|  |
| --- |
| **AVERAGE** |

**Formula:**

**Average = (Sum of observations) / Number of observations)**

**A = (S/N) or S = AN**

1. **A batsman scores 35, 45 and 37 runs in first, second and third innings respectively. Find the average runs in the three innings?**

**Average runs = (35 + 45 + 37 / 3) = 39 runs**

1. **Find the average of first five multiples of 3?**

**Average = (3 + 6 + 9 + 12 + 15) / 5 = (45/5) = 9**

1. **The average marks obtained by 120 candidates in a certain examination is 35. Find the total marks?**

**Total marks = 120 x 35 = 4200**

1. **The average height of 30 boys out of a class of 50, is 160 cm. If the average height of the remaining boys is 165 cm, the average height of the whole class (in cm) is:**
2. **161 (b) 162 (c) 163 (d) 164**

**Required average = (30 x 160 + 20 x 165) / 50 = (4800 + 3300) / 50 = (8100/50) = 162**

1. **The average of three numbers is 20. If two numbers are 16 and 22, the third is:**
2. **22 (b) 20 (c) 19 (d) 18**

**Total of three numbers = (20 x 3) = 60**

**Third number = 60 – (16 + 22) = 22**

1. **The average of two numbers is M. If one number is N, then the other number is:**
2. **2N (b) 2M (c) M – N (d) 2M - N**

**Sum of two numbers = 2M. Therefore, other number = (2M – N)**

1. **The average of five results is 46 and that of the first four is 45. The fifth result is:**
2. **1 (b) 10 (c) 12.5 (d) 50**

**Fifth result = (46 x 5 – 45 x 4) = 230 – 180 = 50**

1. **The average of Kanchan’s marks in 7 subjects is 75. His average in six subjects excluding Science is 72. How many marks did he get in Science?**
2. **72 (b) 80 (c) 90 (d) 93**

**Marks in Science = (7 x 75) – (6 x 72) = 93**

1. **The average of eight numbers is 14. The average of six of these numbers is 16. The average of the remaining two numbers is:**
2. **4 (b) 8 (c) 12 (d) 16**

**Total of remaining two numbers= (8 x 14) – (6 x 16) = 16.**

**Therefore, average of remaining two numbers = 16/2 = 8.**

1. **The average price of three items of furniture is Rs15000. If their prices are in the ratio**

**3 : 5 : 7, the price of the cheapest item is:**

1. **Rs9000 (b) Rs15000 (c) Rs18000 (d) Rs21000**

**Let their prices be 3x, 5x and 7x. Then, 3x + 5x + 7x = 15000 x 3 (or) x = 3000**

**Therefore, cost of cheapest item = 3x = 3 x 3000 = Rs9000**

1. **A man spends Rs18,000 monthly on an average for the first four months and Rs20,000 monthly for the next 8 months and saves Rs56000 a year. His average monthly income is:**
2. **Rs20000 (b) Rs22000 (c) Rs24000 (d) Rs26000**

**Total annual income = Rs (18000 x 4 + 20000 x 8) + 56000 = Rs2,88,000**

**Therefore, average monthly income = (288000 / 12) = Rs24000**

1. **The average age of 30 students of a class is 12 years. The average age of a group of 5 of the students is 10 years and that of another group of 5 of them is 14 years. What is the average age of the remaining students?**
2. **8 years (b) 10 years (c) 12 years (d) 14 years**

**Total age of 20 students = Total age of 30 students – total age of 10 students**

**= (30 x 12) – (5 x 10 + 5 x 14) = 360 – 120 = 240**

**Average of remaining 20 students = (240 / 20) = 12 years**

1. **The average of 50 numbers is 38. If two numbers namely, 45 and 55 are discarded, the average of remaining numbers is:**
2. **36.50 (b) 37.00 (c) 37.50 (d) 37.52**

**Total of 50 numbers = 50 x 38 = 1900.**

**Discarded total = 45 + 55 = 100**

**Average of remaining 48 numbers = (1900 – 100) / 48 = 1800 / 48 = 37.50**

1. **The mean (average) of 100 observations was calculated as 40. It was found later on that one of the observations was misread as 83 instead of 53. The correct mean is:**
2. **39 (b) 39.7 (c) 40.3 (d) 42.7**

**Total = 40 x 100 = 4000**

**Difference in total = 83 – 53 = 30**

**Correct sum = 4000 – 30 = 3970**

**Correct mean (average) = 3970 / 100 = 39.7**

1. **The average of six numbers is 30. If the average of first four is 25 and that of last three is 35, the fourth number is:**
2. **25 (b) 30 (c) 35 (d) 40**

**Sum of 7 numbers = (4 x 25) + (3 x 35) = 205**

**Sum of 6 numbers = 6 x 30 = 180**

**Remaining number = 205 – 180 = 25**

1. **The average of 11 observations is 60. If the average of first five observations is 58 and that of the last five is 56, then the sixth observation is:**
2. **85 (b) 90 (c) 100 (d) 110**

**Sum of 11 observations = 11 x 60 = 660**

**Sum of 10 observations = (5 x 58) + (5 X 56) = 290 + 280 = 570**

**Therefore, sixth observation = 660 – 570 = 90**

1. **In seven given numbers, the average of first four numbers is 4 and that of the last four is also 4. If the average of these seven numbers is 3, the fourth number is:**
2. **3 (b) 4 (c) 7 (d) 11**

**Sum of 8 numbers = (4 x 4) + (4 x 4) = = 32**

**Sum of 7 numbers = (7 x 3) = 21**

**Therefore, fourth number = 32 – 21 = 11**

1. **The average of 25 results is 18. The average of first twelve of them is 14 and that of last twelve is 17. The thirteenth result is:**
2. **28 (b) 72 (c) 78 (d) 85**

**Sum of 25 results = 25 x 18 = 450**

**Sum of 24 results = (12 x 14) + (12 x 17) = 168 + 204 = 372**

**Therefore, the remaining number = 450 – 372 = 78**

1. **The average of 11 results is 60. If the average of first six results is 58 and that of the last six is 63, find the sixth result?**

**Sixth result = (total of 12 results) – (total of 11 results)**

**= (6 x 58 + 6 x 63) – (11 x 60) = 348 + 378 – 660 = 66**

1. **The average weight of A, B and C is 45 kg. If the average weight of A and B is 40 kg and that of B and C is 43 kg, then find the weight of B?**

**A + B + C = 45 x 3 = 135 kg**

**A + B = 40 x 2 = 80 kg and B + C = 43 x 2 = 86 kg**

**Therefore B = (A + B) + (B + C) - (A + B + C) = 80 + 86 – 135 = 31 kg**

1. **There are two sections A and B of a class, consisting of 36 and 44 students respectively. If the average weight of section A is 40 kg and that of section B is 35 kg, find the average weight of the whole class?**

**Total weight of 80 students = (36 x 40 + 44 x 35) = 2980 kg**

**Therefore average weight = (2980 / 80) = 37.25 kg**

1. **The average of 5 numbers is 7. When 3 new numbers are added, the average of the eight numbers is 8.5. The average of the three new numbers is:**
2. **11 (b) 8.5 (c) 7.75 (d) 7**

**Sum of three new numbers = sum of eight numbers – sum of five numbers.**

**Implies (8.5 x 8) – (5 x 7) = 68 – 35 = 33**

**Their average = 33 / 3 = 11**

1. **The average age of 30 students is 9 years. If the age of their teacher is included, it becomes 10 years. The age of the teacher (in years) is:**
2. **27 (b) 31 (c) 35 (d) 40**

**Age of teacher = (31 x 10) – (30 x 9) = 310 – 270 = 40**

1. **The average age of 24 boys and the teacher is 15 years. When the teacher’s age is excluded, the average decreases by 1. What is the age of the teacher?**
2. **38 years (b) 39 years (c) 40 years (d) 41 years**

**Sum of ages of all students & teacher = 25 x 15 = 375 years**

**Sum of ages of students only = 24 x 14 = = 336 years**

**Therefore, age of teacher = 375 – 336 = 39 years**

1. **The average age of 40 students of a class is 15 years. When 10 new students are admitted, the average is increased by 0.2 years. The average age of new students is:**
2. **15.2 years (b) 16 years (c) 16.2 years (d) 16.4 years**

**Sum of age of 40 students = 40 x 15 = 600 years**

**Sum of age of 50 students = 50 x 15.2 = 760 years**

**Sum of age of 10 new students = 760 – 600 = 160 years**

**Their average = (160 / 10) = 16 years**

1. **The average weight of 8 men is increased by 1.5 kg when one of the men who weighs 65 kg is replaced by a new man. The weight of the new man is:**
2. **76 kg (b) 76. 5 kg (c) 76.7 kg (d) 77 kg**

**Total weight increased = (8 x 1.5) = 12 kg**

**Weight of new man = 65 + 12 = 77 kg**

1. **The average weight of 9 mangoes increases by 20 g if one of them weighing 120 g is replaced by another. The weight of the new mango is:**
2. **180 g (b) 200 g (c) 260 g (d) 300g**

**Total weight increased = 9 x 20 = 180 g**

**Weight of new mango = 120 + 180 = 300 g**

1. **The average weight of 6 men decreased by 3 kg when one of them weighing 80 kg is replaced by a new man. The weight of the new man is:**
2. **56 kg (b) 58 kg (c) 62 kg (d) 76 kg**

**Total weight decreased = 6 x 3 = 18 kg**

**Weight of new man = 80 – 18 = 62 kg**

1. **The average age of a committee of 8 members is 40 years. A member aged 55 years retired and his place was taken by another member aged 39 years. The average age of the present committee is:**
2. **35 years (b) 36 years (c) 38 years (d) 39 years**

**Total weight initially = 40 x 8 = 320 years**

**Changes happened = - 55 + 39 = - 16 years**

**New total = 320 – 16 = 304 years**

**New average = (304 / 8) = 38 years**

1. **The mean temperature from the 9th to the 16th of January, both days inclusive, was 11.60 C and from the 10th to the 17th it was 12. 20C. The temperature on the 9th was 10.80C. What was it on the 17th?**
2. **15.60C (b) 4.80C (c) 9.60C (d) 150C**

**Total temperature from 9th to 16th of January = 8 x 11.60 C = 92.80 C**

**Total temperature from 10th to 17th of January = 8 x 12.20 C = 97.60 C**

**Therefore, temperature on 17th January = 10.80 C + 97.60 C – 92.80 C =15.60 C**

1. **The average weight of 19 students was 25 kg. By the admission of a new student the average weight is reduced to 24.8 kg. The weight of the new student is:**
2. **24.8 kg (b) 21 kg (c) 20.8 kg (d) 20.6 kg**

**The weight of the new student = (20 x 24.8) – (19 x 25) = 21 kg**

1. **The average of 6 numbers is 8. What is the 7th number so that average becomes 10?**
2. **22 (b) 21 (c) 20 (d) 18**

**Sum of 7 numbers = 7 x 10 = 70**

**Sum of 6 numbers = 6 x 8 = 48**

**Required number = 70 – 48 = 22**

1. **Three numbers are in the ratio 4 : 5 : 6 and their average is 25. The largest number is:**
2. **30 (b) 32 (c) 36 (d) 42**

**Average is 25 means total = (25 x 3) = 75**

**Largest number = 75 (6/15) = 30**