

|                               |  |                              |  |
|-------------------------------|--|------------------------------|--|
| <b>Candidate<br/>forename</b> |  | <b>Candidate<br/>surname</b> |  |
|-------------------------------|--|------------------------------|--|

|                          |  |  |  |  |  |                             |  |  |  |  |
|--------------------------|--|--|--|--|--|-----------------------------|--|--|--|--|
| <b>Centre<br/>number</b> |  |  |  |  |  | <b>Candidate<br/>number</b> |  |  |  |  |
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

**B281B**

**MATHEMATICS C  
(GRADUATED ASSESSMENT)**

**Terminal Paper – Section B (Foundation Tier)**

**MONDAY 6 JUNE 2011: Afternoon**

**DURATION: 1 hour**

**SUITABLE FOR VISUALLY IMPAIRED CANDIDATES**

**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**

**READ INSTRUCTIONS OVERLEAF**

## **INSTRUCTIONS TO CANDIDATES**

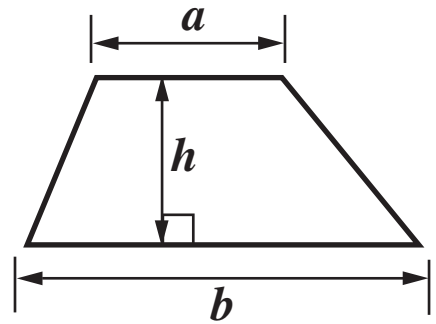
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**
- **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.**

## **INFORMATION FOR CANDIDATES**

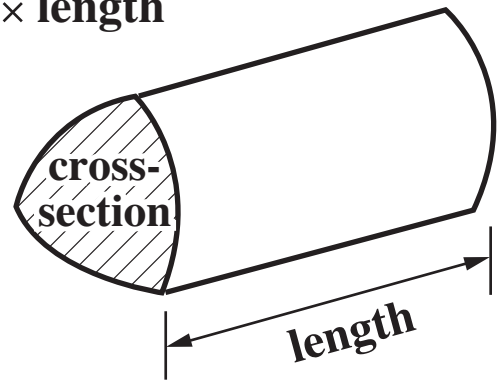
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **Section B starts with question 11.**
- **You are expected to use a calculator in Section B of this paper.**
- **Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question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

# FORMULAE SHEET

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



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

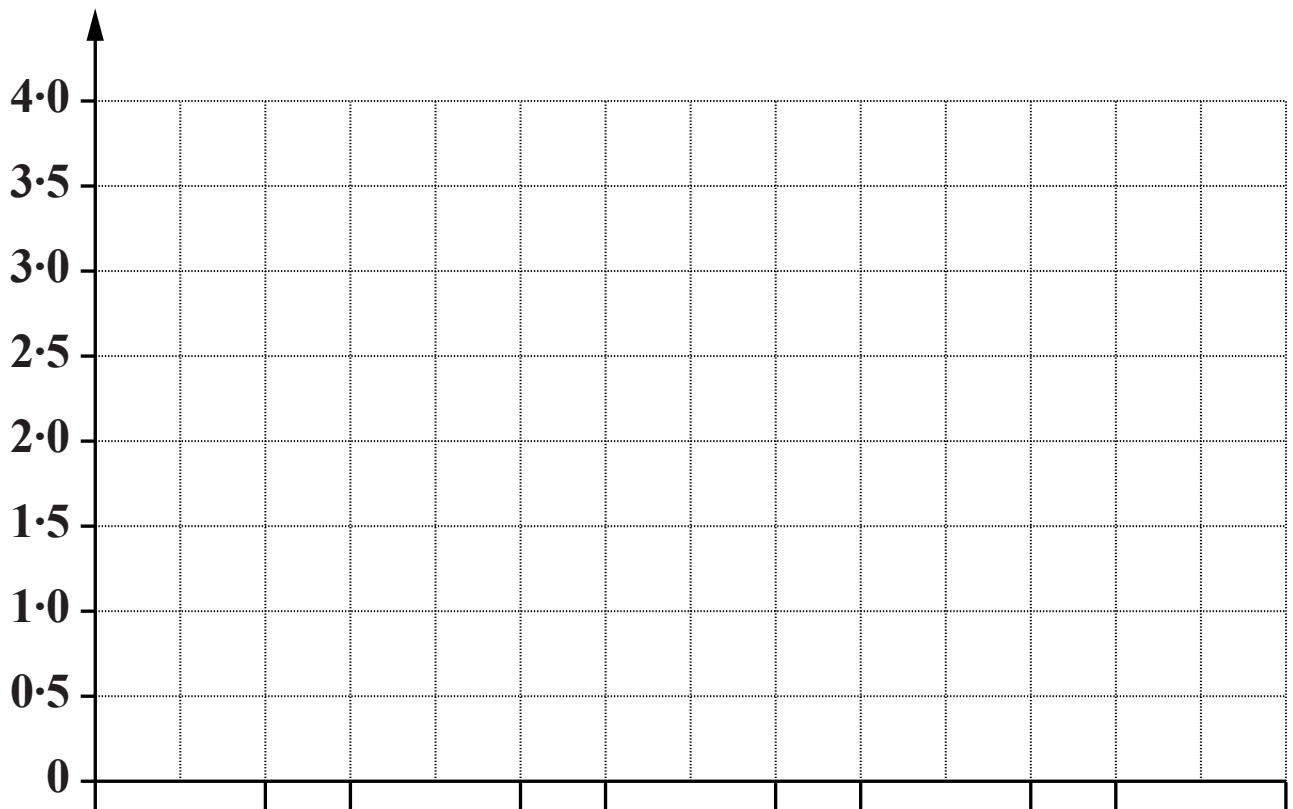


**11 Maria used these numbers of electricity units one day in her house.**

| <b>Item</b>           | <b>Number of units used</b> |
|-----------------------|-----------------------------|
| <b>Kettle</b>         | <b>3·0</b>                  |
| <b>Fridge-freezer</b> | <b>2·5</b>                  |
| <b>Cooker</b>         | <b>3·7</b>                  |
| <b>Computer</b>       | <b>2·5</b>                  |
| <b>Light bulbs</b>    | <b>0·3</b>                  |

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

**Number of units used**



**Item**

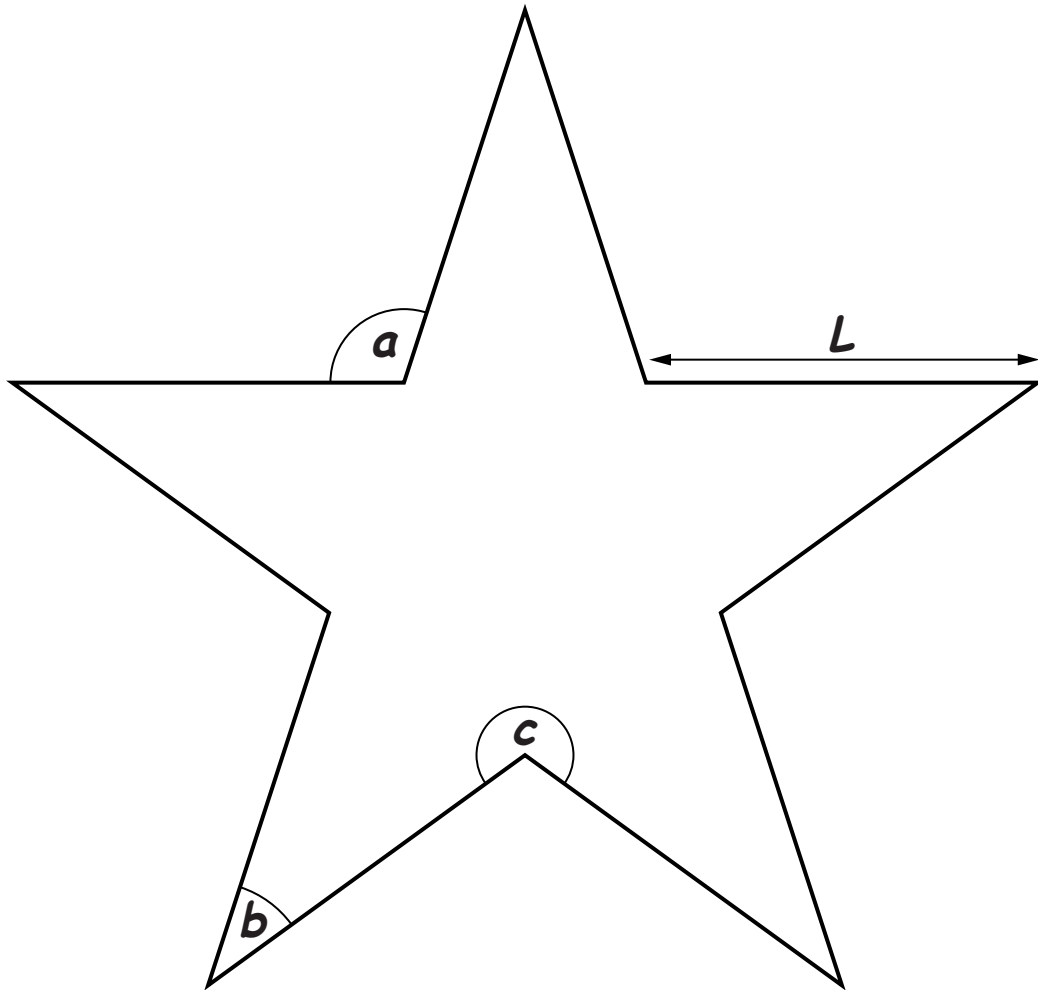
**[3]**

**(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)

- obtuse
- right-angled
- acute
- reflex

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.**




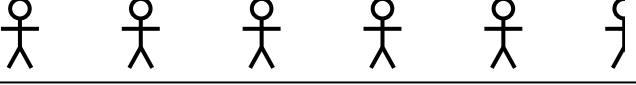

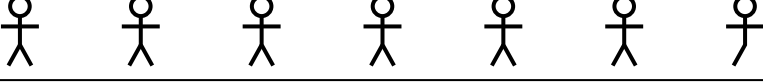
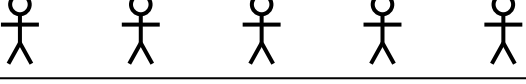
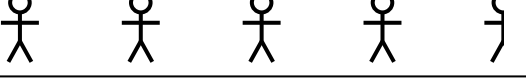
**(i) Measure the length,  $L$ , of a side of the star.**

**(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.**

|  |
|--|
| <p style="text-align: center;"><b>6 rolls</b><br/><b>Average 60 sheets per roll</b><br/><b>Sheet size 250 mm × 229 mm</b><br/><b>Total area 20·6 m<sup>2</sup></b></p> |
|--|

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

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**[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 £1 = €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.**

| <b>Price band</b>   | <b>Standard ticket price</b> |
|---------------------|------------------------------|
| <b>Front stalls</b> | <b>£18</b>                   |
| <b>Back stalls</b>  | <b>£15</b>                   |
| <b>Balcony</b>      | <b>£10</b>                   |

**(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.**

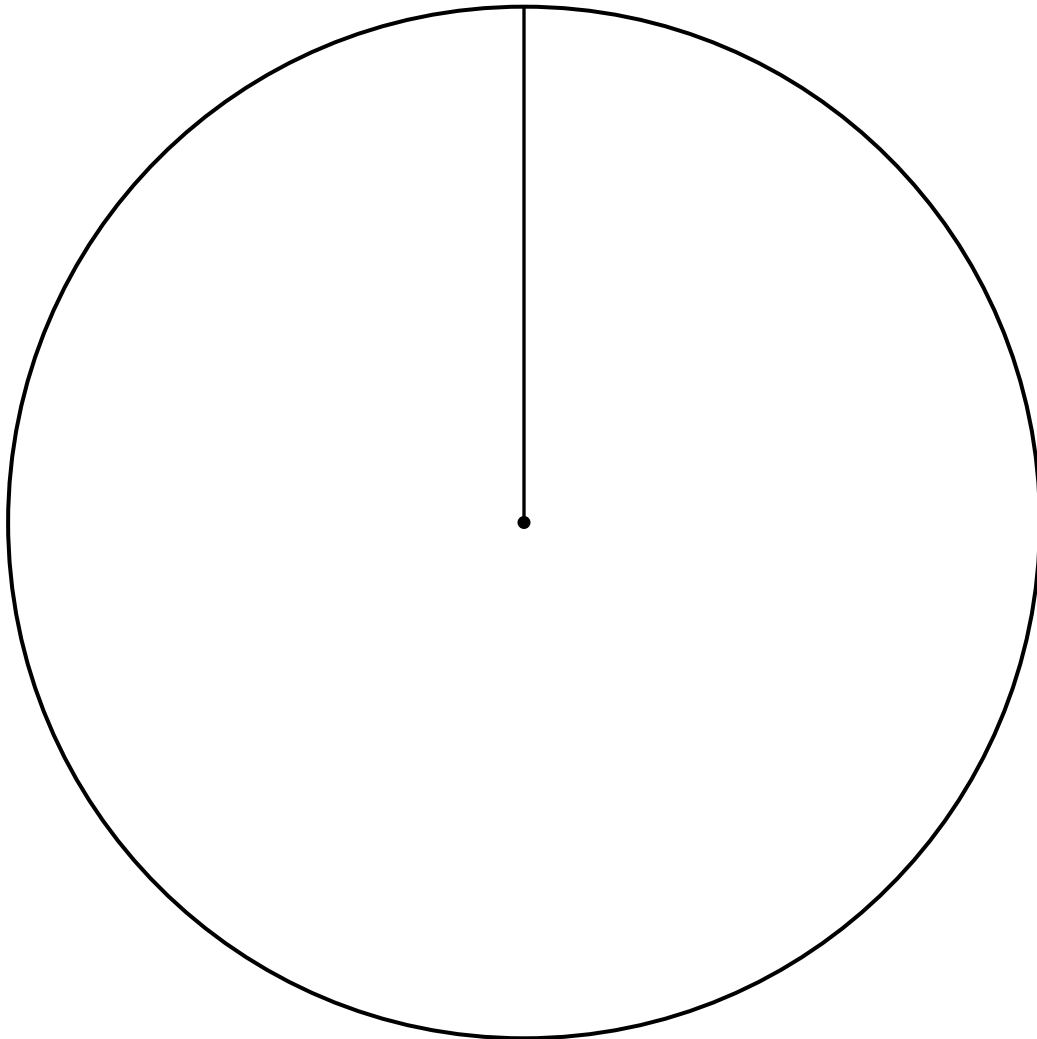
**Calculate the reduced price of a ticket in the front stalls.**

**(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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