LUI						School code
School name						
Given name/s						Attach your
Family name						barcode ID label here
External as	sessme	ent 202	1			Book of books used
						Question and response book

General Mathematics SEE 1

Time allowed

- Planning time 15 minutes
- Working time 180 minutes

General instructions

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

Section 1 (60 marks)

• 4 short response questions



DO NOT WRITE ON THIS PAGE

THIS PAGE WILL NOT BE MARKED

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.

DO NOT WRITE ON THIS PAGE

THIS PAGE WILL NOT BE MARKED

QUESTION 1 (20 marks)

Use the data in Stimulus 1 in the stimulus book to construct two models showing the association between the production budget and worldwide box office income.

a) For Model 1, construct a scatterplot and draw a line of best fit on the scatterplot. [3 marks]



Note: If you make a mistake in the scatterplot, cancel it by ruling a single diagonal line through your work and use the additional response space on page 25 of this question and response book.

b)	Determine the slope and y-intercept of the line of best fit from Question 1a).	[3 marks]
c)	Use the results from Question 1b) to state the equation of the line of best fit.	[1 mark]
d)	For Model 2, develop a linear relationship by fitting a least-squares line to all the	
	production budget and worldwide box office income data from Stimulus 1.	[1 mark]

			 5 11		 	15 1		,		ver	op	a re	esid	ual	JU 10	ore	au	.1 111	louv	01.	l	101	mai
lode	11																						

Note: If you make a mistake on the graph, cancel it by ruling a single diagonal line through your work and use the additional response space on page 26 of this question and response book.

|
 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | | | | | | | | | | | | | | |
|
 |

Note: If you make a mistake on the graph, cancel it by ruling a single diagonal line through your work and use the additional response space on page 26 of this question and response book.

f)	Use the results from Question 1e) to evaluate which model is the more valid representation of the data from Stimulus 1.	[2 marks]

QUESTION 2 (10 marks)

a) Sketch the more valid model for the data from Question 1 on the Cartesian plane. Add a corresponding label to the key.

[2 marks]



Note: If you make a mistake on the Cartesian plane, cancel it by ruling a single diagonal line through your work and use the additional response space on page 27 of this question and response book.

office income.	[5 mark

a relevant strength and a relevant limitation of the solution.	[3 mari

Do

QUESTION 3 (15 marks)

a) Use Stimulus 2 in the stimulus book to construct a table to determine the five-point moving average of the number of MCU movies for each year of release.

[3 marks]

b)	U n	Jse nov	the ing	res av	sult era	s fi ge.	rom Pro	n Qr ovie	ues de a	tion a gr	n 3a apl	a) te n as	o de s pa	eve art (lop of y	an ⁄ou	apj r re	pro aso	pria nin	ate 1g f	mc or 1	odel the	for cho	r th bice	e fi e of	ve- mo	poi	int :1.		[2]	mari	ks]
																															$ \rightarrow$	_
																																_
																																_

Note: If you make a mistake on the graph, cancel it by ruling a single diagonal line through your work and use the additional response space on page 28 of this question and response book.

inclusive.	[4 m

DO NOT WRITE ON THIS PAGE

THIS PAGE WILL NOT BE MARKED

CONTINUE TO THE NEXT PAGE

movies likely to be released between 2024 and 2028 inclusive.	[6 mark



Note: If you make a mistake on the graph, cancel it by ruling a single diagonal line through your work and use the additional response space on page 29 of this question and response book.

QUESTION 4 (15 marks)

a)	Use the models developed in Question 3 and the information in Stimulus 3 and 4 in
	the stimulus book to predict the average number of people attending an opening
	weekend for MCU movies likely to be released between 2024 and 2028 inclusive.

[12 marks]

• \geq \$150 million is spent on tickets	
• ≥ 12 million people see the movie.	
Evaluate the reasonableness of using these as targets for 'breaking the box office' for MCU movies likely to be released between 2024 and 2028 inclusive.	[3 m
 ΓΝΠ ΟΓ ΡΑ ΡΓΡ	
END OF PAPER	

ADDITIONAL PAGE FOR STUDENT RESPONSES

Write the question number you are responding to.

Write the question number	you are responding	to.	

ADDITIONAL PAGE FOR STUDENT RESPONSES

Write the question number you are responding to.

Write the question number you are respondin	ng to.

ADDITIONAL PAGE FOR STUDENT RESPONSES

Write the question number you are responding to.

Write the question number you are respondin	ng to.

ADDITIONAL RESPONSE SPACE FOR QUESTION 1a)

If you want this scatterplot to be marked, rule a single diagonal line through the scatterplot on page 2.



ADDITIONAL RESPONSE SPACE FOR QUESTION 1e)

If you want one of these graphs to be marked, rule a single diagonal line through the graph on pages 4 or 5.



ADDITIONAL RESPONSE SPACE FOR QUESTION 2a)

If you want this Cartesian plane to be marked, rule a single diagonal line through the Cartesian plane on page 7.



ADDITIONAL RESPONSE SPACE FOR QUESTION 3b)

If you want this diagram to be marked, rule a single diagonal line through the diagram on page 11.

_																	
-																	
-																	
-																	

ADDITIONAL RESPONSE SPACE FOR QUESTION 3d)

If you want this graph to be marked, rule a single diagonal line through the graph on page 15.



© State of Queensland (QCAA) 2021 Licence: https://creativecommons.org/licenses/by/4.0 | Copyright notice: www.qcaa.qld.edu.au/copyright — lists the full terms and conditions, which specify certain exceptions to the licence.| Attribution: © State of Queensland (QCAA) 2021