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**MATHEMATICS**

**Specialist Units 3 & 4**

**Test 4 – Antidifferentiation and Definite Integrals**

**Semester 2 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 candidate

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

Special items: Nil

## Important note to candidates

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

1. (10 marks: 2, 2, 2, 4)  
   Determine the following definite integrals; using the substitution, when given.

1. using the substitution,

1. d using the substitution,
2. d
3. (6 marks: 3, 3)
4. Express in the form

1. Hence determine expressing your answer as a single logarithm.
2. (8 marks: 4, 4)
3. Using the substitution  show that and state the values of

1. Hence, or otherwise, evaluate exactly.

**End of Section One**

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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.

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