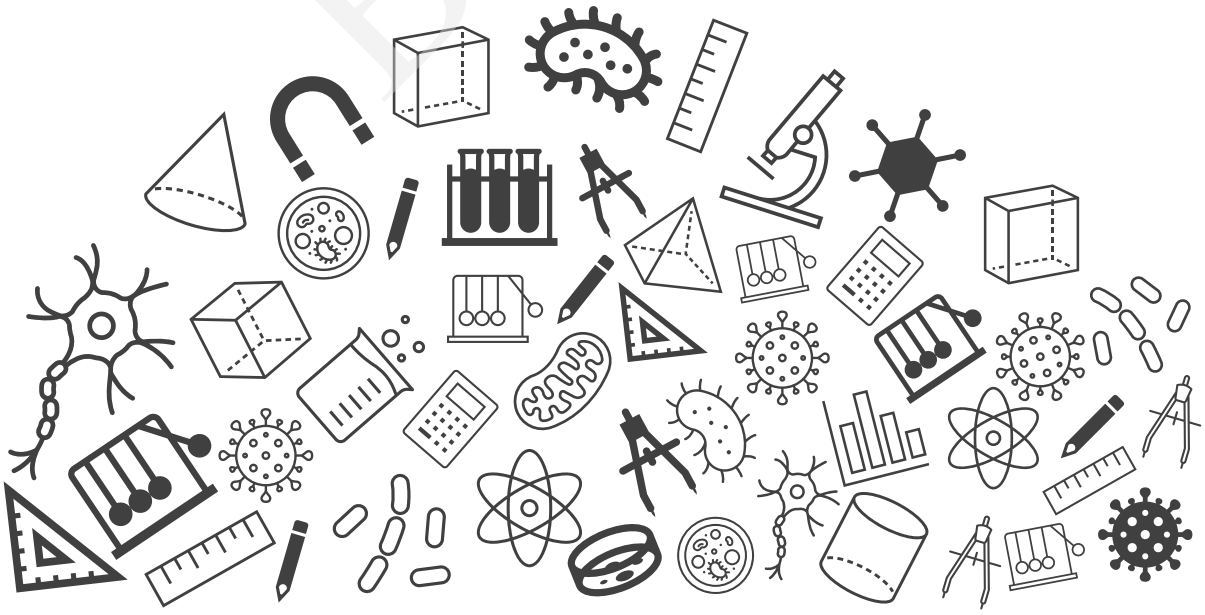
Grade 09
Mathematics Chapter Notes

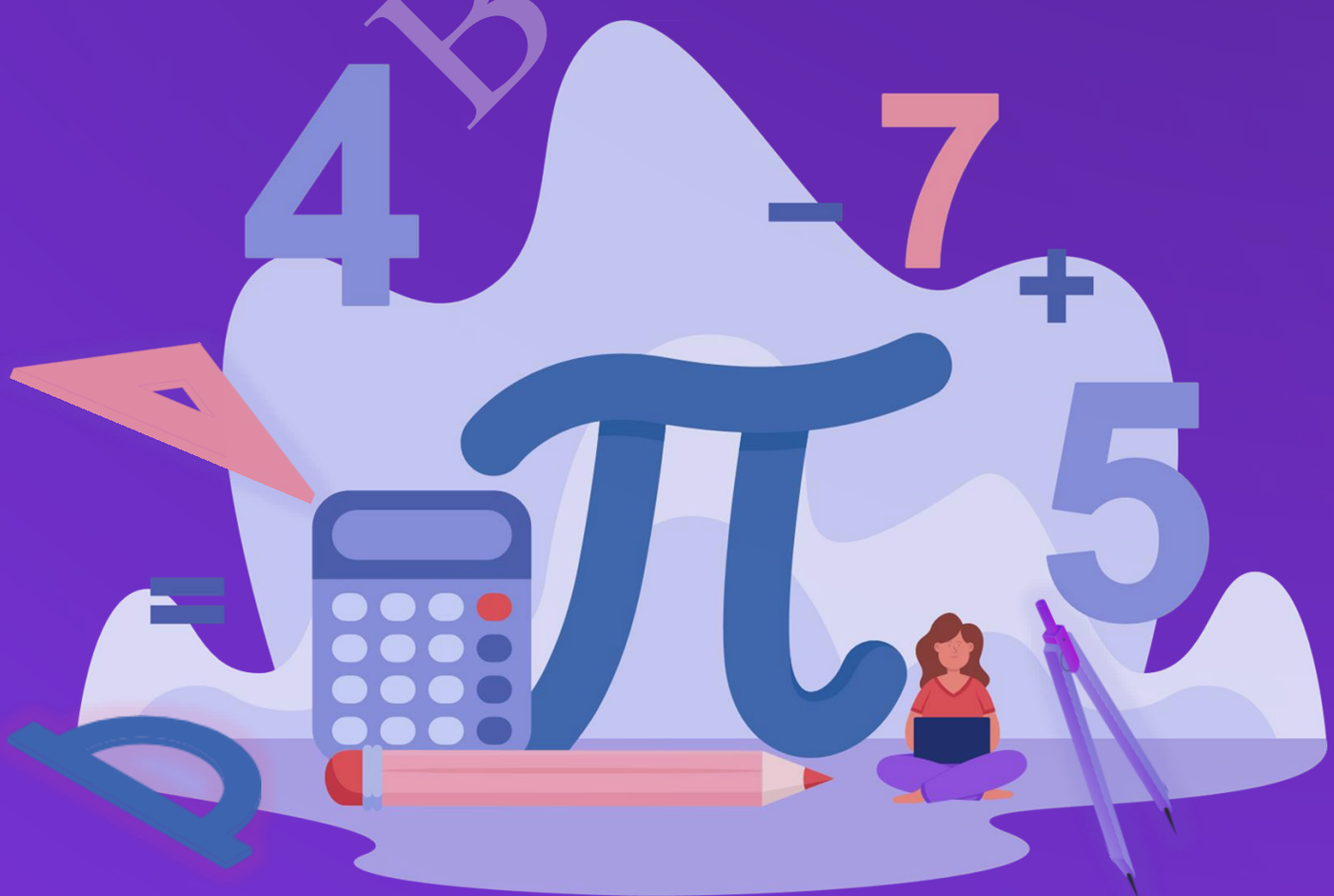


BYJU'S Classes

CHAPTER NOTES

Statistics

Grade 09



Topics Covered

- Bar Graph
- Histogram
- Frequency Polygon

Graphical Representation of Data

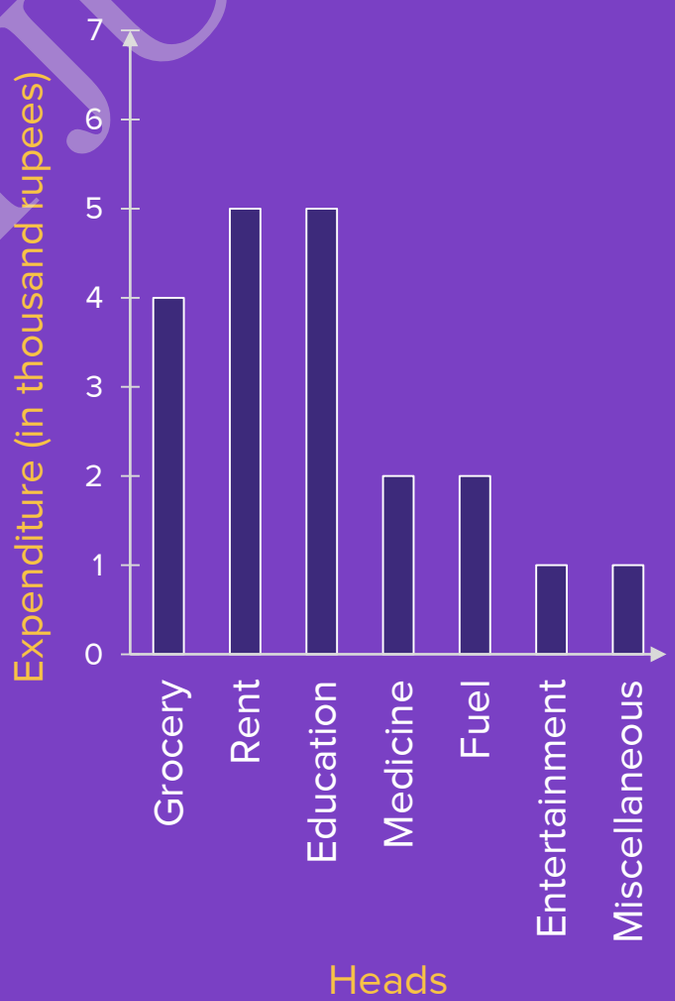
1. Bar Graphs

The pictorial representation of grouped data, in the form of vertical or horizontal rectangular bars, where the lengths of the bars are equivalent to the measure of data, are known as bar graphs.

Example: Monthly expenditure of family is shown using a bar graph drawn using the following steps.

- First, decide the title of the bar graph.
- Draw the horizontal axis and vertical axis.
- Now, label the horizontal axis and label the vertical axis.
- Finalise the scale range for the given data to draw bar graph.

Heads	Expenditure
Grocery	4
Rent	5
Education	5
Medicine	2
Fuel	2
Entertainment	1
Miscellaneous	1

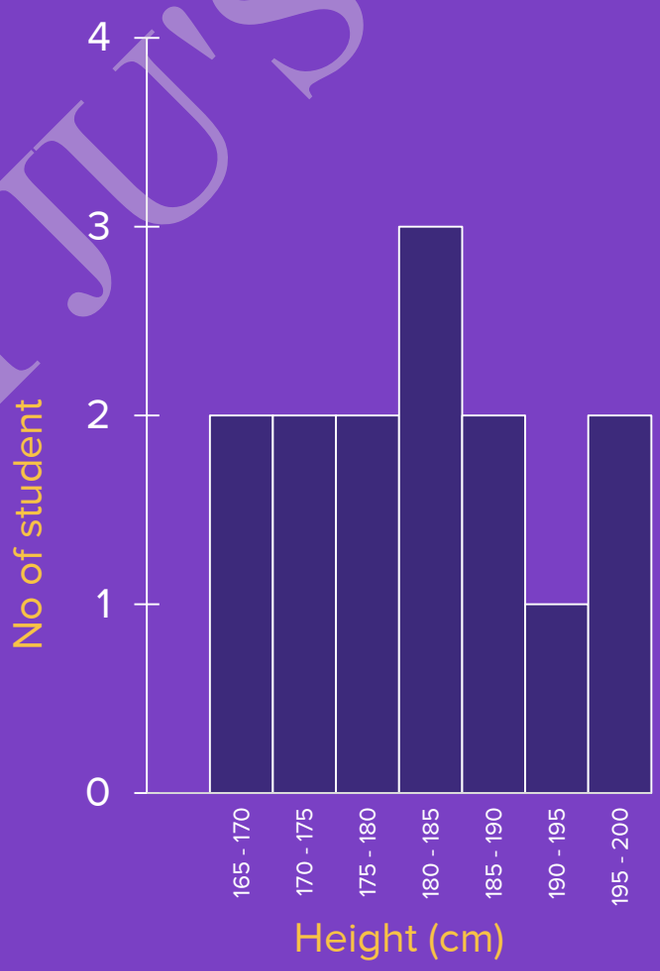


2. Histogram

- A histogram is the graphical representation of data where data is grouped into continuous number ranges and each range corresponds to a rectangular bar.
- In histogram, the frequency of the data is shown by the area of the rectangular bars.

Example: The data of height for a class using a histogram is as shown.

Height (cm)	No. of Students
165 – 170	2
170 – 175	2
175 – 180	2
180 – 185	3
185 – 190	2
190 – 195	1
195 – 200	2
Total No. of Students	14



3. Frequency Polygon

- Frequency polygon is a line graph of class frequency plotted against class midpoints.
- It can also be obtained by joining the midpoints of the tops of the rectangles in histogram.

$$\text{Class Mark} = \frac{\text{Upper Limit} + \text{Lower limit}}{2}$$

Steps to draw a frequency polygon

Step 1: Choose the class interval and mark the values on the horizontal axes.

Step 2: Mark the mid value of each interval on the horizontal axes.

Step 3: Mark the frequency of the class on the vertical axes.

Step 4: For each class interval, mark a point at the height in the middle of the class interval.

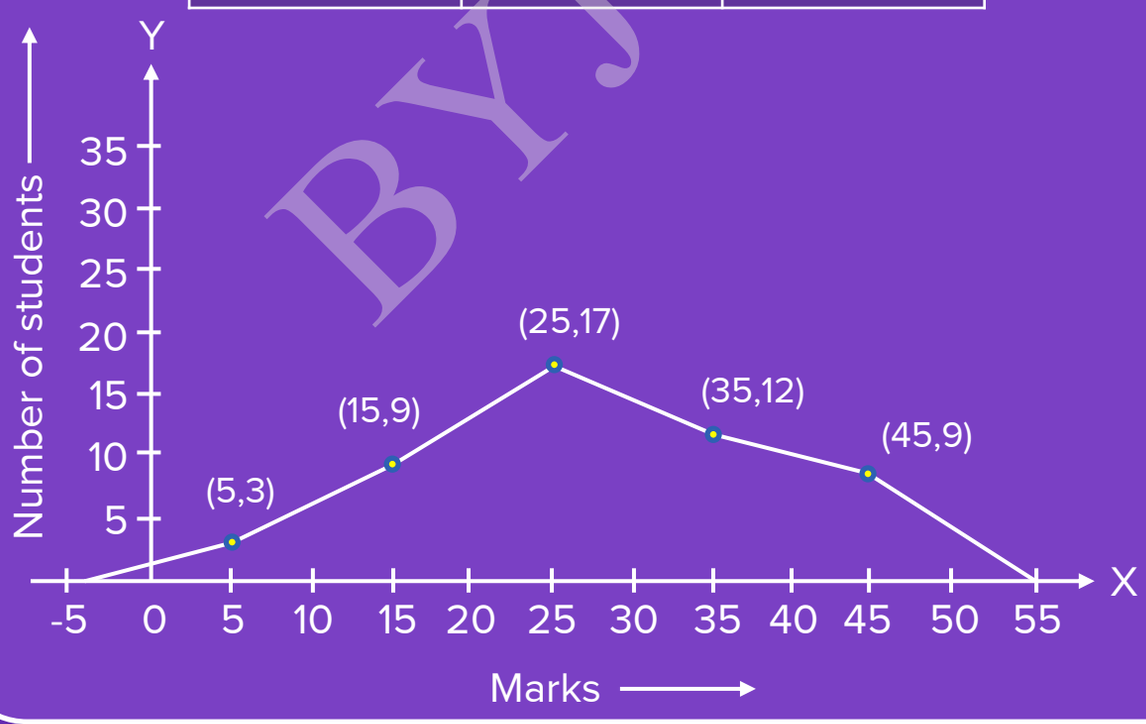
Step 5: Connect these points using the line segment.

- For same data, total area of frequency polygon is equal to the total area of histogram.
- For any data, area under the frequency polygon is proportional to total frequency of the table.

3. Frequency Polygon

Example : The following data of marks of a class using is shown using a frequency polygon.

Marks	Class Marks	Frequency
0 – 10	2	3
10 – 20	2	9
20 – 30	2	17
30 – 40	3	12
40 – 50	2	9



Mind Map