MATHEMATICS ADVANCED YEAR 11 - MODULE 1 - LESSON 8

Working with Functions — Synthesis

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

Real problems do not arrive labelled "find the inverse" or "evaluate the composite." They demand that you choose the right tool, combine several ideas, and work step by step. This lesson brings together everything you have learned about functions, notation, domain, inverses, and composites into integrated, exam-style problems.

- How to combine evaluation, domain, inverse, and composite skills
- Why breaking a complex problem into smaller steps is essential

2. Success Criteria

By the end, you should be able to:

- How to combine evaluation, domain, inverse, and composite skills
- The connections between algebraic and graphical representations
- Common exam question structures that mix multiple concepts

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: "How to combine evaluation, domain, inverse, and composite skills". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "The connections between algebraic and graphical representations". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Working with Functions — Synthesis: "Common exam question structures that mix multiple concepts".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Working with Functions — Synthesis 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 Working with Functions — Synthesis?

☐ 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 Working with Functions — Synthesis?

☐ 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: How to combine evaluation, domain, inverse, and composite skills

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: The connections between algebraic and graphical representations

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: Common exam question structures that mix multiple concepts

BAND 5 4 MARKS

One thing I still need help with: