

Average Questions

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MCQ Question 1

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The average salary of the entire staff in Reliance Company is Rs.15000 per month. The average salary of officers is Rs.45000 per month and that of non-officers is Rs.10000 per month. If the number of officers is 20 then find the number of non-officers in the Reliance company.

1. 160
2. 120
3. 60
4. 180

Answer (Detailed Solution Below)

Option 2 : 120



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Average MCQ Question 1 Detailed Solution

Given:

The average salary of the entire staff = Rs. 15000

The average salary of officers = Rs. 45000

The average salary of non-officers = Rs. 10000

Number of officers = 20

Calculations:

Let the number of non-officers be x .

Total member in entire staff = $x + 20$

Total salary of the entire staff = $(x + 20) \times 15000$

$$\Rightarrow 15000x + 300000 \quad \text{---(1)}$$

Total salary of officers = $20 \times 45000 = 900000$

Total salary of non-officers = $x \times 10000 = 10000x$

Total salary of the entire staff = $900000 + 10000x \quad \text{---(2)}$

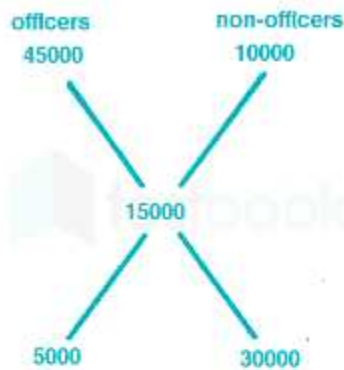
From equation (1) and (2)

$$\Rightarrow 10000x + 900000 = 15000x + 300000$$

$$\Rightarrow 5000x = 600000$$

$$\Rightarrow x = 120$$

Alternate Method



The ratio of officers to non-officers = $5000 : 30000 = 1 : 6$

Number of officers = 1 unit = 20

Then, number of non-officers = 6 unit = 120

\therefore Non-officers in reliance company be 120.

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MCQ Question 2

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The average of 45 numbers is 150. Later it is found that a number 46 is wrongly written as 91, then find the correct average.

1. 151

2. 147

3. 149

4. 153

Answer (Detailed Solution Below)

Average MCQ Question 2 Detailed Solution

Given:

The average of 45 data is 150

46 is wrongly written as 91

Concept used:

Average = Sum of total observations/Total number of observations

Calculation:

The total sum of all 45 number = $150 \times 45 = 6750$

Now, 46 is wrongly written as 91

The correct sum of data = $6750 - (91 - 46) = 6705$

Then, Correct average of the data = $6705/45 = 149$

∴ The correct average is 149

Shortcut Trick

Difference between wrong and actual numbers = $91 - 46 = 45$

As the actual number is less than the wrong number

So the average decreased by $45/45 = 1$

The correct average = $150 - 1 = 149$

∴ The correct average is 149

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The average of nine numbers is 60, that of the first five numbers is 55 and the next three is 65. The ninth number is 10 less than the tenth number. Then, tenth number is –

1. 80

2. 70

3. 75

4. 85

Answer (Detailed Solution Below)

Option 1 : 80

Average MCQ Question 3 Detailed Solution

Given:

Average of nine numbers = 60

Average of first five numbers = 55 and average of next three numbers = 65

Tenth number = Ninth number + 10

Concept used:

Average = Total sum of all numbers / (Count of the numbers)

Calculation:

The sum of nine numbers = $60 \times 9 = 540$

The sum of the first five numbers = $55 \times 5 = 275$

The sum of the next three numbers = $65 \times 3 = 195$

Ninth number = $(540 - 275 - 195) = (540 - 470) = 70$

\therefore Tenth number = $70 + 10 = 80$

Mistake Points

We have details about 10 numbers but the average is given only of 9 numbers. To calculate the 10th number, we have a relationship that is the ninth number is 10 less than the tenth number. So after calculating the 9th number, use this relation to find the next number. Don't take the average of 10th number.

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MCQ Question 4

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Average age of three boys is 22 years. If the ratio of their ages is 6 : 9 : 7, then the age of the youngest boy is

1. 8 years
2. 9 years
3. 18 years
4. 16 years

Answer (Detailed Solution Below)

Option 3 : 18 years

Average MCQ Question 4 Detailed Solution

Given:

The average age of three boys is 22 years.

The ratio of their ages is 6 : 9 : 7

Concept used:

Total weight = Average weight \times Number of Boys

Calculation:

The average age of three boys = 22

Total Age of three boys = 66 years

Let the ages of three boys be $6a$, $9a$, and $7a$ respectively.

Then,

$$\Rightarrow 6a + 9a + 7a = 66$$

$$\Rightarrow 22a = 66$$

$$\Rightarrow a = 3$$

Age of youngest boy = 3×6

$\Rightarrow 18$ years.

\therefore The age of the youngest boy is 18 years.

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MCQ Question 5

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The average salary per head of all the employees of an institution is Rs.60. The average salary of 12 officers is Rs.400, the average salary per head of the rest is Rs.56. The total number of employees in the institution is:

1. 1035

2. 1050

3. 1032

4. 1030

Answer (Detailed Solution Below)

Average MCQ Question 5 Detailed Solution**Given:**

The average salary per head of all the employees of an institution = 60 Rs.

The average salary of 12 officers = 400 Rs.

The average salary per head of the rest = 56 Rs.

Calculation:

Let the total number of employees = y

According to the given,

$$\Rightarrow 12 \times 400 + (y - 12) \times 56 = 60y$$

$$\Rightarrow 4800 + 56y - 672 = 60y$$

$$\Rightarrow 4128 = 4y$$

$$\Rightarrow y = 4128/4$$

$$\Rightarrow y = 1032$$

\therefore The total number of employees in the institution is 1032

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MCQ Question 6[View this Question Online >](#)

Average of 12 numbers is 15. If a number 41 is also included, then what will be the average of these 13 numbers?

1. 16

2. 18

3. 19

4. 17

Answer (Detailed Solution Below)

Option 4 : 17

Average MCQ Question 6 Detailed Solution

Average of numbers = Sum of numbers/ Total numbers

Average of first 12 numbers is 15

Sum of 12 numbers = $15 \times 12 = 180$

New number 41 is to be added

Average of 13 numbers = (Sum of 12 numbers + 13th number)/13

Average = $(180 + 41)/13 = 221/13 = 17$

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MCQ Question 7

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A school conducts 6 terminals. Average marks scored by a student in first 2 terminal exams is 80 and average marks scored by the students in rest of the terminal exams is 140. Find the average of all exams.

1. 100

2. 140

3. 120

4. 230

Answer (Detailed Solution Below)

Option 3 : 120

Average MCQ Question 7 Detailed Solution

Given:

Average of first 2 terminal exams = 80

Average of last 4 exams = 140

Formula used:

Average = Sum of all observations/Number of observations

Calculation:

Sum of the marks of first 2 terminal exams = $2 \times 80 = 160$

Sum of the marks of last 4 terminal exams = $4 \times 140 = 560$

Total marks in 6 exams = $160 + 560 = 720$

\therefore Average marks = $720/6 = 120$

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MCQ Question 8

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The average weight of 48 students of a class is 36 kg. If the weights of teacher and principal are included, then the average becomes 36.76 kg. Find the sum of the weights of teacher and principal?

1. 108 kg

2. 112 kg

3. 110 kg

4. 114 kg

Answer (Detailed Solution Below)

Option 3 : 110 kg

Average MCQ Question 8 Detailed Solution

Sum of weights of teacher and principal

$\Rightarrow \text{New avg.} \times \text{No. of students} - \text{Existing avg.} \times \text{No. of students}$

$\Rightarrow 36.76 \times 50 - 36 \times 48 = 1838 - 1728$

$\Rightarrow 110 \text{ kg}$

\therefore Sum of weight of teacher and principle is 110 kg

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MCQ Question 9

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Average of 40 numbers is 71. If the number 100 replaced by 140, then average is increased by.

1. 3

2. 4

3. 2

4. 1

 **Answer** (Detailed Solution Below)

Option 4 : 1

Average MCQ Question 9 Detailed Solution

Given:

Average of 40 numbers = 71

Formula:

Average = Sum of all observations/Total number of all observations

Calculation:

Sum of 40 numbers = $40 \times 71 = 2840$

New sum of 40 numbers = $2840 - 100 + 140 = 2880$

New average of 40 numbers = $2880/40 = 72$

\therefore The average increased = $72 - 71 = 1$

Shortcut Trick

New average = Old average + (Change in number/Total numbers)

New average of 40 numbers = $71 + (140 - 100)/40 = 71 + 1 = 72$

\therefore The average increased = $72 - 71 = 1$

Shortcut Trick

Increase in average = Change in numbers/Total numbers

$\Rightarrow (140 - 100)/40$

$\Rightarrow 40/40$

$\therefore 1$

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MCQ Question 10

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The average monthly salary of 30 employees and 5 managers is Rs. 80000. One manager with salary Rs. 180000 is replaced by a new manager. If the average monthly salary now becomes Rs. 78500, then what is the monthly salary of the new manager?

1. Rs. 142500

2. Rs. 132000

3. Rs. 127500

4. Rs. 154500

Answer (Detailed Solution Below)

Option 3 : Rs. 127500

Average MCQ Question 10 Detailed Solution

GIVEN:

Average monthly salary of 30 employees and 5 managers = Rs 80000

CALCULATION:

Total salary of 30 employees and 5 managers = $35 \times 80000 = 2800000$

Let the salary of new manager be = x

$$\Rightarrow (2800000 - 180000 + x)/35 = 78500$$

$$\Rightarrow x = 2747500 - 2620000 = \text{Rs. } 127500$$

\therefore Salary of new manager = Rs. 127500

Shortcut Trick

Let the salary of new manager be = Rs. x

$$\Rightarrow (180000 - x) = (80000 - 78500) \times 35$$

$$\Rightarrow x = \text{Rs. } 127500$$