

NCERT Solutions for Class 9 Maths Chapter 12 Statistics Ex 12.1

Question 1.

Give five examples of data that you can collect from your day-to-day life.

Solution.

Five examples from day to day life are mentioned below:

- i. Daily expenditures of household material.
- ii. Amount of rainfall in a year.
- iii. Bill of electricity.
- iv. Marks obtained by students in distinguished subjects.
- v. Various survey and poll results.

Question 2.

Classify the data in Q.1 above as primary or secondary data.

Solution.

The above data after classifying into secondary and primary data is:

Primary data:

- i. Daily expenditures of household materials.
- ii. Bill of electricity.
- iii. Marks obtained by students in distinguished subjects.

Secondary data:

- i. Amount of rainfall in a year.
- ii. Various survey and poll results.

NCERT Solutions for Class 9 Maths Chapter 14 Statistics Ex 14.2

Question 1.

The blood groups of 30 students of Class VIII are recorded as follows:

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

Represent this data in the form of a frequency distribution table.

Which is the most common, and which is the rarest, blood group among these students?

Solution.

The frequency refers to the number of students having common blood group. We will represent the data in table:

BLOOD GROUP	NUMBER OF STUDENTS (FREQUENCY)
A	9
B	6
O	12
AB	3

Total	30
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Most common blood group (Highest frequency) = O

Rarest blood group (Lowest frequency) = AB

Question 2.

The distance (in km) of 40 engineers from their residence to their place of work were found as follows:

5 3 10 20 25 11 13 7 12 31

19 10 12 17 18 11 32 17 16 2

7 9 7 8 3 5 12 15 18 3

12 14 2 9 6 15 15 7 6 12

Construct a grouped frequency distribution table with class size 5 for the data given above taking the first interval as 0-5 (5 not included).

What main features do you observe from this tabular representation?

Solution.

The given data is very large. Hence, we will construct a group frequency of class size 5.

Therefore,

Class interval will be 0-5, 5-10, 10-15, 15-20 and so on

The data in the table is represented as:

DISTANCES (in km)	TALLY MARKS	FREQUENCY
0-5		5

5-10		11
10-15		11
15-20		9
20-25		1
25-30		1
30-35		2
Total		40

The classes in the table are not overlapping.

And, 36 out of 40 engineers have their houses under 20 km of distance.

Question 3.

The relative humidity (in %) of a certain city for a month of 30 days was as follows:

98.1 98.6 99.2 90.3 86.5 95.3 92.9 96.3 94.2 95.1

89.2 92.3 97.1 93.5 92.7 95.1 97.2 93.3 95.2 97.3

96.2 92.1 84.9 90.2 95.7 98.3 97.3 96.1 92.1 89

(i) Construct a grouped frequency distribution table with classes 84 - 86, 86 - 88, etc.

(ii) Which month or season do you think this data is about?

(iii) What is the range of this data?

Solution.

(i) The given data is very large. Therefore, we will be construct a group frequency of class size 2.

Therefore,

Class interval will be:

84 – 86, 86 – 88, 88 – 90, 90 – 92 and so on.

The data is represented in the table as:

RELATIVE HUMIDITY (in %)	FREQUENCY
84-86	1
86-88	1
88-90	2
90-92	2
92-94	7
94-96	6
96-98	7
98-100	4
Total	30

(ii) The humidity is very high in the data which is observed during rainy season. Hence, it must be rainy season.

(iii) Range of data = Maximum value of data – Minimum value of data

$$= 99.2 - 84.9$$

$$= 14.3$$

Question 4.

The heights of 50 students, measured to the nearest centimetres, have been found to be as follows:

161 150 154 165 168 161 154 162 150 151

162 164 171 165 158 154 156 172 160 170

153 159 161 170 162 165 166 168 165 164

154 152 153 156 158 162 160 161 173 166

161 159 162 167 168 159 158 153 154 159

(i) Represent the data given above by a grouped frequency distribution table, taking the class intervals as 160 - 165, 165 - 170, etc.

(ii) What can you conclude about their heights from the table?

Solution.

(i) The data with class interval 160-165, 165-170 and so on is represented in the table as:

HEIGHT (In cm)	NO. OF STUDENTS (Frequency)
150-155	12
155-160	9
160-165	14
165-170	10

170-175	5
Total	50

(ii) From the given data, it can be concluded that 35 students that is more than 50% are shorter than 165 cm.

Question 5.

A study was conducted to find out the concentration of sulphur dioxide in the air in parts per million (ppm) of a certain city. The data obtained for 30 days is as follows:

0.03 0.08 0.08 0.09 0.04 0.17

0.16 0.05 0.02 0.06 0.18 0.20

0.11 0.08 0.12 0.13 0.22 0.07

0.08 0.01 0.10 0.06 0.09 0.18

0.11 0.07 0.05 0.07 0.01 0.04

(i) Make a grouped frequency distribution table for this data with class intervals as 0.00 - 0.04, 0.04 - 0.08, and so on.

(ii) For how many days, was the concentration of sulphur dioxide more than 0.11 parts per million?

Solution.

(i) The data with class interval 0.00-0.04, 0.04-0.08 and so on is represented in the table as:

CONCENTRATION OF SO ₂ IN AIR (In ppm)	FREQUENCY
0.00-0.04	4
0.04-0.08	9
0.08-0.12	9
0.12-0.16	2
0.16-0.20	4
0.20-0.24	2
Total	30

(ii) $2 + 4 + 2 = 8$

Hence, 8 days have the concentration of sulphur dioxide more than 0.11 parts per million

Question 6.

Three coins were tossed 30 times simultaneously. Each time the number of heads occurring was noted down as follows:

0 1 2 2 1 2 3 1 3 0

1 3 1 1 2 2 0 1 2 1

3 0 0 1 1 2 3 2 2 0

Prepare a frequency distribution table for the data given above.

Solution.

The frequency distribution table for the data given above can be represented as follows:

NUMBER OF HEADS	FREQUENCY
0	6
1	10
2	9
3	5
Total	30

Question 7.

The value of π up to 50 decimal places is given below:

3.14159265358979323846264338327950288419716939937510

(i) Make a frequency distribution of the digits from 0 to 9 after the decimal point.

(ii) What are the most and the least frequently occurring digits?

Solution.

The parts of the questions are solved below:

(i) The frequency is given as follows:

DIGITS	FREQUENCY
0	2
1	5

2	5
3	8
4	4
5	5
6	4
7	4
8	5
9	8
Total	30

(ii) The digit having the least frequency occurs the least and the digit with highest frequency occurs the most.

Hence,

We can say that:

0 has its frequency as 2 and thus occurs least frequently while 3 and 9 have their frequency 8 and hence occur most frequently.

Question 8.

Thirty children were asked about the number of hours they watched TV programmes in the previous week. The results were found as follows:

1 6 2 3 5 12 5 8 4 8

10 3 4 12 2 8 15 1 17 6

3 2 8 5 9 6 8 7 14 12

(i) Make a grouped frequency distribution table for this data, taking class width 5 and one of the class intervals as 5 - 10.

(ii) How many children watched television for 15 or more hours a week?

Solution.

The parts of the questions are solved below:

(i) The distribution table for the given data, taking class width 5 and one of the class intervals as 5-10 is as follows:

NUMBER OF HOURS	FREQUENCY
0-5	10
5-10	13
10-15	5
15-20	2
Total	30

(ii) We conclude from the given table that two children watch television for 15 or more hours a week.

Question 9.

A company manufactures car batteries of a particular type. The lives (in years) of 40 such batteries were recorded as follows:

2.6 3.0 3.7 3.2 2.2 4.1 3.5 4.5

3.5 2.3 3.2 3.4 3.8 3.2 4.6 3.7

2.5 4.4 3.4 3.3 2.9 3.0 4.3 2.8

3.5 3.2 3.9 3.2 3.2 3.1 3.7 3.4

4.6 3.8 3.2 2.6 3.5 4.2 2.9 3.6

Construct a grouped frequency distribution table for this data, using class intervals of size 0.5 starting from the interval 2 - 2.5

Solution.

A grouped frequency table using class intervals of size 0.5 starting from the interval 2-2.5 is constructed below:

LIVES OF BATTERIES (in years)	NO. OF BATTERIES (Frequency)
2-2.5	2
2.5-3	6
3-3.5	14
3.5-4	11
4-4.5	4
4.5-5	3
Total	40