



MATHS

BOOKS - OSWAAL PUBLICATION

MATHS (KANNADA ENGLISH)

STATISTICS

Topic 1 Very Short Answer Type Questions

1. If the median of a series exceeds the mean by 3, find by what number the mode exceeds

its mean?



[Watch Video Solution](#)

2. From the following frequency distribution, find the median class

Cost of living index	1400 - 1550	1550 - 1700	1700 - 1850	1850 - 2000
Number of weeks	8	15	21	8



[Watch Video Solution](#)

3. Following distribution gives cumulative frequencies of 'more than type':

Change the above data to a continuous grouped frequency distribution.

Marks obtained	More than or equal to 5	More than or equal to 10	More than or equal to 15	More than or equal to 20
Number of students (cumulative frequency)	30	23	8	2



[Watch Video Solution](#)

Topic 1 Mean Median And Mode Very Short Answer Type Questions

1. In the following frequency distribution, find the median class.

Height (in cm)	140 – 145	145 – 150	150 – 155	155 – 160	160 – 165	165 – 170
Frequency	5	15	25	30	15	10



[Watch Video Solution](#)

Topic 1 Mean Median And Mode Short Answer Type Questions

1. Find median of the data, using an empirical relation when it is given that Mode = 12.4 and Mean = 10.5.



[Watch Video Solution](#)

2. Consider the following distribution:

Marks Obtained	0 or more	10 or more	20 or more	30 or more	40 or more	50 or more
Number of students	63	58	55	51	48	42

(i) Calculate the frequency of the class 30-40.

(ii) Calculate the class mark of the class 10-25



Watch Video Solution

3. Find the mean of the data using an empirical formula when it is given that mode is 50.5 and median is 45.5.



Watch Video Solution

4. The data regarding marks obtained by 48 students of a class in a class test is given below. Calculate the modal marks of students.

Marks obtained	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50
Number of students	1	0	2	0	0	10	25	7	2	1



[Watch Video Solution](#)

5. Find the value of A, if the mode of the following data is 20: 15, 20, 25, 18, 13, 15, 25, 15, 18, 17, 20, 25, 20, λ , 18.



[Watch Video Solution](#)

6. The mean and median of 100 observations are 50 and 52 respectively. The value of the largest observation is 100. It was later found that it is 110 not 100. Find the true mean and median.



[Watch Video Solution](#)

7. Find the arithmetic mean of the following frequency distribution :

x_i	3	4	5	7	10
f_i	3	4	8	5	10



[Watch Video Solution](#)

8. Given below is the distribution of weekly pocket money received by students of a class. Calculate the pocket money that is received by most of the students.

Pocket Money (in ₹)	0-20	20-40	40-60	60-80	80-100	100-120	120-140
Number of students	2	2	3	12	18	5	2



[Watch Video Solution](#)

9. Find the mean of the following distribution :

Class interval	0-6	6-12	12-18	18-24	24-30
Frequency	5	4	1	6	4



[Watch Video Solution](#)

10. The following table gives the life time in days of 100 bulbs:

Life time in days	Less than 50	Less than 100	Less than 150	Less than 200	Less than 250	Less than 300
Number of Bulbs	8	23	55	81	93	100

Change the above distribution as frequency distribution.



[Watch Video Solution](#)

11. Find the unknown values in the following table :

Class Interval	Frequency	Cumulative Frequency
0 - 10	5	5
10 - 20	7	x_1
20 - 30	x_2	18
30 - 40	5	x_3
40 - 50	x_4	30



Watch Video Solution

12. Calculate the median from the following data :

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
Number of Students	5	15	30	8	2



Watch Video Solution

13. Find the sum of the lower limit of the median class and the upper limit of the modal class:

Classes	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Frequency	1	3	5	9	7	3



Watch Video Solution

14. Write the relationship connecting three measures of central tendencies. Hence find the

median of the given data if mode is 24.5 and mean is 29.75



[Watch Video Solution](#)

15. The following distribution shows the marks scored by 140 students in an examination.

Calculate the mode of the distribution :

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
Number of students	20	24	40	36	20



[Watch Video Solution](#)

16. Find the unknown entries a , b , c , d in the following distribution of heights of students in a class :

Height (in cm)	Frequency	Cumulative Frequency
150 – 155	12	12
155 – 160	a	25
160 – 165	10	b
165 – 170	c	43
170 – 175	5	48
175 – 180	2	d



Watch Video Solution

17. Find the mode of the following distribution :

Classes	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50	50 – 55
Frequency	25	34	50	42	38	14



Watch Video Solution

18. Find x and y from the following cumulative frequency distribution:

Classes	Frequency	c.f.
0 - 8	15	15
8 - 16	x	28
16 - 24	15	43
24 - 32	18	y
32 - 40	09	70



Watch Video Solution

19. The frequency distribution of agricultural holdings in a village is given below:

Find the modal agricultural holdings of the

village.

Area of land (in hectare)	1 - 3	3 - 5	5 - 7	7 - 9	9 - 11	11 - 13
Number of families	20	45	80	55	40	12



[Watch Video Solution](#)

20. Write the median class of the following distribution:

Classes	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70
Frequency	4	4	8	10	12	8	4



[Watch Video Solution](#)

21. The following are the ages of 300 patients getting medical treatment in a hospital on a particular day:

Form the "less than type" cumulative frequency distribution table.

Age (in years)	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Number of students	60	42	55	70	53	20



[Watch Video Solution](#)

22. Find the mean of the following data :

Class	Frequency
0.5 – 5.5	13
5.5 – 10.5	16
10.5 – 15.5	22
15.5 – 20.5	18
20.5 – 25.5	11



[Watch Video Solution](#)

23. Find the mean number of plants per house from the following data :

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



[Watch Video Solution](#)

24. Given below is a cumulative frequency distribution showing the marks secured by 50 students of a class:

Form the frequency distribution table for the above data

Marks	Number of students
Below 20	17
Below 40	22
Below 60	29
Below 80	37
Below 100	50



[Watch Video Solution](#)

25. Find the mode of the following frequency distribution :

Classes	0 – 6	6 – 12	12 – 18	18 – 24	24 – 30
Frequency	7	5	10	12	6



[Watch Video Solution](#)

26. Find the mean of the following frequency distribution:

Class	0 - 6	6 - 12	12 - 18	18 - 24	24 - 30
Frequency	7	5	10	12	6



[Watch Video Solution](#)

27. Find the mean of first five odd multiples of 5.



[Watch Video Solution](#)

28. Median of a data is 52.5 and its mean is 54, use empirical relationship between three measures of central tendency to find its mode.



Watch Video Solution

29. The mean of the following frequency distribution is 25. Find the value of p .

Class interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	4	6	10	6	p



Watch Video Solution

30. The data regarding the heights of 50 girls of class X of a school is given below :

Change the above distribution to 'more than type' distribution.

Height (in cm)	120 – 130	130 – 140	140 – 150	150 – 160	160 – 170	Total
Number of girls	2	8	12	20	8	50



[Watch Video Solution](#)

31. Convert the following distribution to more than type, cumulative frequency distribution :

Class	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100
Frequency	12	18	10	15	5



[Watch Video Solution](#)

32. Convert the following cumulative distribution to a frequency distribution:

Height (in cm)	less than 140	less than 145	less than 150	less than 155	less than 160	less than 165
Number of students	4	11	29	40	46	51



Watch Video Solution

33. Prepare a cumulative frequency distribution of 'more than type' for the following data :

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Number of students	3	8	15	7	5



Watch Video Solution

Topic 1 Mean Median And Mode Long Answer Type Questions I

1. Calculate the median for the following data

Class Interval	Frequency (F)
0 – 20	6
20 – 40	8
40 – 60	10
60 – 80	12
80 – 100	6
100 – 120	5
120 – 140	3
	$n = 50$



Watch Video Solution

2. Calculate the mean of the following frequency distribution:

Class	10 - 30	30 - 50	50 - 70	70 - 90	90 - 110
Frequency	15	18	25	10	2



[Watch Video Solution](#)

3. A school conducted a test (of 100 marks) in English for studentt of Class X. The marks obtained by 1tudenll are shown l.n the following table :

find the modal marks.

Marks obtained	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Number of students	1	2	4	15	15	25	15	10	2	1



[Watch Video Solution](#)

4. The following frequency distribution shows the number of runs scored by some batsmen of India in one-day cricket matches :

Run scored	2000 - 4000	4000 - 6000	6000 - 8000	8000 - 10000	10000 - 12000
Number of batsmen	9	8	10	2	1



[Watch Video Solution](#)

5. A group of students conducted a survey of their locality to collect the data regarding number of plants and recorded it in the following table :

Find the mode for the above data.

Number of plants	0-3	3-6	6-9	9-12	12-15
Number of houses	2	4	5	1	2



[Watch Video Solution](#)

6. If the mean of the following data is 14.7, find the values of p and q .

Class	0-6	6-12	12-18	18-24	24-30	30-36	36-42	Total
Frequency	10	p	4	7	q	4	1	40



[Watch Video Solution](#)

7. Find the mean and mode of the following frequency distribution :

Classes	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70
Frequency	3	8	10	15	7	4	3



[Watch Video Solution](#)

8. The following table shows the weights (in gms) of a sample of 100 apples, taken from a large consignment :

Find the median weight apples.

Weight (in gms)	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100	100 – 110	110 – 120	120 – 130
No. of Apples	8	10	12	16	18	14	12	10



[Watch Video Solution](#)

9. Weekly income of 600 families is given below:

Find the median.

Income (in ₹)	0 – 1000	1000 – 2000	2000 – 3000	3000 – 4000	4000 – 5000	5000 – 6000
No. of Families	250	190	100	40	15	5



[Watch Video Solution](#)

10. Find the mean of the following data :

Class	Less than 20	Less than 40	Less than 60	Less than 80	Less than 100
Frequency	15	37	74	99	120



[Watch Video Solution](#)

11. Find the mean of the following data :

Classes	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100	100 - 120
Frequency	6	8	10	12	8	6



[Watch Video Solution](#)

1. Literacy rates of 40 cities are given in the following table. If it is given that mean literacy rate is 63.5, then find the missing frequencies x and y .

Literacy rate (in %)	35 – 40	40 – 45	45 – 50	50 – 55	55 – 60	60 – 65	65 – 70	70 – 75	75 – 80	80 – 85	85 – 90
Number of cities	1	2	3	x	y	6	8	4	2	3	2



[Watch Video Solution](#)

2. On annual day of a school, 400 students participated in the function. Frequency distribution showing their ages is shown in

the following table :

Find mean and median of the above data.

Ages (in years)	05-07	07-09	09-11	11-13	13-15	15-17	17-19
Number of students	70	120	32	100	45	28	5

Find mean and median of the above data.



[Watch Video Solution](#)

3. Find the mode of the following frequency distribution :

Class-Interval	f
25-35	7
35-45	31
45-55	33
55-65	17
65-75	11
75-85	1



[Watch Video Solution](#)

4. On the sports day of a school, 300 students participated. Their ages are given in the following distribution :

find the and mode of the data.

Age (in years)	5-7	7-9	9-11	11-13	13-15	15-17	17-19
Number of students	67	33	41	95	36	13	15



[Watch Video Solution](#)

5. The median of the following data is 525.
Find the values of x and y if the total

frequency is 100.

Class Interval	0-100	100-200	200-300	300-400	400-500	500-600	600-700	700-800	800-900	900-1000
Frequency	2	5	x	12	17	20	y	9	7	4



[Watch Video Solution](#)

6. Monthly expenditures on milk in 100 families of a housing society are given in the following frequency distribution :

Find the mode and median for this distribution.

Monthly expenditure (in ₹)	0 - 175	175 - 350	350 - 525	525 - 700	700 - 875	875 - 1050	1050 - 1225
Number of families	10	14	15	21	28	7	5



[Watch Video Solution](#)

7. Calculate the average daily income (in ₹) of the following data about men working in a company:

Daily income (₹)	< 100	< 200	< 300	< 400	< 500
Number of men	12	28	34	41	50



[Watch Video Solution](#)

8. The following table gives the life time of 200 bulbs. Calculate the mean life time of a bulb by step deviation method :

Life time (in hours)	400 – 499	500 – 599	600 – 699	700 – 799	800 – 899	900 – 999
Number of bulbs	24	47	39	42	34	14



Watch Video Solution

9. If the mean of the following frequency distribution is 91, and sum of frequencies is 150, find the missing frequency x and y :

Classes	0 - 30	30 - 60	60 - 90	90 - 120	120 - 150	150 - 180
Frequency	12	21	x	52	y	11



Watch Video Solution

10. Find the median of the following data :

Profit (in lakh of rupee)	Number of shops
More than or equal to 5	30
More than or equal to 10	28
More than or equal to 15	16
More than or equal to 20	14
More than or equal to 25	10
More than or equal to 30	7
More than or equal to 35	3



Watch Video Solution

11. Find the values of x and y , if the median for the following data is 31.

Classes	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	Total
Frequency	5	x	6	y	6	5	40



Watch Video Solution

12. The following table gives the daily income of 80 workers of a factory. Find mean median and mode for the given data

Daily income (in Rs.)	100 – 120	120 – 140	140 – 160	160 – 180	180 – 200
Number of Workers	12	14	8	6	10



[Watch Video Solution](#)

Topic 2 Cumulative Frequency Graph Very Short Answer Type Questions

1. Which central tendency is obtained by the abscissa of point of intersection of less than

type and more than type ogives?



Watch Video Solution

2. What is abscissa of the point of intersection of the "Less than type" and of the "More than type" cumulative frequency curve of a grouped data?



Watch Video Solution

1. Given below is a frequency distribution table showing daily income of 100 workers of a factory :

Convert this table to a cumulative frequency distribution table of 'more than type'.

Daily income of workers (in ₹)	200-300	300-400	400-500	500-600	600-700
Number of workers	12	18	35	20	15



[Watch Video Solution](#)

2. The given distribution shows the number of runs scored by the batsmen in inter-school

cricket matches:

Draw a 'more than type' ogive for the above data.

Runs scored	0-50	50-100	100-150	150-200	200-250
Number of batsmen	4	6	9	7	5



[Watch Video Solution](#)

Topic 2 Cumulative Frequency Graph Long Answer Type Questions Ii

1. On the annual day of school , age-wise participation of students is given in the

following distribution table. Find the median of students.:

Age (in years)	Number of students
Less than 6	2
Less than 8	6
Less than 10	12
Less than 12	22
Less than 14	42
Less than 16	67
Less than 18	76



Watch Video Solution

2. In annual day of a school, age-wise participation of students is shown in the following frequency distribution:

Draw a 'less than type' ogive for the above

data and from it find the median age.

Age of student (in years)	5-7	7-9	9-11	11-13	13-15	15-17	17-19
Number of students	20	18	22	25	20	15	10



[Watch Video Solution](#)

3. The following distribution gives the distribution of life times of washing machines of a certain company:

Convert the above distribution into 'less than type' and draw its ogive.

Life time (in hours)	1000-1200	1200-1400	1400-1600	1600-1800	1800-2000	2000-2200	2200-2400
Number of washing machines	15	60	68	86	75	61	45



[Watch Video Solution](#)

4. Draw more than ogive for the following distributions. Find the median from the curve.

Classes	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	10	18	40	20	12



[Watch Video Solution](#)

5. The following distribution gives the daily income of 50 workers of a factory:

Convert the distribution to a less than type' cumulative frequency distribution and draw its ogive. Hence obtain the median of daily

income.

Daily income (in ₹)	200 – 250	250 – 300	300 – 350	350 – 400	400 – 450	450 – 500
Number of workers	10	5	11	8	6	10



[Watch Video Solution](#)

6. The following table gives the weight of 120 articles:

Change the distribution to a 'more than type' distribution and draw its ogive.

Weight (in kg)	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Number of students	14	17	22	26	23	18



[Watch Video Solution](#)

7. Draw a 'more than ogive' for the following data:

Class	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80
Frequency	5	9	10	12	8	7	5	4



[Watch Video Solution](#)

8. The distribution of monthly wages of 200 workers of a certain factory is as given below
Change the above distribution to a 'more than type' distribution and draw its ogive.

Monthly wages (in ₹)	80 - 100	100 - 120	120 - 140	140 - 160	160 - 180
Number of workers	20	30	20	40	90



[Watch Video Solution](#)

9. The following are the ages of 200 patients getting medical treatment in a hospital on a particular day:

Write the above distribution as 'less than type' cumulative frequency distribution and also draw an ogive to find the median.

Age (in years)	10-20	20-30	30-40	40-50	50-60	60-70
Number of Patients	40	22	35	50	23	30



[Watch Video Solution](#)

Textbook Corner Exercise 13 1

1. 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?





[Watch Video Solution](#)

2. Consider the following distribution of daily wages of 50 workers of a factory.

Find the mean daily wages of the workers of the factory by using an appropriate method.

Daily wages (in ₹)	500–520	520–540	540–560	560–580	580–600
Number of workers	12	14	8	6	10



[Watch Video Solution](#)

3. Thirty women were examined in a hospital by a doctor and the number of heartper

minute were recorded and summarized as follows. Find the mean heart beats per minute for these women, choosing a suitable method.

Number of heart beats per minute	65–68	68–71	71–74	74–77	77–80	80–83	83–86
Number of womens	2	4	3	8	7	4	2



[Watch Video Solution](#)

4. 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.

Number of mangoes	50–52	53–55	56–58	59–61	62–64
Number of boxes	15	110	135	115	25

Find the mean number of mangoes kept in a packing box. Which method of finding the mean did you choose?



[Watch Video Solution](#)

Textbook Corner Exercise 13 2

1. The following table shows the ages of the patients admitted in a hospital during a year:

Age (in years)	5-15	15-25	25-35	35-45	45-55	55-65
Number of patients	6	11	21	23	14	5

Find the mode and the mean of the data given above. Compare and interpret the two measures of central tendency.



[Watch Video Solution](#)

2. 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
Frequency	10	35	52	61	38	29

Determine the modal lifetimes of the components.



Watch Video Solution

3. 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 :

Expenditure (in ₹)	Number of families
1000 - 1500	24
1500 - 2000	40
2000 - 2500	33
2500 - 3000	28
3000 - 3500	30
3500 - 4000	22
4000 - 4500	16
4500 - 5000	7



[Watch Video Solution](#)

4. 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



[Watch Video Solution](#)

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

Runs scored	Number of batsmen
3000 – 4000	4
4000 – 5000	18
5000 – 6000	9
6000 – 7000	7
7000 – 8000	6
8000 – 9000	3
9000 – 10000	1
10000 – 11000	1

Find the mode of the distribution.



[Watch Video Solution](#)

6. 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.



[Watch Video Solution](#)

Textbook Corner Exercise 13.3

1. 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 consumption (in units)	Number of consumers
65–85	4
85–105	5
105–125	13
125–145	20
145–165	14
165–185	8
185–205	4



[Watch Video Solution](#)

2. If the median of the distribution given below is 28.5, find the values of x and y .

Monthly consumption (in units)	Number of consumers
0–10	5
10–20	x
20–30	20
30–40	15
40–50	y
50–60	5
Total	60



[Watch Video Solution](#)

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

Age (in years)	Number of policy holders
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



Watch Video Solution

4. The length of 40 leaves of a plant is measured correct to the nearest millimetre and the data obtained is represented in the following table. Find the mean length of the leaves.



Watch Video Solution

5. The following table gives the distribution of the life time of 400 neon lamps :

Life 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 time of a lamp



[Watch Video Solution](#)

6. 100 surnames were randomly picked up from a local telephone directory 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 of 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.



[Watch Video Solution](#)

7. The distribution below gives the weights of 30 students of a class. Find the median weight

of the 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



Watch Video Solution

Textbook Corner Exercise 13 4

1. The following distribution gives the daily income of 50 workers of a factory.

Daily income (in ₹)	100-120	120-140	140-160	160-180	180-200
Number of students	12	14	8	6	10

Convert the distribution above to a less than

type cumulative frequency distribution, and draw its ogive.



Watch Video Solution

2. During the medical check-up of 35 students of a class, their weights were recorded as follows:

Daily income (in ₹)	Cumulation frequency
Less than 38	0
Less than 40	3
Less than 42	5
Less than 44	9
Less than 46	14
Less than 48	28
Less than 50	32
Less than 52	35

Draw a less than type ogive for the given data. Hence obtain the median weight from the graph and varify the result by using the formula.



[Watch Video Solution](#)

3. The following table gives production yield per hectare of wheat of 100 farms of a village.

Production yield (in kg/ha)	50–55	55–60	60–65	65–70	70–75	75–80
Number of farms	2	8	12	24	38	16

Change the distribution, and draw its ogive



[Watch Video Solution](#)

