CBSE Class 10 Maths Notes Chapter 9: Students in Class 10 will learn how to use trigonometry to calculate various objects' heights and distances without having to measure them in Chapter 9, "Some Applications of Trigonometry."

Astronomers used to calculate the distance between the planets, the Earth, and the stars using trigonometry. Trigonometry is most commonly used in geography and navigation to determine the latitude and longitude of a given point.

In this chapter, students will be able to study about topics like horizontal lines, angles of depression, elevation and depression, line of sight, and heights and distances. By working through the issues, students may really understand the principles. In this chapter, every numerical problem is handled using trigonometric ratios.

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Horizontal Level and Line of Sight

The line drawn from the observer's eye to the spot on the thing they are viewing is known as their line of sight.

The horizontal line seen via the observer's sight is the horizontal level.

Angle of Elevation

When considering things above the horizontal plane, the angle of elevation is important. It is the angle created between the horizontal level and the line of sight. The angle of elevation in the diagram below is indicated by the letter "θ."

Angle of Depression

The **angle of depression** is relevant for objects **below** the horizontal level. It is the **angle** formed by the **line of sight** with the **horizontal level**.

Calculating Heights and Distances

We can utilise trigonometric ratios to compute heights and distances.

Examine the trigonometric ratio table below for your reference:

Trigonometry Ratios Table

Angles (In Degrees)	0°	30°	45°	60°	90°	180°	270°	360°
Angles (In Radians)	0°	π/6	π/4	π/3	π/2	π	3π/2	2π
sin	0	1/2	1/√2	√3/2	1	0	-1	0
cos	1	√3/2	1/√2	1/2	0	-1	0	1
tan	0	1/√3	1	√3	∞	0	∞	0
cot	∞	√3	1	1/√3	0	∞	0	∞
cosec	∞	2	√2	2/√3	1	∞	-1	∞
sec	1	2/√3	√2	2	∞	-1	∞	1

Step 1: Create a line diagram that matches the issue.

Step 2: Label all known angles, heights, and distances. Use variables to indicate unknown lengths.

Step 3: To determine the unknown lengths from the known lengths, use the values of various trigonometric ratios of the angles.

Heights and Distance Summary

The below diagram gives the complete summary of “Heights and Distances”.

From the given diagram, if “C” is the point of observation,

- AC is the line of sight
- BC is the distance between the observer and the object.
- AB is the height of the object
- α is the angle of elevation
- β is the angle of depression.

Measuring the Distances of Celestial bodies with the Help of Trigonometry

The parallax method can be used to measure large distances. When something is observed from two distinct angles, the angle formed by the parallax is half of the angle between the two lines of sight.

Large distances can be measured if the parallax angle and the separation between the two locations are known.

Benefits of CBSE Class 10 Maths Notes Chapter 9

Notes for revision in class ten Maths Chapter 9 is structured so that students may quickly review every topic at once and not miss any crucial information linked to the chapter.

Students will gain from the Chapter 9 revision notes in a variety of ways, including an acceleration of their problem-solving abilities. To this end, we recommend practicing and reviewing these notes on a frequent basis.

Notes for Class 10 Review Chapter 9 is one of the hardest and most essential chapters in the curriculum, and these notes will help you prepare for it. Some Applications of Trigonometry will assist you in covering this important and scoring topic.