

## FlexiPrep

# NCERT Class 9 Solutions: Statistics (Chapter 14) Exercise 14.3-Part 2

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Q-4 The length of 40 leaves of a plant are measured correct to one millimeter and the obtained data is represented in the following table:

Length (in mm)	Number of leaves
118-126	3
127-135	5
136-144	9
145-153	12
154-162	5
163-171	4
172-180	2

*Table shows the length of number of leaves*

- I. Draw a histogram to represent the given data.
- II. Is there any other suitable graphical representation for the same data?
- III. Is it correct to conclude that the maximum number of leaves is 153 mm long? Why?

### **Solution (I):**

Given frequency distribution is not continuous. So, first convert into frequency distribution.

So, Difference between lower limit of class and upper limit of preceding class:  $(127 - 126 = 1)$

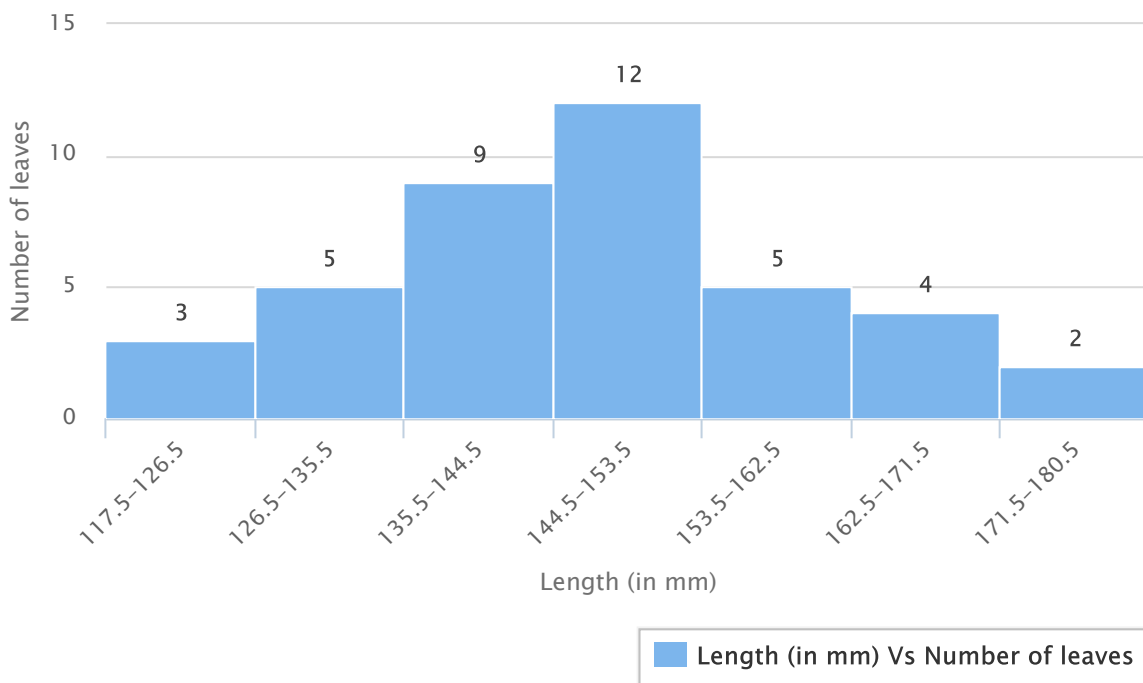
Hence,  $\frac{h}{2} = \frac{1}{2} = 0.5$  added to each upper class limit and subtract from the lower class limits.

Obtain distribution is given as under:

Length (in mm)	Number of leaves
117.5-126.5	3
126.5-135.5	5
135.5-144.5	9
144.5-153.5	12
153.5-162.5	5
162.5-171.5	4
171.5-180.5	2

*Obtain distribution as per given data*

Length (in mm) Vs Number of leaves



**Solution (II):** Other suitable graphical representation of this data is frequency polygon.

**Solution (III):** No, maximum number of leaves has in between 144.5 mm and 153.5 mm. It is not necessary that all leaves length as 153 mm.

Q-5 The following table gives the life times of 400 neon lamps:

Life time (in hours)	Number of lamps
300-400	14
400-500	56
500-600	60
600-700	86
700-800	74
800-900	62
900-1000	48

*Life times of neon lamps are shown in table*

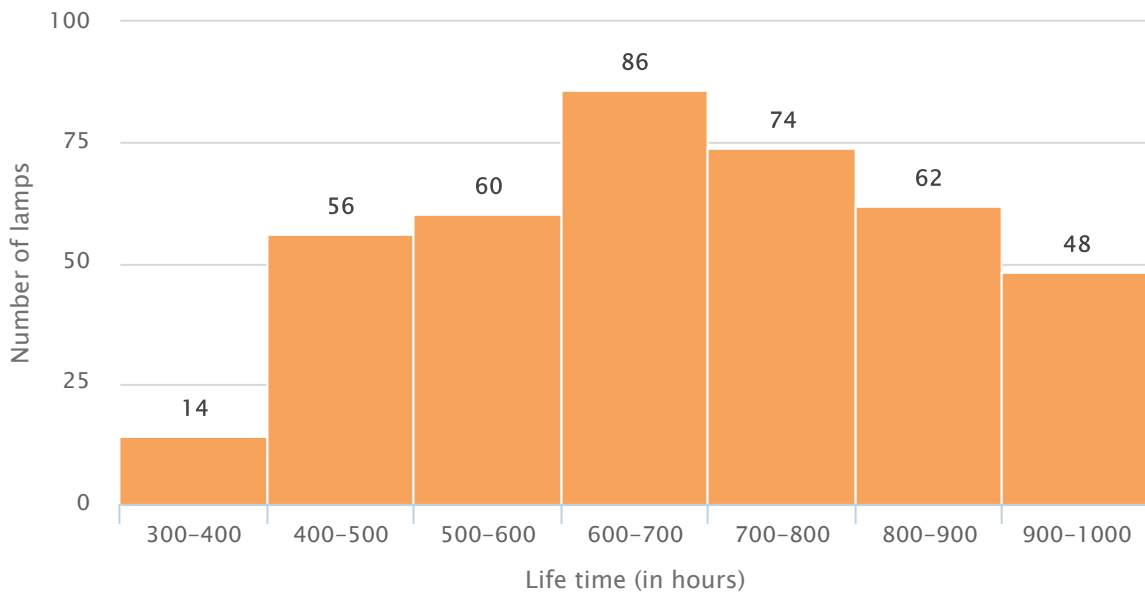
I. Represent the given information with the help of a histogram.

II. How many lamps have a lifetime of more than 700 hours?

**Solution (I):** Life time of x-axis and the number of lamps on y-axis.

Histogram:

## Life time (in hours) Vs Number of lamps



Life time (in hours) Vs Number of lamps

### Solution (II):

Lifetime more than 700 is the sum of the number of neon lamps having their lifetime as 700 – 800, 800 – 900 , and 900 – 1000.

So, neon lamp having more than 700 hour's lifetime =  $74 + 62 + 48 = 184$  lamps

Q-6 The following table gives the distribution of students of two sections according to the mark obtained by them:

Section A		Section B	
Marks	Frequency	Marks	Frequency
0-10	3	0-10	5
10-20	9	10-20	19
20-30	17	20-30	15
30-40	12	30-40	10
40-50	9	40-50	1

*Distribution of students according to marks*

Represent the marks of the students of both the sections on the same graph by two frequency polygons. From the two polygons compare the performance of the two sections.

**Solution:**

The class marks of the given class intervals by using the formula.

$$\text{Class interval (Marks)} = \frac{\text{Upper class limit} + \text{lower class limit}}{2}$$

<b>Section A</b>			<b>Section B</b>		
Marks	Class marks	Frequency	Mark	Class marks	Frequency
0 – 10	5	3	0 – 10	5	5
10 – 20	15	9	10 – 20	15	19
20 – 30	25	17	20 – 30	25	15
30 – 40	35	12	30 – 40	35	10
40 – 50	45	9	40 – 50	45	1

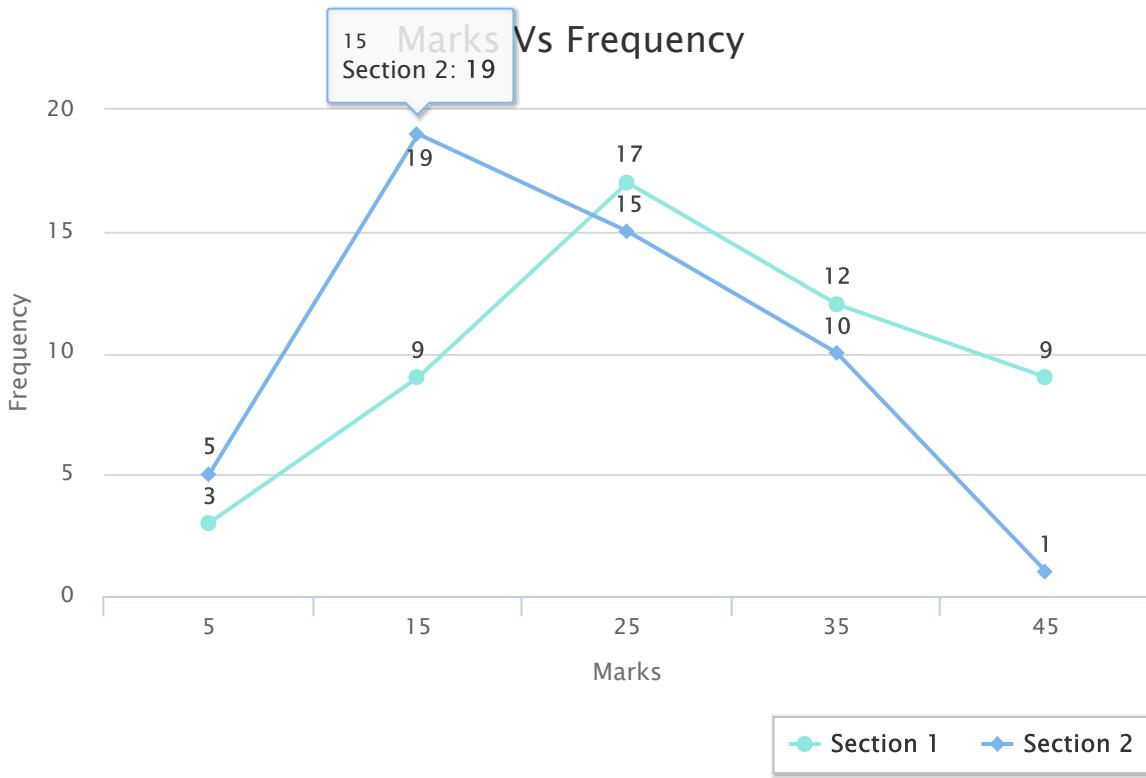
*Frequency polygons data table of Section A and B*

Class marks on x-axis and frequency on y-axis.

Choose appropriate scale.

Below drawn the frequency polygons:

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