****

**MATHEMATICS**

**Specialist Units 3 & 4**

**Test 2 – Functions and Sketching Graphs**

**Semester 1 2019**

# 

**Section One – Calculator Free**

Time allowed for this section

Working time for this section: 24 minutes

Marks available: 24 marks

## Material required/recommended for this section

##### To be provided by the supervisor

This Question/Answer booklet

Formula sheet

##### To be provided by the student

Standard items: pens, pencils, pencil sharpener, eraser, correction fluid, ruler, highlighters

Special items: Nil

## Important note to students

No other items may be used in this section of the assessment. It is **your** responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the assessment room. If you have any unauthorised material with you, hand it to the supervisor **before** reading any further.

1. (8 marks: 3, 3, 1, 1)  
   Let
   1. Rewrite in piecewise form.
   2. On the axes below, sketch the graph of .

A close up of text on a black background

Description automatically generated

* 1. Use the sketch to explain why does not have an inverse function.
  2. Suggest an appropriate restriction on the domain for the inverse of to be a function.

1. (6 marks)

Sketch the graph of on the axes below.

A close up of text on a white background

Description automatically generated

1. (3 marks)  
   Given the graph of below, sketch and label clearly on the second axes.





1. (7 marks: 3, 1, 3)

Suppose and .

* 1. Find and state its domain and range.
  2. Find
  3. Find and state its domain and range.

**End of Section One**

**This page has intentionally been left blank**

You may use this space to extend or re-attempt an answer to a question or questions and should you do so then number the question(s) attempted and cross out any previous unwanted working.