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 SEE

SEE 2 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.

Do not write outside this box.

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).

Do not write outside this box.

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: _____

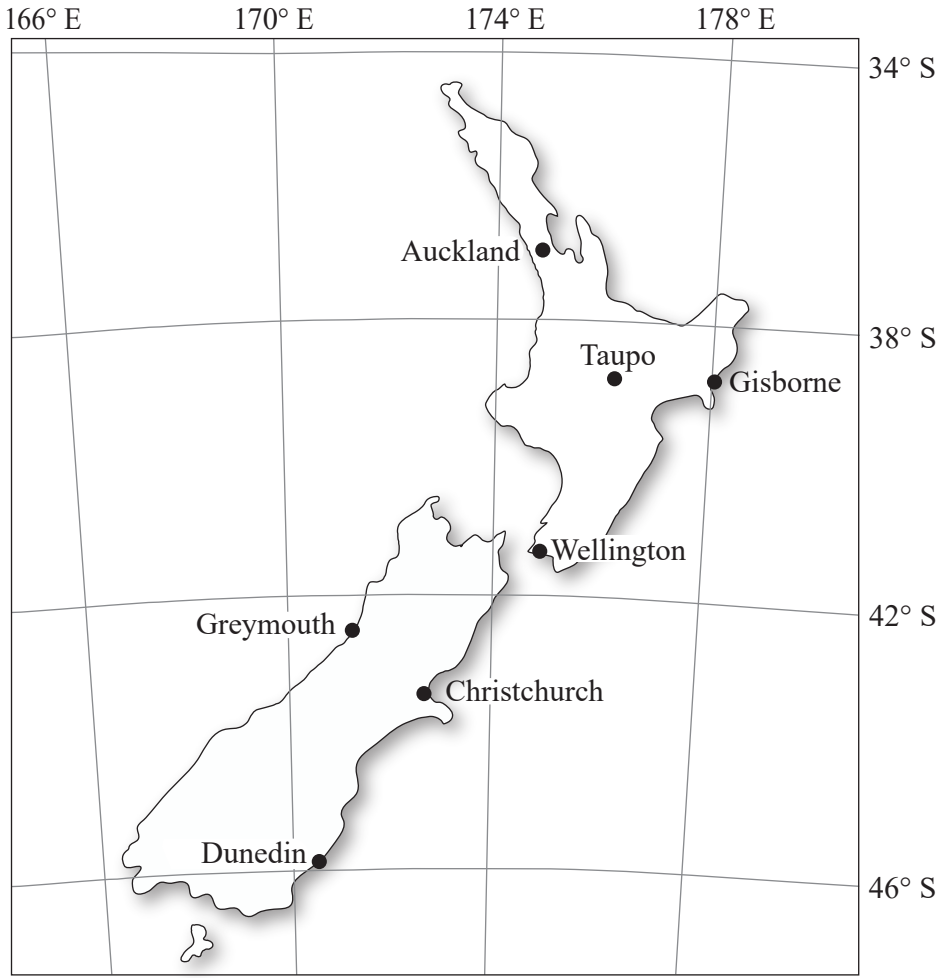
The survey results suggest there is an association between a student's year level and their travel time.

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

Do not write outside this box.

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]*

Do not write outside this box.

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]*

Do not write outside this box.

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]*

Do not write outside this box.

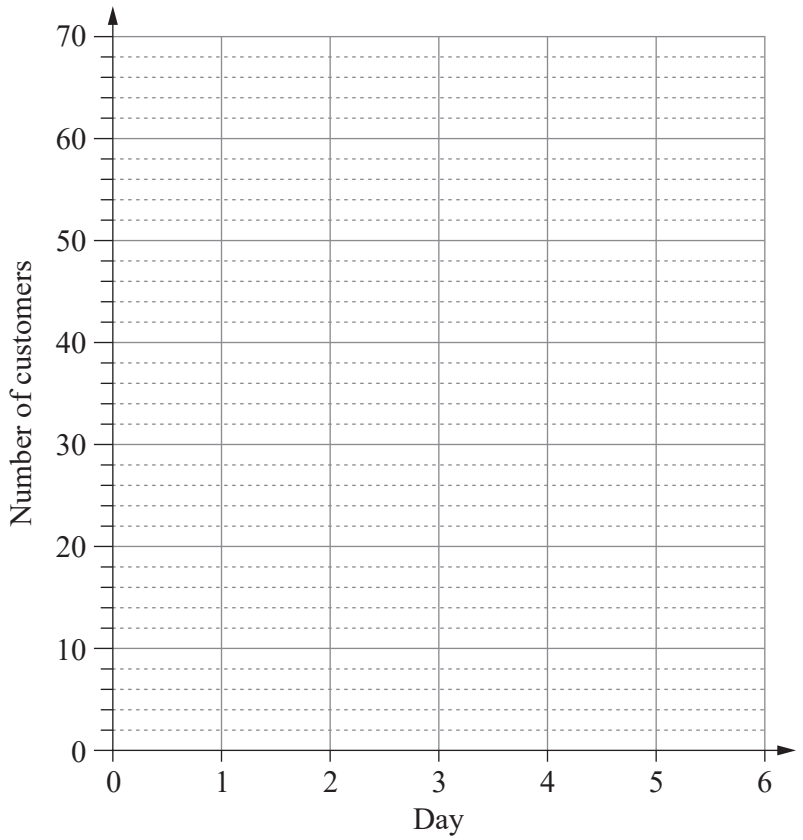
QUESTION 21 (4 marks)

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.

Do not write outside this box.

QUESTION 22 (4 marks)

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

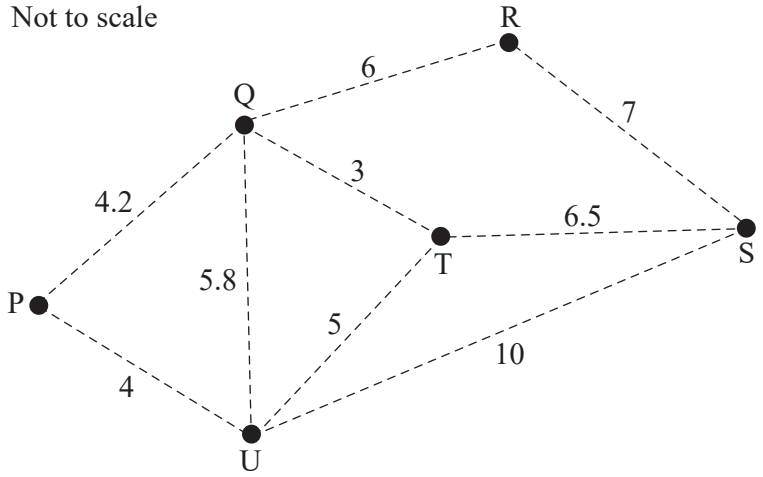
a) Calculate the fortnightly payment. *[2 marks]*

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

Do not write outside this box.

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.

Do not write outside this box.

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]*

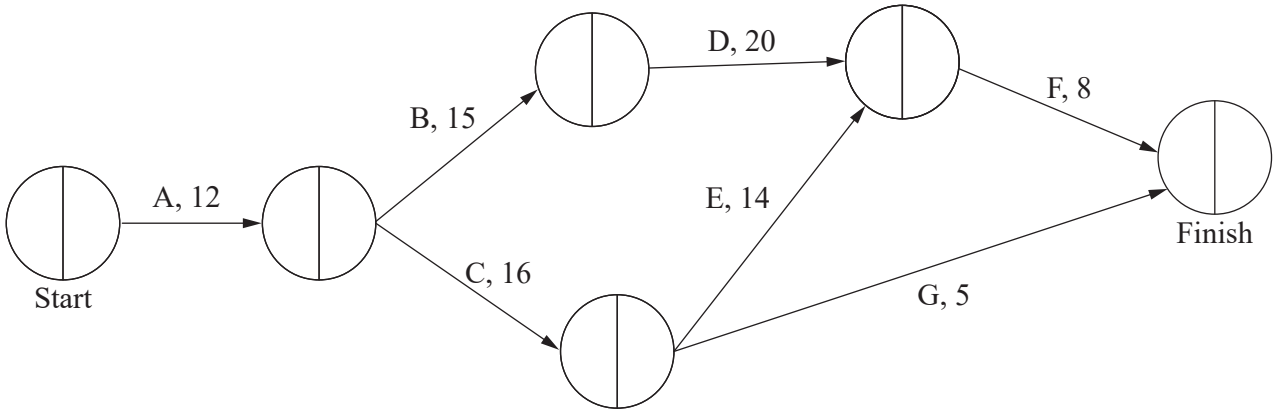
b) Identify and interpret the slope of the least-squares line. *[2 marks]*

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

Do not write outside this box.

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

Do not write outside this box.

ADDITIONAL PAGE FOR STUDENT RESPONSES

Write the question number you are responding to.

Do not write outside this box.

ADDITIONAL PAGE FOR STUDENT RESPONSES

Write the question number you are responding to.

Do not write outside this box.

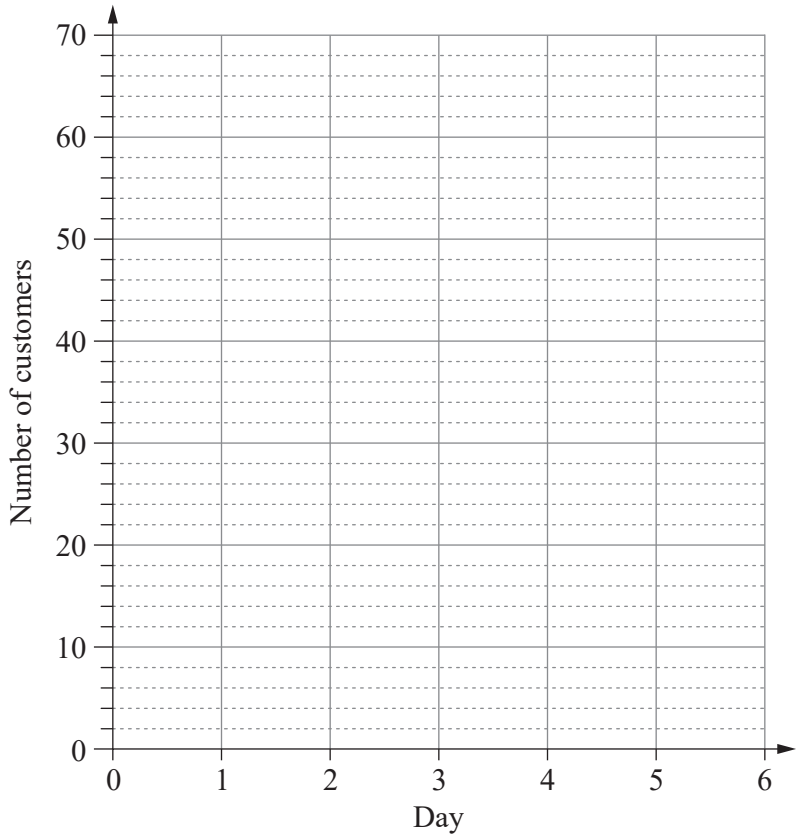
ADDITIONAL PAGE FOR STUDENT RESPONSES

Write the question number you are responding to.

Do not write outside this box.

ADDITIONAL RESPONSE SPACE FOR QUESTION 21b)

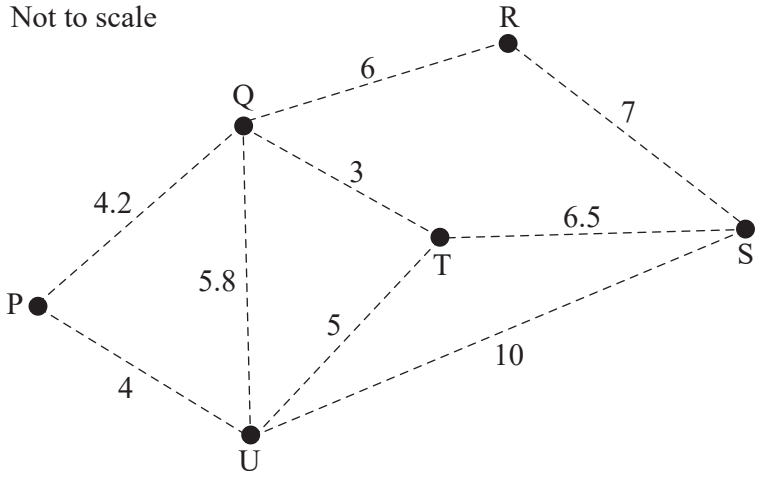
If you want this response to be marked, rule a single diagonal line through your previous response.



Do not write outside this box.

ADDITIONAL RESPONSE SPACE FOR QUESTION 23b)

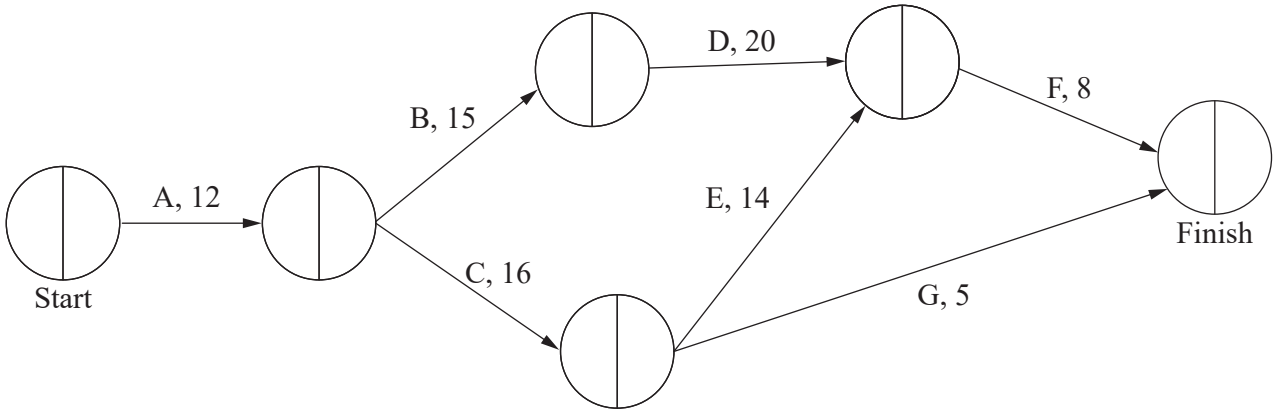
If you want this response to be marked, rule a single diagonal line through your previous response.



Do not write outside this box.

ADDITIONAL RESPONSE SPACE FOR QUESTION 25

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



Do not write outside this box.