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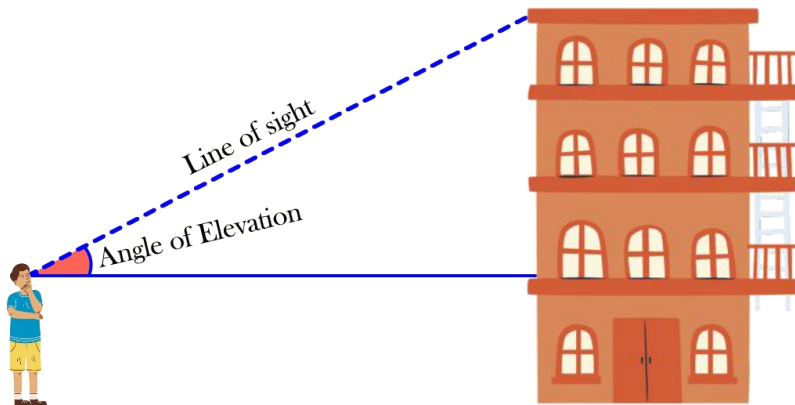
“CLASS 10th”

SOME APPLICATIONS OF TRIGONOMETRY

**FORMULA/CONCEPT
LIST**

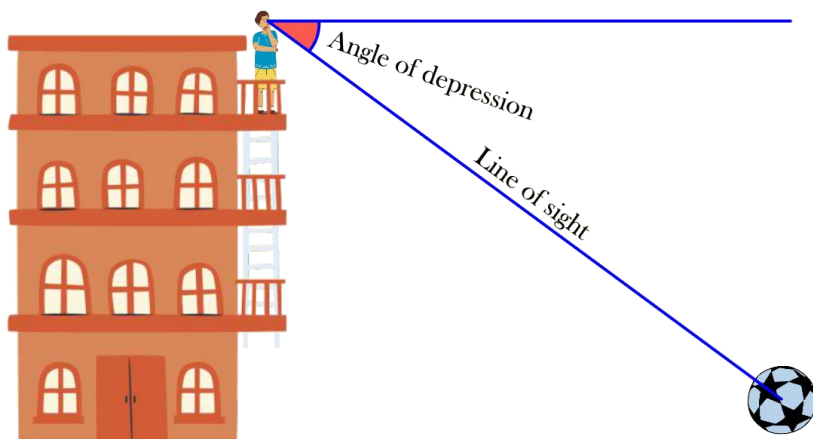
1. Angle of Elevation

The angle of elevation pertains to objects positioned above the horizontal level and is defined as the angle formed between the line of sight and the horizontal plane.



2. Angle of Depression

The angle of depression is applicable to objects situated beneath the horizontal level and represents the angle formed between the line of sight and the horizontal plane.



*Note: The angles of elevation and depression are measured in relation to the **horizontal line**. A common mistake made by students is to interpret these angles with reference to the vertical line.*

3. Steps to solve Height & distance questions:

- (i) Identify right angled triangle in the scenario given in the question.
- (ii) Identification of Trigonometric angle.
- (iii) Identification of Trigonometric sides.
- (iv) Apply Trigonometric ratios.

In case of angle of depression questions, use transversal and alternate interior angle concept to transfer the angle at the top to the bottom part.

In case of two triangles, try to link both the triangles through common side (Common base or common perpendicular).

4. Trigonometric Sides

Perpendicular: Side opposite to Trigonometric angle.

Hypotenuse: Side opposite to 90° angle.

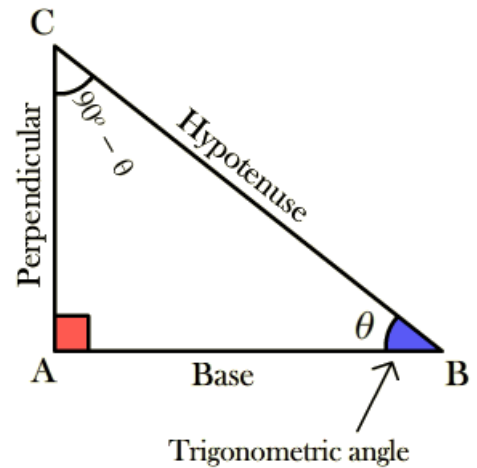
Base: Side between Trigonometric angle and 90° angle.

Trigonometric sides as per Trigonometric angle θ :

Perpendicular: AC

Hypotenuse: BC

Base: AB

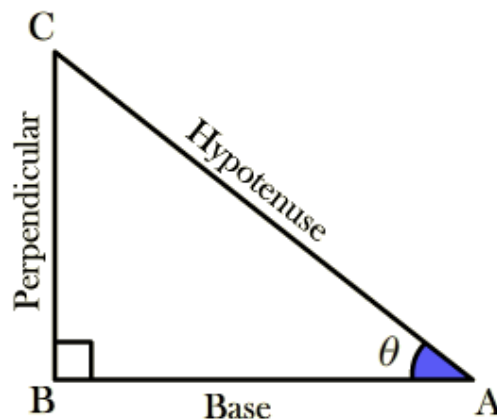


5. Trigonometric Ratios

$$\sin \theta = \frac{\text{Perp}}{\text{Hyp}}$$

$$\cos \theta = \frac{\text{Base}}{\text{Hyp}}$$

$$\tan \theta = \frac{\text{Perp}}{\text{Base}}$$



6. Trigonometric Ratio Table

	0°	30°	45°	60°	90°
Sin θ	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
Cos θ	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
Tan θ	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	n.d

Note: Tan 30° , Tan 45° and Tan 60° are mostly used trigonometric ratios in Height & Distance questions. It is important to memorize these ratios for solving such questions effectively.

7. Check out complete chapter Introduction to Trigonometry class 10th lecture series on YouTube.

All the lectures are created using animation and visual tools, for better learning experience.

The complete series includes following lectures:

1. Some Applications of Trigonometry: <https://youtu.be/7R1t6lSNirw>
2. NCERT example Q1 to Q4: https://youtu.be/-WXw8a_-T3I
3. NCERT example Q5 to Q7: <https://youtu.be/VFqQknBZtcU>
4. Ex 9.1 Q1 to Q5: https://youtu.be/K_ZN-uU2AaQ
5. Ex 9.1 Q6 to Q10: <https://youtu.be/gTKBMESkBzc>
6. Ex 9.1 Q11 to Q15: <https://youtu.be/eJ8LeIGz7zE>
7. **Quiz:** <https://creataclasses.com/class-10-maths/class-10-some-applications-of-trigonometry-chapter-9/>

SOME APPLICATIONS OF TRIGONOMETRY CLASS 10 SERIES:

<https://creataclasses.com/class-10-maths/class-10-some-applications-of-trigonometry-chapter-9/>

NOTES: