



Average Questions for SSC CGL Tier 2 PDF

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Instructions

For the following questions answer them individually

Question 1

The average of odd numbers upto 100 is

- A 50.5
- B 50
- C 49.5
- D 49

Answer: B

Explanation:

Require sum of $1+3+5+7+9\ldots 99$

Applying formula for summation of n digits with a as first digit and d is the difference

$$\text{sum} = \frac{n}{2}(2a + (n-1)d)$$

or this formula can be reduced to $\frac{n}{2}(a+l)$ hence for calculating avg. it will be

$$\frac{a+l}{2} \text{ (where } l \text{ is last term)}$$

$$\text{so } \frac{1+99}{2} = 50$$

Question 2

The average of three consecutive odd numbers is 12 more than one third of the first of these numbers. What is the last of the three numbers?

- A 15
- B 17
- C 19
- D Data inadequate

Answer: C

Explanation:

Let's say numbers are $a, a+2, a+4$

$$\text{So avg. will be } \frac{(a+a+2+a+4)}{3} = \frac{a}{3} + 12$$

Or $a = 15$

So numbers will be 15, 17, 19

Question 3

The average of the first nine integral multiples of 3 is

- A 12
- B 15
- C 18
- D 21

Answer: B

Explanation:

As we know average of numbers which are in A.P. is $= \frac{a+l}{2}$ (where a is first term and l is last term)

Here $a=3$
and $l= 27$
Hence average will be 15

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Question 4

A cricket player after playing 10 tests scored 100 runs in the 11th test. As a result, the average of his runs is increased by 5. The present average of runs is

- A 45
- B 40
- C 50
- D 55

Answer: C

Explanation:

let his average of 10 matches = x

total runs in 10 matches = $10x$

in 11th match he scored 100 runs, so

total runs after 11th match = $10x + 100$

average of 11 matches = $(10x+100)/11$

after 11th match the average of his runs is increased by 5, so

$$(10x+100)/11 = x+5$$

$$10x+100 = 11x + 55$$

$$x = 45$$

$$\text{but present average} = x+5 = 45+5 = 50$$

so the answer is option C.

Question 5

The average of 6 consecutive natural numbers is K. If the next two natural numbers are also included, how much more than K will the average of these 8 numbers be?

- A 3
- B 1
- C 2
- D 1.8

Answer: B

Explanation:

Let the 6 consecutive numbers be $a-3, a-2, a-1, a, a+1, a+2$

$$\text{average} = \frac{\text{Sum of Elements}}{\text{Number of Elements}}$$

It is given that average of 6 consecutive numbers be k and hence

$$k = \frac{a-3+a-2+a-1+a+a+1+a+2}{6} = \frac{6a-3}{6} = a - \frac{1}{2}$$

now next two numbers ($a+3, a+4$) are also added

Sum of 8 numbers = $a-3+a-2+a-1+a+a+1+a+2+a+3+a+4 = 8a + 4$

average of 8 numbers = $\frac{8a+4}{8} = a + \frac{1}{2} = k + 1$

so average of 8 numbers is more than average of 6 numbers by = $k+1 - K = 1$

Question 6

The average of 7, 11, 15, x, 14, 21, 25 is 15, then the value of x is

A 13.3

B 12

C 3

D 14.5

Answer: B

Explanation:

we know that average = $\frac{\text{sum of elements}}{\text{number of elements}}$

Number of elements = 7

Sum of elements = $7+11+15+14+21+25+x = 93+x$

=> Average = $\frac{93+x}{7}$

=> $15 = \frac{93+x}{7}$

=> $x = 12$

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Question 7

The average salary, per head, of all the workers of an institution is 60. The average salary of 12 officers is = 400; the average salary, per head, of the rest is 56. The total number of workers in the institution is

A 1030

B 1035

C 1020

D 1032

Answer: D

Explanation:

Let the total number of members in the institution be z

average = $\frac{\text{Sum of Elements}}{\text{Number of Elements}}$

Average salary of institution = Rs 60

total salary of Institution = Rs 60z

Given that out of z persons, there are 12 officers and there average salary is = Rs 400

and so total salary of 12 officers = $12 \times 400 = \text{Rs } 4800$

So total salary of other (z-12) members = Rs (60z - 4800).....(1)

It is given that average salary of (z-12) persons = Rs 56

and hence from here the total salary of (z-12) people = Rs 56(z-12).....(2)

Equation 1 and 2 are equal

$$60z - 4800 = 56z - 672$$

$$4z = 4128$$

$$z = 1032$$

Question 8

The average of 50 numbers is 38. If two numbers, namely 45 and 55 are discarded, the average of the remaining numbers is

A 37.5

B 37.9

C 36.5

D 37.0

Answer: A

Explanation:

$$\text{Average} = \frac{\text{Sum of Elements}}{\text{Number of Elements}}$$

Given that Initially Number of Elements = 50

Initial Average = 38

$$\text{Sum of Elements} = 50 \times 38 = 1900$$

Now as two numbers are discarded, hence number of elements left = 48

$$\text{Sum of elements after discarding numbers} = 1900 - 55 - 45 = 1800$$

$$\text{Hence New Average} = \frac{1800}{48} = 37.5$$

Question 9

Average age of A, B and C is 84 years. When D joins them the average age becomes 80 years. A new person, E, whose age is 4 years more than D, replaces A and the average of B, C, D and E becomes 78 years. What is the age of A ?

A 50 years

B 60 years

C 70 years

D 80 years

Answer: D

Explanation:

avg age of a,b,c = 84

$$\frac{A+B+C}{3} = 84$$

$$A+B+C = 84 \times 3 = 252 \dots\dots\dots(1)$$

$$\text{similarly, } \frac{A+B+C+D}{4} = 80$$

$$A+B+C+D = 80 \times 4 = 320$$

so using (1)

$$252 + D = 320$$

$$D = 68 \text{ i.e, } E = 72 \text{ (as mentioned in the question)} \dots\dots\dots(2)$$

$$\frac{B+C+D+E}{4} = 78$$

$$B+C+D+E = 78 \times 4 = 312$$

using (2)

$$B+C+68+72 = 312$$

$$B+C = 172 \dots\dots\dots(3)$$

put (3) in (1)

$$A = 80$$

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Question 10

The average of 20 numbers is 15 and the average of first five is 12. The average of the rest is

A 16

B 15

C 14

D 13

Answer: A

Explanation:

Given that average of 20 numbers = 15

using average = $\frac{\text{Sum}}{\text{Number of Elements}}$

Sum of all numbers = $20 \times 15 = 300$

Average of first five numbers = 12

So sum of first five numbers = $12 \times 5 = 60$

Sum of numbers left = $300 - 60 = 240$

Number of numbers left = $20 - 5 = 15$

So average of left numbers = $\frac{240}{15} = 16$

Question 11

The average age of Ram and his two children is 17 years and the average age of Ram's wife and the same children is 16 years. If the age of Ram is 33 years, the age of his wife is (in years):

A 31

B 32

C 35

D 30

Answer: D

Explanation:

let the present age of Ram, Ram's wife, and his two children be R, W, S1, S2 respectively

Average = $\frac{\text{Sum of Ages}}{\text{Number of Ages}}$

Given that average age of Ram and his childrens is = 17 years

$$R+S1+S2 = 17 \times 3 = 51$$

Given $R = 33$ years .So, $S_2 + S_2 = 51 - 33 = 18$ years

Now given that average age of Rams wife and two children = 16 years

So ,

$$W + S_2 + S_1 = 16 \times 3 = 48$$

$$W = 48 - 18 = 30 \text{ years}$$

Question 12

The average age of 14 girls and their teacher's age is 15 years. If the teacher's age is excluded, the average reduces by 1. What is the teacher's age?

A 32 years

B 30 years

C 29 years

D 35 years

Answer: C

Explanation:

the average age of 14 girls and teacher is given as 15 and as we know

$$\text{Average} = \frac{\text{sum of ages}}{\text{number of persons}}$$

$$\text{Sum of ages of girls and teachers} = 15 \times 15 = 225 \text{ years}$$

Now the age of teacher is excluded and as a result the average reduced by 1 .So

$$\text{New average} = 14$$

$$\text{New number of persons} = 14$$

$$\text{Hence new sum of ages after exclusion of teacher} = 14 \times 14 = 196$$

$$\text{Hence age of teacher} = 225 - 196 = 29 \text{ years}$$

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Question 13

The average of 50 numbers is 38. If two numbers namely 45 and 55 are discarded, the average of the remaining numbers is :

A 35

B 32.5

C 37.5

D 36

Answer: C

Explanation:

Given that average age of 50 members = 38 years

$$\text{So using , average} = \frac{\text{Sum of Age}}{\text{number of persons}}$$

$$\text{Sum of ages} = 50 \times 38 = 1900$$

Now 45 and 55 are discarded and hence number of term left = 48

$$\text{and Total Sum left} = 1900 - 45 - 55 = 1800$$

New Average = $\frac{1800}{48} = 37.5$

Question 14

In a family of 5 members, the average age at present is 33 years. The youngest member is 9 years old. The average age of the family just before the birth of the youngest member was

- A 30 years
- B 29 years
- C 25 years
- D 24 years

Answer: A

Explanation:

average age of 5 members = $33 \times 5 = 165$ years

given that youngest member has age = 9 years

so 9 years ago, youngest member was not present and for other 4 people, 9 years will be reduced from each person's age and hence total age of 4 members apart from the youngest one 9 years ago = $165 - 9 - 36 = 120$ years

average age when the youngest member was born = $\frac{120}{4}$
= 30 years

Question 15

The average marks of 50 students in a class was found to be 64. If the marks of two students were incorrectly entered as 38 and 42 instead of 83 and 24, respectively, then what is the correct average?

- A 61.24
- B 64.54
- C 62.32
- D 61.86

Answer: B

Explanation:

Given, A

Average of 50 students in a class = 64

Marks of two members were wrongly copied as 38 and 42 instead of 83 and 24.

Mean = $\frac{\text{Sum of all observations}}{\text{Number of Observations}}$

let the sum of all observations be x

According to the problem,

$$64 = \frac{x}{50}$$

$$64 \times 50 = x$$

$$x = 3200$$

Subtract the wrongly copied numbers from the total sum

$$= 3200 - (38 + 42)$$

$$= 3200 - 80$$

$$= 3120$$

Now add the new numbers to the total sum

$$= 3120 + (83 + 24)$$

$$= 3227$$

Thus, new sum is 3227

$$\text{New Mean} = \frac{3227}{50} = 64.54$$

Therefore, new Mean = 64.54

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