MATHEMATICS ADVANCED YEAR 11 - MODULE 1 - LESSON 7

Composite Functions

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

In a supply chain, raw materials go to a factory, and the factory's output goes to a distribution centre. The final product depends on two connected processes — one after the other. Composite functions work exactly the same way: one function feeds its output directly into another.

- The notation $(f \circ g)(x) = f(g(x))$
- Why composite functions model chained processes

2. Success Criteria

By the end, you should be able to:

- The notation $(f \circ g)(x) = f(g(x))$
- How to evaluate composite functions numerically
- The domain conditions for composite functions

3. Key Terms

Function
A relation where each input has exactly one output.

Domain
The set of all possible input values for a function.

Range
The set of all possible output values for a function.

Inverse Function
A function that reverses the effect of the original function.

Quadratic
A polynomial of degree 2, in the form $ax^2 + bx + c$.

Discriminant
The expression $b^2 - 4ac$ that determines the nature of quadratic roots.

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: "The notation $(f \circ g)(x) = f(g(x))$". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "How to evaluate composite functions numerically". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Composite Functions: "The domain conditions for composite functions".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Composite Functions 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 Composite Functions?

☐ 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 Composite Functions?

☐ 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: The notation $(f \circ g)(x) = f(g(x))$

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: How to evaluate composite functions numerically

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: The domain conditions for composite functions

BAND 5 4 MARKS

One thing I still need help with: