

Piecewise & Absolute Value 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

Ever noticed how a ride-share app charges one rate for the first few kilometres, then a different rate after that? The rule changes depending on how far you travel. That is exactly what a piecewise function does — and it is one of the most useful tools in applied mathematics.

- The definition of a piecewise function
- Why real-world pricing models often need piecewise rules

2. Success Criteria

By the end, you should be able to:

- The definition of a piecewise function
- The piecewise definition of absolute value
- How to evaluate piecewise functions at given inputs

3. Key Terms

piecewise function

a function defined by different rules for different parts of its domain

That

exactly what a piecewise function does — and it is one of the most useful tools in applied mathematics

negative number

positive because the negative sign flips the sign

whether the distance

less than or equal to \$5\$ km, or greater than \$5\$ km

number

its distance from zero on the number line

Distance

always non-negative, so absolute value always produces a positive result or zero

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 definition of a piecewise function". Use one specific example from the lesson.

BAND 3 **2 MARKS**

2. Apply this idea to a new example: "The piecewise definition of absolute value". Show your reasoning clearly.

BAND 4 **3 MARKS**

3. Analyse why this idea matters for understanding Piecewise & Absolute Value Functions: "How to evaluate piecewise functions at given inputs".

BAND 5 **4 MARKS**

6. Extend: Apply the Idea

BAND 5/6

5 MARKS

A student gives a memorised answer about Piecewise & Absolute Value 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 Piecewise & Absolute Value 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 Piecewise & Absolute Value 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 definition of a piecewise function

BAND 3 **2 MARKS**

SUCCESS CRITERION 2

Prove that you can: The piecewise definition of absolute value

BAND 4 **3 MARKS**

SUCCESS CRITERION 3

Prove that you can: How to evaluate piecewise functions at given inputs

BAND 5 **4 MARKS**

One thing I still need help with:
