LUI | | | | | | | | | | | School code | | | | |

School name

Given name/s

Family name

Attach your barcode ID label here

Book of books used

External assessment 2025

Question and response book

General Mathematics

Paper 1

Time allowed

- Perusal time — 5 minutes
- Working time — 90 minutes

General instructions

- Answer all questions in this question and response book.
- QCAA-approved scientific calculator permitted.
- QCAA formula book provided.
- Planning paper will not be marked.

Section 1 (15 marks)

- 15 multiple choice questions

Section 2 (42 marks)

- 10 short response questions

Clear zone — margin trimmed off after completion of assessment

Queensland Government | QCAA Queensland Curriculum & Assessment Authority

DO NOT WRITE ON THIS PAGE

THIS PAGE WILL NOT BE MARKED

Section 1

Instructions

- This section has 15 questions and is worth 15 marks.
- Use a 2B pencil to fill in the A, B, C or D answer bubble completely.
- Choose the best answer for Questions 1–15.
- If you change your mind or make a mistake, use an eraser to remove your response and fill in the new answer bubble completely.

	A	B	C	D
Example:	●	○	○	○

	A	B	C	D
1.	○	○	○	○
2.	○	○	○	○
3.	○	○	○	○
4.	○	○	○	○
5.	○	○	○	○
6.	○	○	○	○
7.	○	○	○	○
8.	○	○	○	○
9.	○	○	○	○
10.	○	○	○	○
11.	○	○	○	○
12.	○	○	○	○
13.	○	○	○	○
14.	○	○	○	○
15.	○	○	○	○

Ensure you have filled an answer bubble for each question.

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Section 2

Instructions

- Write using black or blue pen.
- Questions worth more than one mark require mathematical reasoning and/or working to be shown to support answers.
- If you need more space for a response, use the additional pages at the back of this book.
  - On the additional pages, write the question number you are responding to.
  - Cancel any incorrect response by ruling a single diagonal line through your work.
  - Write the page number of your alternative/additional response, i.e. See page …
  - If you do not do this, your original response will be marked.
- This section has 10 questions and is worth 42 marks.

QUESTION 16 (3 marks)

Determine the time and day in Santa Cruz (GMT −8) when it is 2:00 pm Monday in Nagano (GMT +9).

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QUESTION 17 (4 marks)

Students responded to a survey about their travel time to school.

	Travel less than 15 minutes	Travel 15 minutes or more
Year 6 students	11	6
Year 10 students	3	9

a) Determine the total number of students in each year level who responded to the survey. *[1 mark]*

Total number of Year 6 students: _____

Total number of Year 10 students: _____

The survey results suggest there is an association between a student's year level and their travel time.

b) Justify the suggested association by comparing the percentages of Year 6 and Year 10 students who travel less than 15 minutes. *[3 marks]*

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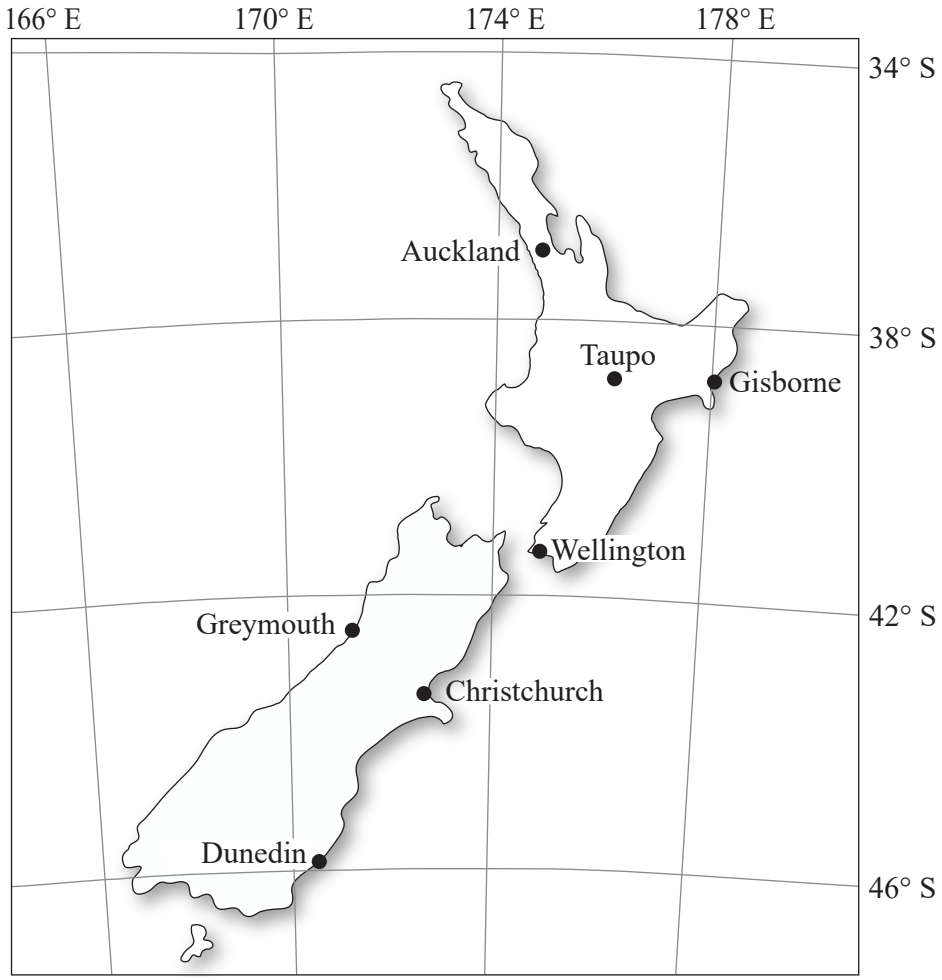
QUESTION 18 (4 marks)

A map of New Zealand is shown.



a) Name the location with coordinates (43.5° S 172.5° E). *[1 mark]*

b) Calculate the distance between Taupo (38.7° S 176° E) and Gisborne (38.7° S 178° E), rounded to the nearest kilometre. *[3 marks]*

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QUESTION 19 (4 marks)

The table shows a store's actual sales each quarter for two years.

Quarter	1	2	3	4
2023 sales ($)	8000	18 000	94 000	10 000
2024 sales ($)	7500	23 500	82 000	12 500

The average quarterly sales for 2023 is $32 500.

a) Calculate the average quarterly sales for 2024. *[1 mark]*

b) Use your result from Question 19a) to calculate the seasonal index for the third quarter. *[3 marks]*

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QUESTION 20 (4 marks)

To repay a $24 000 reducing balance loan at 5.4% p.a. compounding monthly, a person makes a $557 payment at the end of every month for four years.

a) Write a recurrence relation for the amount owing, where n is the number of months. *[1 mark]*

b) Use your result from Question 20a) to calculate the amount owing after two months. *[2 marks]*

c) Use your result from Question 20b) to determine the reduction in the initial loan balance after two months. *[1 mark]*

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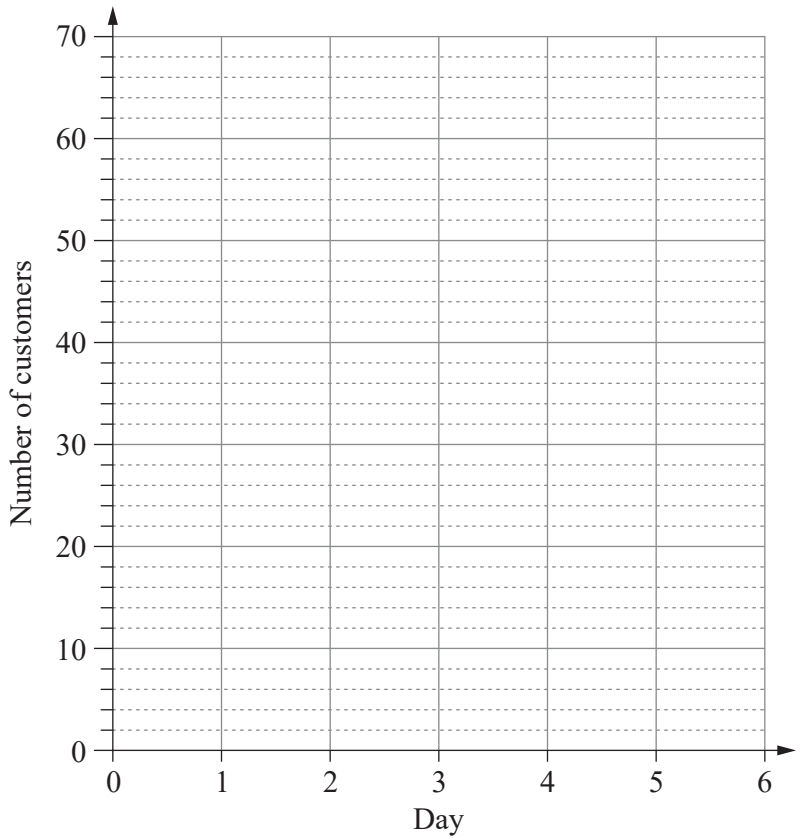
QUESTION 21 (4 marks)

The number of customers for a new gym's first four days of operation is shown.

Day	1	2	3	4
Customers	6	18	30	42

a) Provide a justified decision for whether the number of customers forms an arithmetic sequence or a geometric sequence. *[2 marks]*

b) Assuming the sequence continues, display the number of customers for the gym's first six days of operation in a scatterplot on the grid provided. *[2 marks]*



Note: If you make a mistake, cancel it by ruling a single diagonal line through your work and use the additional response space at the back of this book.

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QUESTION 22 (4 marks)

A $50 000 perpetuity earning fortnightly interest at 4.94% p.a. provides a regular fortnightly payment.

a) Calculate the fortnightly payment. *[2 marks]*

b) Calculate the perpetuity's effective annual rate of interest as a percentage. *[2 marks]*

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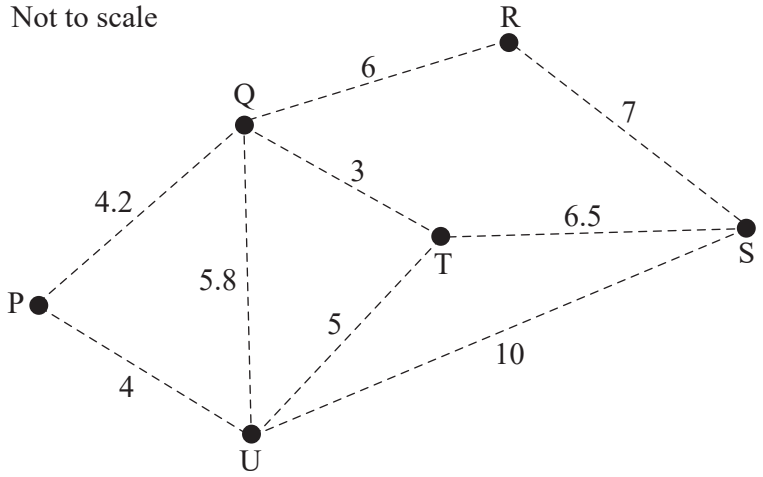
QUESTION 23 (5 marks)

The diagram represents a network of six electrical outlets (P–U) and possible locations for connecting cables. Cable lengths are in metres.



a) Justify why a subgraph of the network that contains outlets P, Q and U and connecting cables with lengths 4 m, 4.2 m and 5.8 m is not a tree. *[2 marks]*

b) An electrician claims that all outlets can be connected using less than 25 m of cables. Identify a minimum spanning tree to evaluate the reasonableness of the claim. *[3 marks]*

Note: If you make a mistake, cancel it by ruling a single diagonal line through your work and use the additional response space at the back of this book.

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QUESTION 24 (5 marks)

The average weekly earnings for Australian workers from 2013 to 2023 are modelled by the least-squares line equation $y = 49x - 97\,140$, where x is the year and y is average weekly earnings ($).
The coefficient of determination, R^2, is 0.997.

a) State the percentage of the variation in y that is explained by the linear relationship. *[1 mark]*

b) Identify and interpret the slope of the least-squares line. *[2 marks]*

c) Use the equation of the least-squares line to predict the average weekly earnings in 2035. *[2 marks]*

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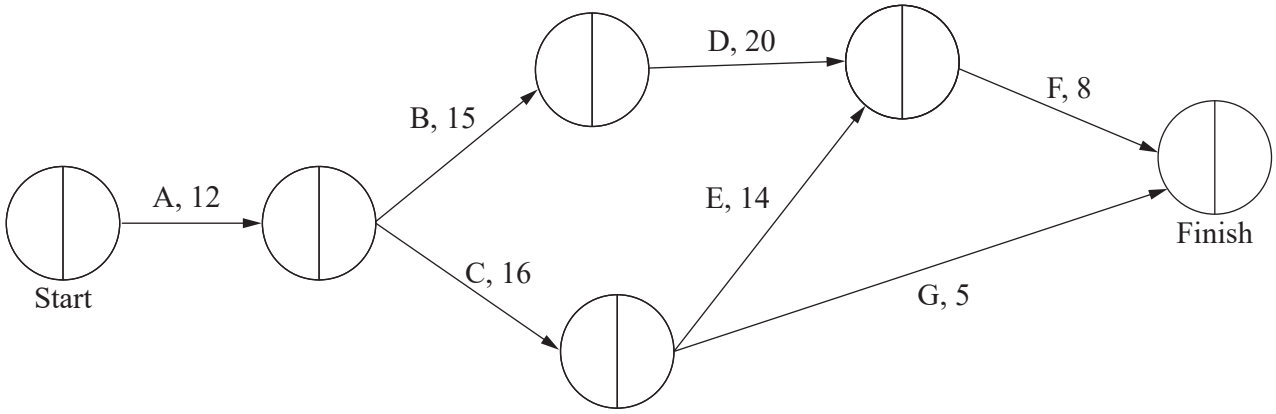
QUESTION 25 (5 marks)

The network diagram shows the time (minutes) to complete each of seven activities in a project.



a) State the earliest starting time (EST) for activity D. *[1 mark]*

b) Determine the minimum time to complete the project. *[1 mark]*

Note: If you make a mistake, cancel it by ruling a single diagonal line through your work and use the additional response space at the back of this book.

c) State the latest starting time (LST) for activity E. *[1 mark]*

d) Calculate the float time for activity G. *[2 marks]*

END OF PAPER

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ADDITIONAL PAGE FOR STUDENT RESPONSES

Write the question number you are responding to.

Do not write outside this box.

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Write the question number you are responding to.

Do not write outside this box.

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Write the question number you are responding to.

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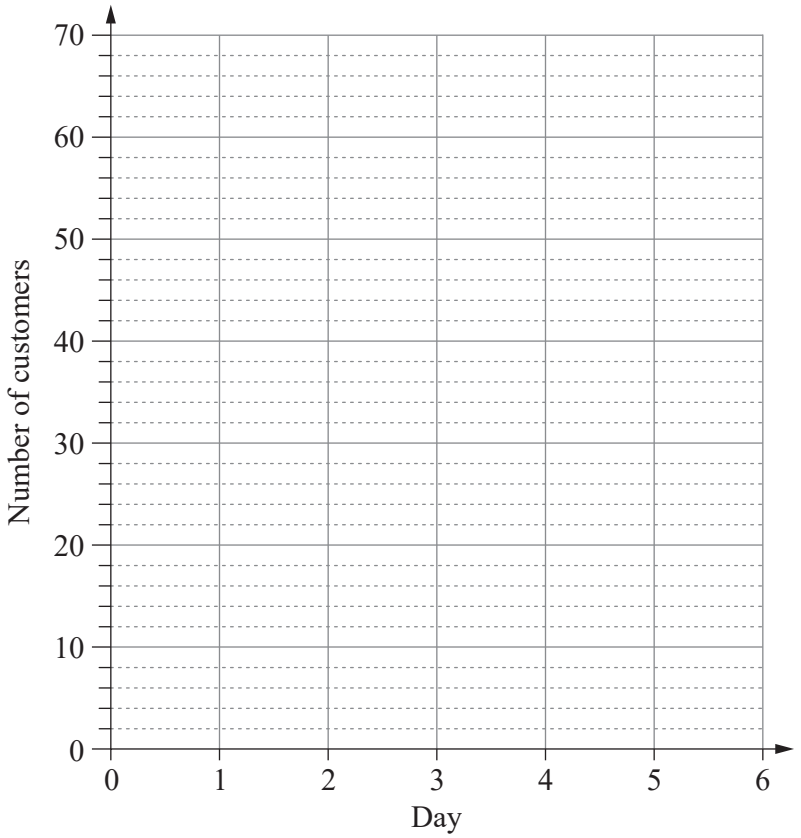
ADDITIONAL RESPONSE SPACE FOR QUESTION 21b)

If you want this response to be marked, rule a single diagonal line through your previous response.



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ADDITIONAL RESPONSE SPACE FOR QUESTION 23b)

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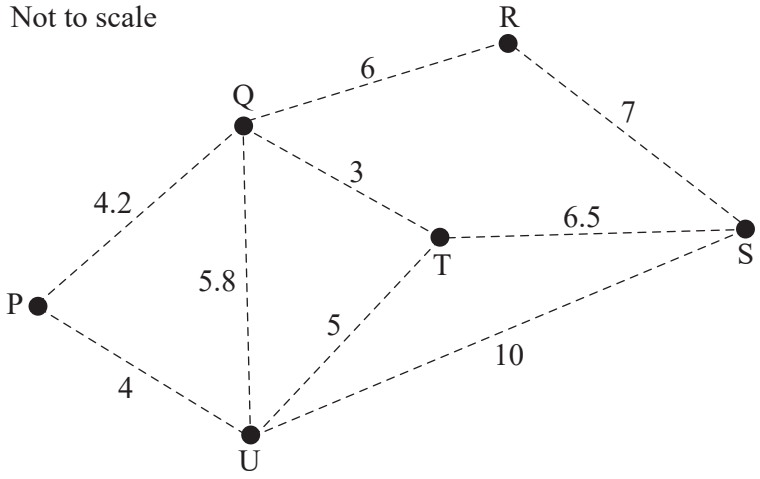

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ADDITIONAL RESPONSE SPACE FOR QUESTION 25

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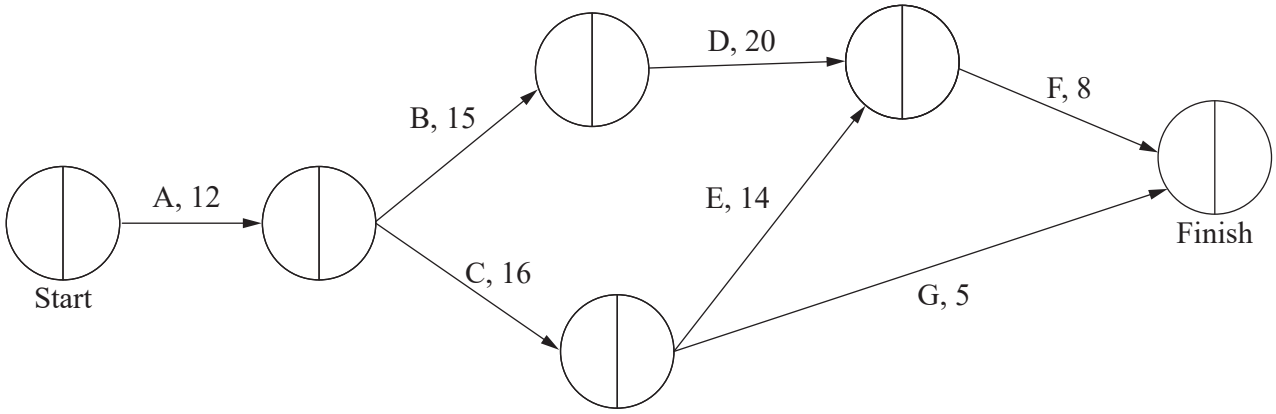

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