MATHS

NCERT - NCERT MATHEMATICS(ENGLISH)

STATISTICS

Solved Examples

1. The median of the following data is 525. Find the values of x and y, if the total frequency is 100.

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2. The annual profits earned by 30 shops of a shopping complex in a locality give rise to the following distribution:Draw both ogives for the data above. Hence obtain the median profit.

3. The marks obtained by 30 students of Class X of a certain school in a Mathematics paper consisting of 100 marks are presented in table below. Find the mean of the marks obtained by the students.

4. The table below gives the percentage distribution of female teachers in the primary schools of rural areas of various states and union territories (U.T.) of India. Find the mean percentage of female teachers by all the three methods discussed in this section.

5. The distribution below shows the number of wickets taken by bowlers in one-day cricket matches. Find the mean number of wickets by choosing a suitable method. What does the mean signify?

6. The wickets taken by a bowler in 10 cricket matches are as follows:2   6   4   5   0   2   1   3   2   3

Find the mode of the data.

7. A survey conducted on 20 households in a locality by a group of students resulted in the following frequency table for the number of family members in a household:Find the mode of this data.

A. 4

B. 3.8

C. 3.286

D. None

Answer: C

8. The marks distribution of 30 students m a mathematics examination are given in Table of Example 1. Find the mode of this data.

9. A survey regarding the height (in cm) of 51 girls of class X of a school was conducted and the following data was obtained: Height (in cm) $Less than 140 Less than 145 Less than 150 Less than 155 Less than 160 Less than$ Number of Girls 4 7 18 11 6 5 Find the median height.

Exercise 14 4

1. The following distribution gives the daily income of 50 workers of a factory.Convert the distribution above to a less than type cumulative frequency distribution, and draw its ogive.

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2. During the medical check-up of 35 students of a class, their weights were recorded as follows:Draw a less than type ogive for the given data. Hence obtain the median weight from the graph and verify the result by using the formula.

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3. The following table gives the production yield per hectare of wheat of 100 farms of a village. Change the given distribution to more than type distribution and draw its ogive

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1. The following table gives the distribution of the life time of 400 neon lamps: Lite time: (in hours)   Number of lamps $1500 - 2000$

14 2000-2500   56 2500-3000   60 3000-3500   86 3500-4000   74 4000-4500   62 4500-5000   48 Find the median life.

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2. Find the median of the data:

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3. The distribution below gives the weight of 30 students in a class. Find the median weight of students: Weight (in kg): 40-45 45-50 50-55 55-60 60-65 65-70 70-75 No. of students: 2 3 8 6 6 3 2

4. 100 surnames were randomly picked up from a local telephone directly and the frequency distribution of the number of letters in the English alphabets in the surnames was obtained as follows: Number of letters: 1-4 4-7 7-10 10-13 13-16 16-19 Number surnames 6 30 40 16 4 4 Determine the median number of letters in the surnames. Find the mean number of letters in the surnames. Also, find the modal size of the surnames.

5. The following frequency distribution gives the monthly consumption of electricity of 68 consumers of a locality. Find the median, mean and mode of the data and compare them. Monthly consump- 65-85 85-105 105-125 125-145 145-165 165-185 185-205 No. of consumers: 4 5 13 20 14 8 4

6. A life insurance agent found the following data for distribution of ages of 100 policy holders. Calculate the median age, if policies are only given to persons having age 18 years onwards but less than 60 years.

Age (in years)	Number of policyholders
Below 20	2
Below 25	6
Below 30	24
Below 35	45
Below 40	78
Below 45	89
Below 50	92
Below 55	98
Below 60	100

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7. If the median of the distribution given below is 28.5, find the value of x and y. Class interval: 0-10 10-20 20-30 30-40 40-50 50-60 No. of students: 5 x 20 15 y 5

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Exercise 14 2

1. The following data gives the information on the observed lifetimes (in hours) of 225 electrical components: Lifetimes (in hours): 0-20 20-40 40-60 60-80 80-100 100-120 No. of components: 10 35 52 61 38 29 Determine the modal lifetimes of the components.

A. 65.625

B. 65

C. 34.52

D. None

Answer: A

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2. The following data gives the distribution of total monthly household expenditure of 200 families of a village. Find the modal monthly expenditure of the families. Also, find the mean monthly expenditure:

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3. The following table shows the ages of the patients admitted in a hospital during a year:Find the mode and the mean of the data given above. Compare and interpret the two measures of central tendency.

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4. A student noted the number of cars passing through a spot on a road for 100 periods each of 3 minutes and summarised it in the table given below. Find the mode of the data :

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5. The following distribution gives the state-wise teacher-student ratio in higher secondary schools of India. Find the mode and mean of this data. Interpret, the two measures: Number of students per Teacher Number of States/U.T. 15-20 3 20-25 8 25-30 9 30-35 10 35-40 3 40-45 0 45-50 0 50-55 2

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6. The given distribution shows the number of runs scored by some top batsmen of the world in one-day international cricket matches.Find the mode of the data.

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Exercise 14 1

1. To find out the concentration of SO_2 in the air (in parts per million, i.e., ppm), the data was collected for 30 localities in a certain city and is presented below:Find the mean concentration of SO_2 in the air.

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2. The table below shows the daily expenditure on food of 25 households in a locality.Find the mean daily expenditure on food by a suitable

method.

3. In a retail market, fruit vendors were selling mangoes kept in packing boxes. These boxes contained varying number of mangoes. The following was the distribution of mangoes according to the number of boxes.Find the mean number of mangoes kept in a packing box. Which method of finding the mean did you choose?

4. Thirty women were examined in a hospital by a doctor and the number of heart beats per minute were recorded and summarised as follows. Find the mean heart beats per minute for these women, choosing a suitable method.

5. The following distribution shows the daily pocket allowance of children of a locality. The mean pocket allowance is Rs 18. Find the missing frequency f.

6. Consider the following distribution of daily wages of 50 workers of a factory.Find the mean daily wages of the workers of the factor}- by using an appropriate method.

7. A survey was conducted by a group of students as a part of their environment awareness programme, in which they collected the following data regarding the number of plants in 20 houses in a locality. Find the mean number of plants per house.

$Number of plants:$ $0 - 2$ $2 - 4$ $4 - 6$ $6 - 8$ $8 - 10$ $10 - 12$ $12 - 14$

$Number of houses:$ 1 2 1 5 6 2 3 Which method did you use for finding the mean, and why?

8. The following table gives the literacy rate (in percentage) of 35 cities. Find the mean literacy rate. Literacy rate (in %): 45-55 55-65 65-75 75-85 85-95 Number of cities: 3 10 11 8 3

9. A class teacher has the following absentee record of 40 students of a class for the whole term. Find the mean number of days a student was absent. No. of days: 0-6 6-10 10-14 14-20 20-28 28-38 38-40 No. of students: 11 10 7 4 4 3 1