Some Applications of Trigonometry
Topics

- Terminologies
- Assumptions made while solving
- Trigonometric Ratios of Some Common Angles
- Method of Solving Questions
1. Basic Terminologies

The line drawn from the eyes of an observer to a point on the object.

If the object to be viewed is straight ahead, then the same as the horizontal level.

**Angle of Elevation**

The angle formed by the line of sight with the horizontal when the viewed horizontal level.

**Angle of Depression**

The angle formed by the line of sight with the horizontal when the viewed horizontal level.
2. Assumptions Made While Solving

The angle of elevation of the top of the building 73 m away from its base is 
°.

Steps to Draw the figure:

1. Represent the 

2. Represent the observer as a point object.
### 3. Trigonometric Ratios of Some Common Angles

<table>
<thead>
<tr>
<th>Angles</th>
<th>Logic</th>
<th>0°</th>
<th>30°</th>
<th>45°</th>
<th>60°</th>
<th>90°</th>
</tr>
</thead>
<tbody>
<tr>
<td>sinθ</td>
<td>sinθ</td>
<td>0</td>
<td>$\frac{1}{2}$</td>
<td>$\frac{1}{\sqrt{2}}$</td>
<td>$\frac{\sqrt{3}}{2}$</td>
<td>1</td>
</tr>
<tr>
<td>cosθ</td>
<td>Reverse sinθ</td>
<td>1</td>
<td>$\frac{\sqrt{3}}{2}$</td>
<td>$\frac{1}{\sqrt{2}}$</td>
<td>$\frac{1}{2}$</td>
<td>0</td>
</tr>
<tr>
<td>tanθ</td>
<td>$\frac{\sinθ}{\cosθ}$</td>
<td>0</td>
<td>$\frac{1}{\sqrt{3}}$</td>
<td>1</td>
<td>$\sqrt{3}$</td>
<td>Not defined</td>
</tr>
<tr>
<td>cosecθ</td>
<td>$\frac{1}{\sinθ}$</td>
<td>Not defined</td>
<td>2</td>
<td>$\sqrt{2}$</td>
<td>$\frac{2}{\sqrt{3}}$</td>
<td>1</td>
</tr>
<tr>
<td>secθ</td>
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<td>1</td>
<td>$\frac{2}{\sqrt{3}}$</td>
<td>$\sqrt{2}$</td>
<td>2</td>
<td>Not defined</td>
</tr>
<tr>
<td>cotθ</td>
<td>$\frac{1}{\tanθ}$</td>
<td>Not defined</td>
<td>$\sqrt{3}$</td>
<td>1</td>
<td>$\frac{1}{\sqrt{3}}$</td>
<td>0</td>
</tr>
</tbody>
</table>
4. Method of Solving Questions

An observer 1.5 m tall is 28.5 m away from the chimney. What is the angle of elevation of the top of the chimney from her eyes?

**Steps to Draw the figure:**

1. Draw the figure correctly.
2. Identify the unknown length.
3. Use the relevant trigonometric ratios to find these lengths.

\[
\tan 45^\circ = \frac{AE}{DE}
\]

\[
1 = \frac{AE}{28.5}
\]

\[
AE = 28.5 \text{ m}
\]

\[
AB = (28.5 + 1.5) \text{ m} = 30 \text{ m}.
\]
Mind Map

- Angle of Depression
- Basic Terminologies
- Some Applications of Trigonometry
  - Method of Solving
  - Trigonometric Ratios of Some Common Angles
  - Heights and
  - Assumptions Made While Solving questions