AVERAGE

Average

- Introduction -Average
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- Consecutive Number Average
- Finding the value of article added or removed
- Finding the value of article replaced
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Average

$$Average = \frac{Sum\ of\ all\ observations}{Number\ of\ observations}$$

Example: What is the average of first 10 Prime numbers?

Solution: First 10 Prime numbers are 2,3,5,7,11,13,17, 19, 23 and 29.

$$Hence, Average = \frac{\{2+3+5+7+11+13+17+19+23+29\}}{10} = \frac{129}{10} = 12.90$$

Average

Average of	Formula
Arithmetic sequence with first and last terms known	$\frac{1st\ number+last\ number}{2}$
First n natural numbers	$\frac{n+1}{2}$
First n consecutive even numbers	(n+1)
First n consecutive odd numbers	n
First n consecutive even numbers, where n is the last even number	$(\frac{n+2}{2})$
Consecutive odd number to n, where n is the last odd number	$\frac{n+1}{2}$
Squares of the first n natural numbers	$\frac{(n+1)(2n+1)}{6}$
Squares of n consecutive even numbers, where n is the last even number	$\frac{2(n+1)(2n+1)}{3}$
Squares of n consecutive odd numbers, where n is the last odd number.	$\frac{n(n+1)}{3}$
Cubes of the first n natural numbers	$\frac{n(n+1)^2}{4}$

Average

1. David obtained 76, 65, 82, 67 and 85 marks, out of 100, in English, Mathematics, Physics, Chemistry and Biology. What are his average marks?

A] 75
B] 85
C] 73
D] None of these

Average

2. The average of 1, 3, 5, 7, 9, 11,-------- to 25 terms is

A] 21 B] 19

C] 25 D] 23

Average

3. The average of the first nine integral multiples of 6 is

A] 12

B] 21

C] 18

D] 30

Average

4. The average of the squares of first ten natural numbers is

A] 35.5

B] 36

C] 37.5

D] 38.5

Average

5. The average of five consecutive number odd number is 27. Find the largest of these numbers.

A] 29

B] 23

C] 31

D] 25

Average

6. The average of 10 consecutive number even number is 51. Find the smallest of these numbers.

A] 40

B] 44

C] 42

D] 60

Average

7. The average of 25 consecutive number number is 51. Find the largest of these numbers.

A] 60

B] 59

C] 63

D] 58

Average

8. The average of 16 consecutive number number is 10.5. Find the largest of these numbers.

A] 18

B] 20

C] 30

D] 23

Average

9. The sum of three consecutive odd number is 28 more than the average of these numbers. What is the first of these numbers?

A] 15

B] 14

C] 16

D] 12

Average

10. Average of 20 numbers is 405 . If each given number is divided by 15 . Find new average

A] 18

B] 6075

C] 27

D] 21

Average

11. The average of 5 consecutive numbers is k, when 2 next consecutive numbers are added the new average of all number will be:

A] k + 2

B] k + 3

C] k - 1

D] k + 1

Average

12. The average of 15 numbers is 7. If the average of the first 8 numbers is 6.5 and the average of the last 8 numbers is 8.5, then the middle number is :

A] 20 B] 15

C] 18 D] 19

Average

13. Average temperature of Monday , Tuesday , Wednesday and Thursday is 31°C , and average temperature of Tuesday , Wednesday , Thursday & Friday is 29.5°C . If temperature of Monday is 20 % more than temperature of Friday then find temperature of Friday ?

A] 36

B] 30

C] 19

D] 45

Average

14. Average of 9 numbers is 79 . Average of first 2 numbers is 75 , average of next 4 numbers is 87 . If 8^{th} number is 5 more than 7^{th} number and 1 more than 9^{th} number Find 7^{th} number ?

A] 60

B] 65

C] 68

D] 70

Average

Important Results:

- When a person leaves the group and another person joins the group in place of that person then:

  A)If the average age is increased, then

  Age of new person = Age of separated person + (Increase in average × total number of persons)

  B) If the average age is decreased, then

  Age of new person = Age of separated person - (Decrease in average × total number of persons)

- When a person leaves the group or joins the group:

  A)When a new item join's the group:

  New average = (old sum+ new value)/(Final number of items in the group)

  B) When a item leave the group:

  New average = (old sum - new value)/(Final number of items in the group)

Average

15. The average of 5 numbers is 6, when a new number is added the averages decreases by 0.5. Find the new number:

A] 1

B] 2

C] 3

D] 4

Average

16. The average of runs of a cricket player of 20 innings was 32. How many runs must he make in his next innings so as to increase his average of runs by 4?

A] 114

B] 120

C] 116

D] 114

Average

17. A cricketer has a certain average of runs for his 8 innings. In the ninth innings, he scores 100 runs, thereby increases his average by 9 runs. His new average of runs is

A] 14

B] 28

C] 16

D] 19

Average

18. A cricketer whose bowling average is 12.4 runs per wicket, takes 5 wickets for 26 runs and thereby decreases his average by 0.4. The number of wickets taken by him till the last match was

A] 64

B] 72

C] 85

D] 80

Average

19. Average age of 24 students and a teacher is 15 years. If age of teacher is removed then average age will decrease by one year. Find age (in years) of the teacher ?

A] 39

B] 38

C] 40

D] 45

Average

20. The average of 21 numbers is 16, when a new number is excluded the averages increases by 0.5. Find the excluded number:

A] 16

B] 26

C] 6

D] 9

Average

21. Average of a batsman in 40 innings is 50 runs. Difference of their highest and lowest score is 172 runs and if we remove highest and lowest score innings then average becomes 48. Find highest score ?

A] 173

B] 174

C] 170

D] 171

Average

22. The average of 100 observations was calculated as 35. It was found later, that one of the observations was misread as 83 instead of 53. The correct average is

A] 32.7

B] 34.7

C] 33.7

D] 35.7

Average

23. The average of 100 numbers is 46 but it was found that 2 numbers 16 and 43 are mistakenly calculated as 61 and 34. Find the correct average.

A] 45.65

B] 46.44

C] 45.56

D] 44.46

Average

24. The average weight of 8 members group is increases by 1.5 kg when a person whose weight is 65 kg is replaced by a new person. Find weight of a new person ?

A] 76 kg

B] 87 kg

C] 77 kg

D] None

Average

25. Average weight of 8 members group is decreased by 2.5 kg when a person whose weight is 88 kg is replaced by a new person. Find weight of a new person ?

A] 68 kg

B] 78 kg

C] 77 kg

D] 65 kg

Average

26. The average of 50 numbers is zero. How many of them can be greater than zero, at the most?

A] 25

B] 1

C] 49

D] None of them

Average

27. The average weight of 3 men A , B & C is 84 Kg. Another man D joins the group and the average now becomes 80 kg. If another man E whose weight is 3 kg more than that of D , replaces A then the average weight of B , C , D & E becomes 79 kg. What is the weight of A ?

A] 70 kg

B] 75 kg

C] 77 kg

D] 80 kg

Average

28. There are 42 students in a hostel. If the number of students increases by 13 expenditure on food increases by 30 Rs per day but average expenditure of per student decreases by Rs 3 . Find expenditure (in Rs) of food before increment ?

A] Rs. 750

B] Rs. 630

C] Rs. 650

D] Rs. 600

Average

29. The average age of a husband and wife who were married 4 years ago was 25 years at the time of their marriage. The average age of the husband , wife and a child who was born during the interval is 20 years now. Find present age (in years) of a child ?

A] 2

B] 4

C] 3

D] 5

Average

30. Average age of a father , a mother and a son at the time of their son s marriage was 42 years. After 1 year, child born and after 6 years of their son's marriage average age of the family becomes 36 years. Find age of daughter in law at the time of their marriage ?

A] 22 years

B] 23 years

C] 25 years

D] 30 years

Average

31. The average of marks obtained by 77 candidates in a certain examination is 17 . If the average marks of passed candidates is 19 and that of the failed candidates is 8, what is the number of candidates who passed the examination ?

A] 63

B] 70

C] 14

D] 56

Average

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

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

Average

33. What is the salary of X in a group of X, Y, Z, whose average salary is Rs. 36,700?

Statement I. Total Salaries of Y and Z is Rs.78,650
Statement II. Total salaries of X and Y is Rs. 97,550

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

Any Doubts???