

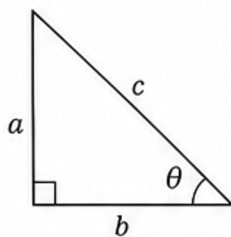
PYTHAGORAS AND TRIGONOMETRY DECISION MAT

ANALYSE THE PROBLEM | CHOOSE A METHOD | SOLVE | CHECK | REFLECT

1 ANALYSE

What do I know?

- Is it a right-angled triangle?
- What am I trying to find?
- Which sides or angles are given?
- Are there diagrams or labels I can use?

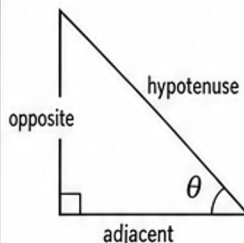


SOH CAH TOA

$\sin \theta = \text{opposite} / \text{hypotenuse}$
 $\cos \theta = \text{adjacent} / \text{hypotenuse}$
 $\tan \theta = \text{opposite} / \text{adjacent}$

TRIANGLE REFERENCE

RIGHT-ANGLED TRIANGLE



COMMON ANGLES

θ	$\sin \theta$	$\cos \theta$	$\tan \theta$
0°	0	1	0
30°	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}}$
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1
60°	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$
90°	1	0	undefined

2 CHOOSE A METHOD

Which approach is best?

USE PYTHAGORAS' THEOREM

$$a^2 + b^2 = c^2$$

Use when you know any two sides of a right-angled triangle and need to find the third.

Examples:

- Given a and b , find c (hypotenuse)
- Given a and c , find b
- Given b and c , find a

c is always the hypotenuse (the side opposite the right angle).

DECISION GUIDE

Is it a right-angled triangle?

NO

Not a right-angled triangle.
Use other methods.

YES

Do you know two sides (no angle needed)?

YES

Use
PYTHAGORAS'
THEOREM

NO

Use
TRIGONOMETRY
(SOH CAH TOA)

USE TRIGONOMETRY (SOH CAH TOA)

$$\sin \theta = \frac{\text{opp}}{\text{hyp}} \quad \cos \theta = \frac{\text{adj}}{\text{hyp}} \quad \tan \theta = \frac{\text{opp}}{\text{adj}}$$

Use when you know:

- one side and one acute angle

OR

- two sides (one can be the hypotenuse) and need an angle

Examples:

- Given θ and hyp , find opp or adj
- Given θ and adj , find opp or hyp
- Given opp and adj , find θ

3 SOLVE

Show your working.

4 CHECK

Does my answer make sense?

- Units correct?
- Reasonable size?
- Does it fit the diagram?
- Recalculate or use the reverse operation to check.



5 REFLECT

What did I learn?



What was the key information?



Which method did I use? Why?



What did I find challenging?



What will I do differently next time?
