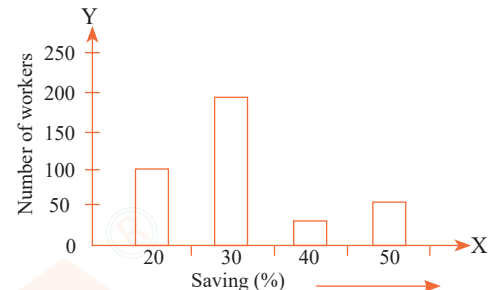


Introduction to Graph



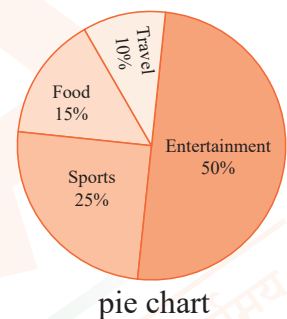
Bar Graph: A bar graph is a chart that represents data with rectangular bars of equal width and varying lengths, depending on the values.

Example: The given bar graph shows the number of employees on the Y-axis and their savings in percentage on the X-axis.



Pie Chart: A pie chart is a circular chart divided into slices to show relative proportions or percentages of a whole. Each sector represents a category's contribution to the total.

The pie chart given shows the expenditure incurred by a family on different portions.



pie chart

Data Handling: It is the process of collecting, organizing, and interpreting data.

Example: Recording the number of students with different favourite colors.

Tally Marks: A way of recording frequency using groups of vertical lines.

Example: |||| = 4

Frequency: The number of times a particular data value occurs.

Example: If 10 appears 3 times in data, then its frequency is 3.

Class Mark: The midpoint of a class interval calculated as $\frac{(\text{lower limit} + \text{upper limit})}{2}$.

Range: The difference between the highest and lowest values in data.

Example: For data 5, 8, 12, 20, range = 20 – 5 = 15.

Lower Class Limit: The smallest value in a class interval.

Example: In 30-40, the lower-class limit is 30.

Upper Class Limit: The largest value in a class interval.

Example: In 30-40, the upper-class limit is 40.

Mean: The average of data found by dividing the sum of values by the number of values.

$$\text{Mean} = \frac{(\text{Sum of observations})}{(\text{Number of observations})}$$

Median: The median is the middle value in a data set when the numbers are listed in either ascending order.

If the total number of observations (n) is an odd number, then the formula is given below:

$$\text{Median} = \left(\frac{n+1}{2} \right)^{\text{th}} \text{ observation}$$

If the total number of the observations (n) is an even number, then the formula is given below:

$$\text{Median} = \frac{\left(\frac{n}{2} \right)^{\text{th}} \text{ observation} + \left(\frac{n}{2} + 1 \right)^{\text{th}} \text{ observation}}{2}$$

Mode: The value that appears most frequently in a data set.

Practice Questions

1. Find the class mark for the class interval 30–40.

$$\begin{aligned} \text{Sol: Class Mark} &= \frac{\text{Lower Limit} + \text{Upper Limit}}{2} \\ &= \frac{30 + 40}{2} \\ &= \frac{70}{2} \\ &= 35 \end{aligned}$$

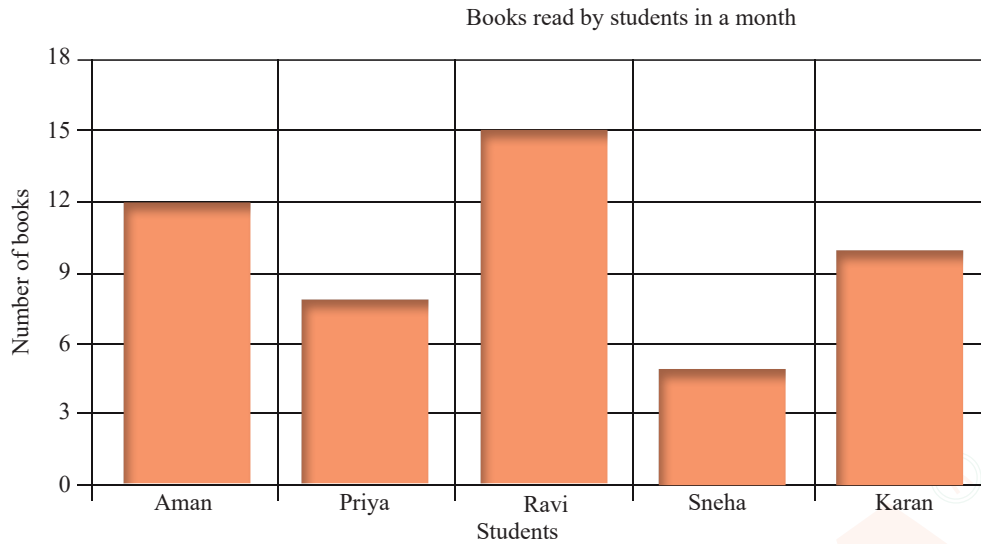
2. Find the range of the data: 55, 60, 62, 70, 75.

$$\begin{aligned} \text{Sol: Range} &= \text{Highest Value} - \text{Lowest Value} \\ &= 75 - 55 = 20 \end{aligned}$$

3. Find the mean of: 10, 15, 20, 25, 30.

$$\begin{aligned} \text{Sol: Mean} &= \frac{\text{Sum of Observations}}{\text{Number of Observations}} \\ &= \frac{10 + 15 + 20 + 25 + 30}{5} \\ &= \frac{100}{5} = 20 \end{aligned}$$

4. The bar graph below shows the number of books read by 5 students in a month. Which student read the most books?



Sol: The graphs says that ravi read the most books.