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**GENERAL CERTIFICATE OF SECONDARY EDUCATION  
MATHEMATICS C (GRADUATED ASSESSMENT)**

**B281B**

Terminal Paper (Section B) (Foundation Tier)

Candidates answer on the question paper.

**OCR supplied materials:**  
None

**Other materials required:**

- Geometrical instruments
- Tracing paper (optional)
- Pie chart scale (optional)
- Scientific or graphical calculator

**Monday 6 June 2011  
Afternoon**

**Duration: 1 hour**



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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**INSTRUCTIONS TO CANDIDATES**

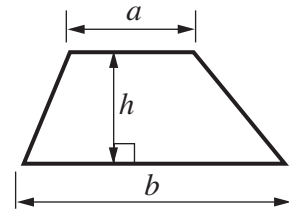
- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Show your working. Marks may be given for a correct method even if the answer is incorrect.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Answer **all** the questions.
- Do **not** write in the bar codes.

**INFORMATION FOR CANDIDATES**

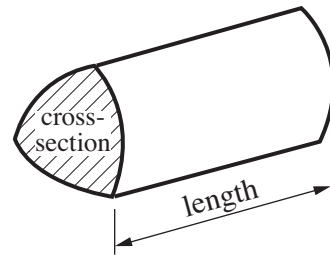
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Section B starts with question 11.
- You are expected to use a calculator in Section B of this paper.
- Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.
- The total number of marks for this Section is **50**.
- This document consists of **16** pages. Any blank pages are indicated.

## Formulae Sheet

**Area of trapezium** =  $\frac{1}{2} (a + b)h$



**Volume of prism** = (area of cross-section)  $\times$  length

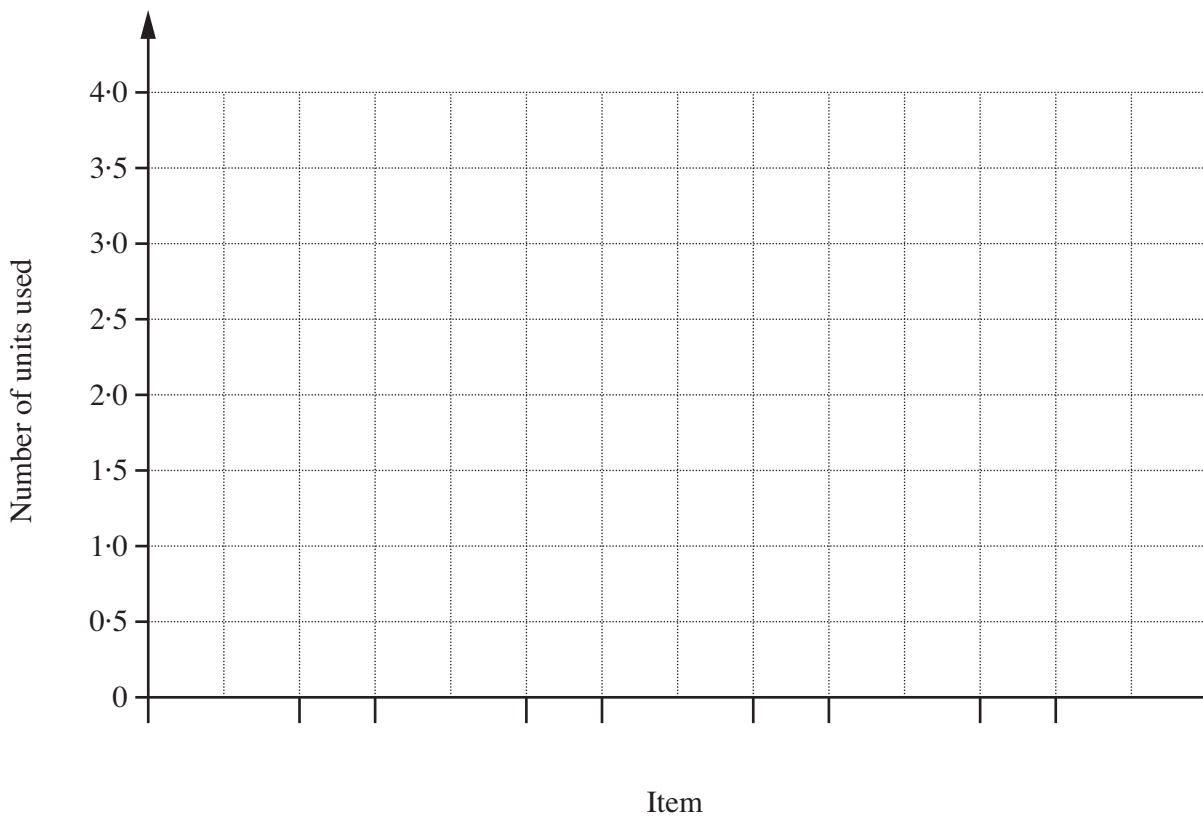


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11 Maria used these numbers of electricity units one day in her house.

Item	Number of units used
Kettle	3.0
Fridge-freezer	2.5
Cooker	3.7
Computer	2.5
Light bulbs	0.3

(a) Draw a bar chart to show this information.



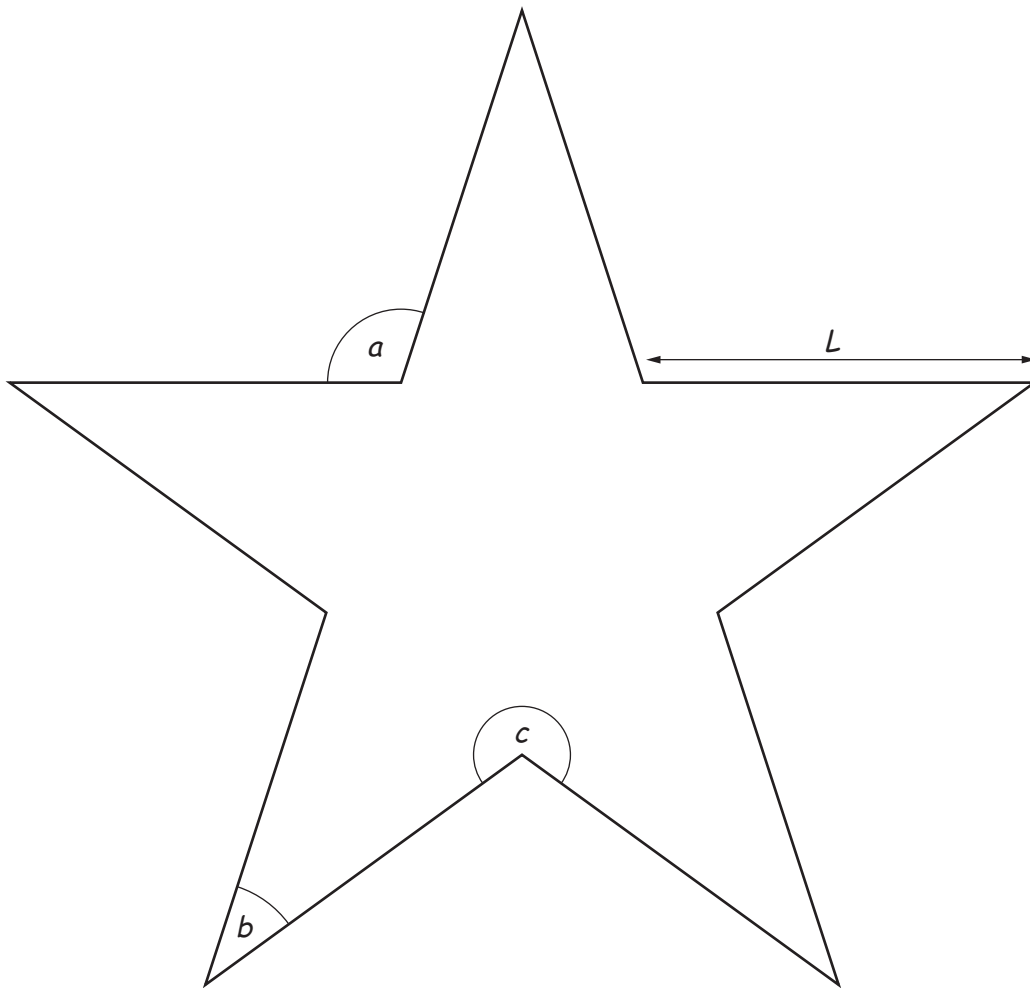
[3]

(b) The cost of one unit of electricity is 14.5p.

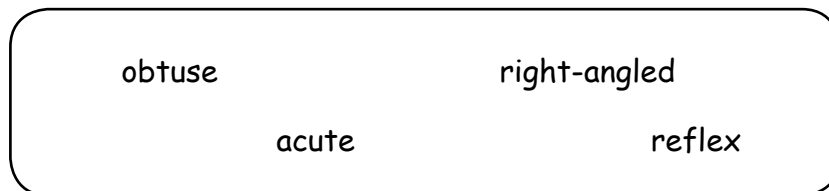
Calculate the cost of the electricity Maria used that day.

(b) £ ..... [3]

12 Here is a star.



(a)



Use words from this list to complete the following.

Angle  $a$  is .....

Angle  $b$  is .....

Angle  $c$  is .....

[3]

(b) Measure the size of angle  $b$ .

(b) ..... ° [1]

(c) All the sides of the star are the same length.

(i) Measure the length,  $L$ , of a side of the star.

(c)(i) ..... cm [1]

(ii) Calculate the perimeter of the star.

(ii) ..... cm [1]

13 A mobile library visits 10 different villages.

This pictogram shows the number of adults visiting the mobile library in each session of one week.

Session	
Monday morning	
Monday afternoon	
Tuesday morning	
Tuesday afternoon	
Wednesday morning	
Wednesday afternoon	
Thursday morning	
Thursday afternoon	
Friday morning	
Friday afternoon	

Key: represents 4 adults

(a) How many adults visited the mobile library in the Tuesday morning session?

(a) ..... [1]

(b) On Wednesday, 20 adults visited in the morning and 14 visited in the afternoon.

Complete the pictogram with this information. [2]

(c) Which session had the most adult visitors?

(c) ..... [1]

(d) What was the total number of visits by adults to the library that week?

(d) ..... [2]

(e) Here are the numbers of books borrowed by adults for each of the 10 sessions that week.

56 42 28 72 61 40 22 98 46 37

(i) What was the median number of books borrowed by adults in a session?

(e)(i) ..... [2]

(ii) That week, the median number of books borrowed in a session by children was 28.  
The range was 43.

Make two comments comparing the numbers of books borrowed by the adults and by the children.

1 .....

.....

2 .....

..... [2]

- 14 (a) The cost, £ $C$ , of camping for a night at Rosewood campsite is

$$C = 4n + 10$$

for a group of  $n$  people.

Work out the cost for a group of 5 people.

(a) £ ..... [1]

- (b) At Oakwood campsite the cost, £ $C$ , of camping for a night is

$$C = 15t + 2v$$

for a group with  $t$  tents and  $v$  vehicles.

Work out the cost for a group with 3 tents and 2 vehicles.

(b) £ ..... [2]



15 (a) Factorise.

$$10x + 5$$

(a) ..... [1]

(b) Expand and simplify.

$$10x - 3(2x + 1)$$

(b) ..... [2]

(c) Rearrange this formula to make  $x$  the subject.

$$y = 4x - 7$$

(c) ..... [2]

16 A pack of household paper towels had this information.

6 rolls  
Average 60 sheets per roll  
Sheet size 250 mm × 229 mm  
Total area 20·6 m<sup>2</sup>

Show clearly how the total area of 20·6 m<sup>2</sup> can be obtained from the other information.

.....

.....

..... [4]

17 Cara went to Paris for a weekend break.

(a) She caught the train to Paris at 2:30 pm and arrived in Paris at 4:45 pm.  
The distance by train between London and Paris is 306 miles.

(i) Work out the average speed in miles per hour.

(a)(i) ..... miles per hour [3]

(ii) Given that 5 miles is about 8 kilometres, work out the average speed in kilometres per hour.

(ii) ..... km per hour [2]

(b) When Cara returned to London, she had €90 to exchange for pounds.  
The exchange rate was  $\text{£}1 = \text{€}1.20$ .

How much did she receive in pounds?

(b) £ ..... [2]

- 18** The Mayfield Theatre sells tickets in three price bands.  
The table shows the standard ticket price for each price band.

Price band	Standard ticket price
Front stalls	£18
Back stalls	£15
Balcony	£10

- (a)** On Saturday the theatre sold 480 tickets altogether.

- 230 tickets for the front stalls
- 165 tickets for the back stalls
- 85 tickets for the balcony

Calculate the mean price paid for a ticket on Saturday.

**(a)** £ ..... [3]

- (b)** On Monday there is a 35% reduction on all ticket prices.

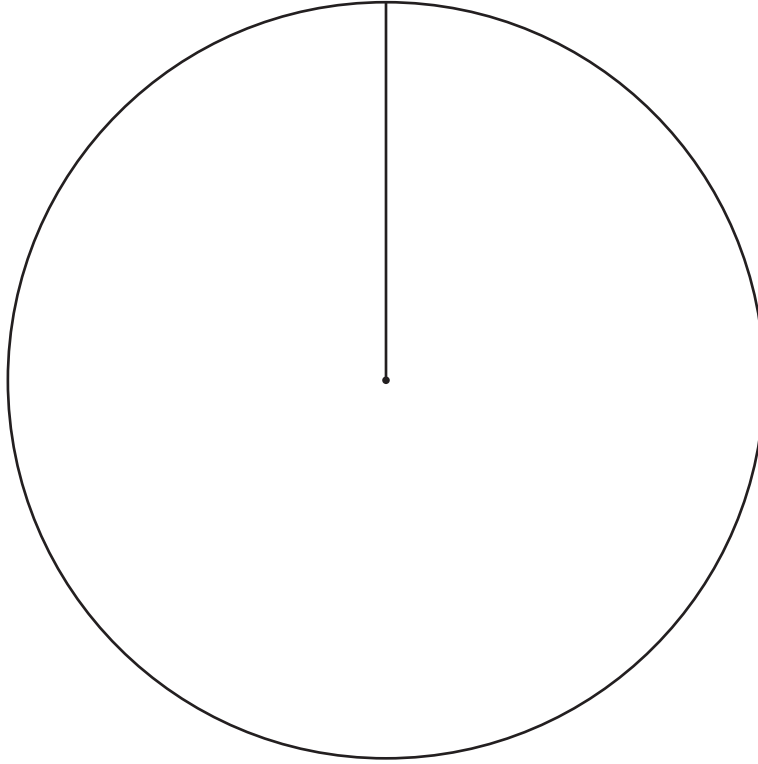
Calculate the reduced price of a ticket in the front stalls.

**(b)** £ ..... [3]

(c) On Tuesday the theatre sold 180 tickets altogether.

- 100 tickets for the front stalls
- 45 tickets for the back stalls
- 35 tickets for the balcony

Draw a pie chart to show the distribution of the number of tickets sold on Tuesday.



[3]

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