Applications of Trigonometry

Quick Study Guide

HOW TO USE THIS GUIDE

HIGHLIGHTED TEXT SHOWS IMPORTANT POINTS

- MARKS HIGH-FOCUS TOPICS
- INDICATES EXAM TIPS
- SHOWS COMMON ERRORS
- GIVES QUICK TIPS

ANGLES OF ELEVATION

Mnemonic: "UPAR DEKHO"

- U - Upward angle
- P - Person at ground
- A - Angle measure
- A - Right triangle
- D - Distance known
- E - Eye level base
- K - Know angle
- H - Height find
- O - Observe well

Remember As:

BUILDING VIEW

* Like looking at building:
* Your position = Ground
* Looking up = θ angle
* Distance = Base
* Use tan θ = Height/Base

Common Errors

* Wrong angle marked
* Base confusion
* Units mismatch
* Wrong ratio used

ANGLES OF DEPRESSION

Mnemonic: "NICHE DEKHO"

- N - Niche se angle
- I - Important view
- C - Calculate distance
- H - Height given
- E - Equal angles
- D - Down angle
- E - Equal to elevation
- K - Known height
- H - Horizontal base
- O - Observe angle

(Table of 0°, 30°, 45°, 60°, 90°)

EXAMPLE

YES EXAMPLE

* Height = 100m
* Angle = 30°
* Distance = 100/tan 30°

REMEMBER AS: TOWER TALK:

* Standing on tower
* Looking down = θ
* Base = Distance
* Height = Known
* tan θ = Height/Distance

SPECIAL ANGLES USE

Mnemonic: "SPECIAL DAY"

- S - Sixty degree
- P - Plus thirty
- E - Easy values
- C - Common angles
- I - Important ones
- A - Always use
- L - Learn well

- D - Degree values
- A - Apply direct
- Y - Yaad rakho

VALUE CHART" TEEN TAARE:

* 30° values:
* sin = 1/2
* cos = √3/2
* tan = 1/√3

TEEN TAAARE

* 45° values:	* 60° values:
* sin = 1/√2	* sin = √3/2
* cos = 1/√2	* cos = 1/2
* tan = 1	* tan = √3

HEIGHT PROBLEMS

Mnemonic: "HEIGHT HERO"

- H - Horizontal base
- E - Eye level add
- I - Important angle
- G - Ground distance
- H - Height total
- T - Tan θ use

- H - How to solve
- E - Easy steps
- R - Right triangle
- O - Observe all

PROBLEMS STEPS:

SOLVE KARO

1. Draw diagram
2. Mark angles
3. Base distance
4. Use tan θ
5. Add eye level*

(*if mentioned)

DISTANCE PROBLEMS

Mnemonic: "DOORI GURU"

- D - Distance find
- O - Observe angle
- O - Object height
- R - Right triangle
- I - Important data

- G - Get angle
- U - Use formula
- R - Right method
- U - Understand well

QUICK METHOD:

BASE CASE:

* Known: Height, Angle
* Find: Distance
* Formula: Distance = Height/tan θ
* Like: Finding ground cover

REAL LIFE EXAMPLES

Mnemonic: "DAILY MATHS""

- D - Door height
- A - Airplane view
- I - Important towers
- L - Light house
- Y - Your building

- M - Mountain peak
- A - Aircraft height
- T - Tower viewing
- H - Height measure
- S - Simple cases

COMMON SCENERIOS:

LIFE LINE:

1. Building heights
2. Tower distances
3. Mountain heights
4. River widths
5. Bridge spans