

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Candidate Number

## Pearson Edexcel Level 3 GCE

**Thursday 18 May 2023**

Afternoon (Time: 2 hours)

Paper  
reference

**8MA0/01**

# Mathematics

## Advanced Subsidiary

### PAPER 1: Pure Mathematics

**You must have:**

Mathematical Formulae and Statistical Tables (Green), calculator

Total Marks

**Candidates may use any calculator allowed by the regulations of the Joint Council for Qualifications. Calculators must not have the facility for symbolic algebra manipulation, differentiation and integration, or have retrievable mathematical formulae stored in them.**

### Instructions

- Use **black** ink or ball-point pen.
- If pencil is used for diagrams/sketches/graphs it must be dark (HB or B).
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions and ensure that your answers to parts of questions are clearly labelled.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You should show sufficient working to make your methods clear.
- Answers without working may not gain full credit.
- Inexact answers should be given to three significant figures unless otherwise stated.

### Information

- A booklet 'Mathematical Formulae and Statistical Tables' is provided.
- There are 17 questions in this question paper. The total mark for this paper is 100.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

### Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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2.

**In this question you must show all stages of your working.**

**Solutions relying on calculator technology are not acceptable.**

Using the substitution  $u = \sqrt{x}$  or otherwise, solve

$$6x + 7\sqrt{x} - 20 = 0$$

(4)

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4. (a) Sketch the curve with equation

$$y = \frac{k}{x} \quad x \neq 0$$

where  $k$  is a positive constant.

(2)

(b) Hence or otherwise, solve

$$\frac{16}{x} \leq 2$$

(3)

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9. Using the laws of logarithms, solve the equation

$$2\log_5(3x - 2) - \log_5 x = 2$$

(5)

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**Question 9 continued**

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(Total for Question 9 is 5 marks)























Question 12 continued

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(Total for Question 12 is 9 marks)













14. Find, in simplest form, the coefficient of  $x^5$  in the expansion of

$$(5 + 8x^2)\left(3 - \frac{1}{2}x\right)^6 \quad (5)$$

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