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Average Questions for CLAT, CDS & SSC Exams.

Average Quiz 2

Directions: Kindly study the following Questions carefully and choose the right answer:

1. The average of a non-zero number and its square is 7 times the number. The number is:
A. 13   B. 17   C. 29   D. 28

2. The average of 5 consecutive numbers is 30. The largest of these numbers is:
A. 20   B. 22   C. 32   D. 40

3. The average of seven consecutive odd numbers is 36. What is the difference between the highest and lowest numbers?
A. 2   B. 5   C. 12   D. Can't be determined

4. The sum of four consecutive odd numbers is 30 more than the average of these numbers. What is the first of these numbers?
A. 7   B. 14   C. 17   D. Data inadequate

5. The mean of 13, 23, 33 , 43 , 53 is :
A. 30   B. 35   C. 45   D. 70

6. 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

7. The average marks obtained by 40 students of a class is 86. If the 5 highest marks are removed, the average reduces by one mark. The average marks of the top 5 students is

A. 92   B. 96   C. 93   D. 97

8. A student finds the average of 10, 2 digit numbers. If the digits of one of the numbers is interchanged, the average increases by 3.6. The difference between the digits of the 2-digit numbers is
A. 4   B. 3   C. 2   D. 5

9. Out of four numbers the average of the first three is 16 and that of the last three is 15. If the last number is 20 then the first number is

A. 23   B. 28   C. 25   D. 21
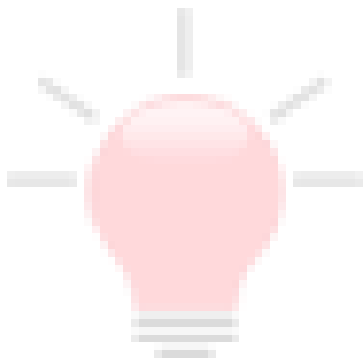
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10. The average weight of 17 boxes is 92 kg. If 18 new boxes are added, the new average increase by 3 kg. What will be the average weight of the 18 new boxes?

A. 98.8 kg   B. 97.8 kg   C. 91.8 kg   D. 92.8 kg

Correct Answers:

1	2	3	4	5	6	7	8	9	10
A	C	C	A	C	C	C	A	A	B

Explanations:

1. Let the number be x. then,

$$\frac{x + x^2}{2} = 7x$$

$x^2 + x = 14x, \quad x^2 - 13x = 0, \quad x[x - 13] = 0, \quad x = 0, 13.$
So the number is 13.
Hence, option A is correct.

2. Let the number be x, (x + 1), (x + 2), (x + 3) & (x + 4).

then, $\left(\dfrac{x + (x + 1) + (x + 2) + (x + 3) + (x + 4)}{5}\right) = 30.$

$5x + 10 = 150, \quad x = \dfrac{140}{5}, \quad x = 28.$
So, the largest number is: x + 4 then,
put the value of x in the largest number: x + 4 = 28 + 4 ⇒ 32.
Hence, option C is correct.

3. Let the smallest odd number be x
so acc. to the que. the consecutive num. are
x, x + 2, x + 4, x + 6, x + 8, x + 10, x +12.
So the difference is x + 12 − x = 12.
Hence, option C is correct.

4. Let the numbers be *x*, *x* + 2 , *x* + 4 & *x* + 6.

then, $(x + x + 2 + x + 4 + x + 6) - \dfrac{x + x + 2 + x + 4 + x + 6}{4} = 30$

⇒ $4x + 12 - \left(\dfrac{4x + 12}{4}\right) = 30$

Or, (4x + 12 − x − 3) = 30, So, 3x = 21, x = 7
So first number x = 7.
Hence, option A is correct.

5. To solve this question, we can apply a short trick approach

$$1^3 + 2^3 + 3^3 + \ldots \ldots n^3 = \frac{n^2(n+1)^2}{4}$$

By the short trick approach, we get

$$\frac{1^3 + 2^3 + 3^3 + \ldots \ldots + 5^3}{4} = \frac{5^2(5+1)^2}{4} = \frac{5^2 \times 6^2}{4}$$

$$\Rightarrow \left(\frac{25 \times 36}{4}\right) = (25 \times 9) \Rightarrow 225.$$

So, Required average = $\left(\frac{225}{5}\right)$ = 45.

Hence, option C is correct.

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6. To solve this question, we can apply a short trick approach;

If the average of 'n' quantities is equal to 'x' when a quantity is removed the average becomes 'y'. Then the value of the removed quantity is [n (x − y) + y].

Given:

Number of persons = n = 15

Old average = x = 15

New average = y = 14

Difference in average = (x − y) = 1

By the short trick approach, we get

[n (x − y) + y]

⇒ [15 × (1) + 14] years = 29 years.

Hence, option C is correct

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7. Average marks of 40 students = 86

Total marks obtained by 40 students = 40 × 86 = 3440

When top 5 marks are removed from the group average reduced by one, then

Average marks of 35 students = 85

Total marks obtained by 35 students = 35 × 85 = 2975

Average marks of top 5 students = $\dfrac{3440 - 2975}{5}$ = 93.

Hence, option C is correct.

8. No. of observations = 10, Increased average = 3.6, Total increased value = 10 × 3.6 = 36

Now, let the unit digit of the number whose digits have been interchanged = x and ten's digit of the number= y

Original number = (10y + x), Number after interchanging the digits = (10x + y)

So, (10x + y) – (10y + x) = 36   OR   9x – 9y = 36

$(x - y) = \dfrac{36}{9} = 4$

Smart Trick Method:

For such questions you can refer to the table below

Difference in no. after interchanging the digits	Difference in the digits of the original no.
9 (9 × 1)	1
18 (9 × 2)	2
27 (9 × 3)	3
36 (9 × 4)	**4**

Hence, option A is correct.

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9. Let's the numbers are A, B, C and D and D = 20 given in questions, then

Total of first three numbers = A + B + C= 16 × 3 = 48   ……..(i)

Total of last three numbers = B + C + D = 15 × 3 = 45   ………(ii)

Now, on putting the value of D in equation (ii), we get

B + C + 20 = 45 ⇒ B + C = 25.

Now, on substituting the value of (B + C) in equation (i), we get

A + 25 = 48 ⇒ A = 23.

Hence, option A is correct.

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10. Total boxes = 17 + 18 = 35 boxes, Increment in average = 92 + 3 = 95 kg

Now, Weight of 18 new boxes = 95 × 35 – 17 × 92 = 1761 kg

∴ Reqd avg = $\dfrac{1761}{18}$ = 97.8 kg.

Hence, option B is correct.