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Centre Number						Candidate Number				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

**B277B**

**MATHEMATICS C  
(GRADUATED ASSESSMENT)**

**MODULE M7 – SECTION B**

**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)**

**Scientific or graphical calculator**

**READ INSTRUCTIONS OVERLEAF**

## **INSTRUCTIONS TO CANDIDATES**

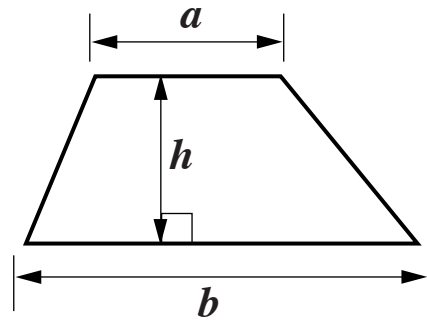
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show your working. 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**

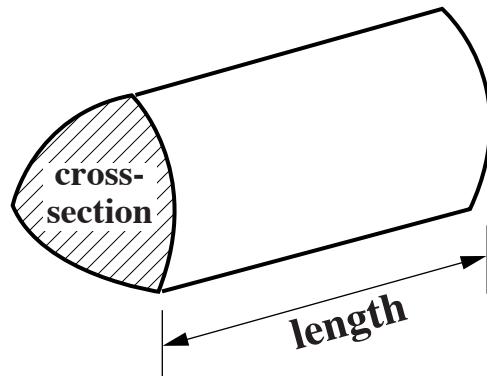
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Section B starts with question 8.
- You are expected to use a calculator in Section B of this paper.
- Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.
- The total number of marks for this Section is 25.

# FORMULAE SHEET

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



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



**8 Alan makes a spinner.  
It is numbered from 1 to 4.**

**The table shows the results of 200 spins of Alan's spinner.**

<b>Number on spinner</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Frequency</b>	<b>60</b>	<b>37</b>	<b>52</b>	<b>51</b>

**(a) What is the relative frequency of the spinner stopping on 3?  
[1 mark]**

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

**(b) Do the results show that Alan's spinner is fair?  
Give a reason for your answer.**

\_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**[1 mark]**

- 9 Sandra is going to Switzerland for a holiday.  
She buys 552 Swiss Francs from the post office for £240.**

**Complete the table below.**

<b>Pounds</b>	_____	<b>170</b>	<b>240</b>
<b>Swiss Francs</b>	<b>82·80</b>	_____	<b>552</b>

**[4 marks]**

- 10 (a) A plumber charges £35 for each call-out plus £24 per hour.**

**Write down a formula for the total charge, £ $C$ , for a call-out lasting  $n$  hours.**

**[2 marks]**

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

- (b) Another plumber uses this formula to work out his charges.**

$$C = 30n + 15$$

**Rearrange this formula to make  $n$  the subject.**

**[2 marks]**

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

**11 Multiply out.**

$$(x + 2)(x - 5)$$

**[2 marks]**

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- 12** The heights, in centimetres, of **50** students were measured. The results are summarised in the table.

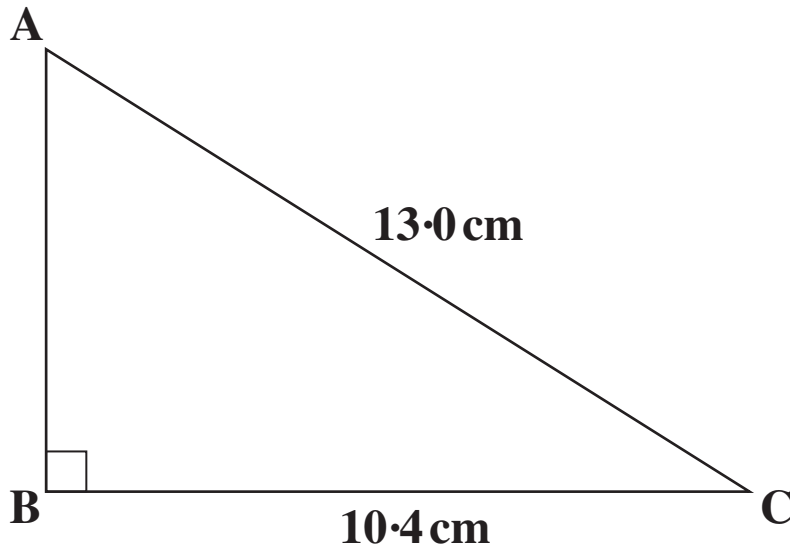
<b>Height (<math>h</math> cm)</b>	<b>Frequency</b>
<b><math>140 \leq h &lt; 150</math></b>	<b>10</b>
<b><math>150 \leq h &lt; 160</math></b>	<b>21</b>
<b><math>160 \leq h &lt; 170</math></b>	<b>15</b>
<b><math>170 \leq h &lt; 180</math></b>	<b>4</b>

**Calculate an estimate of the mean height of the students.**  
**[4 marks]**

\_\_\_\_\_ **cm**



13 (a) ABC is a right-angled triangle.



Not to scale

Calculate AB.  
[3 marks]

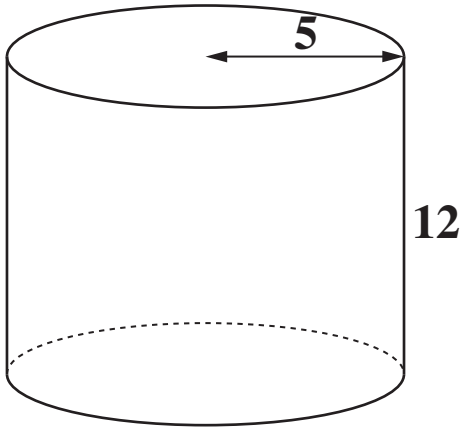
(a) \_\_\_\_\_ cm

**(b) A line has a length of 54 mm, correct to the nearest millimetre.**

**Write down the minimum possible length of the line.  
[1 mark]**

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

**14 (a) A solid cylinder has radius 5 cm and height 12 cm.**



**Calculate the total surface area of the cylinder.  
[4 marks]**

(a) \_\_\_\_\_  $\text{cm}^2$

**(b) The volume of another cylinder is  $8500 \text{ cm}^3$ .**

**Change  $8500 \text{ cm}^3$  into litres.  
[1 mark]**

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



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