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Candidate surname	_____
Other names	_____
Candidate number	_____ Centre number

Level 3 Certificate MATHEMATICAL STUDIES

Paper 1

Tuesday 12 May 2026

Morning

Time allowed: 1 hour 30 minutes

Materials

- A clean copy of the Preliminary Material and Formulae Sheet (enclosed)
- A scientific calculator or a graphics calculator
- A ruler

Instructions

- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer each question in the space provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Show all necessary working; otherwise marks for method may be lost.
- Do all rough work in this book. Cross through any work you do not want to be marked.
- The final answer to questions should be given to an appropriate degree of accuracy.

- You may not refer to the copy of the Preliminary Material that was available prior to this examination. A clean copy is enclosed for your use.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 60.
- You may ask for more answer paper or graph paper, which must be tagged securely to this answer booklet.

For Examiner's Use	
Question	Mark
1	
2	
3	
4	
5	
6	
7	
8	
9	
TOTAL	

Answer all questions in the spaces provided.

1 The Party Factory produces items for parties. For small simple items, the machines can produce between 950 and 1000 items per hour. For larger complex items, they produce between 350 and 520 items per hour.

- (a) The factory operates for 8 hours a day. What is the maximum number of small simple items they could produce in one day? [1 mark]

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- (b) One week, the factory produces only large complex items. They work 5 days, 8 hours each day. They produce at a rate of 480 items per hour. How many items do they produce in that week? [2 marks]

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- (c) The factory also has a decoration machine that can decorate 1200 items per hour. Explain whether this machine is fast enough to keep up with the production of small simple items when they are produced at the maximum rate. [2 marks]

.....

- 2** A survey is conducted at a school about students' favourite subjects. The table shows the number of students in each year group.

Year group	7	8	9	10
Number of students	210	195	180	165

- (a) A sample of 50 students is to be taken, stratified by year group. Calculate how many students should be chosen from Year 9. [2 marks]

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- (b) Give one advantage of using a stratified sample in this context. [1 mark]

.....

- (c) State whether the data collected on favourite subjects is qualitative or quantitative. [1 mark]

.....

3 The Party Factory makes cardboard crowns for a royal celebration. Each crown is made from a rectangular sheet of cardboard measuring 40 cm by 30 cm. The factory has a large roll of cardboard that is 1.5 metres wide and 100 metres long.

(a) How many crowns can be made from one roll? Assume no waste. [3 marks]

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(b) The factory needs to produce 5000 crowns. How many rolls of cardboard are required? [1 mark]

.....

(c) State one assumption you made in part (a). [1 mark]

.....

4 Nishi is going on holiday to Japan. She needs Japanese Yen (JPY). The exchange rate is $\pounds 1 = 190$ JPY. Her bank charges a 2% commission on the amount of pounds exchanged.

(a) Nishi exchanges $\pounds 850$. How many JPY does she receive after commission? [3 marks]

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(b) When she returns, she has 45 000 JPY left. She exchanges them back to pounds at a different exchange rate: $\pounds 1 = 200$ JPY, with no commission. How many pounds does she get? [2 marks]

.....

Use **Student Loans** from the Preliminary Material.

Anna started university in September 2020 and graduated in June 2023. She now has a job earning £32 000 per year.

- (a) Calculate Anna's annual student loan repayment. [2 marks]

.....

- (b) The RPI in March 2024 was 4.3%. What is the interest rate on Anna's loan while she is earning £32 000? Use the information in the Preliminary Material. [2 marks]

.....

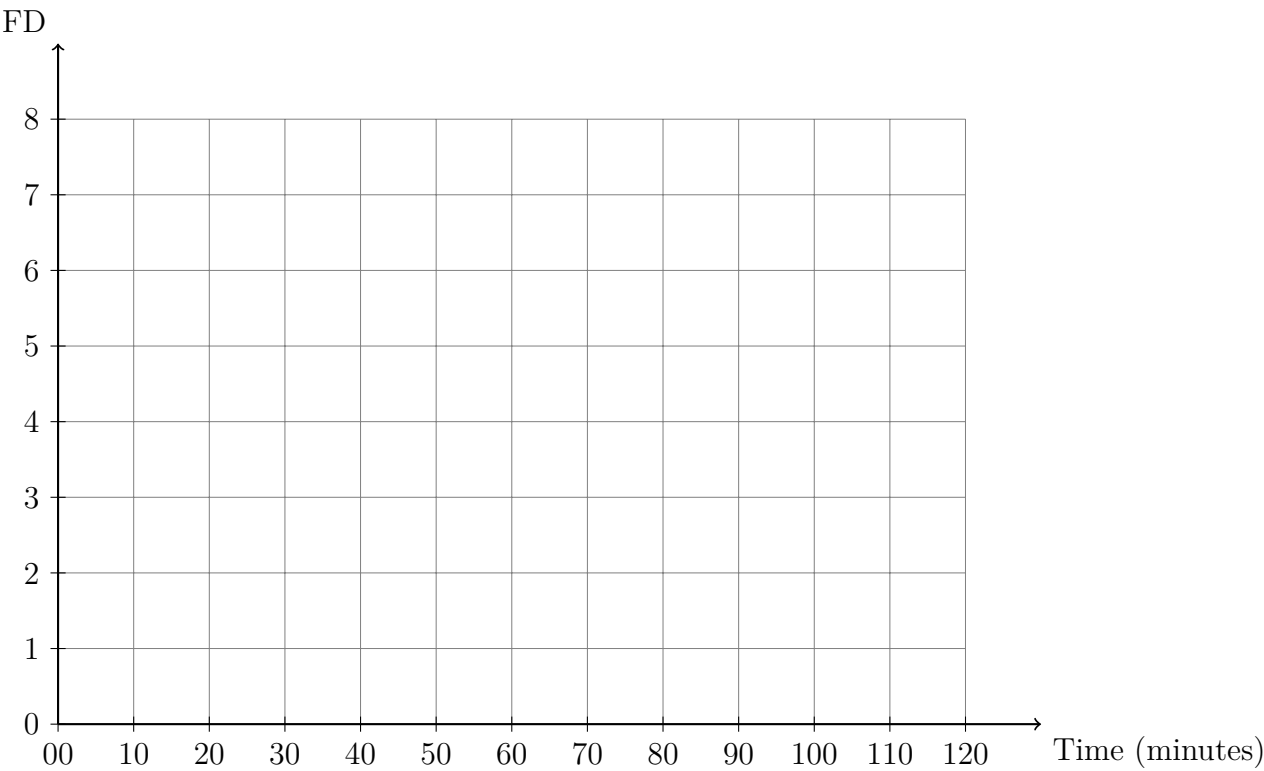
- (c) Anna is considering making an additional voluntary repayment of £1000. Explain one advantage and one disadvantage of doing this. [2 marks]

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The table shows the times, in minutes, taken by 80 runners to complete a 10 km race.

Time, t (minutes)	Frequency
$40 < t \leq 50$	8
$50 < t \leq 60$	24
$60 < t \leq 70$	32
$70 < t \leq 80$	12
$80 < t \leq 100$	4

- (a) Draw a histogram to represent this data. Use the grid below.
- [4 marks]



- (b) Estimate the number of runners who took less than 55 minutes.
- [2 marks]

.....

Use **Income Tax and National Insurance 2025-2026** from the Preliminary Material.

Jamal has an annual gross salary of £58 000. He pays income tax and National Insurance but has no other deductions.

- (a) Calculate Jamal's annual income tax. [3 marks]

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- (b) Calculate Jamal's annual National Insurance contribution. [3 marks]

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- (c) Jamal says, "My net monthly salary is more than £3800." Is he correct? Show your working. [3 marks]

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8 Two schools, Oak Academy and Beech School, took part in a maths challenge. The scores of 30 students from each school are summarised below.

	Oak Academy	Beech School
Mean	64.2	58.7
Standard deviation	8.4	12.1
Median	65.0	61.0
Interquartile range	11.0	18.5

Compare the performance of the two schools. Use one measure of average and one measure of spread. Support your comparisons with calculations. [5 marks]

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9 Liam invests £5000 in a savings account that pays compound interest. The interest is added monthly. After one month, the balance is £5020.83.

(a) Calculate the monthly interest rate.

[1 mark]

.....

(b) Calculate the Annual Equivalent Rate (AER) for this account. Give your answer to two decimal places.

[3 marks]

.....

(c) If Liam had invested the money in an account paying 4.5% AER, how much more would he have after one year?

[2 marks]

.....

END OF QUESTIONS

Additional page, if required.

Write the question numbers in the left-hand margin.