

Write your name here

Surname

Other names

**Pearson Edexcel**  
**Level 3 GCE**

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--

# Mathematics

**Advanced**

**Paper 1: Pure Mathematics 1**

Wednesday 6 June 2018 – Morning

**Time: 2 hours**

Paper Reference

**9MA0/01**

**You must have:**

Mathematical Formulae and Statistical Tables, 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.
- Answers should be given to three significant figures unless otherwise stated.

## Information

- A booklet 'Mathematical Formulae and Statistical Tables' is provided.
- There are 14 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 ►

P58348A

©2018 Pearson Education Ltd.

1/1/1/1/



Pearson

Answer ALL questions. Write your answers in the spaces provided.

1. Given that  $\theta$  is small and is measured in radians, use the small angle approximations to find an approximate value of

$$\frac{1 - \cos 4\theta}{2\theta \sin 3\theta}$$

(3)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA































7. Given that  $k \in \mathbb{Z}^+$

(a) show that  $\int_k^{3k} \frac{2}{(3x - k)} dx$  is independent of  $k$ , (4)

(b) show that  $\int_k^{2k} \frac{2}{(2x - k)^2} dx$  is inversely proportional to  $k$ . (3)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA









**Question 7 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 7 is 7 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA











































13. Show that

$$\int_0^2 2x\sqrt{x+2} \, dx = \frac{32}{15}(2 + \sqrt{2})$$

(7)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA















