

AVERAGES

1. In the first 10 overs of a cricket game, the run rate was only 3.2. What should be the run rate in the remaining 40 overs to reach the target of 282 runs?
- A. 6.25
 - B. 6.5
 - C. 6.75
 - D. 7

Answer: Option A

Explanation:

$$\text{Required run rate} = \left(\frac{282 - (3.2 \times 10)}{40} \right) = \frac{250}{40} = 6.25$$

2. A family consists of two grandparents, two parents and three grandchildren. The average age of the grandparents is 67 years, that of the parents is 35 years and that of the grandchildren is 6 years. What is the average age of the family?
- A. $28\frac{4}{7}$ years
 - B. $31\frac{5}{7}$ years
 - C. $32\frac{1}{7}$ years
 - D. None of these

Answer: Option B

Explanation:

$$\begin{aligned}\text{Required average} &= \left(\frac{67 \times 2 + 35 \times 2 + 6 \times 3}{2 + 2 + 3} \right) \\ &= \left(\frac{134 + 70 + 18}{7} \right) \\ &= \frac{222}{7} \\ &= 31\frac{5}{7} \text{ years.}\end{aligned}$$

3. A grocer has a sale of Rs. 6435, Rs. 6927, Rs. 6855, Rs. 7230 and Rs. 6562 for 5 consecutive months. How much sale must he have in the sixth month so that he gets an average sale of Rs. 6500?
- A. Rs. 4991
 - B. Rs. 5991
 - C. Rs. 6001
 - D. Rs. 6991

Answer: Option A

Explanation:

Total sale for 5 months = Rs. $(6435 + 6927 + 6855 + 7230 + 6562) = \text{Rs. } 34009$.

$$\begin{aligned}\therefore \text{Required sale} &= \text{Rs. } [(6500 \times 6) - 34009] \\ &= \text{Rs. } (39000 - 34009) \\ &= \text{Rs. } 4991.\end{aligned}$$

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4. The average of 20 numbers is zero. Of them, at the most, how many may be greater than zero?
- A. 0
 - B. 1
 - C. 10
 - D. 19

Answer: Option D

Explanation:

Average of 20 numbers = 0.

$$\therefore \text{Sum of 20 numbers } (0 \times 20) = 0.$$

It is quite possible that 19 of these numbers may be positive and if their sum is a then 20th number is $(-a)$.

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5. The average weight of 8 person's increases by 2.5 kg when a new person comes in place of one of them weighing 65 kg. What might be the weight of the new person?
- A. 76 kg
 - B. 76.5 kg
 - C. 85 kg
 - D. Data inadequate
 - E. None of these

Answer: Option C

Explanation:

Total weight increased = $(8 \times 2.5) \text{ kg} = 20 \text{ kg}$.

Weight of new person = $(65 + 20) \text{ kg} = 85 \text{ kg}$.

6. The captain of a cricket team of 11 members is 26 years old and the wicket keeper is 3 years older. If the ages of these two are excluded, the average age of the remaining players is one year less than the average age of the whole team. What is the average age of the team?

- A. 23 years
- B. 24 years
- C. 25 years
- D. None of these

Answer: Option A

Explanation:

Let the average age of the whole team be x years.

$$\therefore 11x - (26 + 29) = 9(x - 1)$$

$$\Rightarrow 11x - 9x = 46$$

$$\Rightarrow 2x = 46$$

$$\Rightarrow x = 23.$$

So, average age of the team is 23 years.

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7. The average monthly income of P and Q is Rs. 5050. The average monthly income of Q and R is Rs. 6250 and the average monthly income of P and R is Rs. 5200. The monthly income of P is:

- A. 3500
- B. 4000
- C. 4050
- D. 5000

Answer: Option B

Explanation:

Let P, Q and R represent their respective monthly incomes. Then, we have:

$$P + Q = (5050 \times 2) = 10100 \dots (i)$$

$$Q + R = (6250 \times 2) = 12500 \dots (ii)$$

$$P + R = (5200 \times 2) = 10400 \dots (iii)$$

$$\text{Adding (i), (ii) and (iii), we get: } 2(P + Q + R) = 33000 \text{ or } P + Q + R = 16500 \dots (iv)$$

Subtracting (ii) from (iv), we get $P = 4000$.

$$\therefore \text{P's monthly income} = \text{Rs. } 4000.$$

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8. The average age of husband, wife and their child 3 years ago was 27 years and that of wife and the child 5 years ago was 20 years. The present age of the husband is:

- A. 35 years
- B. 40 years
- C. 50 years
- D. None of these

Answer: Option B

Explanation:

Sum of the present ages of husband, wife and child = $(27 \times 3 + 3 \times 3)$ years = 90 years.

Sum of the present ages of wife and child = $(20 \times 2 + 5 \times 2)$ years = 50 years.

\therefore Husband's present age = $(90 - 50)$ years = 40 years.

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9. A car owner buys petrol at Rs.7.50, Rs. 8 and Rs. 8.50 per litre for three successive years. What approximately is the average cost per litre of petrol if he spends Rs. 4000 each year?

- A. Rs. 7.98
- B. Rs. 8
- C. Rs. 8.50
- D. Rs. 9

Answer: Option A

Explanation:

Total quantity of petrol consumed in 3 years = $\left(\frac{4000}{7.50} + \frac{4000}{8} + \frac{4000}{8.50} \right)$ litres

$$= 4000 \left(\frac{2}{15} + \frac{1}{8} + \frac{2}{17} \right) \text{ litres}$$

$$= \left(\frac{76700}{51} \right) \text{ litres}$$

Total amount spent = Rs. (3×4000) = Rs. 12000.

$$\therefore \text{Average cost} = \text{Rs. } \left(\frac{12000 \times 51}{76700} \right) = \text{Rs. } \frac{6120}{767} = \text{Rs. 7.98}$$

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10. In Arun's opinion, his weight is greater than 65 kg but less than 72 kg. His brother does not agree with Arun and he thinks that Arun's weight is greater than 60 kg but less than 70 kg. His mother's view is that his weight cannot be greater than 68 kg. If all are correct in their

estimation, what is the average of different probable weights of Arun?

- A. 67 kg.
- B. 68 kg.
- C. 69 kg.
- D. Data inadequate
- E. None of these

Answer: Option A

Explanation:

Let Arun's weight be X kg.

According to Arun, $65 < X < 72$

According to Arun's brother, $60 < X < 70$.

According to Arun's mother, $X \leq 68$

The values satisfying all the above conditions are 66, 67 and 68.

$$\therefore \text{Required average} = \left(\frac{66 + 67 + 68}{3} \right) = \left(\frac{201}{3} \right) = 67 \text{ kg.}$$

11. The average weight of A, B and C is 45 kg. If the average weight of A and B be 40 kg and that of B and C be 43 kg, then the weight of B is:

- A. 17 kg
- B. 20 kg
- C. 26 kg
- D. 31 kg

Answer: Option D

Explanation:

Let A, B, C represent their respective weights. Then, we have:

$$A + B + C = (45 \times 3) = 135 \dots (i)$$

$$A + B = (40 \times 2) = 80 \dots (ii)$$

$$B + C = (43 \times 2) = 86 \dots (iii)$$

$$\text{Adding (ii) and (iii), we get: } A + 2B + C = 166 \dots (iv)$$

Subtracting (i) from (iv), we get : $B = 31$.

$$\therefore \text{B's weight} = 31 \text{ kg.}$$

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12. The average weight of 16 boys in a class is 50.25 kg and that of the remaining 8 boys is 45.15 kg. Find the average weights of all the boys in the class.

A. 47.55 kg

B. 48 kg

C. 48.55 kg

D. 49.25 kg

Answer: Option C

Explanation:

$$\begin{aligned}\text{Required average} &= \left(\frac{50.25 \times 16 + 45.15 \times 8}{16 + 8} \right) \\ &= \left(\frac{804 + 361.20}{24} \right) \\ &= \frac{1165.20}{24} \\ &= 48.55\end{aligned}$$

13. A library has an average of 510 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. 250

B. 276

C. 280

D. 285

Answer: Option D

Explanation:

Since the month begins with a Sunday, there will be five Sundays in the month.

$$\begin{aligned}\text{Required average} &= \left(\frac{510 \times 5 + 240 \times 25}{30} \right) \\ &= \frac{8550}{30} \\ &= 285\end{aligned}$$

14. If the average marks of three batches of 55, 60 and 45 students respectively is 50, 55, 60, then the average marks of all the students is:

A. 53.33

B. 54.68

C. 55

D. None of these

Answer: Option B

Explanation:

$$\begin{aligned}\text{Required average} &= \left(\frac{55 \times 50 + 60 \times 55 + 45 \times 60}{55 + 60 + 45} \right) \\ &= \left(\frac{2750 + 3300 + 2700}{160} \right) \\ &= \frac{8750}{160} \\ &= 54.68\end{aligned}$$

15. A pupil's marks were wrongly entered as 83 instead of 63. Due to that the average marks for the class got increased by half ($1/2$). The number of pupils in the class is:

A. 10

B. 20

C. 40

D. 73

Answer: Option C

Explanation:

Let there be x pupils in the class.

$$\text{Total increase in marks} = \left(x \times \frac{1}{2} \right) = \frac{x}{2}$$

$$\therefore \frac{x}{2} = (83 - 63) \Rightarrow \frac{x}{2} = 20 \Rightarrow x = 40.$$

DATA SUFFICIENCY

1. The average age of P, Q, R and S is 30 years. How old is R?

I. The sum of ages of P and R is 60 years.

II. S is 10 years younger than R.

A. I alone sufficient while II alone not sufficient to answer

B. II alone sufficient while I alone not sufficient to answer

- C. Either I or II alone sufficient to answer
- D. Both I and II are not sufficient to answer
- E. Both I and II are necessary to answer

Answer: Option D

Explanation:

$$P + Q + R + S = (30 \times 4) \Rightarrow P + Q + R + S = 120 \dots (i)$$

$$I. P + R = 60 \dots (ii)$$

$$II. S = (R - 10) \dots (iii)$$

From (i), (ii) and (iii), we cannot find R.

∴ Correct answer is (D)

2. How many candidates were interviewed everyday by the panel A out of the three panels A, B and C?

- I. The three panels on average interview 15 candidates every day.
- II. Out of a total of 45 candidates interviewed everyday by the three panels, the number of candidates interviewed by panel A is more by 2 than the candidates interviewed by panel C and is more by 1 than the candidates interviewed by panel B.

- A. I alone sufficient while II alone not sufficient to answer
- B. II alone sufficient while I alone not sufficient to answer
- C. Either I or II alone sufficient to answer
- D. Both I and II are not sufficient to answer
- E. Both I and II are necessary to answer

Answer: Option B

Explanation:

$$I. \text{ Total candidates interviewed by 3 panels} = (15 \times 3) = 45.$$

II. Let x candidates be interviewed by C.

Number of candidates interviewed by A = (x + 2).

Number of candidates interviewed by B = (x + 1).

$$\therefore x + (x + 2) + (x + 1) = 45$$

$$\Rightarrow 3x = 42$$

$$\Rightarrow x = 14$$

Hence, the correct answer is (B).

3. What is the average age of children in the class?

I. The age of the teacher is as many years as the number of children.

II. Average age is increased by 1 year if the teacher's age is also included.

A. I alone sufficient while II alone not sufficient to answer

B. II alone sufficient while I alone not sufficient to answer

C. Either I or II alone sufficient to answer

D. Both I and II are not sufficient to answer

E. Both I and II are necessary to answer

Answer: Option D

Explanation:

Let there be x children.

I gives, age of teacher = x years.

II gives, average age of $(x + 1)$ persons = $(x + 1)$ years.

$$\therefore \text{Teacher's age} = (x + 1)(x + 1) - x^2 = (x^2 + 1 + 2x) - x^2 = (1 + 2x)$$

Thus, teacher's age cannot be obtained.

\therefore Correct answer is (D)