MATHS STANDARD YEAR 11 - MODULE 2 - LESSON 15

Right-Angled Trigonometry: Finding Unknown Angles

Use this worksheet after reading the lesson to practise the key ideas and prove you can meet the success criteria.

Name _____

Date _____

Class _____

1. Key Ideas

To find an unknown angle, work out the ratio from the two known sides, then apply the inverse trig function. The calculator gives decimal degrees — convert to degrees and minutes for exam answers.

- $\theta = \sin^{-1}$, $\cos^{-1}$, or $\tan^{-1}$ of the appropriate ratio
- Why inverse trig is the "undo" operation for trig functions

2. Success Criteria

By the end, you should be able to:

- $\theta = \sin^{-1}$, $\cos^{-1}$, or $\tan^{-1}$ of the appropriate ratio
- How to convert decimal degrees to degrees and minutes
- The sum of angles in a triangle $= 180°$; use to find the other angle

3. Key Terms

Formula
A rule showing the relationship between variables using symbols.

Substitution
Replacing variables with their known values in an equation.

Unit Conversion
Changing a measurement from one unit to another.

Capacity
The amount of liquid a container can hold, measured in litres or millilitres.

Perimeter
The total distance around the outside of a shape.

Area
The amount of space inside a two-dimensional shape.

4. Activity: Build the Lesson Map

Use the lesson to complete the table. Keep answers brief but specific.

Prompt	Your answer
Main concept	
Important example	
Common mistake to avoid	
How this links to the next lesson	

5. Short Answer Questions

1. Explain this lesson goal in your own words: "$\theta = \sin^{-1}$, $\cos^{-1}$, or $\tan^{-1}$ of the appropriate ratio". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "How to convert decimal degrees to degrees and minutes". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Right-Angled Trigonometry: Finding Unknown Angles: "The sum of angles in a triangle $= 180°$; use to find the other angle".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Right-Angled Trigonometry: Finding Unknown Angles but does not use evidence or reasoning.

Improve the answer by writing a stronger response that uses accurate terminology, a relevant example and a clear explanation.

7. Multiple Choice

1. What is the best first step when answering a question about Right-Angled Trigonometry: Finding Unknown Angles?

☐ A. Identify the key concept being tested

☐ B. Write every fact from memory

☐ C. Ignore the command word

☐ D. Skip examples and evidence

2. Which answer would show stronger understanding of Right-Angled Trigonometry: Finding Unknown Angles?

☐ A. An answer with accurate terms and reasoning

☐ B. A copied definition only

☐ C. A single-word response

☐ D. An answer with no example

3. What should you do if a question asks you to explain?

☐ A. Link the idea to a reason or cause

☐ B. List unrelated facts

☐ C. Only draw a diagram

☐ D. Write the shortest possible answer

8. Success Criteria Proof

Finish with evidence that you can do each success criterion.

SUCCESS CRITERION 1

Prove that you can: $\theta = \sin^{-1}$, $\cos^{-1}$, or $\tan^{-1}$ of the appropriate ratio

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: How to convert decimal degrees to degrees and minutes

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: The sum of angles in a triangle $= 180°$; use to find the other angle

BAND 5 4 MARKS

One thing I still need help with: