

MATHEMATICS
WORKSHEET_141125
CHAPTER 13 STATISTICS

SUBJECT: MATHEMATICS
CLASS : X

MAX. MARKS : 40
DURATION : 1½ hrs

General Instructions:

- (i). All questions are compulsory.
- (ii). This question paper contains 20 questions divided into five Sections A, B, C, D and E.
- (iii). **Section A** comprises of 10 MCQs of 1 mark each. **Section B** comprises of 4 questions of 2 marks each. **Section C** comprises of 3 questions of 3 marks each. **Section D** comprises of 1 question of 5 marks each and **Section E** comprises of 2 Case Study Based Questions of 4 marks each.
- (iv). There is no overall choice.
- (v). Use of Calculators is not permitted

SECTION – A

Questions 1 to 10 carry 1 mark each.

1. In a continuous frequency distribution with usual notations, if $l = 32.5$, $f_1 = 15$, $f_0 = 12$, $f_2 = 8$ and $h = 8$, then the mode of the data is:

(a) 32.5 (b) 33.5 (c) 33.9 (d) 34.9

2. For the following distribution:

Height (in cm)	Below 140	Below 145	Below 150	Below 155	Below 160	Below 165
No. of Students	4	11	29	40	46	51

the upper limit of the modal class is

(a) 165 (b) 160 (c) 155 (d) 150

3. Consider the following frequency distribution of the heights (in cm) of 60 students of a class:

Class	150 – 155	155 – 160	160 – 165	165 – 170	170 – 175	175 – 180
Frequency	15	13	10	8	9	5

The upper limit of the median class in the given data is:

(a) 165 (b) 155 (c) 160 (d) 170

4. If mode of some data is 7 and their mean is also 7 then their median is

(a) 10 (b) 9 (c) 8 (d) 7

5. The mean and median of a distribution are 14 and 15, respectively. The value of the mode is:

(a) 16 (b) 17 (c) 18 (d) 13

6. If the value of each observation of a statistical data is increased by 3, then the mean of the data

(a) remains unchanged (b) increases by 3 (c) increases by 6 (d) increases by 3n

7. Consider the following distribution:

Marks Obtained	No. of Students
More than or equal to 0	63
More than or equal to 10	58
More than or equal to 20	55
More than or equal to 30	51
More than or equal to 40	48
More than or equal to 50	42

The frequency of the class 30–40 is:

(a) 3 (b) 4 (c) 48 (d) 51

8. Consider the following frequency distribution of the heights (in cm) of 60 students of a class:

Class	150 – 155	155 – 160	160 – 165	165 – 170	170 – 175	175 – 180
Frequency	16	12	9	7	10	6

The sum of the lower limit of the modal class and the upper limit of the median class is

- (a) 310 (b) 315 (c) 320 (d) 330

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
 (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
 (c) Assertion (A) is true but reason (R) is false.
 (d) Assertion (A) is false but reason (R) is true.

9. **Assertion (A):** If the value of mode and median is 50.5 and 45.5 respectively, then the value of 2 mean is 86.

Reason (R): Median = (Mode + 2 Mean)

10. **Assertion (A):** Consider the following frequency distribution:

Class Interval	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35
Frequency	5	9	12	6	8

The modal class is 10 – 15.

Reason (R): The class having maximum frequency is called the modal class.

SECTION – B

Questions 11 to 14 carry 2 marks each.

11. If mode of the following frequency distribution is 55 then find the value of x.

Class	0 – 15	15 – 30	30 – 45	45 – 60	60 – 75	75 – 90
Frequency	10	7	x	15	10	12

12. The mode of a grouped frequency distribution is 75 and the modal class is 65-80. The frequency of the class preceding the modal class is 6 and the frequency of the class succeeding the modal class is 8. Find the frequency of the modal class.

13. If the mean of the following frequency distribution is 62.8, then find the missing frequency x :

Class	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100	100 – 120
Frequency	5	8	x	12	7	8

14. Calculate median marks of the following data:

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	Total
No. of Students	8	16	36	34	6	100

SECTION – C

Questions 15 to 17 carry 3 marks each.

15. The arithmetic mean of the following frequency distribution is 53. Find the value of k.

Class	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100
Frequency	12	15	32	k	13

16. The below table shows the ages of persons who visited a museum on a certain day. Find the median age of the person visiting the museum.

Age (in years)	Less than 10	Less than 20	Less than 30	Less than 40	Less than 50	Less than 60
No. of persons	3	10	22	40	54	71

17. Heights of 50 students in class X of a school are recorded and following data is obtained:

Height (in cm)	130 – 135	135 – 140	140 – 145	145 – 150	150 – 155	155 – 160
No. of students	4	11	12	7	10	6

Find the median height of the students.

SECTION – D

Questions 18 carry 5 marks.

18. The distribution below gives the marks of 40 students of a class, if the median marks are 32.5, find the frequencies f_1 and f_2

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	Total
No. of students	f_1	5	9	12	f_2	3	2	40

OR

The mean of the following data is 42. Find the missing frequencies x and y if the sum of frequencies is 100.

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	7	10	x	13	y	10	14	9

SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. India meteorological department observe seasonal and annual rainfall every year in different subdivisions of our country.



It helps them to compare and analyse the results. The table given below shows sub-division wise seasonal (monsoon) rainfall (mm) in 2018 :

Rainfall (in mm)	Number of Sub-divisions
200 – 400	2
400 – 600	4
600 – 800	7
800 – 1000	4
1000 – 1200	2
1200 – 1400	3
1400 – 1600	1
1600 – 1800	1

Based on the above information, answer the following questions.

- (a) Write the modal class.
(b) Find the median of the given data.

OR

Find the mean rainfall in this season.

(c) If sub-division having at least 1000 mm rainfall during monsoon season, is considered good rainfall sub-division, then how many sub-divisions had good rainfall?

20. ‘Swachh Bharat Abhiyan’ is a country-wide campaign initiated by our Honourable Prime Minister of India, Mr. Narendra Singh Modi in the year 2014 to eliminate open defecation, to improve solid waste management and to accelerate the efforts to achieve universal sanitation.



As part of the ‘Swachh Bharat Abhiyan’, some houses of a locality in Agra decided to clean up and beautify a Primary School of their locality by planting a number of plants. They involved the school kids and the local community in doing so.

The data indicating the number of plants contributed by different houses is tabulated below:

Number of plants contributed	Number of houses
1 – 3	10
4 – 6	8
7 – 9	x
10 – 12	7
13 – 15	12
16 – 18	4

- (a) If the mean number of plants contributed is 8.9, then how many houses contributed 7 to 9 plants?
(2)
(b) What is the median class? (1)
(c) Find the median number of plants contributed. (1)