

Tutorial Quiz 2018

# Akadem Mathematics Exam

## Exponentials, Logarithms, Sequences and Series

Reading time: 2 minutes

Writing time: 60 minutes

Student Name: \_\_\_\_\_

University ID: \_\_\_\_\_

## Question and Answer Book

### Structure of Book

<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
6	6	20

- Students are NOT permitted any notes during the quiz.
- Students are NOT permitted to collaborate in any form during the quiz. Any signs of collaboration or cheating will result in a nullified score and the course convenor will be informed of any academic misconduct.

#### Materials supplied

- Question and answer booklet of 5 pages.
- Working space is provided throughout the booklet.
- Calculators are permitted.

#### Instructions

- Write your **student number** in the space provided above on this page.
- All written responses must be in English.

**Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.**

### Instructions

Answer **all** questions in the space provided.

In all questions where a numerical answer is required, an exact value must be given unless otherwise specified.

In questions where more than one mark is available, appropriate working **must** be shown.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

## Exponentials and Logarithms

### Question 1

Simplify the expression

$$\frac{x^2 + y^4}{(\sqrt{x})^{-1} + \frac{2}{5y^{-3}}}$$

[3 marks].

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### Question 2

Solve the equation

$$2^x - 5 + \frac{6}{2^x} = 0,$$

for  $x \in \mathbb{R}$ .

[4 marks].

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**Question 6**

Determine the domain of the function

$$f(x) = \log_e(x^2 - 5x + 6).$$

[3 marks].

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**END OF TUTORIAL EXAM.**