

Trigonometrical Ratios of Standard Angles

Chapter 23: Trigonometrical Ratios of Standard Angles · Topic 1

Key Concept

$\sin 0^\circ=0$, $\sin 30^\circ=1/2$, $\sin 45^\circ=\sqrt{2}/2$, $\sin 60^\circ=\sqrt{3}/2$, $\sin 90^\circ=1$, showing a clear pattern for common angles.

cos values mirror sin values in reverse order: $\cos 0^\circ=1$, $\cos 30^\circ=\sqrt{3}/2$, $\cos 45^\circ=\sqrt{2}/2$, $\cos 60^\circ=1/2$, $\cos 90^\circ=0$.

tan values are calculated as $\sin/\cos$: $\tan 0^\circ=0$, $\tan 30^\circ=1/\sqrt{3}$, $\tan 45^\circ=1$, $\tan 60^\circ=\sqrt{3}$, and $\tan 90^\circ$ is undefined.

Memorising these standard values speeds up solving trigonometry problems without needing a calculator for common angles.

Quick Revision Notes

- $\sin 0^\circ=0$, $\sin 30^\circ=1/2$, $\sin 45^\circ=\sqrt{2}/2$, $\sin 60^\circ=\sqrt{3}/2$, $\sin 90^\circ=1$.
- cos values mirror sin in reverse.
- $\cos 0^\circ=1$, $\cos 90^\circ=0$.
- $\tan = \sin/\cos$.
- $\tan 45^\circ=1$, $\tan 90^\circ$ is undefined.
- These are standard angle values.
- Memorising them speeds up problem-solving.
- They're used frequently without a calculator.

Practice Questions

- 1 Create a table of $\sin$, $\cos$, $\tan$ for 0° , 30° , 45° , 60° , 90° .
- 2 Solve a problem using $\sin 30^\circ$.
- 3 Solve a problem using $\cos 60^\circ$.
- 4 Discuss why $\tan 90^\circ$ is undefined.
- 5 Practice recalling these values without a calculator.
- 6 Explain the pattern in $\sin$ values for standard angles.