External assessment

Multiple choice question book

General Mathematics SEE

SEE 2 Paper 1

General instruction

- Work in this book will not be marked.

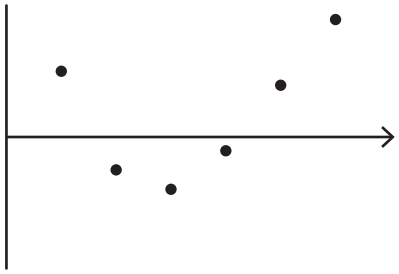
Queensland Government | QCAA Queensland Curriculum & Assessment Authority

Section 1

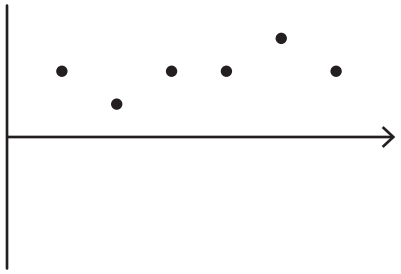
QUESTION 1

Four linear models have been developed for a data set. Identify the residual plot that indicates that the developed linear model is justified.

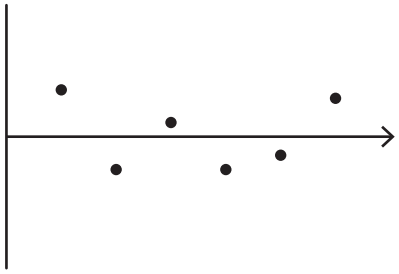
(A)



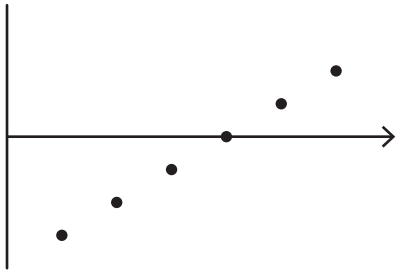
(B)



(C)



(D)



QUESTION 2

The standard Australian time zones are shown on the map.

All states and territories, except Western Australia (WA), Queensland (QLD) and the Northern Territory (NT), have daylight saving in summer. Daylight saving time is 1 hour ahead of standard time.

When it is 10:00 am daylight saving time in New South Wales (NSW), it is

(A) 9:30 am in South Australia (SA) and 9:00 am in QLD.

(B) 9:30 am in SA and 11:00 am in QLD.

(C) 10:30 am in SA and 9:00 am in QLD.

(D) 10:30 am in SA and 11:00 am in QLD.

QUESTION 3

For the sequence 4, 2, 0, –2, –4 … the common difference is

(A) 4

(B) 2

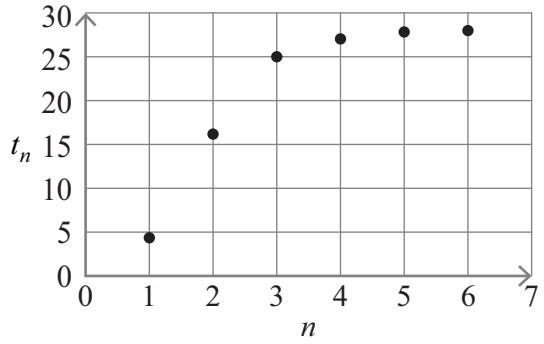
(C) –2

(D) –4

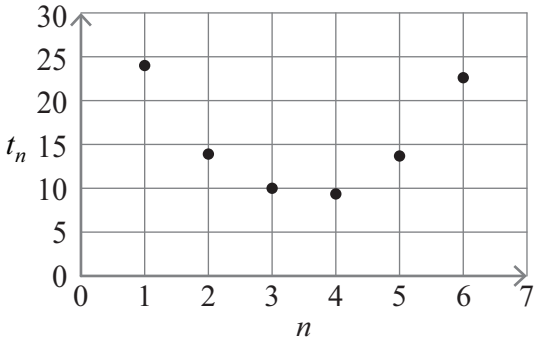
QUESTION 4

Which of the following graphs could be modelled using a geometric sequence?

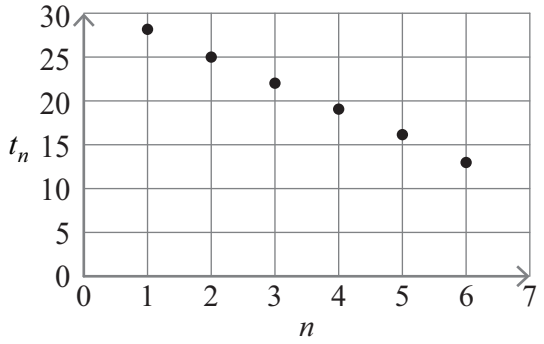
(A)



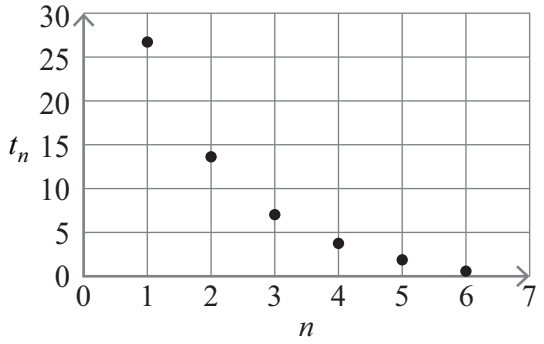
(B)



(C)



(D)



QUESTION 5

Determine the equation of the least-squares line where $r = 0.926$, $\overline{x} = 5.2$, $s_x = 2.3$, $\overline{y} = 68.6$ and $s_y = 41.7$.

(A) $y = 16.79x - 1146.51$

(B) $y = 16.79x - 18.70$

(C) $y = 0.05x + 68.33$

(D) $y = 0.05x + 1.70$

QUESTION 6

A loan of $10 000 has interest charged on a reducing balance at 6% p.a. compounding quarterly with quarterly repayments of $700. The balance after 6 months is

(A) $8696.75

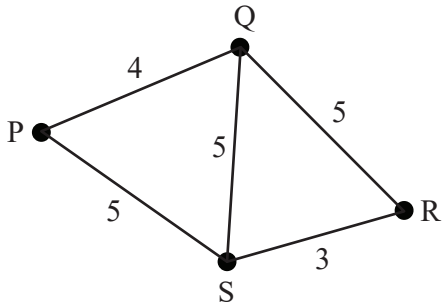
(B) $8891.75

(C) $8900.00

(D) $9794.00

QUESTION 7

What is the length of the minimum spanning tree for this network? All distances are in kilometres (km).



(A) 22 km

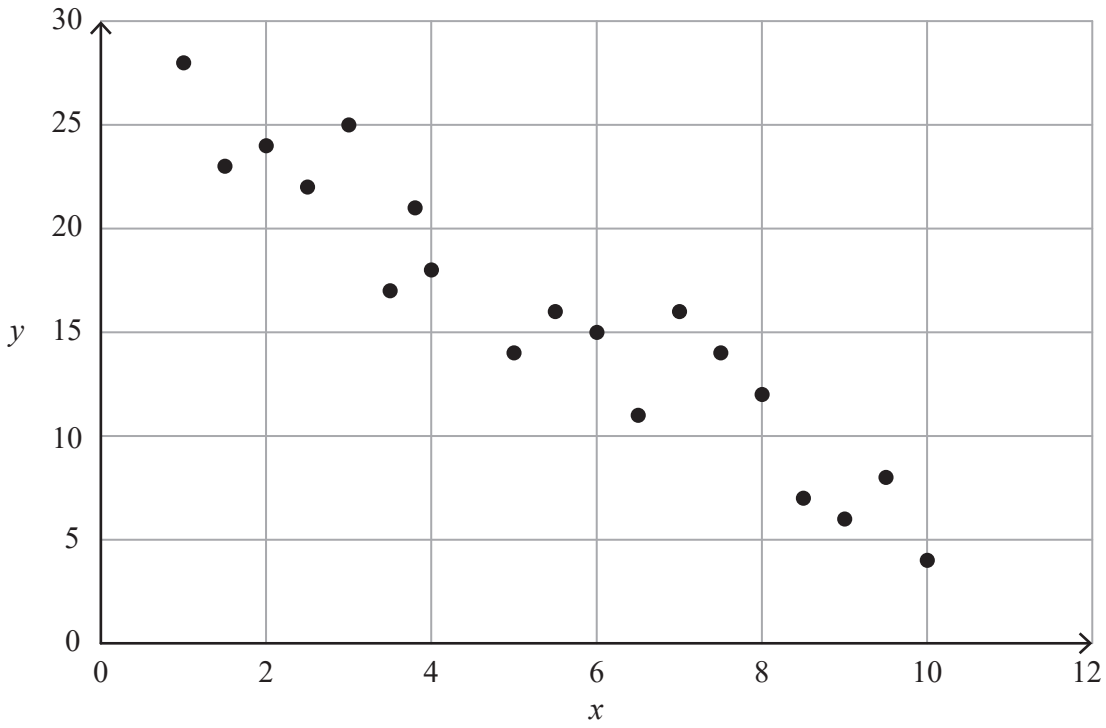
(B) 14 km

(C) 12 km

(D) 3 km

QUESTION 8

The following scatterplot shows a linear association between two numerical variables.



Choose the best description for the direction and strength of the association.

(A) strong positive

(B) strong negative

(C) weak positive

(D) weak negative

QUESTION 9

It is observed that as the number of ice blocks sold each month increases, the number of fans sold also increases. Which of these statements is therefore true?

(A) There is a negative causation between the number of ice blocks sold and the number of fans sold each month.

(B) There is a positive causation between the number of ice blocks sold and the number of fans sold each month.

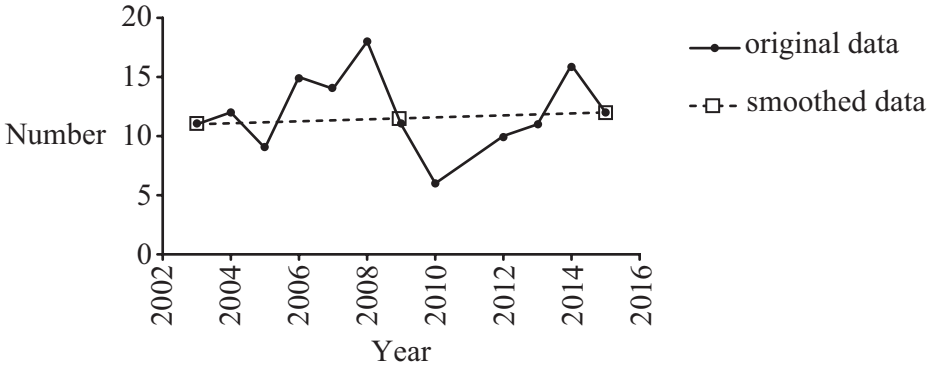
(C) There is a negative association between the number of ice blocks sold and the number of fans sold each month.

(D) There is a positive association between the number of ice blocks sold and the number of fans sold each month.

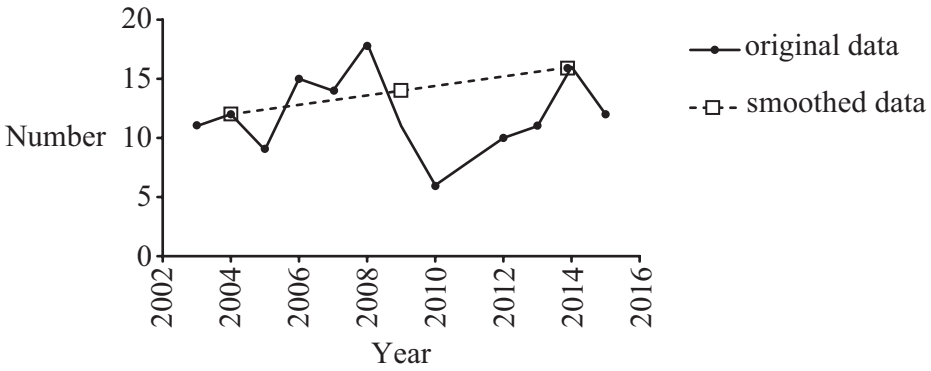
QUESTION 10

Which of the following graphs represents a time series plot with a three-point moving average?

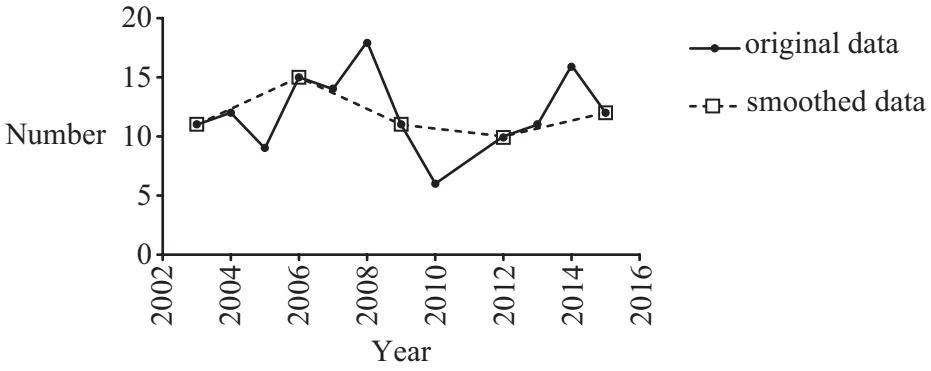
(A)



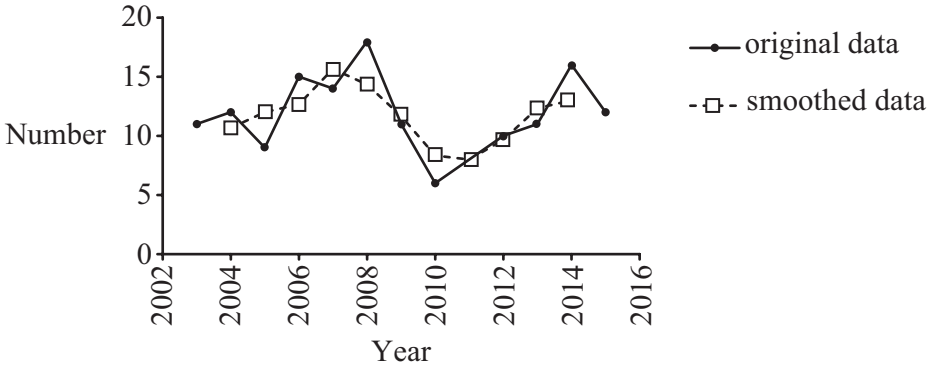
(B)



(C)

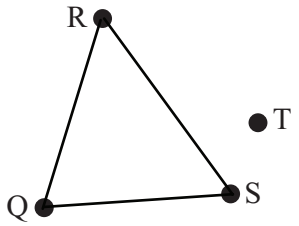


(D)



QUESTION 11

Determine the adjacency matrix that represents this graph.



(A)

	Q	R	S
Q	0	1	1
R	1	0	1
S	1	1	0

(B)

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

(C)

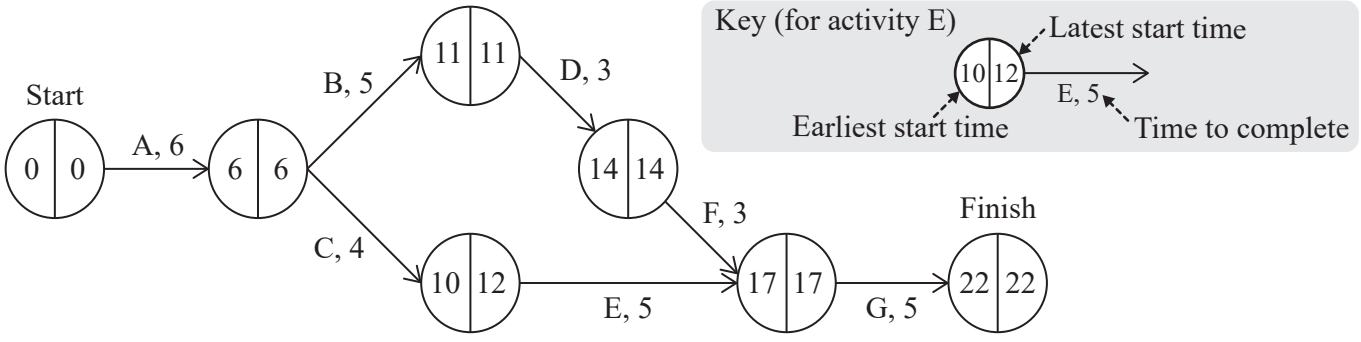
	Q	R	S	T
Q	0	1	1	0
R	1	0	1	0
S	1	1	0	1
T	0	0	1	0

(D)

	Q	R	S	T
Q	0	2	2	0
R	2	0	2	0
S	2	2	0	0
T	0	0	0	0

QUESTION 12

The activity times in the project network shown are in days.



The greatest float time for a non-critical activity in this network is

(A) 2 days.

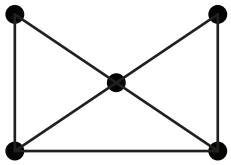
(B) 4 days.

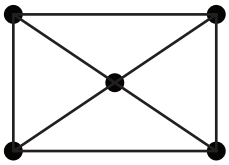
(C) 5 days.

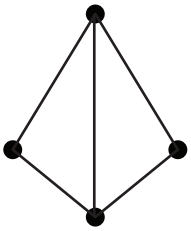
(D) 12 days.

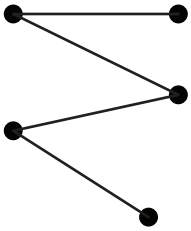
QUESTION 13

Which of the following is a planar graph with 5 vertices and 4 faces?

(A) 

(B) 

(C) 

(D) 

QUESTION 14

A sample of university staff and students was asked whether they preferred catching public transport or driving their own car to university. The data collected is shown in the table.

	Public transport	Drive own car
Staff	2	18
Students	48	12

What percentage of university students prefer to drive their own car?

(A) 12%

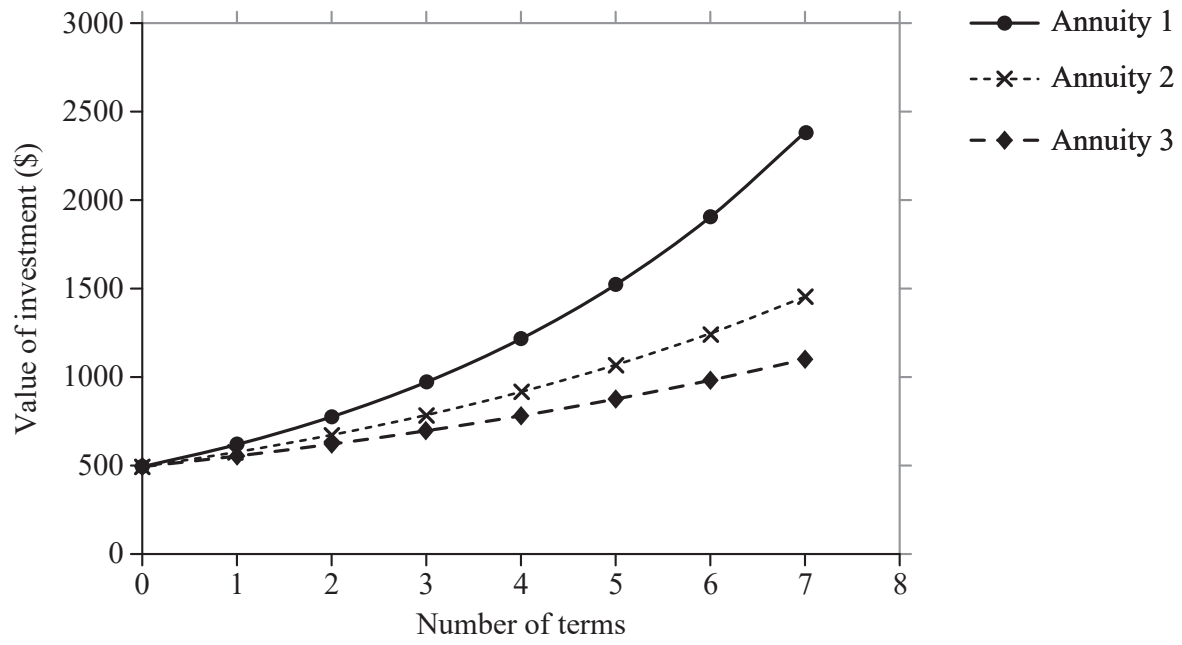
(B) 15%

(C) 20%

(D) 40%

QUESTION 15

The graph shows the value of three different annuities over time.



Which of the following statements gives a plausible explanation for the different values after seven terms?

(A) Annuity 1 and Annuity 2 have higher regular deposits than Annuity 3.

(B) Annuity 1 and Annuity 2 have shorter interest terms than Annuity 3.

(C) Annuity 2 and Annuity 3 have a lower initial value than Annuity 1.

(D) Annuity 2 and Annuity 3 have higher interest rates than Annuity 1.

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Attribution

Question 2

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