

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 23 May 2024

Afternoon

Paper reference **8MA0/21**

Mathematics
Advanced Subsidiary
PAPER 21: Statistics

You must have:
 Mathematical Formulae and Statistical Tables (Green), calculator

Total Marks

Candidates may use any calculator allowed by Pearson regulations. 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.
- Values from statistical tables should be quoted in full. If a calculator is used instead of tables the value should be given to an equivalent degree of accuracy.
- Inexact answers should be given to three significant figures unless otherwise stated.

Information

- A booklet 'Mathematical Formulae and Statistical Tables' is provided.
- The total mark for this part of the examination is 30. There are 5 questions.
- 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.
- If you change your mind about an answer, cross it out and put your new answer and any working underneath.
- Check your answers if you have time at the end.

Turn over ►

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Question 2 continued

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(Total for Question 2 is 3 marks)



3. Customers in a shop have to queue to pay.

The partially completed table below and partially completed histogram opposite, give information about the time, x minutes, spent in the queue by each of 112 customers one day.

Time in queue (x minutes)	Frequency
1–2	64
2–3	
3–4	13
4–6	
6–8	3

No customer spent less than 1 minute or longer than 8 minutes in the queue.

(a) Complete the table.

(2)

(b) Complete the histogram.

(2)

Ting decides to model the **frequency density** for these 112 customers by a curve with equation

$$y = \frac{k}{x^2} \quad 1 \leq x \leq 8$$

where k is a constant.

(c) Find the value of k

(3)

