MATHEMATICS ADVANCED YEAR 11 - MODULE 1 - LESSON 5

Odd & Even 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

Look at a butterfly's wings or the arch of the Sydney Harbour Bridge. Symmetry is everywhere in nature and design. In mathematics, special functions called even and odd functions capture this symmetry in precise, testable rules.

- The algebraic definitions of even and odd functions
- Why $f(-x) = f(x)$ corresponds to y-axis symmetry

2. Success Criteria

By the end, you should be able to:

- The algebraic definitions of even and odd functions
- The geometric meanings of each type of symmetry
- That a function can be neither even nor odd

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 algebraic definitions of even and odd functions". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "The geometric meanings of each type of symmetry". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Odd & Even Functions: "That a function can be neither even nor odd".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Odd & Even 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 Odd & Even 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 Odd & Even 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 algebraic definitions of even and odd functions

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: The geometric meanings of each type of symmetry

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: That a function can be neither even nor odd

BAND 5 4 MARKS

One thing I still need help with: