NCERT Solutions for Class 9 **MATHS – Statistics**



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Give five examples of data that you can collect from your day-to-day life. 1.

Sol. Five examples of data that we can collect from our day-to-day life:

- Height of our classmates or weight of our classmate. \triangleright
- Height of first 100 plants near by our locality.
- Maximum or minimum temperature of a particular month.
- Time spend for watching TV in a particular week.
- Rainfall in our city in last 10 years.
- 2. Classify the data in Q.1 above as primary or secondary data.

Sol. We know that

When the information was collected by the investigator herself or himself with a definite objective in her or his mind, the data obtained is called primary data.

When the information was gathered from a source which already had the information stored, the data obtained is called secondary data.

According to question 1:

Primary data: Case 1, 2 and 4 are examples of primary data. Secondary data: Case 3 and 5 are examples of secondary data.

The blood groups of 30 students of Class VIII are recorded as follows: 3.

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?

Sol. According to data, 9 students have blood group A, 6 students have blood group B, 3 students have blood group AB and 12 students have blood group 0.

The frequency distribution table of 30 students is given below:

Blood Groups	Number of students				
А	9				
В	6				
AB	3				
0	12				
Total	30				

Out of these four groups, O is most common and AB is the rarest group.







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?

Sol. (i)According to given data, the minimum height is 150 cm and the maximum height is 173 cm. Therefore, the class intervals are 150 – 155, 155 – 160, 160 – 165, etc. The grouped frequency distribution table is given below:

Height (in cm)	Number of students (Frequency)
150 - 155	12
155 - 160	9
160 - 165	14
165 - 170	10
170 - 175	5
Total	50

(ii) More than 50% students have height less than 165 cm.

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?

Sol. (i) According to the given data, the minimum concentration is 0.01 and the maximum concentration is 0.22. Therefore, the class intervals are 0.00 - 0.04, 0.04 - 0.08, 0.08 - 0.12, etc. Frequency table is given below:

Concentration of Sulphur dioxide (in ppm)	Number of days (Frequency)
0.00 - 0.04	4
00.4 - 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) In 8 days, the concentration of sulphur dioxide was more than 0.11 parts per million.





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.

Sol.	The frequency	table is	given	below:
			0	

Number of heads	Frequency
0	6
1	10
2	9
3	5
Total	30

- 7. The value of π upto 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?
- Sol. (i) The frequency table is given below:

	0	_
Number	Frequency	
0	2	
1	5	
2	5	
3	8	
4	4	
5	5	
6	4	
7	4	
8	5	
9	8	
Total	50	

(ii) 3 and 9 are the most occurring digits and 0 is the least occurring digit.

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

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(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?

Sol. (i) According to data, the least time is 1 hour and the most time is 17 hours. Therefore, the class intervals are 0 - 5, 5 - 10, 10 - 15 etc. The grouped frequency distribution table is given below:

Time for watching TV (in hours)	Number of children (Frequency)
0-5	10
5-10	13
$\frac{10}{10-15}$	5
15 - 20	2
Total	30

(ii) Only 2 children watched television for 15 or more hours a week.

9. Given below are the seats won by different political parties in the polling outcome of a state assembly elections:

Political Party	А	В	С	D	Е	F
Seats Won	75	55	37	29	10	37

(i) Draw a bar graph to represent the polling results.

(ii) Which political party won the maximum number of seats?

Sol. (i) Taking a suitable distance, the causes are taken on x-axis. The width of each bar and distance between the two bars constant. Taking number of seats won on y-axis and suitable scale the bar graph is drawn below. As the maximum number of seats won is 75, so the scale is 1 units = 10 seats.



(ii) Political party A won the maximum (75) number of seats.







10. The following number of goals were scored by a team in a series of 10 matches: 2, 3, 4, 5, 0, 1, 3, 3, 4, 3

Find the mean, median and mode of these scores.

Sumof all observations Mean = Sol.

Total number of observations

$$=\frac{2+3+4+5+0+1+3+3+4+3}{10}=\frac{28}{10}=2.8$$
 goals

Arranging the data in ascending order:

3, 3, 0, 1, 2. 3, 3, 4. 4. 5 Number of observations = 10

10 is an even number. Therefore, the median = Mean of $5^{\text{th}}\left[\left(\frac{n}{2}\right)^{th}\right]$ term and $6^{\text{th}}\left[\left(\frac{n}{2}+1\right)^{th}\right]$ term.

Hence,

Did you know?

Median
$$=\frac{1}{2}(5^{\text{th}} \text{ observation} + 6^{\text{th}} \text{ observation}) = \frac{1}{2}(3+3) = 3$$

Mode is the observation having maximum frequency. Here, the number 3 occurs maximum (4) times. Hence, the mode of the observations is 3.

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