Average

1. What is the average of first 25 natural numbers?

2. What is the average of all natural numbers from 39 to 59?

3. What is the average of squares of first 20 natural numbers?

4. Average of three numbers A, B and C is 36. If average of A and B is 40 and that of A and C is 38, what is the average of B and C?

5. The average of runs of a cricket player of 12 innings was 28. How many runs must he make in his next innings so as to increase his average of runs by 2?

6. A batsman makes a score of 87 runs in the 22^{nd} inning and thus increases his average by 2. Find his average after 22 innings?

7. The average of 11 consecutive natural numbers is 14. The largest of these numbers is:

8. The average weight of 12 people increases by 2.5 kg when a new person comes in place of one of them weighing 48 kg. What might be the weight of the new person?

9. A student's marks were wrongly entered as 77 instead of 47. Due to that the average marks for the class got increased by 0.6. The number of students in the class is:

10. The average of 11 numbers is 40. If the average of the first six numbers is 37 and that of the last six numbers is 41, then the middle number is:

11. The average weight of a class of 35 students is 30 kg. If the weight of the teacher be included, the average rises by 750 g. The weight of the teacher is:

12. The average age of 10 men is increased by 1.5 years when two of them whose ages are 24 years and 30 years are replaced by two new men. The average age of the two new men is:

13. In a family, the average age of father and a mother was 29 years five years ago. The average age of the father, mother and their only son who was born some time during last five years is 24 at present. What will be average age of the son and his mother after 10 years from now?

14. The average of 4 positive integers is 62. The highest integer is 88 and the lowest integer is 36. The difference between the remaining two integers is 20. What is the value of the higher of the remaining two integers?

15. A library has an average of 400 visitors on Sundays and 160 on other days. The average number of visitors per day in a month of September beginning with a Sunday is:

16. A certain factory employed 40 men and 60 women. The average wage per person was ₹480 per day. If a woman got ₹50 more than a man per day, then what are the daily wages of a man?

17. The average weight of 24 boys in a class is 45 kg and that of the remaining 21 boys is 40 kg. Find the average weight of all the boys in the class.

18. The average salary of all the workers in a workshop is ₹27000. The average salary of 12 technicians is ₹25000 and the average salary of the rest is ₹30000. Find the total number of workers in the workshop.

19. A car owner buys petrol at ₹75, ₹90 and ₹100 per liter for three successive years. What approximately is the average cost per liter of petrol if he spends ₹45000 each year on petrol?

20. The average expenditure of a man for the first four months of a year is ₹12500 and for the next eight months it is ₹15500. He saves ₹42000 during the year. His average monthly income is:

21. A student finds the average of 10 positive integers. Each integer contains two digits. By mistake, the boy interchanges the digits of one of the numbers. Due to this, the average becomes 3.6 more than the previous one. What is the difference of the two digits of that number?

22. Some consecutive natural numbers, starting with 1, are written on the board. Now, one of the numbers was erased and the average of the remaining numbers is 800/39. Find the number which was erased.

23. A person took the average of first 10 natural numbers but he counted one number thrice and as a result, the average increased by 1.6.Which is that number?

24. The average age of the students in an institute was 15 years. Then 10 students of average age 12 years joined the institute and the average age of the students of this institute became 14.8 years. What was the initial number of students in that institute?

25. A dealer buys dry fruit at Rs. 100, Rs. 80 and Rs. 60 per kg. He mixes them in the ratio 3:4:5 by weight, and sells them at a profit of 50%. At what price does he sell the dry fruit?

Mixtures and Alligation

1. Rice of superior quality costing ₹58 per kg is mixed with that of inferior quality costing ₹38 per kg so that cost of the mixture becomes ₹46 per kg. What is the ratio of two qualities of rice mixed?

2. Two types of grains costing ₹90 per kg and ₹78 per kg are mixed to obtain a mixture costing ₹85 per kg. Find the ratio in which they are mixed.

3. Water is added to a solution of milk and water containing 60% milk. If the resultant solution contains 45% water, find the ratio in which water is added to the original solution.

4. A milkman buys milk and sells it at 20% gain after adding some water. If he sells it at cost price how much percent of the solution he sells is water?

5. How many kilograms of sugar costing ₹45 per kg must be mixed with 6 kg of sugar costing ₹30 per kg so that cost of the mixture becomes ₹40 per kg?

6. In a school, the average weight of boys in a class is 30 kg and the average weight of girls in the same class is 27 kg. Average weight of the whole class is 29 kg. What is the number of boys in the class if total 72 students are there?

7. Find the ratio in which rice at ₹72 per kg be mixed with rice at ₹57 per kg to produce a mixture worth ₹63 per kg.

8. In what ratio should two varieties of sugar at ₹18 per kg and ₹24 per kg be mixed together so that the seller earns ₹8 per kg when he sells it for ₹28 per kg?

9. A mixture of 154 liters of milk and water contains 30% water. How much more water should be added so that water becomes 56% of the new mixture?

10. A sum of ₹11800 was divided among 50 students such that each boy received ₹260 and each girl ₹180. Find the number of girls?

11. The ratio of alcohol and water in two different containers is 1:3 and 5:4. In what ratio we are required to mix the mixtures of two containers in order to get the new mixture in which the ratio of alcohol and water be 2:3?

12. In the 75 liter of mixture of milk and water, the ratio of milk and water is 4:1. How much water we should add to make the ratio of milk and water 3:2?

13. Equal quantities of three mixtures of milk and water are mixed in the ratio 3:2, 1:3 and 5:7. The ratio of water and milk in the mixture is?

14. A jar contains 40 liter mixture of alcohol and water in some ratio. When 10 liter of the mixture is taken out and replaced it milk, then the ratio of milk and water becomes 7:3. Then what is the initial quantity of milk in the jar?

15. A can contains a mixture of two liquids A and B in the ratio 7:5. When 9 liter of mixture are drawn off and the can is filled with B, the ratio of A and B becomes 7:9. How many liter of liquid A was contained by the can initially?

16. A vessel is filled with liquid, 4 parts of which are water and 5 parts syrup. How much percent of the mixture must be drawn off and replaced with water so that the new mixture contains half water and half syrup?

17. In a cask, there is a mixture of milk and water in the ratio 3:5. If it is filled with an additional 12 liter of water, the cask would be full and ratio of milk and water would become 1:2. Find the capacity of the cask?

18. How many liters of oil at ₹200 per liter should be mixed with 60 liters of a second variety of oil at ₹300 per liter so as to get a maximum whose cost is ₹260 per liter?

19. One type of liquid contains 30% of benzene, the other contains 40% of benzene. A can is filled with 6 parts of the first liquid and 4 parts of the second liquid. Find the percentage of benzene in the new mixture.

20. In an animal home, there are only rabbits and sparrows. If total number of legs and heads are 288 and 90 respectively, find number of sparrows.

21. A cask is filled with two liquids A and B in the ratio 6:5. When 25 liter of the solution is withdrawn and is substituted with liquid B, the ratio of A and B becomes 5:6. How many liter does the cask hold?

22. The cost price of two articles is ₹12000 of which one is sold at a gain of 15%, the other at the loss of 10%, such that the total selling price is ₹12600. Find the cost price of the cheaper article.

23. Three solutions contain milk and water in the ratio 3:5, 2:3 and 5:1 respectively. If equal volumes of all three are mixed, find the ratio of milk and water in the resultant solution.

24. In what ratio rice costing ₹48 per kg to be mixed with another type of rice costing ₹32 per kg so that the mixture can be sold at ₹42 per kg thereby gaining 20%?

25. Mangesh borrowed a total of ₹45000, some of which at the rate of 5% per anum and remaining at 8% per anum. If he repaid total interest of ₹8550 after three years, find the sum he borrowed at 8%.

Nachiket Joshi, PMP®
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NACHIKET JOSHI
www.nachiketjoshi.in
nj@nachiketjoshi.in
+91 9850 123 664 nj_anandyatri
Nachiket Joshi Training Nachiket Joshi Training