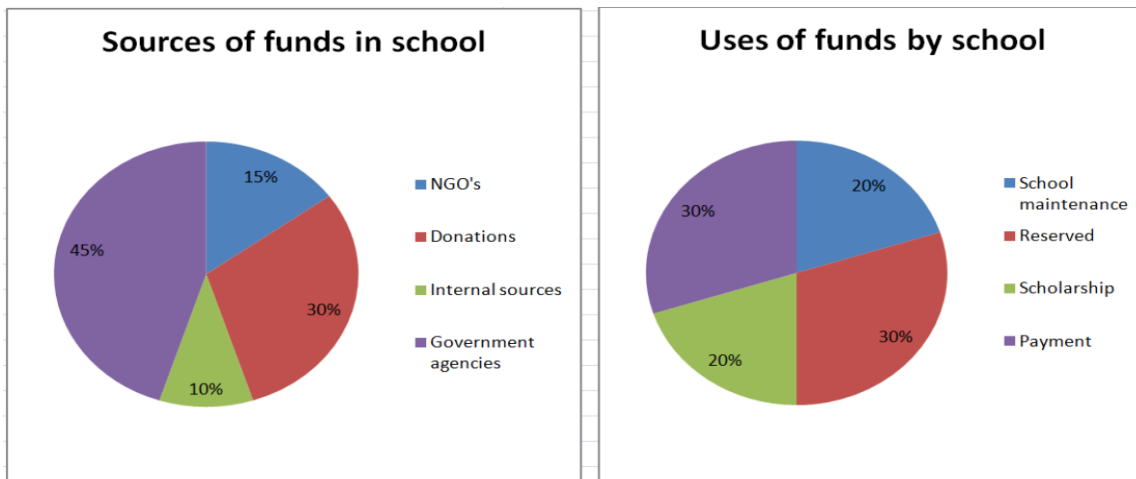
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Q23 Pie chart calculation

Study the following pie charts carefully and answer the question given below it.

The entire fund that school gets from different sources is equal to ₹700 lakh.

If the school managed school maintenance from the government agencies fund only, how much fund (in ₹) from government agencies would still be left for other uses?



A. 165 lakh

B. 155 lakh

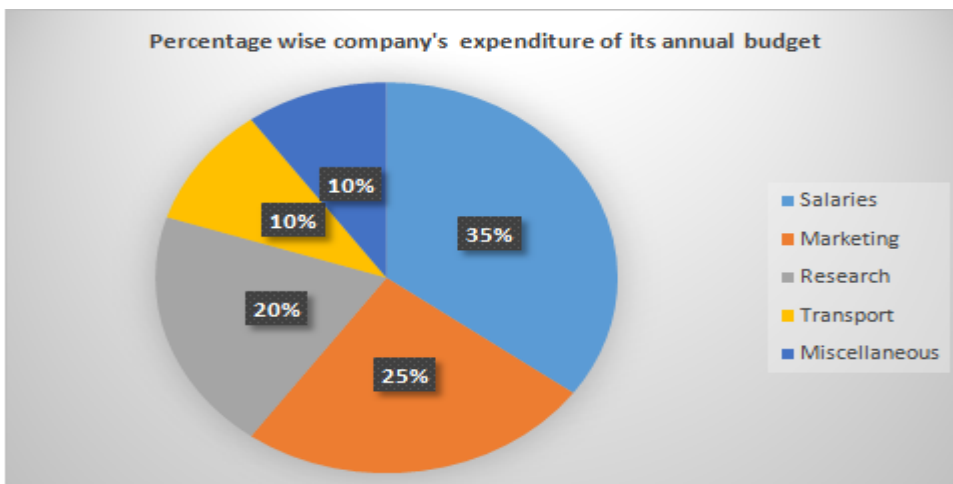
C. 175 lakh



D. 185 lakh

Q24 Pie chart calculation

A company spends its annual budget in the following sectors. If total budget is ₹20,00,000, how much amount (in ₹) is spent on Research and Transport together?



A. 6,00,000



B. 5,50,000

C. 5,00,000

D. 6,50,000

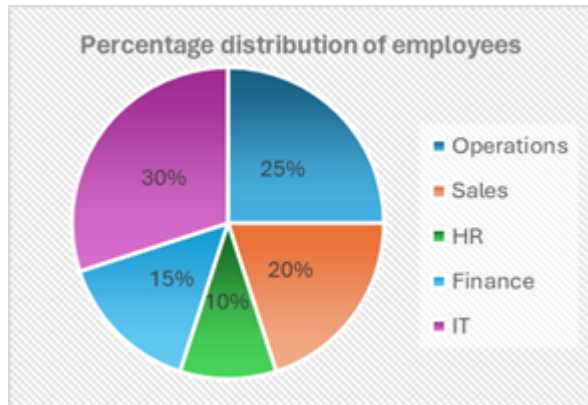


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Q25 Pie chart calculation

A company has 1200 employees divided into various departments. The pie chart below shows the percentage distribution of employees across different departments.

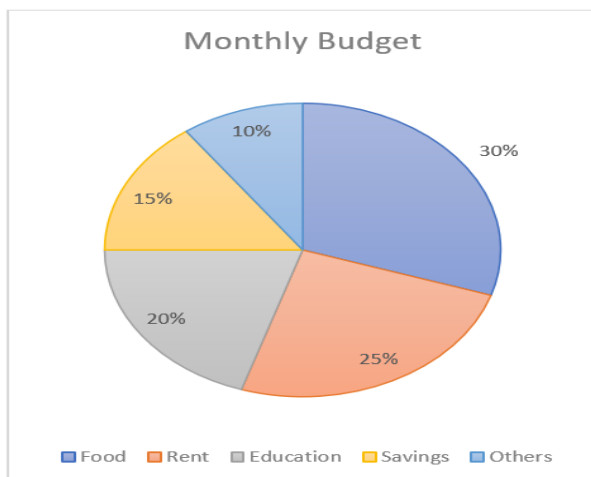


If 15% of the employees in the Sales Department are transferred to the IT Department, how many employees will be left in Sales, and what will be the new percentage of IT employees in the company, respectively?

- A. 216, and 33%
- B. 216, and 32%
- C. 204, and 33%
- D. 204, and 32%

**Q26** Pie chart calculation

The monthly budget of ₹48,000 for a family is distributed as follows: Food, Rent, Education, Savings, and Others. If they want to increase their savings to 20% next month without changing the total budget, what is the amount of the extra savings needed in next month compared to current month?

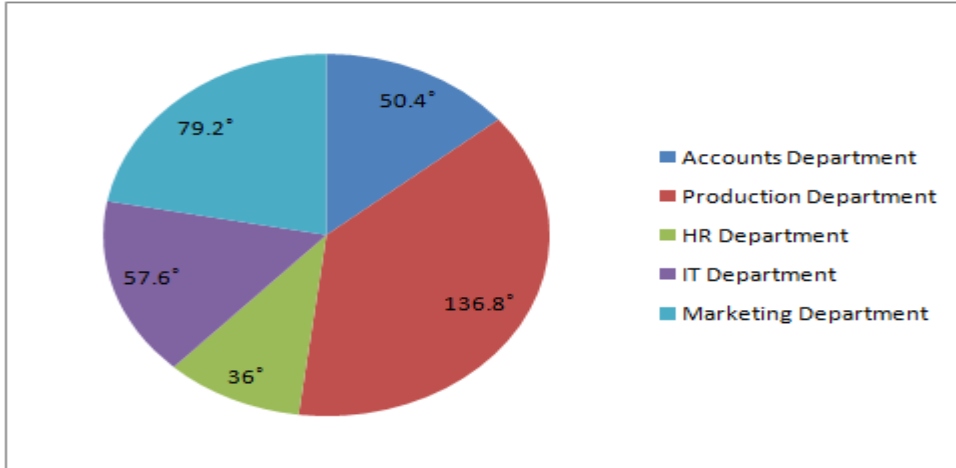


- A. ₹2,400
- B. ₹2,000
- C. ₹2,800
- D. ₹3,000



Q27 Pie chart calculation

The following pie chart shows the degree-wise distribution of 4800 employees working in various departments of an organization, and the ratio of number of men to number of women is 3:5. What is the number of men working in the HR department?



A. 194

B. 196

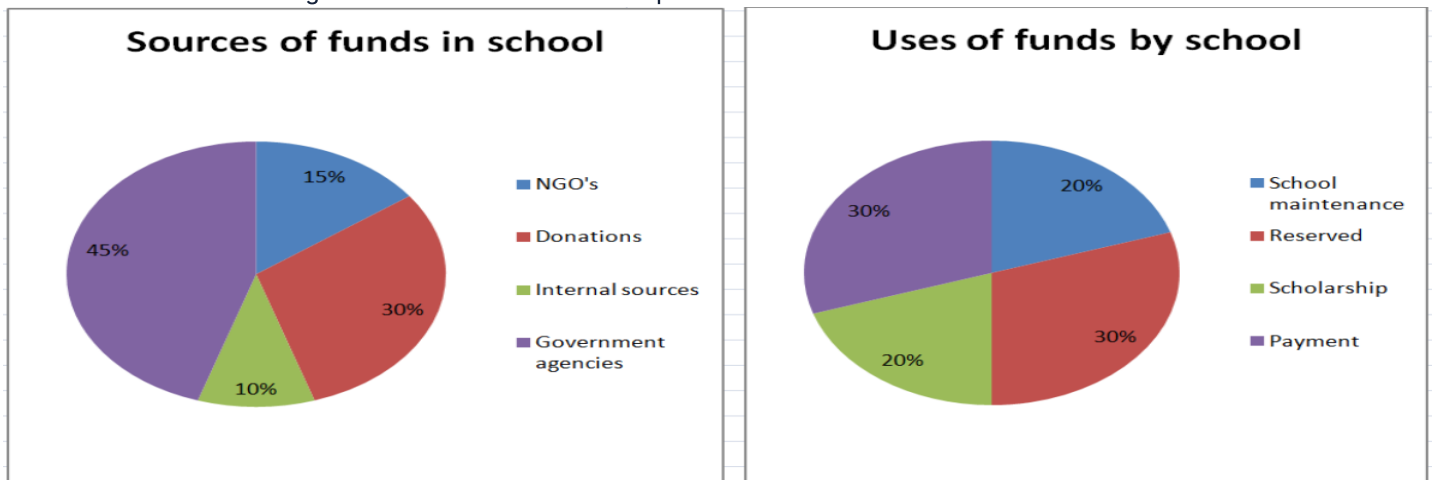
C. 180



D. 198

Q28 Pie chart calculation

Study the following pie charts carefully and answer the question given below it.
The entire fund that school gets from different sources is equal to ₹640 lakh.



If the school managed school maintenance from the government agencies fund only, how much fund from government agencies would still be left for other uses?

A. ₹180 lakh

B. ₹140 lakh

C. ₹160 lakh



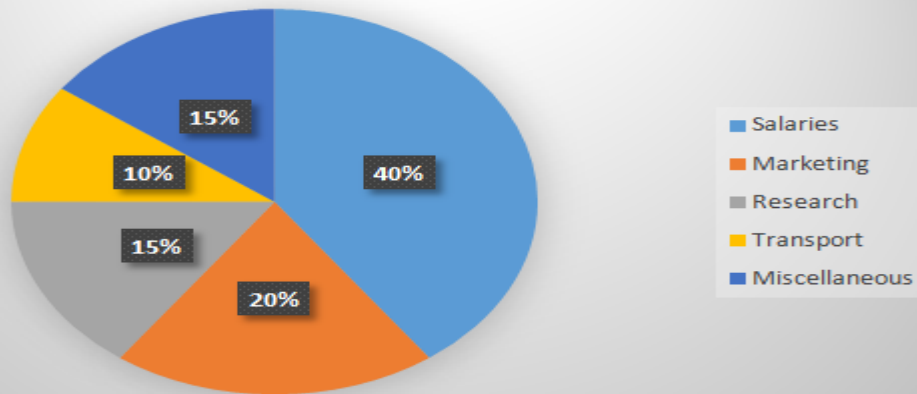
D. ₹120 lakh



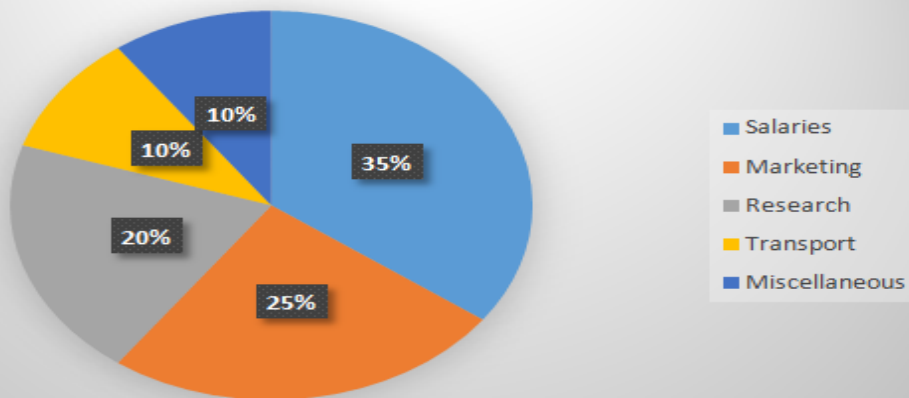
Q29 Pie chart comparison

The given pie charts show the distribution of expenditure of a company across multiple areas in 2024 and 2025. The total expenditure in 2024 was ₹18,00,000 and the total expenditure in 2025 was ₹24,00,000. Find the increase in expenditure (in ₹) on Research from 2024 to 2025.

Percentage wise expenditure distribution in 2024



Percentage wise expenditure distribution in 2025



A. 1,80,000

B. 2,70,000

C. 2,40,000

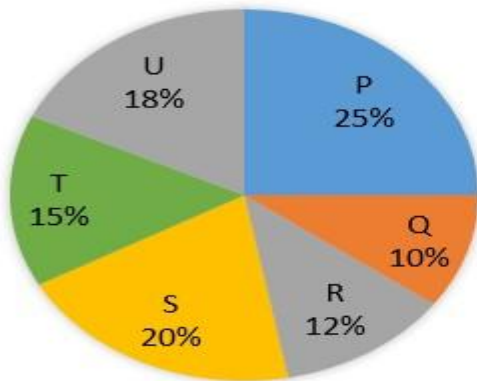
D. 2,10,000



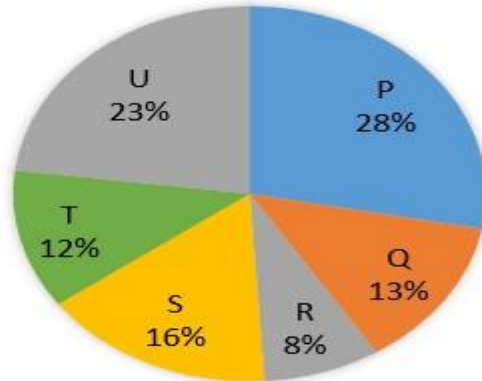
Q30 Pie chart comparison

Study the two pie charts and answer the question that follows. The first pie chart shows the percentage distribution of total population of six villages in 2024 and second pie chart shows the percentage distribution of female population in these six villages in 2024.

Total population of
six villages in 2024 = 1,50,000



Female population of
six villages in 2024 = 75,000



What is the total number of males in village T and P together?

- A. 37,500
- B. 60,000
- C. 75,000
- D. 30,000

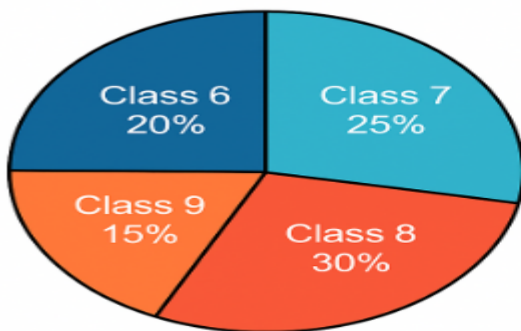


Q31 Pie chart comparison

Study the pie charts and answer the question that follows. The charts below show the distribution of students in a school.

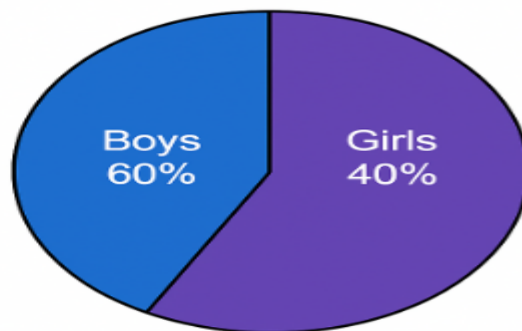
**Class-wise Distribution
of Students**

(600)



**Gender Distribution
in Class 8**

(180)



What is the number of girls in Class 8?

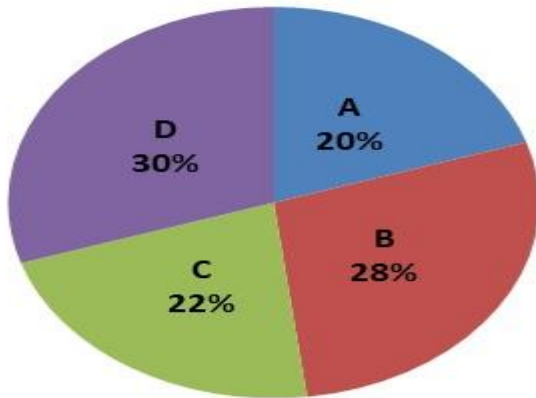
- A. 60
- B. 90
- C. 72
- D. 108



Q32 Pie chart comparison

The given pie-charts show the population of villages A, B, C and D (in percentage) in year 2021 and 2022. Total population in 2021 and 2022 is 2,80,000 and 2,75,000 respectively.

Population in 2021



Population in 2022



Find the ratio between the total population in village B and C together in 2021 to the total population in village C and D in 2022.

A. 11:9

B. 43:41

C. 56:55

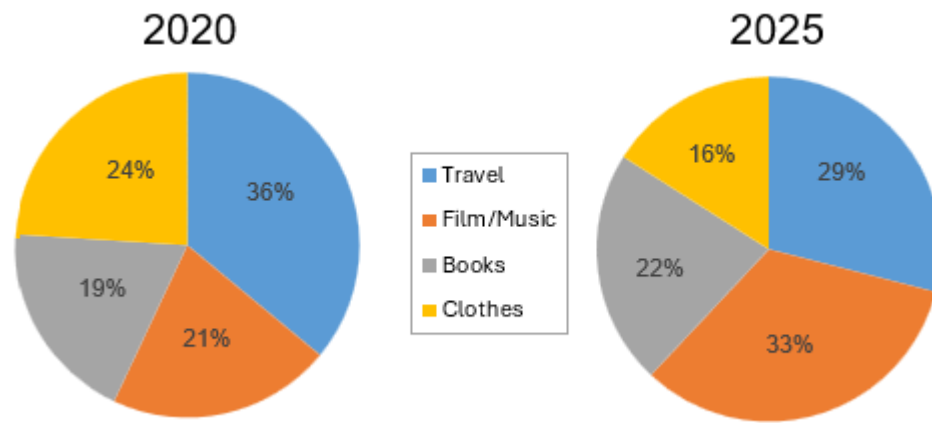


D. 27:23



Q33 Pie chart comparison

The pie charts illustrate the distribution of online sales (with the total amount remaining the same (in ₹) for both years) across various retail sectors in New Zealand for 2020 and 2025.



By how many percentage points did the share of Film & Music change from 2020 to 2025?

A. 16%

B. 22%

C. 12%



D. 17%

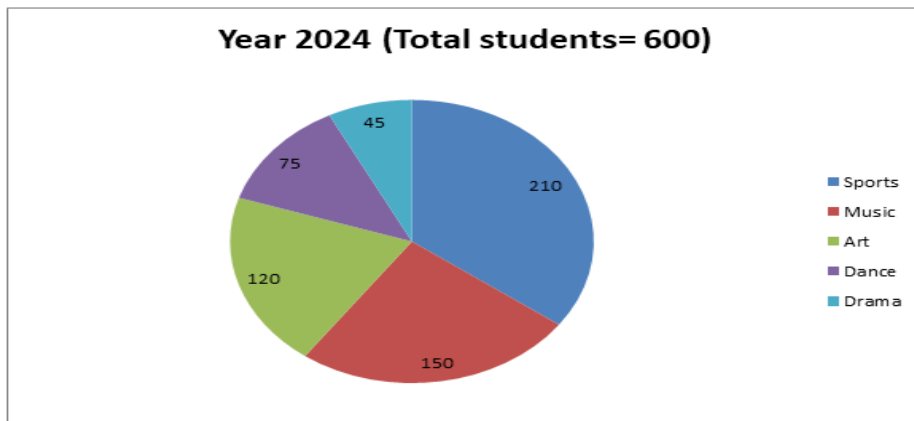
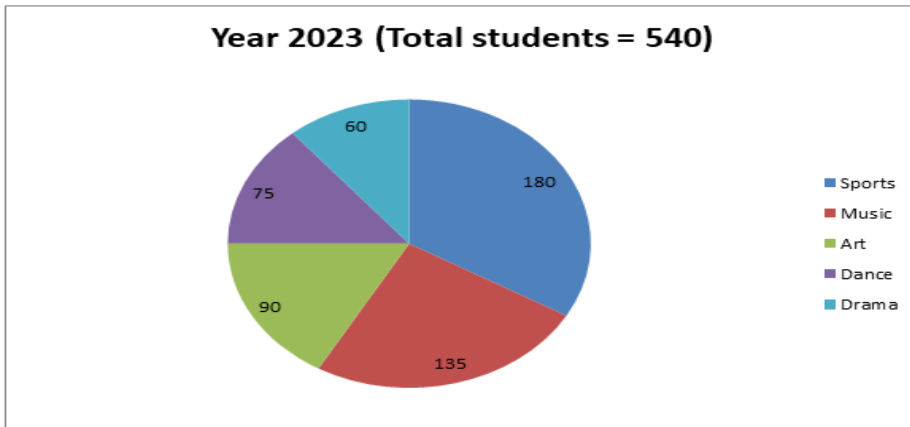


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Q34 Pie chart comparison

A school conducted a survey of co-curricular activities opted by students in 2023 and 2024. The results are shown in the two pie charts below:



By what percentage did the number of students choosing Art increase from 2023 to 2024? (Approximately)

A. 33.33%



B. 30%

C. 34.67%

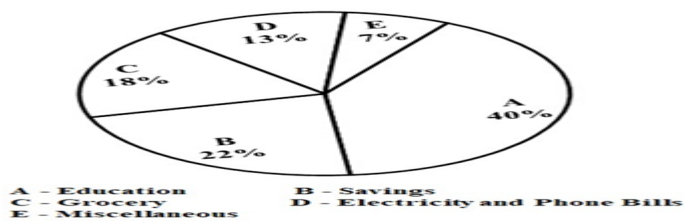
D. 32.5%



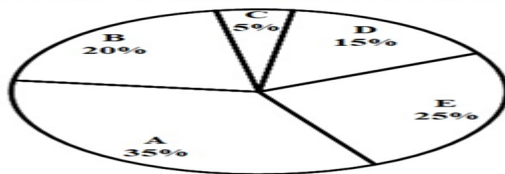
Q35 Pie chart comparison

Study the two pie-charts given below and answer the question that follows.

MARCH MONTH'S SALARY: ₹ 34000



APRIL MONTH'S SALARY: ₹ 35000



Find the ratio of the amount spent for education from March's salary and that spent for grocery from April's salary.

A. 272:33

B. 271:33

C. 271:35

D. 272:35



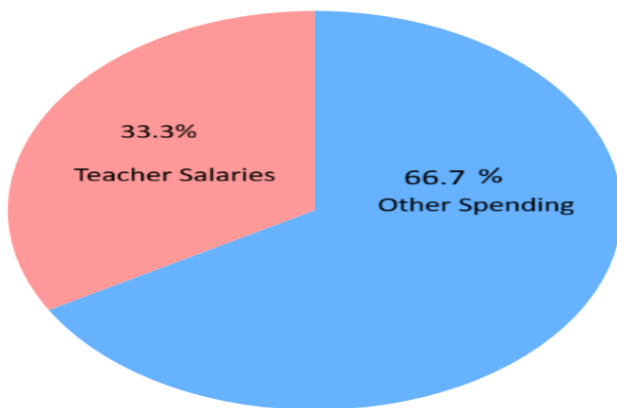
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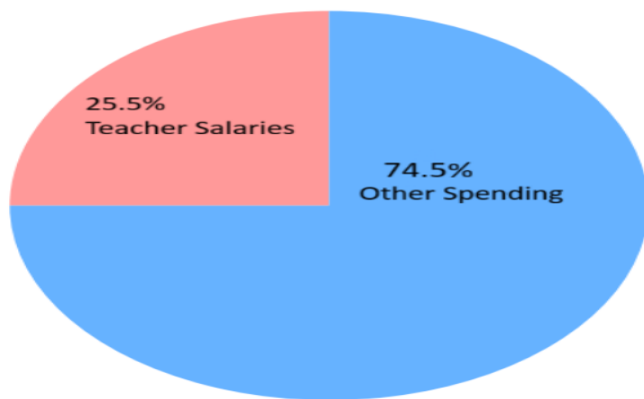
Q36 Pie chart comparison

As the multiple pie charts below depict, School A spends 33.3% of its budget on teacher salaries while School B spends 25.5% of its budget on the same. If both have equal total budgets of ₹36,00,000, how much more (in ₹) does School A spend on salaries than School B?

School A Budget



School B Budget



A. 5,00,000

B. 2,00,000

C. 4,00,000

D. 2,80,800



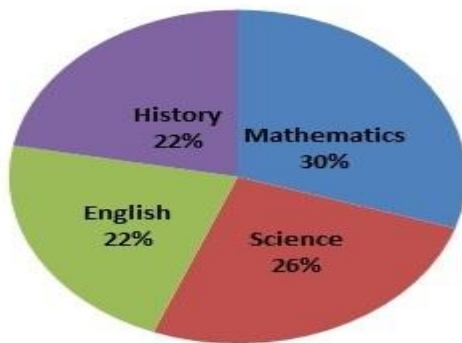
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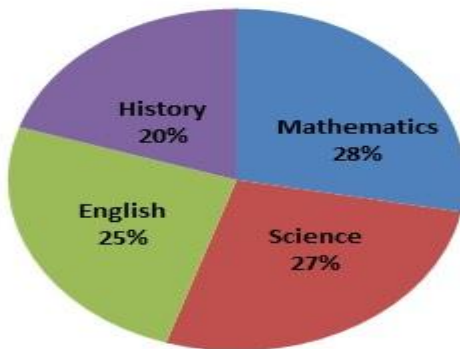
Q37 Pie chart comparison

The given pie charts show details of two schools A and B, which have 300 students and 200 students, respectively, and the percentage wise distribution of the favourite subjects of the students. Study the charts carefully and answer the question that follows.

School -A



School -B



Find the difference between the total number of students of school A whose favourite subjects are Mathematics or English, and the total number of students of school B whose favourite subjects are Science or English.

A. 43

B. 49

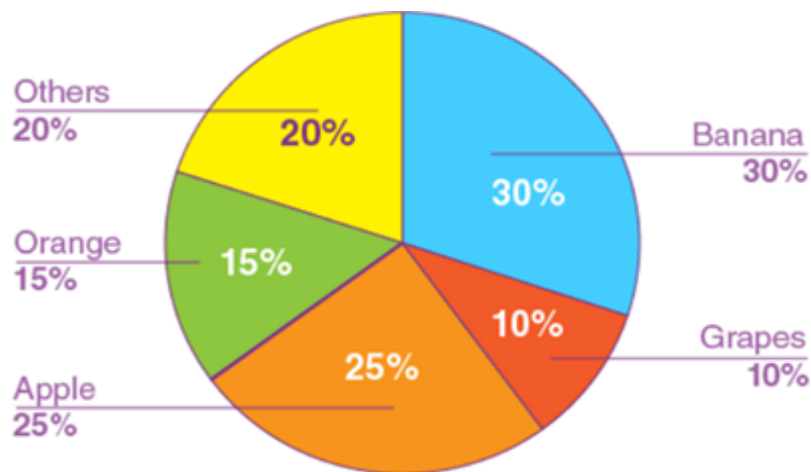
C. 38

D. 52



Q38 Pie chart comparison

In a party, fruit chat is made with a total 150 kg of fruits. The distribution of different type of fruits is shown in the given graph.



The amount of Banana used in the fruit chat is what percentage more than the amount of Apple used?

A. 25%

B. 22%

C. 20%



D. 30%



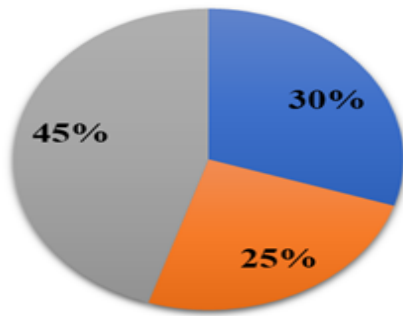
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Q39 Pie chart comparison

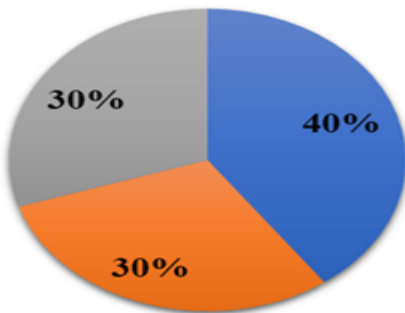
The given pie charts show the distribution of students in different streams in two schools, A and B. If school A has 1000 students and school B has 1200 students, what is the difference in the number of students in the science stream between the two schools?

SCHOOL A



■ Science ■ Commerce ■ Arts

SCHOOL B



■ Science ■ Commerce ■ Arts

A. 150

B. 100

C. 200

D. 180

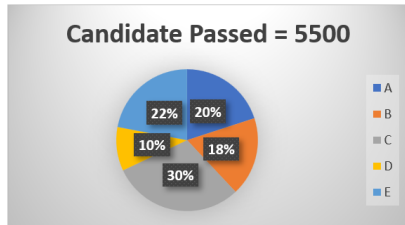
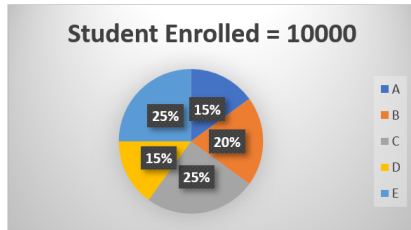


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Q40 Pie chart comparison

The given pie charts represent distribution of candidates who were enrolled for MBBS entrance exam and the candidates (out of those enrolled) who passed the exam in different institutes (A, B, C, D and E).



For Institutes A and E together, what is the percentage of candidates who passed out of the total candidates enrolled?

A. 64.75%

B. 42.25%

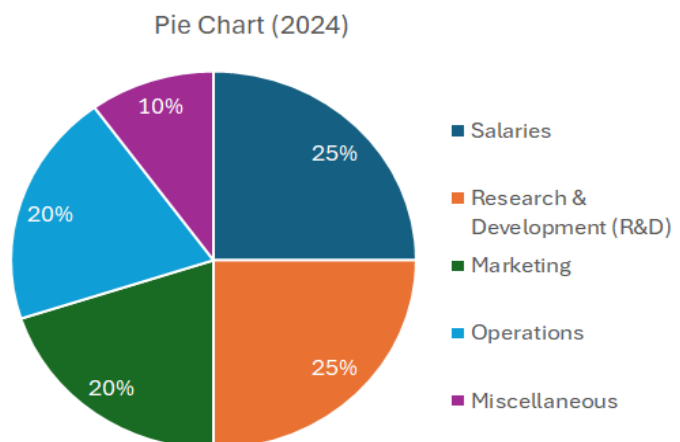
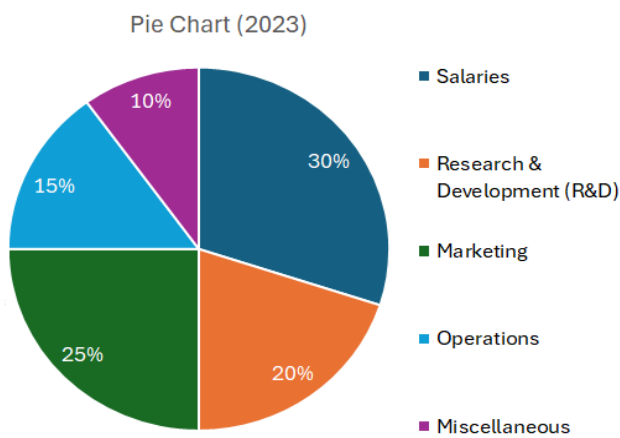
C. 57.75%



D. 62.25%

Q41 Pie chart comparison

The two pie charts show the distribution of annual expenditure of a company for 2023 and 2024. The total expenditure was ₹4 crore in 2023 and ₹5 crore in 2024.



Which category recorded the highest increase in expenditure from 2023 to 2024?

A. Operations

B. Salaries

C. Marketing

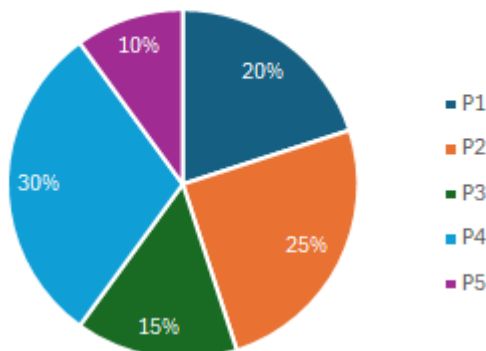
D. Research & Development (R&D)



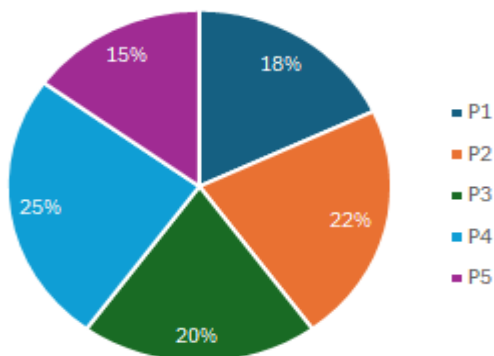
Q42 Pie chart comparison

A company sells five products: P1, P2, P3, P4, and P5. The two pie charts show percentage contribution to total sales revenue in 2023 and 2024. Study the pie charts and answer the question that follows.

Pie Chart 1 – 2023 (Total Revenue ₹200 crore)



Pie Chart 2 – 2024 (Total Revenue ₹240 crore)



What percentage of the combined two-year total revenue was earned from P2 (rounded off to two decimal places)?

A. 26.08%

B. 23.36%

C. 24.11%

D. 25.52%



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Q43 Pie chart comparison

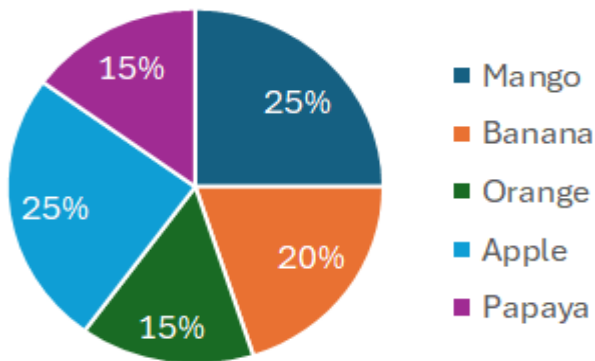
The two given pie charts show the distribution of production (in tonnes) of different fruits in a farm for Year 2023 and Year 2024.

Total production:

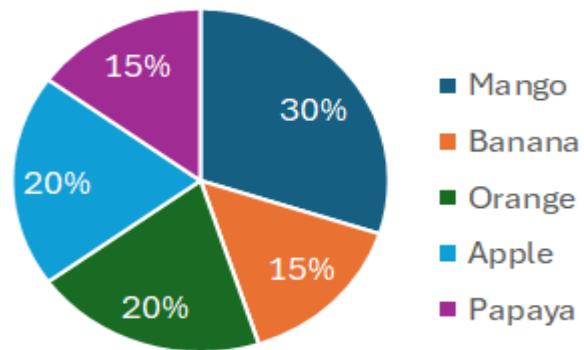
2023 → 2400 tonnes

2024 → 3000 tonnes

Pie Chart (2023)



Pie Chart (2024)



The production of which fruit increased by the highest percentage from 2023 to 2024?

A. Mango

B. Banana

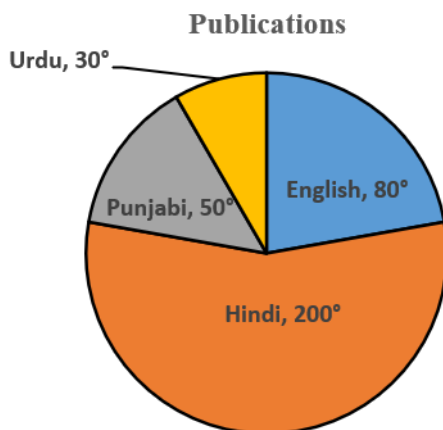
C. Papaya

D. Orange



Q44 Pie chart comparison

The given pie chart shows the books published in English, Hindi, Punjabi and Urdu languages by a publishing house. In 2020, the publishing house published a total of 72 books in these languages. Books published in English, Punjabi and Urdu taken together is what percentage of books published in Hindi?



A. 100%

B. 125%

C. 95%

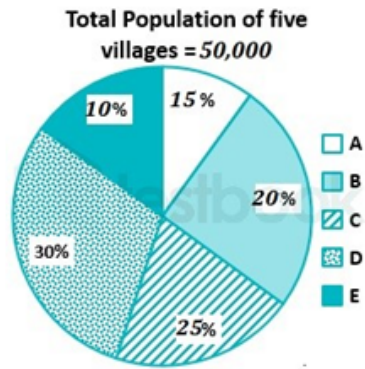
D. 80%



Q45 Pie chart ratio

Study the given pie chart and answer the question that follows.

The pie chart shows the percentage of the population in five villages in a year.



Find the ratio of population in village A to that in village C.

A. 2 : 3

B. 3 : 5



C. 2 : 5

D. 1 : 3

Q46 Table data average

The following table shows the number of books read by four students in a month.

Name of the student	Ravi	Sita	Amit	Neha
Number of books	12	14	11	13

What is the average number of books read by these students?

A. 12.5



B. 12

C. 13.5

D. 13



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Q47 Table data calculation

Read the given table carefully to answer the question that follows.

Amount earned (in lacs) by five persons, A, B, C, D and E, in six different years

Person

Year	A	B	C	D	E
2005	2.24	4.33	5.64	3.73	1.69
2006	1.44	3.34	6.93	5.52	5.52
2007	4.63	2.79	7.52	5.68	4.28
2008	6.65	6.63	5.83	6.74	6.83
2009	5.34	4.5	5.94	8.42	5.53
2010	7.38	5.36	7.84	9.45	9.94

What was the respective ratio between the amount earned by Person-B in the year 2007 and Person-D in the year 2010?

A. 37:109

B. 31:105



C. 37:107

D. 32:105

Q48 Table interpretation

The following table shows the number of books sold by a bookstore in four categories over three months, along with the average selling price per book.

Month	Fiction	Non-Fiction	Children's Books	Academic	Avg. Selling Price per Book (₹)
Jan	1,200	900	1,500	800	250
Feb	1,400	1,000	1,600	900	260
Mar	1,300	1,200	1,700	1,000	270

In which month was the ratio of Children's Books to Academic Books sold the highest?

A. March

B. Same in all months

C. January



D. February



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