CBSE Class 8 Maths Notes Chapter 13: These notes are important for Class 8 students studying under the CBSE curriculum. They provide a clear and concise understanding of how to interpret and create graphs, which is an essential skill in mathematics.

The chapter covers key concepts such as the coordinate plane, plotting points, and understanding different types of graphs like bar graphs, line graphs, and histograms. Mastering these concepts will not only help in exams but also build a strong foundation for higher-level math.

CBSE Class 8 Maths Notes Chapter 13 Introduction to Graphs Overview

These notes on Chapter 13 Introduction to Graphs have been prepared by subject experts of Physics Wallah.

The notes cover everything from the basics of the coordinate plane to the plotting of various types of graphs, such as bar graphs, line graphs, and histograms. With clear explanations and practical examples these notes provide a solid foundation for understanding graphs, making them an invaluable resource for students.

CBSE Class 8 Maths Notes Chapter 13 Introduction to Graphs PDF

The PDF link below has notes for Chapter 13 Introduction to Graphs for CBSE Class 8 Maths. These notes explain important ideas like the coordinate plane, how to plot points, and how to read different types of graphs such as bar graphs, line graphs, and histograms.

CBSE Class 8 Maths Notes Chapter 13 Introduction to Graphs PDF

CBSE Class 8 Maths Notes Chapter 13 Introduction to Graphs

Here are the notes for CBSE Class 8 Maths Chapter 13 Introduction to Graphs. This chapter covers essential concepts for understanding various types of graphs, including bar graphs, line graphs, pie charts, and histograms. It explains how these graphs are used to represent data visually, with bar graphs for comparing categories, line graphs for tracking changes over time, pie charts for showing parts of a whole, and histograms for displaying continuous data.

The chapter also introduces the Cartesian plane, where data points are plotted using ordered pairs (x, y), and discusses the benefits of using graphs to simplify and interpret complex data.

These notes provide a foundational understanding of graphing techniques crucial for analyzing and presenting data effectively.

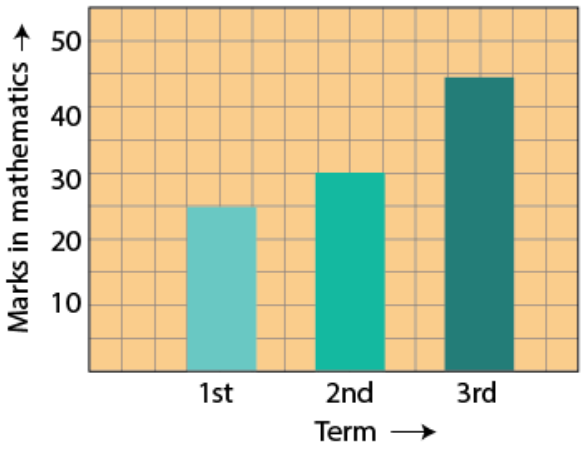
Introduction to Graphs

Graphs are visual tools used to represent data that has been collected. Their main purpose is to display numerical information in a physical format, making it easier and quicker to understand and interpret. By turning data into visual formats, graphs help to simplify complex information and make it more accessible.

Bar Graphs

A bar graph is used to compare different categories. It displays data using parallel vertical bars that are rectangular in shape. Each bar represents a specific category, making it easy to compare and understand the differences between them.

For instance, a bar graph might show a student's marks in math for the first, second, and third terms, with each bar representing the marks for a particular term.



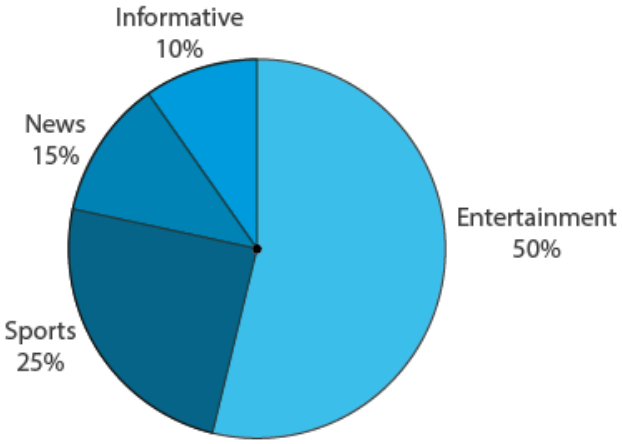
A bar graph can also include two or more bars for the same category to show different aspects or time periods within that category.

For example, a bar graph might display a student’s marks in math for multiple terms, with separate bars for each term to illustrate changes over time or comparisons between different terms. This approach helps in analyzing variations and trends within the same category.

Pie Charts

A pie graph is used to show how different parts make up a whole. It represents data as slices of a circle, where each slice corresponds to a part of the total.

For example, a pie graph might display people's preferences for different television channels. In this case, the entire circle represents everyone who participated in the survey. The total of all the slices in the pie graph will always add up to 100%, reflecting the complete set of choices.



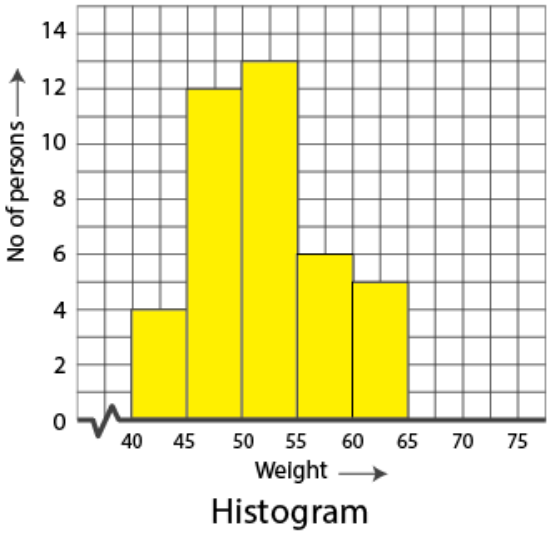
Pie graph

Histograms

A histogram is a type of bar graph used to group data into ranges or intervals. It helps in showing how data is distributed across these intervals. For example, if we have a table that shows the number of people within different weight ranges:

Weight (kg)	40-45	45-50	50-55	55-60	60-65
No.of persons	4	12	13	6	5

In the histogram, the x-axis would be labeled with weight ranges from 40 to 65 kg, divided into intervals of 5 kg. The y-axis would be labeled "Number of persons," showing how many people fall into each weight range.



A histogram is used to represent continuous data, displaying how data is distributed across various ranges. In the graph mentioned, it shows the data for all weight values between 40 and 65 kg. Each bar represents the number of people within a specific weight range, illustrating how the data is spread out over the entire range of values.

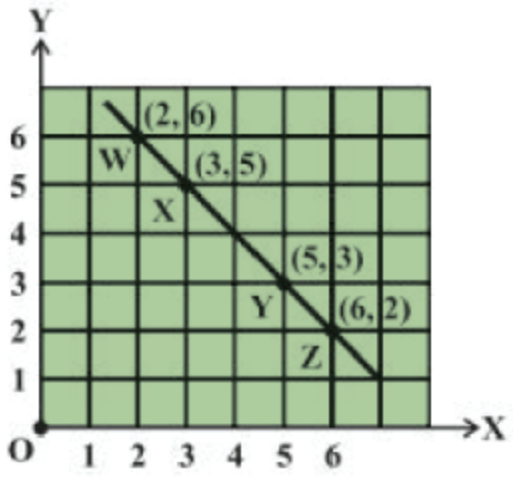
Linear Graphs and Application

Linear Graph

A linear graph is one where all the data points lie on a single straight line. This type of graph shows a linear relationship between two variables.

To create a linear graph, you need to know the rule for the relationship between the variables and construct a table of values based on this rule. At least two coordinate points are required to plot the straight line on the graph.

For example, if you plot the points W(2,6), X(3,5), Y(5,3), and Z(6,2) on a graph, you'll see that they all align perfectly to form a straight line.



Linear graph

Graphs are useful for showing how one variable changes in relation to another. There are two main types of variables:

Independent Variable: This is the variable that doesn't change based on other variables. Its value remains constant regardless of other factors.

Dependent Variable: This variable changes depending on the value of the independent variable. Its value is influenced by the independent variable.

For example, consider the relationship between electricity consumption and the electricity bill. The quantity of electricity consumed is the independent variable because it doesn't change based on other factors. The electricity bill, however, is the dependent variable because it changes with the amount of electricity consumed. Graphs can visually illustrate this relationship using the Cartesian plane, making it easier to understand how changes in one variable affect the other.

Line Graphs and Linear Graphs

Line Graph

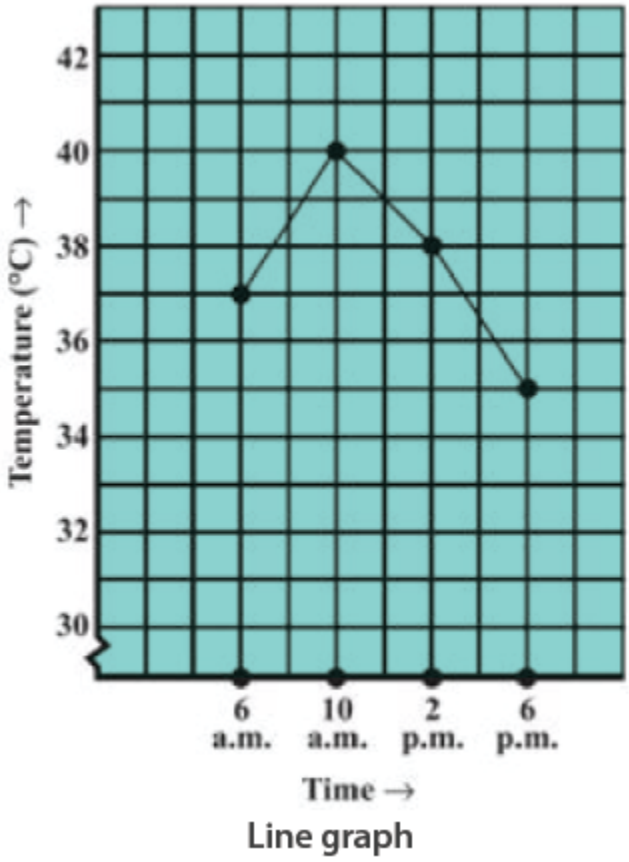
A line graph is used to show how data changes over time. It helps visualize trends and fluctuations in data across different time intervals.

Consider a table of the kind as shown here :

Time	6 AM	10 AM	2 PM	6 PM

Temperature	37	40	38	35

In this table, the temperature varies throughout the day. A line graph can be created to plot these temperature readings over the 12-hour period from 6 AM to 6 PM. On the graph, time is placed on the x-axis, and temperature is on the y-axis. The points are connected with a line, showing how the temperature increases and decreases throughout the day.

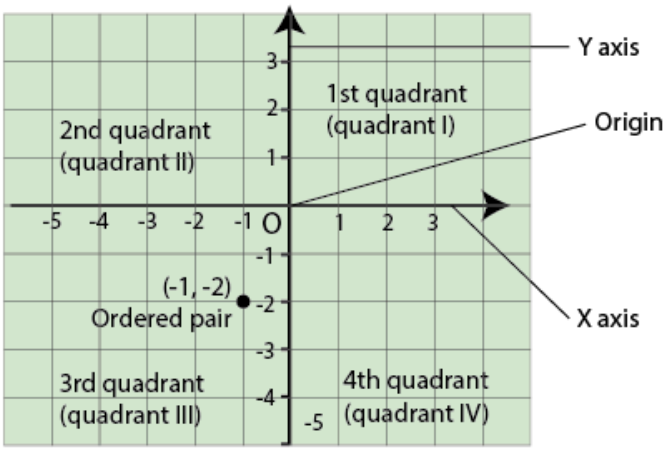


Line graph

Cartesian Plane and Coordinate Axes

The Cartesian plane is created by two perpendicular number lines: the x-axis, which runs horizontally, and the y-axis, which runs vertically. These lines are known as the coordinate axes. The point where the x-axis and y-axis intersect is called the origin.

The Cartesian plane is used to plot points by specifying their position using coordinates. The two axes divide the plane into four quadrants, helping to locate any point accurately based on its x (horizontal) and y (vertical) values.

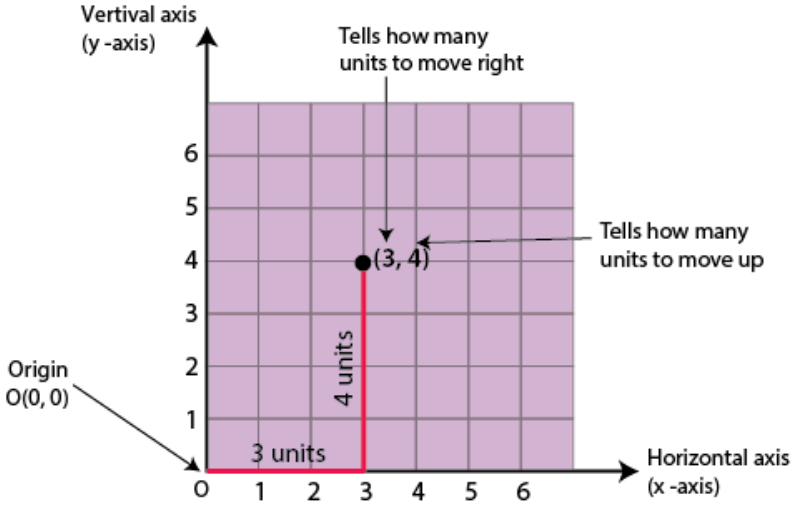


Representation of Point on the Plane

To plot a point on the Cartesian plane, you use an ordered pair of numbers written in the form (x, y). Here, x represents the x-coordinate, and y represents the y-coordinate of the point.

In simple terms, the x and y coordinates show how far the point is from the origin along the x-axis and y-axis, respectively.

For example, for the point (3, 4), 3 is the x-coordinate and 4 is the y-coordinate. This means the point is 3 units to the right of the origin on the x-axis and 4 units up from the origin on the y-axis. You plot this point by moving 3 units along the x-axis and 4 units along the y-axis from the origin.



Benefits of CBSE Class 8 Maths Notes Chapter 13 Introduction to Graphs

- **Clear Understanding:** They provide a straightforward explanation of key concepts like bar graphs, line graphs, pie charts, and histograms making it easier for students to grasp these topics.
- **Visual Learning:** The notes include diagrams and examples that help visualize how to create and interpret different types of graphs.
- **Improved Performance:** By understanding how to read and construct graphs students can improve their performance in exams and assignments, where graph-related questions are common.
- **Foundation for Future Topics:** Mastery of graphing techniques in Class 8 lays a strong foundation for more advanced mathematical concepts in higher grades.