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 2

Time allowed

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

General instructions

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

Section 1 (38 marks)

- 7 short response questions

Clear zone — margin trimmed off after completion of assessment

Queensland Government | QCAA Queensland Curriculum & Assessment Authority

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Section 1

Instructions

- 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.

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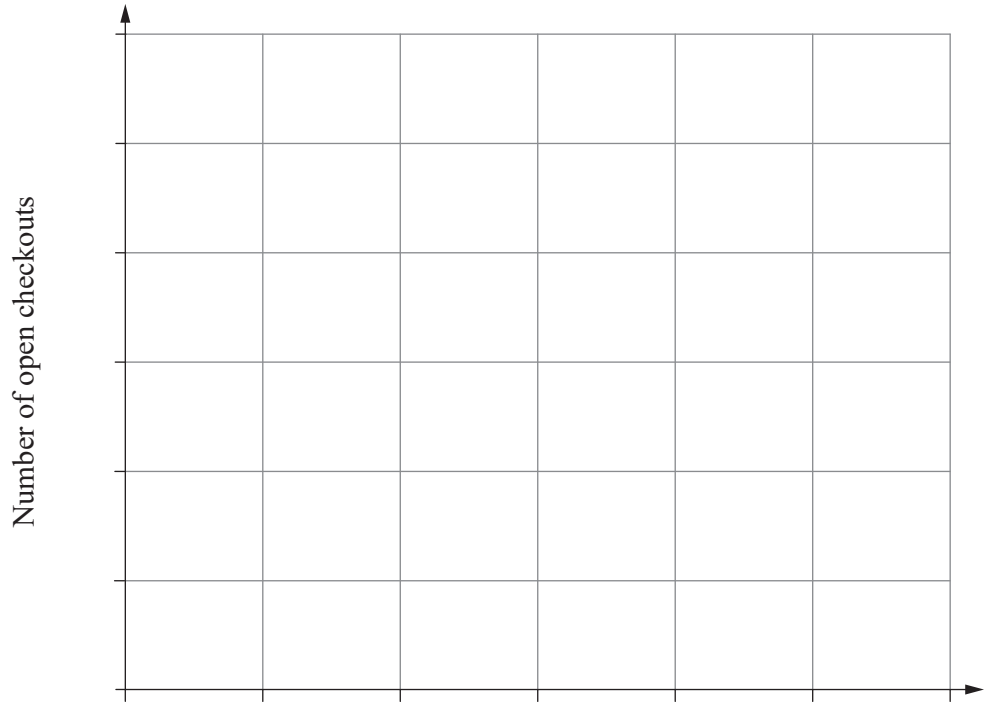
QUESTION 1 (4 marks)

At various times of the day, a store manager recorded the number of customers in the store and the number of open checkouts.

	Time of the day				
	8 am	**10 am**	**12 pm**	**2 pm**	**4 pm**
Number of customers	6	10	22	18	14
Number of open checkouts	1	2	5	4	1

Use a scatterplot display of the data to explain how many additional checkouts should have been open at 4 pm to be consistent with the data.



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 2 (5 marks)

A vehicle's value ($) depreciates geometrically each year. The table shows the value, t_n, where n is the number of years since the end of 2020.

n	1	2	3
t_n	83 600	71 060	60 401

Determine if the value at the end of 2028 will be lower than one third of the value at the end of 2021.

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QUESTION 3 (5 marks)

Stormwater flows through a network of pipes from a source (A) to a river (E). The table shows the maximum flow rate (L/sec) through each pipe connecting different parts of the network.

		To			
		B	**C**	**D**	**E**
From	**A**	32	38	—	—
	B	—	12	—	—
	C	—	—	20	24
	D	—	—	—	20

An engineer will upgrade only one pipe to change the maximum flow from A to E to 45 L/sec.

Use a flow network diagram to determine the new maximum flow rate for the upgraded pipe.

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 4 (5 marks)

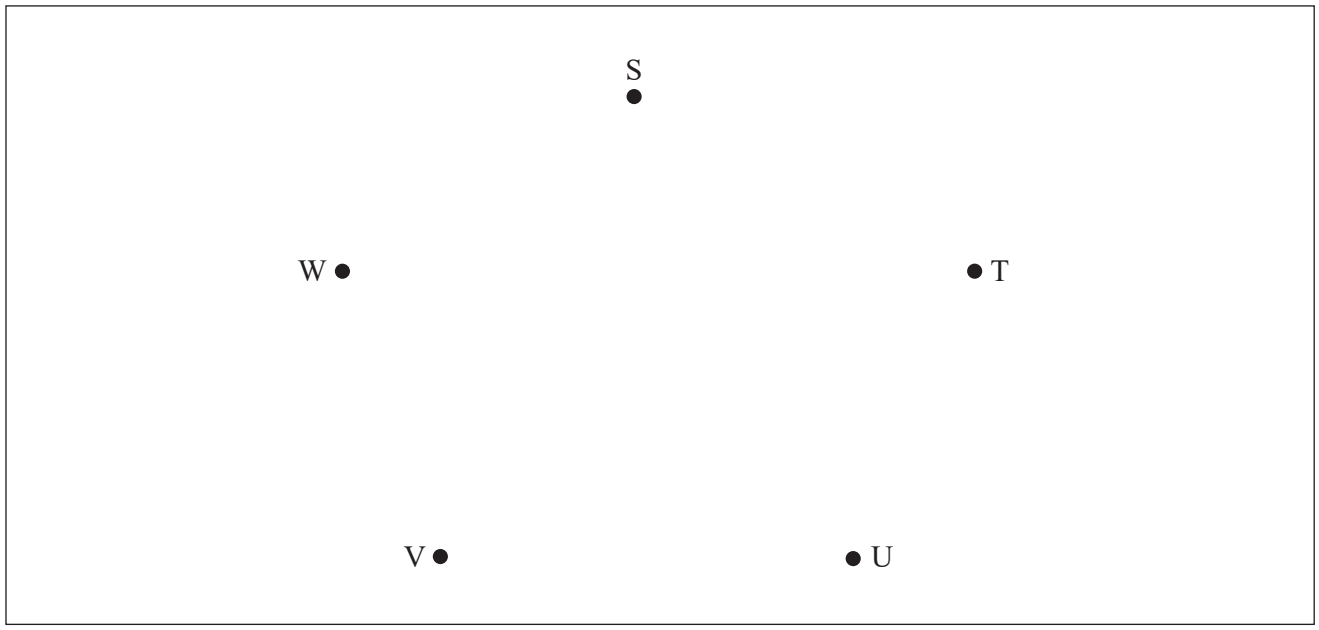
Marli drives a round trip in which she leaves a storage warehouse, S, refills vending machines at four venues, T, U, V and W, and returns to the storage warehouse. The tables show the distance (km) between the locations and the number of vending machines at each venue.

Road connecting locations	S–T	S–U	S–V	S–W	T–U	T–V	T–W	U–V	U–W	V–W
Distance (km)	3	12	10	9	4	7	5	8	2	6

Venue	T	U	V	W
Number of vending machines	2	3	4	3

Marli is paid $25 per vending machine and a driving allowance of 80 cents per kilometre based on the minimum total distance for a round trip.

Use a weighted graph representing the road network to calculate Marli's total payment.



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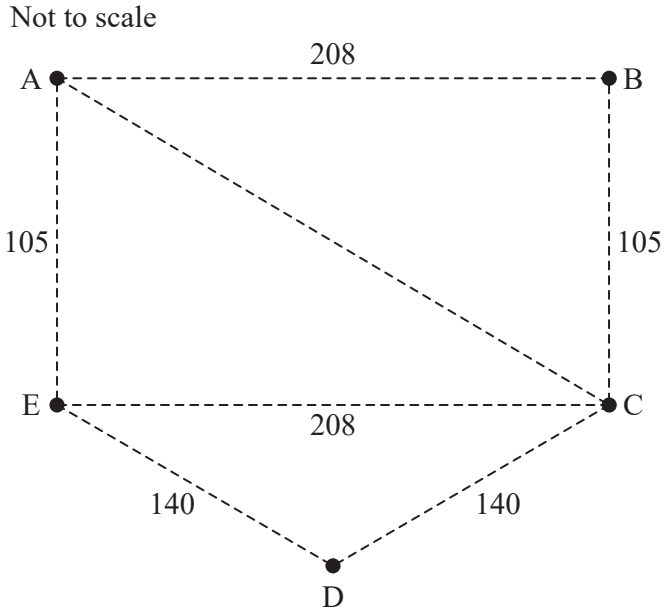
QUESTION 5 (7 marks)

The diagram represents seven walkways joining five benches (A–E) in a park. Walkway distances are shown in metres. The walkway between A and B is perpendicular to the walkway between B and C.



Helen's usual daily walk involves completing an open Eulerian trail beginning at A. On Tuesday, when one walkway could not be used, Helen used the available walkways to complete a closed Eulerian trail starting at A.

If Helen's usual daily walk takes 17 minutes, justify whether she completed her walk on Tuesday in under 15 minutes. Assume Helen's walking speed doesn't change.

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QUESTION 6 (6 marks)

Fiore (F) and Goran (G) each hike for n hours along a track that joins a car park and a lookout. They both start their hike at 10 am, but from opposite ends of the track.

- Fiore's distance (km) from the car park, F_n, is modelled by $F_n = 2n$
- Goran's distance (km) from the car park, G_n, is modelled by $G_n = 12 - 3(n - 1)$

When Fiore and Goran meet on the track, they both take a 30-minute break. They then hike together to the car park, arriving at 4 pm.

Determine their hiking speed (km/h) from when Fiore and Goran finish their break to when they arrive at the car park.

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QUESTION 7 (6 marks)

Two businesses, B_1 and B_2, report their annual profit ($) at the end of each year.

	Annual profit ($)	
	B_1	**B_2**
2022	300 000	250 000
2023	500 000	280 000
2024	400 000	430 000
2025	650 000	550 000

At the end of 2025, the two businesses merged into one company, C, and appointed a new director. The director used the B_1 and B_2 data up until that time to predict that C's annual profit reported at the end of 2040 would be more than $4 million.

Evaluate the reasonableness of the director's prediction.

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ADDITIONAL PAGE FOR STUDENT RESPONSES

Write the question number you are responding to.

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ADDITIONAL RESPONSE SPACE FOR QUESTION 1

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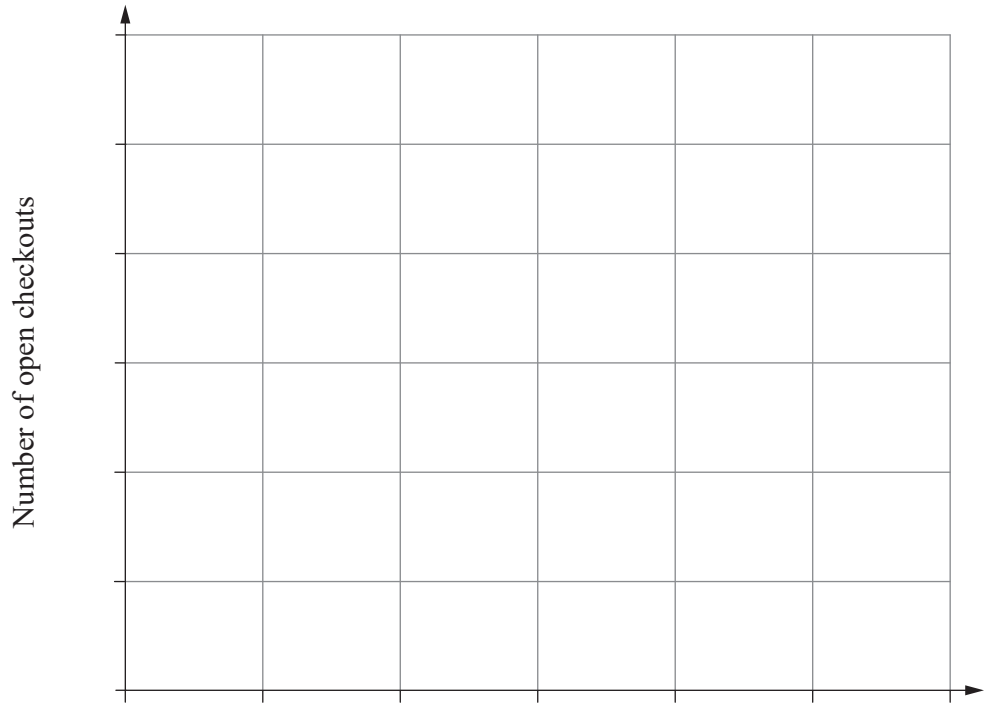

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ADDITIONAL RESPONSE SPACE FOR QUESTION 4

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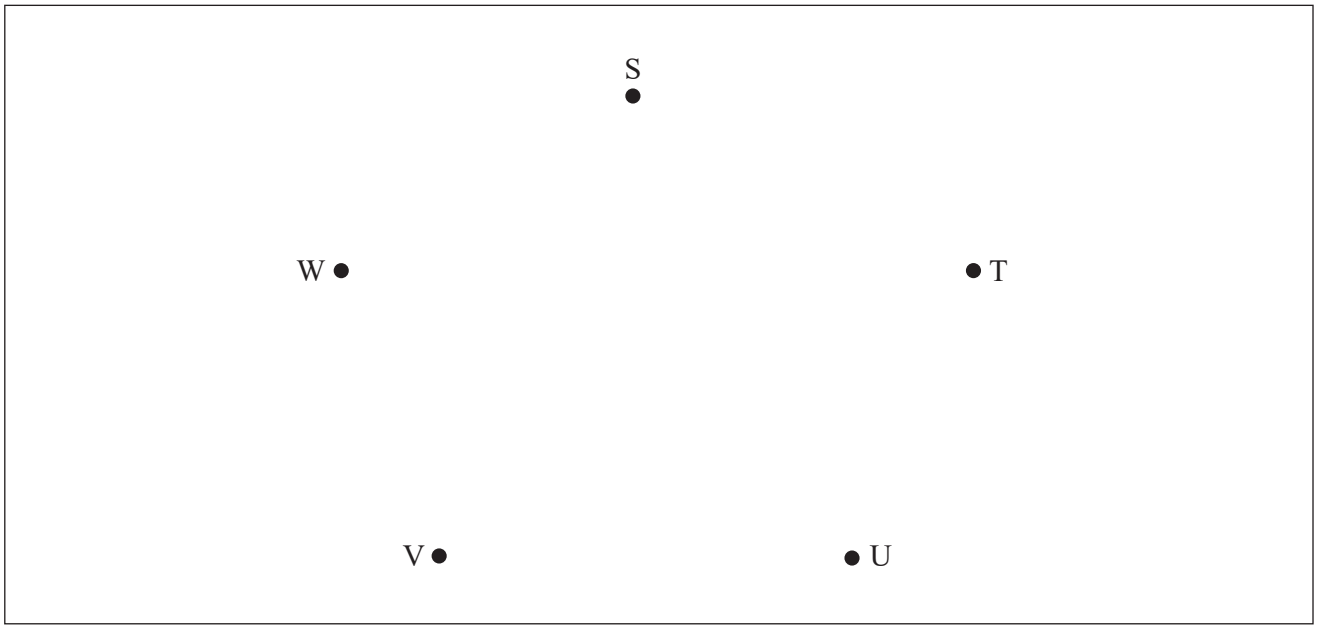

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