



MATHS

BOOKS - ICSE

MEAN AND MEDIAN

Question

1. The heights of 6 boys are 146 cm, 154 cm, 153 cm, 160 cm, 157 cm and 160 cm. Find their mean height.



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2. Find the mean of all prime numbers between 20 and 50.



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3. Find the mean (\bar{x}) of first 5 even natural numbers.



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4. Find the sum of the deviations of the data 4,5,7,9 and 15 from their mean.



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5. Find the mean of 5,6,17,8,9,15,23,18,10 and 24.



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6. Find the resulting mean, if each observation, given above, is :

(i) increased by 3. (ii) decreased by 2.

(iii) multiplied by 4. (iv) divided by 5.



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7. The mean of 7,5,8,p and 11 is 8. Find the value of p.



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8. The mean of 40 observations was 160. It was detected that the value of 165 was wrongly

copied as 125. Find the correct mean.



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9. The mean of 100 observations was found to be 30. If two observations were wrongly taken as 32 and 12 instead of 23 and 11, find the correct mean.



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10. The mean monthly salary of 10 people is Rs. 2,890. One more person whose monthly salary is Rs. 3,000 has also been taken into consideration. Find the mean monthly salary of all the 11 people.



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11. Mean of 15 observations is 200. If one observation is excluded, the mean of

remaining observations is 198. Find the value of the excluded observation.



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12. Out of 25 numbers, the mean of 15 numbers is 36 and the mean of the remaining numbers is 26, find the mean of all the 25 numbers.



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13. Find the median of : 18, 30, 39, 36, 28, 27, 31, 40, 33, 25 and 37.



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14. Find the median of : 34, 47, 41, 52, 53, 56, 35, 49, 55 and 42.



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15. The weight of 12 students (in kg) are :

40,61,54,50,59,37,51,41,48,62,46 and 34.

Find the median weight.

If the weight of 62 kg is replaced by 35 kg, find the new median weight.



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16. The median of the following observations arranged in ascending order, is 20. Find x .

3,4,7,8,10,18, $x+2$, $x+4$,26,28,31,36,38 and 40.





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17. The heights of 6 boys are 146 cm, 154 cm, 153 cm, 160 cm, 157 cm and 160 cm. Find their mean height.



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18. Find the mean of all prime numbers between 20 and 50.



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19. Find the mean (\bar{x}) of first 5 even natural numbers.



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20. Find the sum of the deviations of the data 4,5,7,9 and 15 from their mean.



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21. Find the mean of 5,6,17,8,9,15,23,18,10 and 24.



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22. Find the resulting mean, if each observation, given above, is :

(i) increased by 3. (ii) decreased by 2.

(iii) multiplied by 4. (iv) divided by 5.



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23. The mean of 7,5,8,p and 11 is 8. Find the value of p.





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24. The mean of 40 observations was 160. It was detected that the value of 165 was wrongly copied as 125. Find the correct mean.



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25. The mean of 100 observations was found to be 30. If two observations were wrongly taken as 32 and 12 instead of 23 and 11, find the correct mean.



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26. The mean monthly salary of 10 people is Rs. 2,890. One more person whose monthly salary is Rs. 3,000 has also been taken into consideration. Find the mean monthly salary of all the 11 people.



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27. Mean of 15 observations is 200. If one observation is excluded, the mean of remaining observations is 198. Find the value of the excluded observation.



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28. Out of 25 numbers, the mean of 15 numbers is 36 and the mean of the remaining numbers is 26, find the mean of all the 25 numbers.





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29. Find the median of : 18, 30, 39, 36, 28, 27, 31, 40, 33, 25 and 37.



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30. Find the median of : 34, 47, 41, 52, 53, 56, 35, 49, 55 and 42.



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31. The weight of 12 students (in kg) are :

40,61,54,50,59,37,51,41,48,62,46 and 34.

Find the median weight.

If the weight of 62 kg is replaced by 35 kg, find the new median weight.



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32. The median of the following observations arranged in ascending order, is 20. Find x .

3,4,7,8,10,18, $x+2$, $x+4$,26,28,31,36,38 and 40.



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Exercise 19 A

1. Find the mean of 43, 51, 50, 57 and 54.



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2. Find the mean of first six natural numbers.



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3. Find the mean of first ten odd natural numbers.



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4. Find the mean of all factors of 10.



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5. Find the mean of $x + 3$, $x + 5$, $x + 7$, $x + 9$ and $x + 11$.



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6. If different values of variable x are 9.8, 5.4 ,
3.7 , 1.7 , 1.8 , 2.6 , 2.8 , 10.5 and 11.1 , find
the mean \bar{x}



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7. If different values of variable x are
 $9 \cdot 8, 5 \cdot 4, 3 \cdot 7, 1 \cdot 7, 1 \cdot 8, 2 \cdot 6, 2 \cdot 8, 8 \cdot 6, 10 \cdot 5$

and $11 \cdot 1$, find

the value of $\Sigma(x - \bar{x})$



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8. The mean of 15 observations is 32. Find the resulting mean, if each observation is increased by 3



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9. The mean of 15 observations is 32. Find the resulting mean, if each observation is decreased by 7



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10. The mean of 15 observations is 32. Find the resulting mean, if each observation is multiplied by 2



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11. The mean of 15 observations is 32. Find the resulting mean, if each observation is divided by 0.5



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12. The mean of 15 observations is 32. Find the resulting mean, if each observation is increased by 60%



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13. The mean of 15 observations is 32. Find the resulting mean, if each observation is decreased by 20 %



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14. The mean of 5 numbers is 18. If one number is excluded, the mean of remaining numbers becomes 16. Find the excluded number.



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15. If the mean of observations x , $x + 2$, $x + 4$, $x + 6$ and $x + 8$ is 11, find the value of x



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16. If the mean of observations x , $x + 2$, $x + 4$, $x + 6$ and $x + 8$ is 11, find the mean of the first three observations.



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17. The mean of 100 observations is 40. It is found that an observation 53 was misread as 83. Find the correct mean.



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18. The mean of 200 items was 50. Later on, it was discovered that two items were misread as 92 and 8 instead of 192 and 88. Find the correct mean.



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19. Find the mean of 75 numbers, if the mean of 45 of them is 18 and the mean of the remaining ones is 13.



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20. The mean weight of 120 students of a school is $52 \cdot 75$ kg. If the mean weight of 50 of them is 51 kg, find the mean weight of the remaining students.



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21. The mean marks (out of 100) of boys and girls in an examination are 70 and 73 respectively. If the mean marks of all the students in that examination is 71, find the ratio of the number of boys the number of girls.



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22. Find x , if $9, x, 14, 18, x, x, 8, 10$ and 4 have a mean of 11 .



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23. In a series of tests, A appeared for 8 tests. Each test was marked out of 30 and averages 25. However, while checking his files, A could only find 7 of the 8 tests. For these he scored 29, 26, 18, 20, 27, 24 and 29. Determine how many marks he scored for the eighth test.



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24. Find the mean of 43, 51, 50, 57 and 54.



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25. Find the mean of first six natural numbers.



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26. Find the mean of first ten odd natural numbers.



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27. Find the mean of all factors of 10.



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28. Find the mean of

$x + 3$, $x + 5$, $x + 7$, $x + 9$ and $x + 11$.



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29. If different values of variable x are $9 \cdot 8, 5 \cdot 4, 3 \cdot 7, 1 \cdot 7, 1 \cdot 8, 2 \cdot 6, 2 \cdot 8, 8 \cdot 6, 10 \cdot 5$ and $11 \cdot 1$, find the mean \bar{x}



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30. If different values of variable x are $9 \cdot 8, 5 \cdot 4, 3 \cdot 7, 1 \cdot 7, 1 \cdot 8, 2 \cdot 6, 2 \cdot 8, 8 \cdot 6, 10 \cdot 5$ and $11 \cdot 1$, find the value of $\Sigma(x - \bar{x})$





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31. The mean of 15 observations is 32. Find the resulting mean, if each observation is increased by 3



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32. The mean of 15 observations is 32. Find the resulting mean, if each observation is decreased by 7



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33. The mean of 15 observations is 32. Find the resulting mean, if each observation is multiplied by 2



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34. The mean of 15 observations is 32. Find the resulting mean, if each observation is divided by 0.5



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35. The mean of 15 observations is 32. Find the resulting mean, if each observation is :
increased by 60 %



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36. The mean of 15 observations is 32. Find the resulting mean, if each observation is :
decreased by 20 %



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37. The mean of 5 numbers is 18. If one number is excluded, the mean of remaining numbers becomes 16. Find the excluded number.



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38. If the mean of observations $x, x + 2, x + 4, x + 6$ and $x + 8$ is 11, find :
the value of x ,



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39. If the mean of observations x , $x + 2$, $x + 4$, $x + 6$ and $x + 8$ is 11, find :
the mean of the first three observations.



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40. The mean of 100 observations is 40. It is found that an observation 53 was misread as 83. Find the correct mean.



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41. The mean of 200 items was 50. Later on, it was discovered that two items were misread as 92 and 8 instead of 192 and 88. Find the correct mean.



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42. Find the mean of 75 numbers, if the mean of 45 of them is 18 and the mean of the remaining ones is 13.



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43. The mean weight of 120 students of a school is 52.75 kg. If the mean weight of 50 of them is 51 kg, find the mean weight of the remaining students.



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44. The mean marks (out of 100) of boys and girls in an examination are 70 and 73 respectively. If the mean marks of all the students in that examination is 71, find the

ratio of the number of boys the number of girls.



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45. Find x , if $9, x, 14, 18, x, x, 8, 10$ and 4 have a mean of 11 .



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46. In a series of tests, A appeared for 8 tests. Each test was marked out of 30 and averages

25. However, while checking his files, A could only find 7 of the 8 tests. For these he scored 29, 26, 18, 20, 27, 24 and 29. Determine how many marks he scored for the eighth test.



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Exercise 19 B

1. Find the median of 25, 16, 26, 16, 32, 31, 19, 28 and 35



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2. Find the median of
241,243,347,350,327,299,261,292,271,258 and 257



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3. Find the median of 63, 17, 50, 9, 25, 43, 21, 50,
14 and 34



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4. Find the median of 233, 173, 189, 208, 194, 204, 194, 185, 200 and 220



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5. The following data have been arranged in ascending order. If their median is 63, find the value of x . 34, 37, 53, 55, x , $x+2$, 77, 83, 89 and 100.



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6. In 10 numbers, arranged in increasing order, the 7th number is increased by 8, how much will the median be changed ?



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7. Out of 10 students, who appeared in a test, three secured less than 30 marks and 3 secured more than 75 marks. The marks secured by the remaining 4 students are 35,

48, 66 and 40. Find the median score of the whole group.



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8. The median of observations 10, 11, 13, 17, $x + 5$, 20, 22, 24 and 53 (arranged in ascending order) is 18, find the value of x .



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9. Find the median of :

25,16,26, 16, 32, 31, 19, 28 and 35



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10. Find the median of :

241,243,347,350,327,299,261,292,271,258 and 257



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11. Find the median of :

63, 17, 50, 9, 25, 43, 21, 50, 14 and 34



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12. Find the median of :

233, 173, 189, 208, 194, 204, 194, 185, 200 and
220



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13. The following data have been arranged in ascending order. If their median is 63, find the value of x .

34,37,53,55, x , $x+2$,77,83,89 and 100.



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14. In 10 numbers, arranged in increasing order, the 7th number is increased by 8, how much will the median be changed ?



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15. Out of 10 students, who appeared in a test, three secured less than 30 marks and 3 secured more than 75 marks. The marks secured by the remaining 4 students are 35, 48, 66 and 40. Find the median score of the whole group.



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16. The median of observations 10, 11, 13, 17, $x + 5$, 20, 22, 24 and 53 (arranged in

ascending order) is 18, find the value of x .



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Exercise 19 C

1. Find the mean of 8, 12, 16, 22, 10 and 4. Find the resulting mean, if each of the observations, given above, be multiplied by 3.



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2. Find the mean of 8, 12, 16, 22, 10 and 4. Find the resulting mean, if each of the observations, given above, be divided by 2.



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3. Find the mean of 8, 12, 16, 22, 10 and 4. Find the resulting mean, if each of the observations, given above, be multiplied by 3 and then divided by 2.



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4. Find the mean of 8, 12, 16, 22, 10 and 4. Find the resulting mean, if each of the observations, given above, be increased by 25 % .



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5. Find the mean of 8, 12, 16, 22, 10 and 4. Find the resulting mean, if each of the observations, given above, be decreased by 40 % .



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6. The mean of 18,24,15, $2x + 1$ and 12 is 21.

Find the value of x.



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7. The mean of 6 numbers is 42. If one number is excluded, the mean of remaining numbers is 45. Find the excluded number.



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8. The mean of 10 numbers is 24. If one more number is included, the new mean is 25. Find the included number.



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9. The following observations have been arranged in ascending order. If the median of the data is 78, find the value of x .

44, 47, 63, 65, $x + 13$, 87, 93, 99, 110.



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10. The following observations have been arranged in ascending order. If the median of these observations is 58, find the value of x .

24, 27, 43, 48, $x - 1$, $x + 3$, 68, 73, 80, 90.



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11. Find the mean of the following data :

30, 32, 24, 34, 26, 28, 30, 35, 33, 25

Show that the sum of the deviations of all the given observations from the mean is zero.



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12. Find the mean of the following data :

30,32,24,34, 26,28, 30, 35, 33, 25

Find the median of the given data.



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13. Find the mean and median of the data :

35, 48, 92, 76, 64, 52, 51, 63 and 71.

If 51 is replaced by 66, what will be the new median ?



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14. The mean of $x, x + 2, x + 4, x + 6$ and $x + 8$ is 11, find the mean of the first three observations.



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15. Find the mean and median of all the positive factors of 72.



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16. The mean weight of 60 students in a class is 40 kg. The mean weight of boys is 50 kg while that of girls is 30 kg. Find the number of boys and girls in the class.



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17. The average of n numbers $x_1, x_2, x_3, \dots, x_n$ is A . If x_1 is replaced by $(x + a)x_1$, x_2 is replaced by $(x + a)x_2$ and so on. Find the new average.



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18. The heights (in cm) of the volley-ball players from team A and team B were recorded as :

Team A : 180, 178, 176, 181, 190, 175, 187

Team B : 174, 175, 190, 179, 178, 185, 177

Which team had the greater average height ?

Find the median of team A and team B.



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19. Find the mean of 8, 12, 16, 22, 10 and 4. Find the resulting mean, if each of the observations, given above, be :
multiplied by 3.



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20. Find the mean of 8, 12, 16, 22, 10 and 4. Find the resulting mean, if each of the observations, given above, be :
divided by 2.



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21. Find the mean of 8, 12, 16, 22, 10 and 4. Find the resulting mean, if each of the observations, given above, be :
multiplied by 3 and then divided by 2.



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22. Find the mean of 8, 12, 16, 22, 10 and 4. Find the resulting mean, if each of the observations, given above, be :
increased by 25 % .



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23. Find the mean of 8, 12, 16, 22, 10 and 4. Find the resulting mean, if each of the

observations, given above, be :

decreased by 40 % .



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24. The mean of 18,24,15, $2x + 1$ and 12 is 21.

Find the value of x.



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25. The mean of 6 numbers is 42. If one number is excluded, the mean of remaining

numbers is 45. Find the excluded number.



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26. The mean of 10 numbers is 24. If one more number is included, the new mean is 25. Find the included number.



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27. The following observations have been arranged in ascending order. If the median of

the data is 78, find the value of x .

44, 47, 63, 65, $x + 13$, 87, 93, 99, 110.



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28. The following observations have been arranged in ascending order. If the median of these observations is 58, find the value of x .

24, 27, 43, 48, $x - 1$, $x + 3$, 68, 73, 80, 90.



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29. Find the mean of the following data :

30,32,24,34, 26,28, 30, 35, 33, 25

Show that the sum of the deviations of all the given observations from the mean is zero.



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30. Find the mean of the following data :

30,32,24,34, 26,28, 30, 35, 33, 25

Find the median of the given data.



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31. Find the mean and median of the data :

35, 48, 92, 76, 64, 52, 51, 63 and 71.

If 51 is replaced by 66, what will be the new median ?



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32. The mean of x , $x + 2$, $x + 4$, $x + 6$ and $x + 8$ is 11, find the mean of the first three observations.



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33. Find the mean and median of all the positive factors of 72.



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Team B : 174, 175, 190, 179, 178, 185, 177

Which team had the greater average height ?

Find the median of team A and team B.



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