LUI | | | | | | | | | | |

School code | | | | |

School name

Given name/s

Family name

Attach your barcode ID label here

Book | | of | | books used

External assessment 2026

Question and response book

Clear zone — margin trimmed off after completion of assessment

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
- Predicted paper written by Tangent Tuition. Not QCAA material.

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)

Sydney (GMT +10) uses daylight saving time, which is one hour ahead of Sydney standard time. Determine the time and day in Honolulu (GMT −10) when it is 7:30 am Tuesday in Sydney during daylight saving time.

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QUESTION 17 (4 marks)

A survey asked 160 adults whether they exercise regularly. The two-way frequency table shows some of the results.

	Exercise regularly	Do not exercise regularly	Total
Aged under 40	54		90
Aged 40 and over		42	
Total			160

a) Complete the two-way frequency table. *[2 marks]*

b) Use row percentages to justify whether there is an association between age group and exercising regularly. *[2 marks]*

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QUESTION 18 (4 marks)

The table shows the number of visitors to a museum each week for seven weeks. A special event was held in Week 3.

Week	1	2	3	4	5	6	7
Visitors	310	295	480	305	320	300	335
3-point moving median	—						—

a) Complete the table by calculating the 3-point moving median for Weeks 2 to 6. *[2 marks]*

b) Calculate the 3-point moving mean for Week 3. Use your results to compare the effect of the special event on the moving mean and the moving median. *[2 marks]*

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QUESTION 19 (4 marks)

Sam borrows $420 000 to buy a house. The loan has interest charged at 6.24% p.a., compounding monthly, and will be repaid with equal monthly repayments over 25 years.

a) Calculate the monthly repayment. *[2 marks]*

b) Use your result from Question 19a) to calculate the total interest Sam will pay. *[2 marks]*

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QUESTION 20 (4 marks)

A farmer buys a quad bike for $18 500. Its value decreases by $1650 at the end of each year.

Let t_n be the value ($) of the quad bike at the end of n years.

a) Write a rule for t_n. *[1 mark]*

b) Use your result from Question 20a) to calculate the value of the quad bike at the end of 6 years. *[1 mark]*

c) The farmer will replace the quad bike at the end of the first year in which its value is less than $5000. Determine the year in which the farmer will replace the quad bike. *[2 marks]*

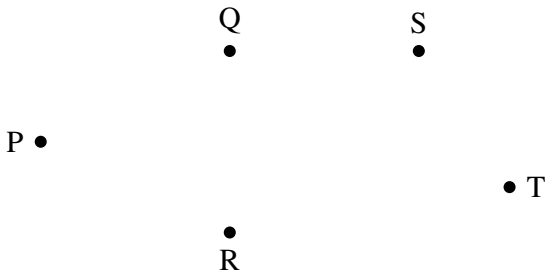
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QUESTION 21 (4 marks)

The adjacency matrix shows the walking tracks connecting five campsites, P, Q, R, S and T, in a national park.

	P	Q	R	S	T
P	0	1	1	0	0
Q	1	0	1	1	0
R	1	1	0	1	1
S	0	1	1	0	1
T	0	0	1	1	0

a) Construct the graph represented by the adjacency matrix. *[2 marks]*



b) A hiker wants to walk along every track exactly once, starting and finishing at different campsites. Justify whether this is possible. *[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 scholarship fund is invested as a perpetuity. It earns interest at 4.6% p.a., compounding quarterly, and pays $6500 at the end of each quarter.

a) Calculate the amount invested in the perpetuity. *[2 marks]*

b) The fund wants to increase the quarterly payment to $7000 without adding to the amount invested. Use your result from Question 22a) to determine the interest rate p.a., compounding quarterly, needed. *[2 marks]*

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QUESTION 23 (5 marks)

The table shows the age, a (years), and the sale price, p ($ thousand), of seven used cars of the same model.

Age, a (years)	1	2	3	5	6	8	9
Sale price, p ($ thousand)	38.5	34.1	33.6	26.9	26.2	19.0	18.4

a) Determine the equation of the least-squares line for the data. *[2 marks]*

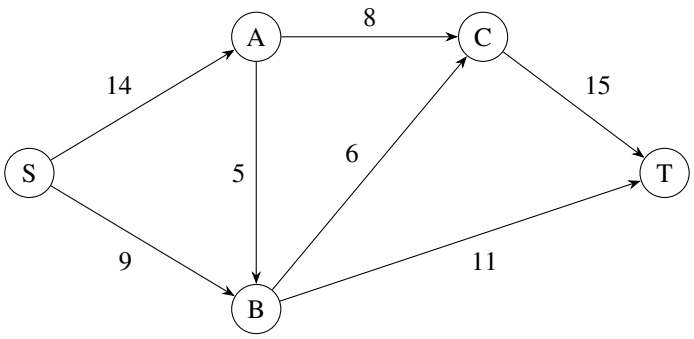
b) Interpret the slope of the least-squares line in the context of the data. *[1 mark]*

c) Use the equation of the least-squares line to predict the sale price of a 15-year-old car of this model, and comment on the reliability of the prediction. *[2 marks]*

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QUESTION 24 (5 marks)

The flow network shows the maximum flow rate (L/s) through each pipe from a dam, S, to a treatment plant, T.



a) A line passing through the pipes S–A, A–B and B–T is proposed as a cut. Explain why it is not a valid cut. *[1 mark]*

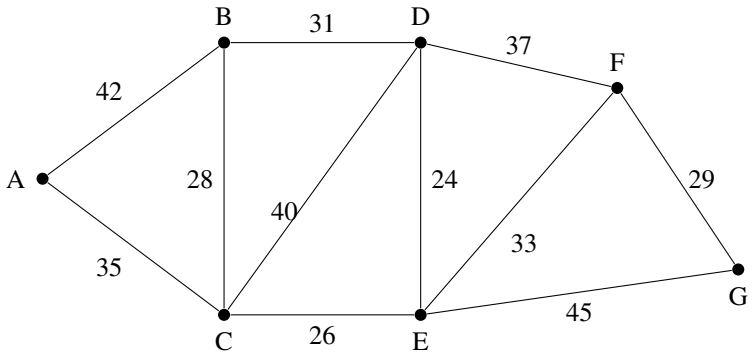
b) Determine the maximum flow rate from S to T. *[3 marks]*

c) The pipe from A to C is upgraded to a maximum flow rate of 12 L/s. Use your result from Question 24b) to determine the new maximum flow rate from S to T. *[1 mark]*

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QUESTION 25 (5 marks)

The weighted graph shows the lengths (m) of possible cables between seven buildings, A–G, on a school campus.



a) Determine a minimum spanning tree for the graph and its total length. *[3 marks]*

b) Cable costs $26 per metre. The school claims that all seven buildings can be connected for less than $4500. Evaluate the reasonableness of the school's claim. *[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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ADDITIONAL PAGE FOR STUDENT RESPONSES

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Do not write outside this box.

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