

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

Remember As:

BUILDING VIEW

- * Like looking at building:
- * Your position = Ground
- * Looking up = θ angle
- * Distance = Base
- * Use $\tan \theta = \text{Height/Base}$

Common Errors

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

ANGLES OF DEPRESSION

Mnemonic: "NICHE DEKHO"

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

(Table of $0^\circ, 30^\circ, 45^\circ, 60^\circ, 90^\circ$)

EXAMPLE

YES EXAMPLE

- * Height = 100m
- * Angle = 30°
- * Distance = $100/\tan 30^\circ$

REMEMBER AS:

TOWER TALK:

- * Standing on tower
- * Looking down = θ
- * Base = Distance
- * Height = Known
- * $\tan \theta = \text{Height/Distance}$

SPECIAL ANGLES USE

Mnemonic: "SPECIAL DAY"

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

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

VALUE CHART

TEEN TAARE:

- * 30° values:
- * $\sin = 1/2$
- * $\cos = \sqrt{3}/2$
- * $\tan = 1/\sqrt{3}$

TEEN TAAARE

- * 45° values:
- * $\sin = 1/\sqrt{2}$
- * $\cos = 1/\sqrt{2}$
- * $\tan = 1$
- * 60° values:
- * $\sin = \sqrt{3}/2$
- * $\cos = 1/2$
- * $\tan = \sqrt{3}$

HEIGHT PROBLEMS

Mnemonic: "HEIGHT HERO"

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

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

PROBLEMS STEPS:

- SOLVE KARO
1. Draw diagram
 2. Mark angles
 3. Base distance
 4. Use $\tan \theta$
 5. Add eye level*
 - * (If mentioned)

DISTANCE PROBLEMS

Mnemonic: "DOORI GURU"

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

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

QUICK METHOD:

BASE CASE:

- * Known: Height, Angle
- * Find: Distance
- * Formula: Distance = Height/ $\tan \theta$
- * Like: Finding ground cover

REAL LIFE EXAMPLES

Mnemonic: "DAILY MATHS"

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

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

COMMON SCENARIOS:

- LIFE LINE:
1. Building heights
 2. Tower distances
 3. Mountain heights
 4. River widths
 5. Bridge spans



PROBLEM SOLVING TI

Mnemonic: "SMART WORK"

S
M
A
R
T
W
O
R
K

- See the given
- Make diagram
- Angle mark
- Right triangle
- Take ratio
- Write formula
- Organize data
- Right steps
- Keep checking

QUICK STEPS:

1. Clear diagram
2. All measurements
3. Proper angles
4. Right formula
5. Step solution

PLAN BNA:

QUICK REVISION CHECKLIST

Before Exam:

Before Exam:

- ✓ Angle of elevation
- ✓ Angle of depression
- ✓ Special angles
- ✓ Height problems
- ✓ Distance problems
- ✓ Real examples
- ✓ Units conversion

Scoring Tips:

1. Neat diagrams
2. Mark all angles
3. Show calculations
4. Check units
5. Verify answers

100%

HIGH FOCUS AREAS

1. Elevation Angles (5 marks)
2. Depression Angles (5 marks)
3. Height Problems (5 marks)
4. Special Angles (4 marks)
5. Applications (4 marks)

PROBLEM SOLVING TIPS

Mnemonic: "EXAM HERO"

E
X
A
M

- Easy diagram first
- X-axis as base
- Angles mark proper
- Measurements note

KEY POINTS:

1. Always draw diagram
2. Mark θ clearly
3. Base = horizontal distance
4. Height = perpendicular
5. Use tan for height/distance

H
E
R
O

- Height/base clear
- Eye level check
- Right triangle draw
- Organize solution

GOOD
LUCK!

