Statistics

1) The frequency distribution :

Marks	0-20	20-40	40-60	60-100
Number of Students	10	15	20	25

has been represented graphically as follows :

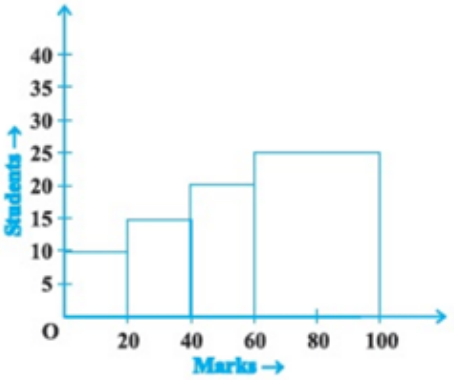

Fig. 14.1

Do you think this representation is correct? Why?

2) In a diagnostic test in mathematics given to students, the following marks (out of 100) are recorded:

46, 52, 48, 11, 41, 62, 54, 53, 96, 40, 98, 44

Which 'average' will be a good representative of the above data and why?

3) A child says that the median of 3, 14, 18, 20, 5 is 18. What doesn't the child understand about finding the median?

4) A football player scored the following number of goals in the 10 matches :

1, 3, 2, 5, 8, 6, 1, 4, 7, 9

Since the number of matches is 10 (an even number), therefore, the median

$$= \frac{5^{th} \text{ observation} + 6^{th} \text{ observation}}{2}$$

$$= \frac{8+6}{2} = 7$$

Is it the correct answer and why?

5) Is it correct to say that in a histogram, the area of each rectangle is proportional to the class size of the corresponding class interval? If not, correct the statement.

6) The class marks of a continuous distribution are :

1.04, 1.14, 1.24, 1.34, 1.44, 1.54 and 1.64

Is it correct to say that the last interval will be 1.55 - 1.73? Justify your answer.

7) 30 children were asked about the number of hours they watched TV programmes last week. The results are recorded as under :

Number of hours	0-5	5-10	10-15	15-20
Frequency	8	16	4	2

Can we say that the number of children who watched TV for 10 or more hours a week is 22? Justify your answer.

8) The blood groups of 30 students are recorded as follows:

A, B, O, A, AB, O, A, O, B, A, O, B, A, AB, B, A, AB, B,
A, A, O, A, AB, B, A, O, B, A, B, A

Prepare a frequency distribution table for the data.

9) The value of π upto 35 decimal places is given below:

3.14159265358979323846264338327950288

Make a frequency distribution of the digits 0 to 9 after the decimal point.

10) The scores (out of 100) obtained by 33 students in a mathematics test are as follows:

69, 48, 84, 58, 48, 73, 83, 48, 66, 58, 84
66, 64, 71, 64, 66, 69, 66, 83, 66, 69, 71
81, 71, 73, 69, 66, 66, 64, 58, 64, 69, 69

Represent this data in the form of a frequency distribution.

11) Prepare a continuous grouped frequency distribution from the following data:

Mid-point	Frequency
5	4
15	8
25	13
35	12
45	6

Also find the size of class intervals.

12) Convert the given frequency distribution into a continuous grouped frequency distribution:

Class interval	Frequency
150-153	7
154-157	7
158-161	15
162-165	10
166-169	5
170-173	6

In which intervals would 153.5 and 157.5 be included?

13) The expenditure of a family on different heads in a month is given below:

Head	Food	Education	Clothing	House Rent	Others	Savings
Expenditure (in Rs)	4000	2500	1000	3500	2500	1500

Draw a bar graph to represent the data above.

14) Expenditure on Education of a country during a five year period (2002-2006), in crores of rupees, is given below:

Elementary education	240
Secondary Education	120
University Education	190
Teacher's Training	20
Social Education	10
Other Educational Programmes	115
Cultural programmes	25
Technical Education	125

Represent the information above by a bar graph.

15) The following table gives the frequencies of most commonly used letters a, e, i, o, r, t, u from a page of a book :

Letters	a	e	i	o	r	t	u
Frequency	75	125	80	70	80	95	75

Represent the information above by a bar graph.

16) If the mean of the following data is 20.2, find the value of p.

x	10	15	20	25	30
f	6	8	p	10	6

17) Obtain the mean of the following distribution:

Frequency	Variable
4	4
8	6
14	8
11	10
3	12

18) A class consists of 50 students out of which 30 are girls. The mean of marks scored by girls in a test is 73 (out of 100) and that of boys is 71. Determine the mean score of the whole class.

19) Mean of 50 observations was found to be 80.4. But later on, it was discovered that 96 was misread as 69 at one place. Find the correct mean.

20) Ten observations 6, 14, 15, 17, $x + 1$, $2x - 13$, 30, 32, 34, 43 are written in an ascending order. The median of the data is 24. Find the value of x.

21) The points scored by a basket ball team in a series of matches are as follows:
17, 2, 7, 27, 25, 5, 14, 18, 10, 24, 48, 10, 8, 7, 10, 28
Find the median and mode for the data.

22) In Fig. 14.2, there is a histogram depicting daily wages of workers in a factory. Construct the frequency distribution table.

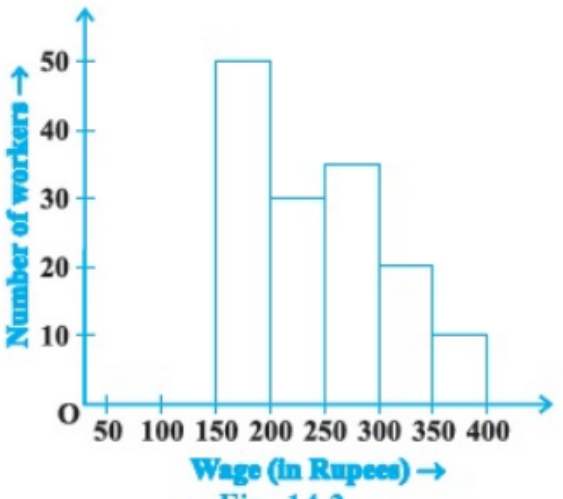

Fig. 14.2

23) The following are the marks (out of 100) of 60 students in mathematics.

16, 13, 5, 80, 86, 7, 51, 48, 24, 56, 70, 19, 61, 17, 16, 36, 34, 42, 34, 35, 72, 55, 75, 31, 52, 28, 72, 97, 74, 45, 62, 68, 86, 35, 85, 36, 81, 75, 55, 26, 95, 31, 7, 78, 92, 62, 52, 56, 15, 63, 25, 36, 54, 44, 47, 27, 72, 17, 4, 30.

Construct a grouped frequency distribution table with width 10 of each class starting from 0 - 9.

24) Refer to Q. above. Construct a grouped frequency distribution table with width 10 of each class, in such a way that one of the classes is 10 - 20 (20 not included).

25) Draw a histogram of the following distribution :

Heights (in cm)	Number of students
150 - 153	7
153 - 156	8
156 - 159	14
159 - 162	10
162 - 165	6
165 - 168	5

26) Draw a histogram to represent the following grouped frequency distribution :

Ages (in years)	Number of teachers
20 - 24	10
25 - 29	28
30 - 34	32
35 - 39	48
40 - 44	50
45 - 49	35
50 - 54	12

27) The lengths of 62 leaves of a plant are measured in millimetres and the data is represented in the following table :

Length (in mm)	Number of leaves
118 - 126	8
127 - 135	10
136 - 144	12
145 - 153	17
154 - 162	7
163 - 171	5
172 - 180	3

Draw a histogram to represent the data above.

28) The marks obtained (out of 100) by a class of 80 students are given below :

Marks	Number of students
10 - 20	6
20 - 30	17
30 - 50	15
50 - 70	16
70 - 100	26

Construct a histogram to represent the data above.

29) Following table shows a frequency distribution for the speed of cars passing through at a particular spot on a high way :

Class interval (km/h)	Frequency
30 - 40	3
40 - 50	6
50 - 60	25
60 - 70	65
70 - 80	50
80 - 90	28
90 - 100	14

Draw a histogram and frequency polygon representing the data above.

30) Refer to Q. 29

Draw the frequency polygon representing the above data without drawing the histogram.

31) Following table gives the distribution of students of sections A and B of a class according to the marks obtained by them.

Section A		Section B	
Marks	Frequency	Marks	Frequency
0 - 15	5	0 - 15	3
15 - 30	12	15 - 30	16
30 - 45	28	30 - 45	25
45 - 60	30	45 - 60	27
60 - 75	35	60 - 75	40
75 - 90	13	75 - 90	10

Represent the marks of the students of both the sections on the same graph by two frequency polygons. What do you observe?

32) The mean of the following distribution is 50.