

<b>Candidate Forename</b>		<b>Candidate Surname</b>	
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<b>Centre Number</b>						<b>Candidate Number</b>				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

**B271A**

**MATHEMATICS C  
(GRADUATED ASSESSMENT)**

**MODULE M41 – SECTION A**

**TUESDAY 23 JUNE 2009: Morning**

**DURATION: 30 minutes**

**SUITABLE FOR VISUALLY IMPAIRED CANDIDATES**

**Candidates answer on the question paper**

**OCR SUPPLIED MATERIALS:**

**None**

**OTHER MATERIALS REQUIRED:**

**Geometrical instruments**

**Tracing paper (optional)**

**WARNING**

**No calculator can be used for  
Section A of this paper.**

**READ INSTRUCTIONS OVERLEAF**

## **INSTRUCTIONS TO CANDIDATES**

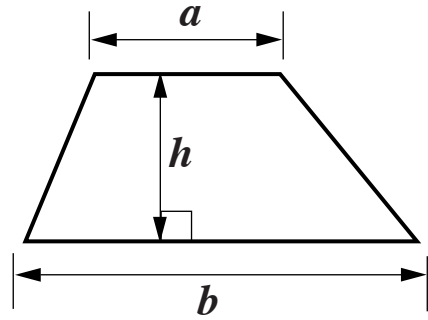
- **Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully and make sure that you know what you have to do before starting your answer.**
- **Show your working. Marks may be given for a correct method even if the answer is incorrect.**
- **Answer ALL the questions.**
- **Write your answer to each question in the space provided, however additional paper may be used if necessary.**

## **INFORMATION FOR CANDIDATES**

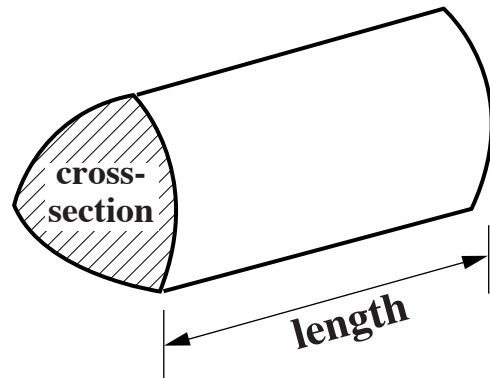
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **The total number of marks for this Section is 25.**

## FORMULAE SHEET

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



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



**PLEASE DO NOT WRITE ON THIS PAGE**

**1 (a) These are the six deepest caves in the world.**

<b>Cave</b>	<b>Depth (m)</b>
<b>Jean Bernard (France)</b>	<b>1602</b>
<b>Mirola (France)</b>	<b>1733</b>
<b>Sarma (Georgia)</b>	<b>1543</b>
<b>Torca del Cerro (Spain)</b>	<b>1589</b>
<b>Voronja (Georgia)</b>	<b>2080</b>
<b>Vogelschacht (Austria)</b>	<b>1632</b>

**(i) Which is the deepest cave?  
[1 mark]**

**(a)(i)** \_\_\_\_\_

**(ii) The depth of the Jean Bernard cave is 1602 metres.**

**Write 1602 in words.**

\_\_\_\_\_  
\_\_\_\_\_

**[1 mark]**

**(iii) The depth of Mirola cave is 1733 metres.**

**Round 1733 to the nearest 10.**

**[1 mark]**

**(iii)** \_\_\_\_\_

**(b) The depth of Dowal Dale cave is 65 metres.  
The Blue John cave is 25 metres deeper than this.**

**What is the depth of the Blue John cave?  
[2 marks]**

**(b) \_\_\_\_\_ m**

**2 A family decides to visit a cave.**

**(a) They find this list of UK caves on the Internet.**

- **Blue John**
- **Cheddar**
- **Clearwell**
- **Ingleborough**
- **Kents**
- **Marble Arch**
- **Showcaves centre for Wales**
- **Peak**
- **Pooles**
- **Speedwell**
- **Stump Cross**
- **Treak Cliff**
- **White Scar**
- **Wookey Hole**

**They live close enough to visit half of these caves.**

**How many caves is this?**

**[2 marks]**

**(a)** \_\_\_\_\_

**(b) The family decides to visit Ingleborough caves.**

**Ingleborough Caves Admission**

**Adults            £6.00 each**

**Children        £3.00 each**

**Family tickets (2 adults + 2 children)    £15.00**

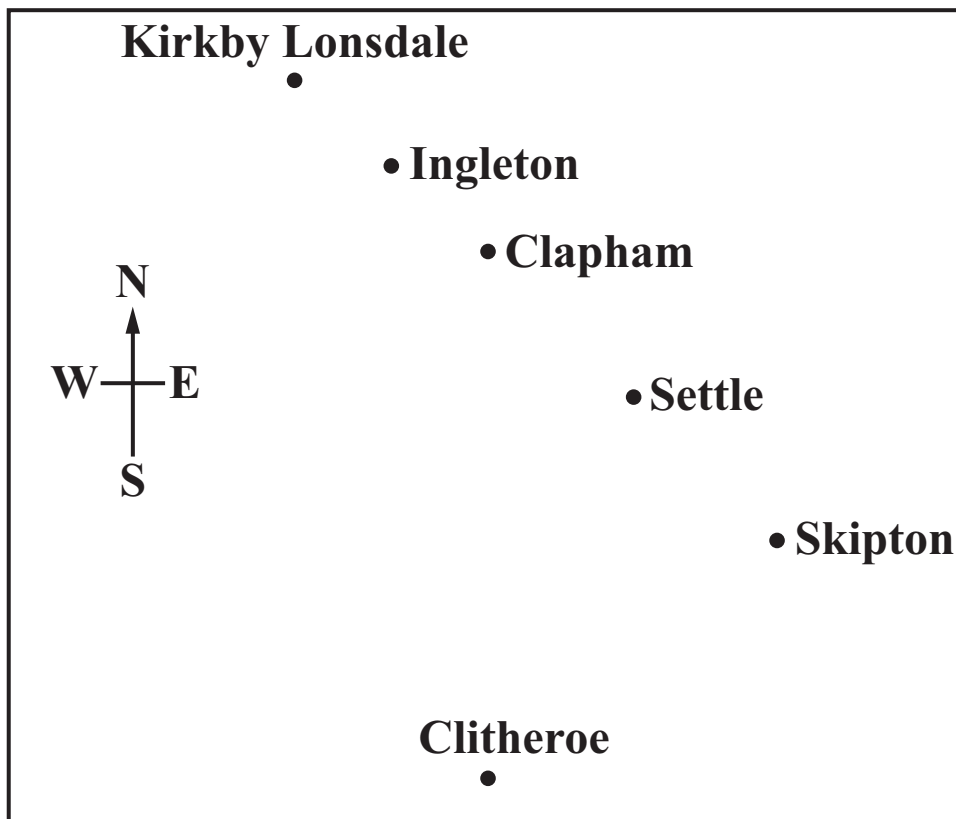
**There are two adults and two children in the family.**

**How much will they save by buying a family ticket?**

**[3 marks]**

**(b) £ \_\_\_\_\_**

- (c) Ingleborough caves are close to Ingleton.  
Here is a map of some towns and villages near Ingleton.



Use the map to complete these sentences.

Clapham is North of \_\_\_\_\_ .

Settle is \_\_\_\_\_ of Skipton.

[2 marks]

- (d) In places, the roof in Ingleborough caves is only 1400 millimetres high.

What is 1400 millimetres in centimetres?

[1 mark]

(d) \_\_\_\_\_ cm



- (e) **There are tours round the caves.  
Each tour takes 50 minutes.  
The family starts the tour at this time.**



**At what time does the tour finish?  
[2 marks]**

(e) \_\_\_\_\_

**3 The Mayans lived in Central America over 2000 years ago. They used symbols to represent numbers.**

**Here are some of their written numbers and their values.**

●	● ●	● ● ●	● ● ● ●	_____
1	2	3	4	5

● _____	● ● _____	● ● ● _____	● ● ● ● _____	_____ _____
6	7	8	9	10

● _____ _____
11

**(a) Write down the values of these Mayan numbers.**

**(i)**

● ●
● ●
_____ _____

.....

**[1 mark]**

**(ii)**

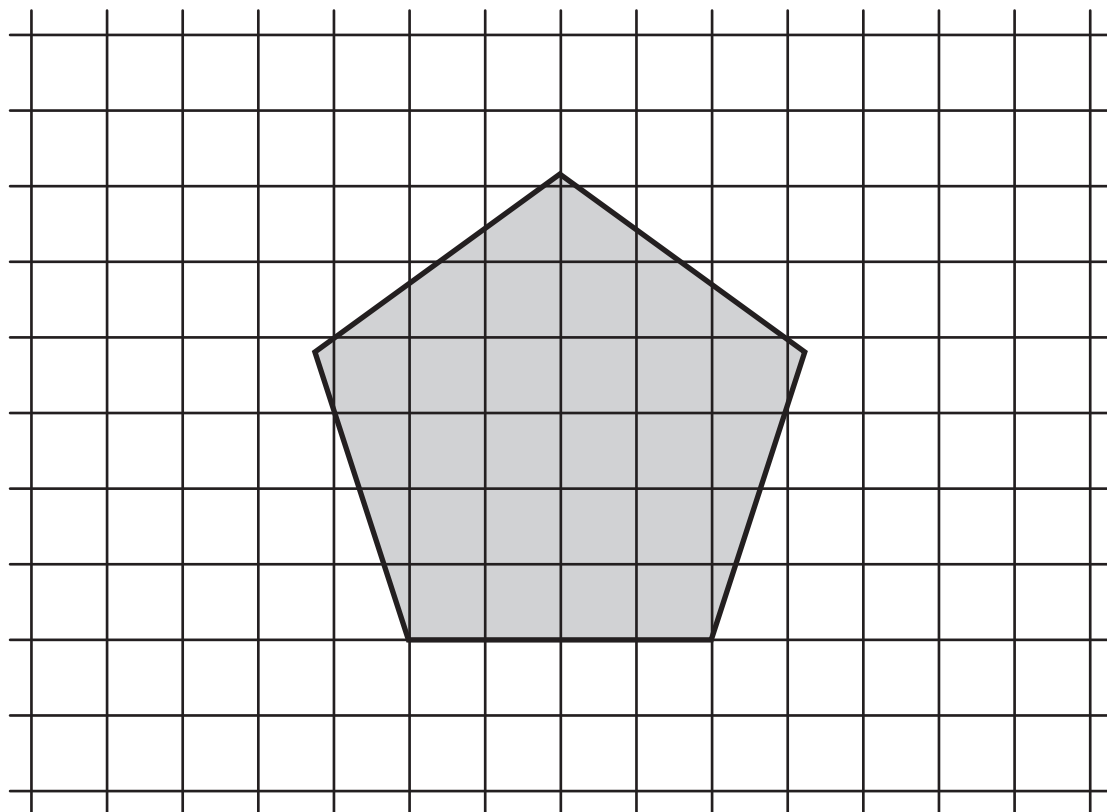
● ●
_____ _____ _____

.....

**[1 mark]**

**(b) Write the number 18 in Mayan.  
[1 mark]**

- 4 This grey shape is placed over a centimetre grid.  
The lengths of its sides are equal.**



- (a) What is the name of the grey shape?  
Put a ring round the answer.**

<b>Triangle</b>	<b>Rectangle</b>	<b>Pentagon</b>	<b>Hexagon</b>	<b>Octagon</b>
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**[1 mark]**

- (b) Work out the perimeter of the grey shape.  
Write down any measurements you use.  
[2 marks]**

**(b) \_\_\_\_\_ cm**

- (c) Estimate the area of the grey shape.  
[2 marks]**

**(c) \_\_\_\_\_ square centimetres**

**5 Work out.**

**(a)  $3 \times 7$**

**[1 mark]**

**(a)** \_\_\_\_\_

**(b)  $24 \div 6$**

**[1 mark]**

**(b)** \_\_\_\_\_

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