

South Australian  
Certificate of Education

# General Mathematics

## 2021

### Question booklet

- Questions 1 to 9 (90 marks)
- Answer **all** questions
- Write your answers in this question booklet
- You may write on page 22 if you need more space

### Examination information

#### Materials

- Question booklet
- SACE registration number label

#### Instructions

- Show appropriate working and steps of logic in this question booklet
- Use black or blue pen
- You may use a sharp dark pencil for diagrams and graphical representations
- Approved calculators may be used — complete the box below

**Total time:** 130 minutes

**Total marks:** 90

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Attach your SACE registration number label here

#### Graphics calculator

1. Brand \_\_\_\_\_

Model \_\_\_\_\_

2. Brand \_\_\_\_\_

Model \_\_\_\_\_



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(ii) Carry out the Hungarian algorithm on the array from part (b)(i) given below until a solution is reached. Show the result of each step clearly.

13	10	3	1
16	10	2	6
17	11	0	4
14	7	2	3

(5 marks)

(iii) Fill in the spaces below to complete the interpretation of your solution from part (b)(ii).

Buyer 1 will get Item \_\_\_\_\_

Buyer 2 will get Item \_\_\_\_\_

Buyer 3 will get Item \_\_\_\_\_

Buyer 4 will get Item \_\_\_\_\_

The charity will raise \$ \_\_\_\_\_ from the auction.

(3 marks)

**Question 3 continues on page 8.**









- (g) The predictions made in part (f)(i) and part (f)(ii) are both extrapolations.  
Complete the statement below.

The prediction made in part \_\_\_\_\_ would be the less reliable of the two predictions because

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(1 mark)









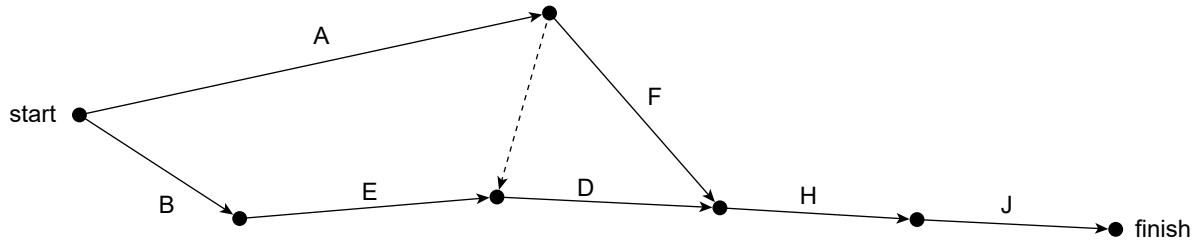






**Question 8** (6 marks)

The partial network diagram below represents the tasks required to sort mail in a post office.



(a) Referring to the network diagram above, *complete* the precedence table below for tasks D, F, and H.

Task	Precedence
A	none
B	none
C	A
D	
E	B
F	
G	A, E
H	
J	G, H

(3 marks)

(b) **Complete the network diagram above** by adding the links for tasks C and G. (2 marks)

(c) Which *one* of the statements below is **false**? Tick the appropriate box to indicate your answer.

- Either task A or task E *must* lie on the critical path.
- Tasks A and B *cannot* both lie on the critical path.
- Tasks A, B, and E *must* all be complete before task D can start.
- There is no task which *must* lie on the critical path.

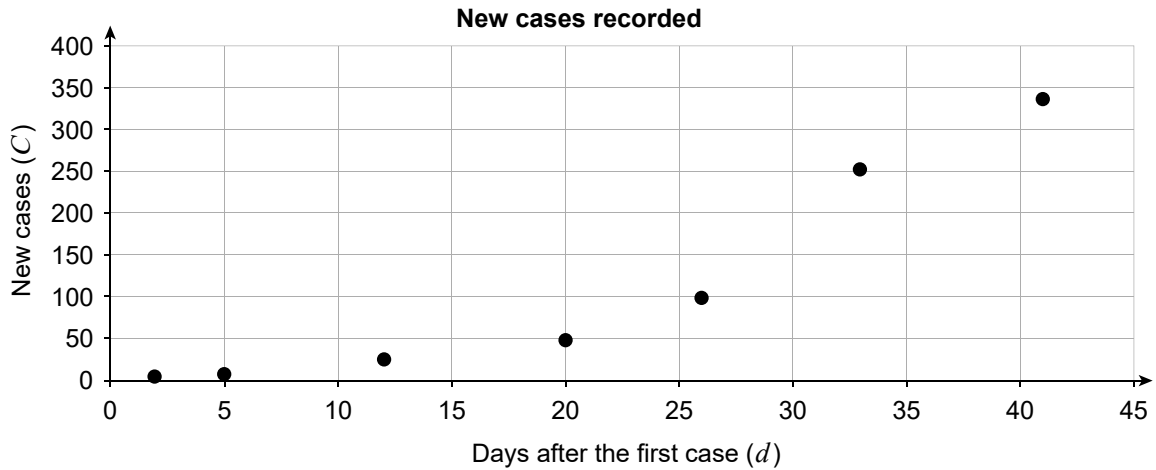
(1 mark)

**Question 9** (12 marks)

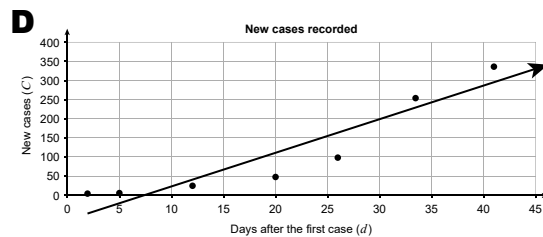
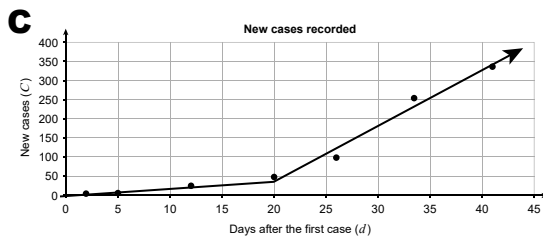
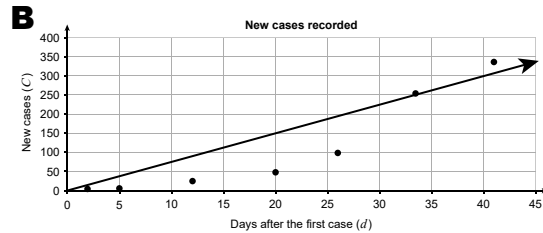
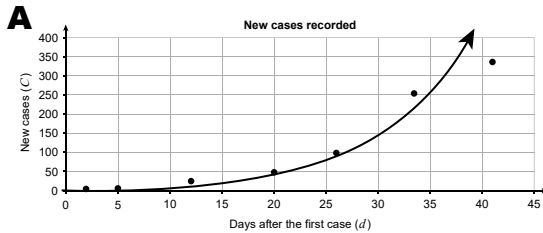
A health department identified an outbreak of a notifiable contagious disease. The data in the table below show the number of new cases on selected days after the first case was recorded.

Days after the first case ( $d$ )	2	5	12	20	26	33	41
New cases recorded on the day ( $C$ )	3	8	25	47	100	252	337

The scatter plot for the data is shown below.



(a) **Circle** the letter of the graph below which shows the line of best fit for the **linear** model.



(1 mark)

**Question 9 continues on page 20.**





You may write on this page if you need more space to finish your answers. Make sure to label each answer carefully (e.g. 3(b)(ii) continued).

