



MATHS

BOOKS - S CHAND IIT JEE

FOUNDATION

AVERAGE

Examples

1. What is the average of squares of consecutive odd numbers between 1 to 13 ?



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2. The average age of r boys in a class is a years. If the average age of s of them is b years, then what is the average age of the remaining boys ?



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3. The average marks of 48 students in a class is 45. the average marks of the boys in the

class is 40 and average marks of the girls in the class is 50. what is the ratio between the numbers of boys and the number of girls in the class ?



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4. From a class of 24 boys, a boy, aged 10 years, leaves the class and in his place a new boy is admitted. As a result, the average age of the class is increased by 2 months. What is the age of the new boy ?



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5. The average of 8 numbers is 20. The average of first two numbers is $15\frac{1}{2}$ and that of the next three is $21\frac{1}{3}$. If the sixth number be less than the seventh and eight numbers by 4 and 7 respectively, then the eighth number is :



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6. The average age of 8 persons in a committee is increased by 2 years when two

men aged 35 years and 45 years are substituted by two women. What is the average age of these two women ?



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7. The average of the age of a husband and wife, five years ago was 25 years. The average of the present age of husband, wife and a child born during the time is 21 years. Determine the present age of the child.



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8. Of the three numbers, the first is twice the second and the second is twice the third. The average of the reciprocal of the numbers is $\frac{7}{72}$. The numbers are: (a) 16, 8, 4 (b) 20, 10, 5 (c) 24, 12, 6 (d) 36, 18, 9



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9. The mean temperature of Monday to Wednesday was $37^{\circ}C$ and of Tuesday to Thursday was $34^{\circ}C$. If the temperature on

Thursday was $\frac{4}{5}$ that of Monday, the temperature of Thursday was



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10. The average age of a class is 40 years. 12 new students with an average age of 32 years join the class, there by decreasing the average by 4 years. What is the original strength of the class?



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Question Bank

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

A. 40

B. 50

C. 47.5

D. 38.5

Answer: D



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2. The average of the two-digit numbers, which remain the same when the digits interchange their positions, is (a) 33 (b) 44 (c) 55 (d) 66

A. 33

B. 44

C. 55

D. 66

Answer: C



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3. If the average of m numbers is n^2 and that of n numbers is m^2 , then the average of $(m + n)$ numbers is $m - n$ (b) mn (c) $m + n$ (d) $\frac{m}{n}$

A. $m-n$

B. mn

C. $(m + n)$

D. $\frac{m}{n}$

Answer: B



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4. If the average of a, b, c is M and $ab + bc + ca = 0$, then the average of a^2, b^2, c^2 is

A. M^2

B. $3M^2$

C. $6M^2$

D. $9M^2$

Answer: B



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5. The average of six number is x and average of three of these is y . If the average of the remaining three is z , then

A. $x = y + z$

B. $2x = y + z$

C. $x = 2y + 2z$

D. $x = y + 2z$

Answer: B



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6. The average weight of 120 student in the second year class of college is 56kg. If the average weight of boys and that of girls in the class are 60kg and 50 kg respectively, then the number of boys and girls in the class are respectively,

A. 72,64

B. 38,64

C. 72,48

D. 62,58

Answer: C



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7. The average price of 10 books is Rs 12 while the average price of 8 of these books is Rs 11.75. Of the remaining two books, if the price of one book is 60% more than the price of the

other, what is the price of each of these two books? (a) Rs5, Rs7.50 (b) Rs8, Rs12 (c) Rs10, Rs16 (d) Rs12, Rs14

A. Rs.8, Rs.12

B. Rs.10, Rs.16

C. Rs.5, Rs.7.50

D. Rs.12, Rs.14

Answer: B



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8. The average salary of male employee in a firm was Rs. 5200 and that of female was Rs. 4200. The average salary of all the employees was Rs. 5000. What is the percentage of female employees?

A. 80 %

B. 20 %

C. 40 %

D. 30 %

Answer: B



9. A batsman has a certain average of runs for 16 innings. In the 17th inning, he makes a score of 85 runs there by increasing the average by 3. What is the average of 17 innings?

A. 38

B. 37

C. 36

D. 35

Answer: B



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10. There are 50 boys in a class, one boy weighting 40 kg goes away and at the same time another boy joins the class. If the average weight of the class is thus decreased by 100 g, find the weight of the new boy?

A. 32 kg

B. 40 kg

C. 35 kg

D. 37 kg

Answer: C



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11. X has twice as much money as that of y and y has 50% more money than that of Z, If the average money of all of them is Rs. 110, then the money which X has

A. 55

B. 60

C. 90

D. 180

Answer: D



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12. The average score of two sections is 28.

The average score of section A is 30, which there are 25 students, If there are 20 students

in section B, then the average score of section

B is

A. 25.5

B. 27.5

C. 29

D. 33

Answer: A



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13. The average age of father and his two sons is 27 years. Five years ago of the two sons was 12 years. If the difference between the ages of two sons is 4 years, then the present age of the father is

A. 34 years

B. 47 years

C. 64 years

D. 27 years

Answer: B



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14. The average marks obtained by five students A,B,C,D and E is $52\frac{3}{5}$. If the average marks obtained by A, C and D are $53\frac{2}{3}$ and average marks obtained by B,C and E are $52\frac{2}{3}$, then the marks obtained by C were

A. 56

B. 53

C. 57

D. 60

Answer: A



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15. In an examination, a pupils average marks was 63 per paper. If he had obtained 20 more marks for his Geography paper and 2 more marks for his History paper, his average per paper would have been 65. How many papers

were there in the examination? (a) 8 (b) 9 (c)

10 (d) 11

A. 8

B. 9

C. 10

D. 11

Answer: D



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16. The average of marks of 28 students in Mathematics was 50. Eight students left the school and then this average increased by 5. what is the average of marks obtained by the students who left the school ?

A. 37.5

B. 42.5

C. 45

D. 50.5

Answer: A



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17. The average of 11 players of a cricket team is decreased by 2 months when two of them aged 17 years and 20 years are replaced by two new players. The average age of the new players is (a) 17 years 1 month (b) 17 years 7 months (c) 17 years 11 months (d) 18 years 3 months

A. 17 years 1 month

B. 17 years 7 month

C. 17 years 11 month

D. 17 years 3 month

Answer: B



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18. The average monthly salary of the workers in a workshop is Rs. 8500. if the average monthly salary of 7 technicians is Rs. 10,000 and the average monthly salary of the rest is

Rs. 7800, the total number of workers in the workshop is

A. 18

B. 20

C. 22

D. 24

Answer: C



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19. The average age of 30 boys in a class is 15 years. One boy aged 20 years, left the class, but two new boys came in his place whose ages differ by 5 years. If the average age of all the boys now in the class still remains 15 years, the age of the younger newcomer is:

A. 20 years

B. 15 years

C. 10 years

D. 8 years

Answer: B



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20. 3 years ago, the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is the same today. The present age of the baby is :

A. 3 years

B. 2 years

C. $1\frac{1}{2}$ years

D. 1 years

Answer: B



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21. The average annual income (in Rs) of certain agricultural workers is S and that of other workers is T . The number of agricultural workers is 11 times that of other workers. Then the average monthly income (in

Rs) of all the workers is $\frac{S + T}{2}$ (b) $\frac{S + 11T}{2}$

(c) $\frac{1}{11S} + T$ (d) $\frac{11S + T}{12}$

A. $\frac{S + 11T}{12}$

B. $\frac{S + T}{2}$

C. $\frac{11S + T}{12}$

D. $\frac{1}{11S} + T$

Answer: C



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22. The average monthly income of P and Q is Rs 5050. The average monthly income of Q and R is Rs 6250 and the average monthly income of P and R is Rs 5200. The monthly income of P is (a) Rs 3500 (b) Rs 4000 (c) Rs 4050 (d) Rs 5000

A. 4050

B. 3500

C. 4000

D. 5000

Answer: C



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23. the average of four positive integers is 72.5. the highest integer is 117 and the lowest integer is 15. the difference between the remaining two integers is 12. which is the higher of these two remaining integers ?

A. 70

B. 73

C. 85

D. 80

Answer: C



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24. The average score of a class of boys and girls in an examination is A . The ratio of boys and girls in the class is $3 : 1$. If the average score of the boys is $A + 1$, the average score

of the girls is $A - 1$ (b) $A - 3$ (c) $A + 1$ (d)

$A + 3$

A. $(A - 1)$

B. $(A - 3)$

C. $(A + 3)$

D. $(A + 3)$

Answer: B



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25. Of the four members, the first is twice the second, the second is one-third of the third and the third is 5 times the fourth. The average of the numbers is 24.75. The largest of these numbers is (a) 9 (b) 25 (c) 30 (d) None of these

A. 9

B. 25

C. 30

D. 45

Answer: D



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26. The average temperature of the town in the first four days of a month was 58 degrees. The average for the second, third, fourth and fifth days was 60 degrees. If the temperatures of first and fifth days were in the ratio 7 : 8, then what is the temperature on the fifth day?

(a) 64 degrees (b) 62 degrees (c) 56 degrees
(d) None of these

A. 64 degrees

B. 62 degrees

C. 56 degrees

D. 48 degrees

Answer: A



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27. A company produces on an average 4000 items per month for the first 3 months. How many items it must produce on an average per

month over the next 9 months, to average 4375 items per month over the whole? (a) 4500 (b) 4600 (c) 4680 (d) 4710

A. 4500

B. 4600

C. 4680

D. 4710

Answer: A



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28. The average of 5 consecutive numbers is m .
if the next three natural numbers are also included, how much more than m will the average of these 8 numbers be ?

A. 2

B. 1

C. 1.4

D. 1.5

Answer: D



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29. The average weight of 3 men A , B and 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 and E becomes 79 kg. The weight of A is (a) 70 kg (b) 72 kg (c) 75 kg (d) 80 kg

A. 65 kg

B. 70 kg

C. 75 kg

D. 80 kg

Answer: C



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30. The batting average for 40 innings of a cricket player is 50 runs. His highest score in an innings exceeds his lowest score by 172 runs. If these two innings are excluded, the average score of the remaining 38 innings is 48 runs. Find his highest score in an innings.

A. 175

B. 180

C. 174

D. 185

Answer: C



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Self Assessment Sheet

1. The average age of a husband and a wife, who were married 4 years ago, was 25 years at the time of their marriage. The average age of the family consisting of husband, wife and a child born during that interval is 20 years today. The age of the child is

A. 1 year

B. 2 years

C. 2.5 year

D. 3 year

Answer: B



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2. The average of marks obtained by 120 candidates in a certain examination is 35. If the average marks of passed candidates is 39 and that of the failed candidates is 15, what is the number of candidates who passed the examination?

A. 100

B. 110

C. 120

D. 150

Answer: A



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3. In a competitive examination, the average marks obtained was 45. it was later discovered that there was some error in computerisation and the marks of 90 candidates had to be

changed from 80 to 50 and the average came down to 40 marks. The total number of candidates who appeared in examination is

A. 520

B. 550

C. 540

D. 560

Answer: C



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4. The average of marks of 28 students in Mathematics was 50. Eight students left the school and then this average increased by 5. what is the average of marks obtained by the students who left the school ?

A. 37.5

B. 42.5

C. 45

D. 50.5

Answer: A



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5. The average of 5 consecutive numbers is m .
if the next three natural numbers are also
included, how much more than m will the
average of these 8 numbers be ?

A. 1

B. 1.5

C. 1.4

D. 2

Answer: B



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6. By selling 144 hens, Mala lost the SP of 6 hens. Calculate her loss percent



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7. The average weight of A,B and C is x kg, A and C lose y kg each after dieting and B puts

on $\frac{y}{2}$ kg. After this, average weight decreases by 1 kg. find y .

A. 1.5kg

B. 3 kg

C. 2 kg

D. 3.5kg

Answer: C



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8. A goods train in five successive minutes from its starts runs 68 metres, 127 metres, 208 metres, 312 metres and 535 metres and for the next 5 minutes maintains an average speed of 33 km/hr. find the average speed of the train in km/hr in covering this total distance.

A. 20 km/hr

B. 30 km/hr

C. 28 km/hr

D. 24 km/hr

Answer: D



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9. The age of the captain of a cricket team of 11 players is 25 years and the wicket keeper is 3 years older than the captain. If the ages of these two are excluded, the average age of the remaining players of the team becomes 1 year less than the average age of the whole team. what is the average age of the whole team ?

A. 18 years

B. 22 years

C. 25 years

D. 23 years

Answer: B



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10. There are four natural numbers. The average of any three numbers is added in the fourth number and in this way the numbers

29,23,21 and 17 are obtained. One of the number is

A. 11

B. 24

C. 21

D. 10

Answer: C



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