

Candidate forename						Candidate surname					
Centre number						Candidate number					

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

**B274B**

**MATHEMATICS C  
(GRADUATED ASSESSMENT)**

**MODULE M4 – SECTION B**

**TUESDAY 1 MARCH 2011: 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)**

**Electronic calculator**

**READ INSTRUCTIONS OVERLEAF**

## **INSTRUCTIONS TO CANDIDATES**

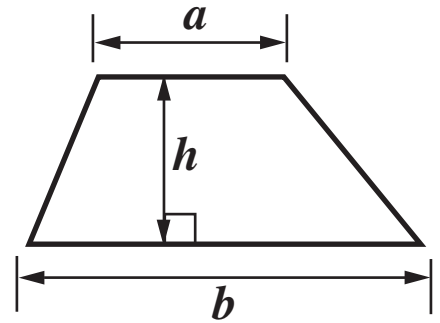
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**
- **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).**
- **Show your working. Marks may be given for a correct method even if the answer is incorrect.**
- **Answer ALL the questions.**

## **INFORMATION FOR CANDIDATES**

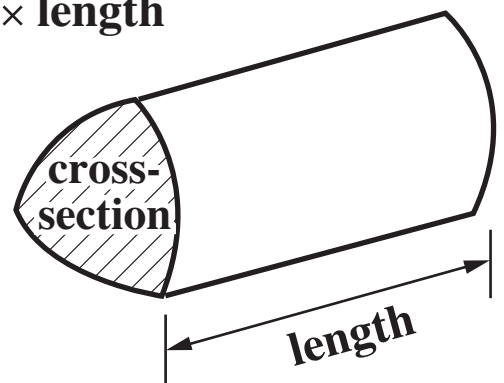
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **Section B starts with question 8.**
- **You are expected to use a calculator in Section B of this paper.**
- **The total number of marks for this Section is 25.**

## Formulae Sheet

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



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



- 8** These are the numbers of goals that Barnsea Town scored in their **FIRST 8** matches of the 2010–2011 season.

<b><u>Date</u></b>	<b>28 Aug</b>	<b>4 Sept</b>	<b>11 Sept</b>	<b>18 Sept</b>	<b>25 Sept</b>	<b>2 Oct</b>	<b>9 Oct</b>	<b>16 Oct</b>
<b><u>Number of goals</u></b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>

- (a) (i) What was the mean number of goals? [3 marks]**

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

- (ii) What was the range? [1 mark]**

**(ii)** \_\_\_\_\_

(b) These are the statistics for Barnsea Town's LAST 8 matches.

Mean 1.25

Range 4

Sally says:

Barnsea scored a lot more goals in their last eight matches compared to the first eight. You can see that because the range is much higher.

Is Sally right?

Give a reason for your answer. [1 mark]

*Write Yes  
or No.*

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

9 (a) Complete this table. [1 mark]

<u>Fraction</u>	<u>Decimal</u>	<u>Percentage</u>
$\frac{4}{5}$	=	= 80%

(b) Complete.

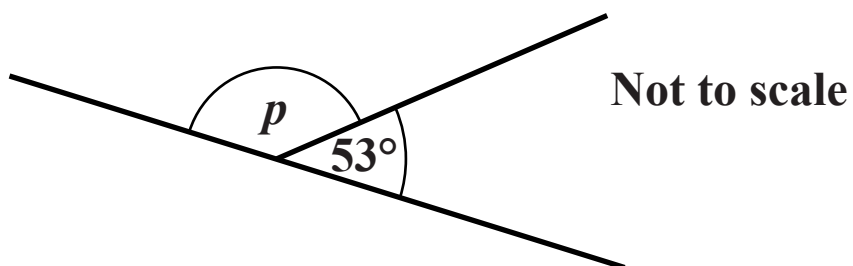
(i)  $\frac{\boxed{\phantom{000}}}{8} = 75\%$

[1 mark]

(ii)  $10\% = \frac{2}{\boxed{\phantom{000}}}$

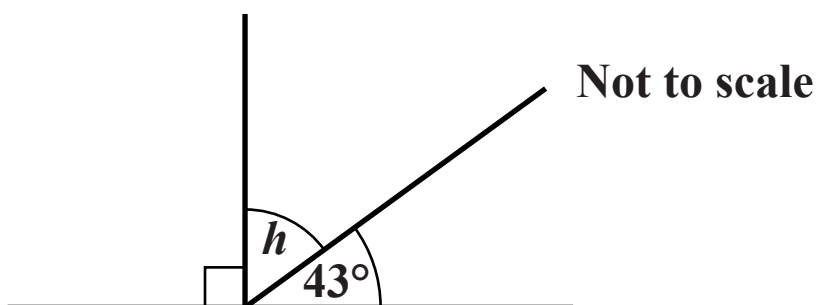
[1 mark]

**10 (a) Work out the size of angle  $p$ . [1 mark]**



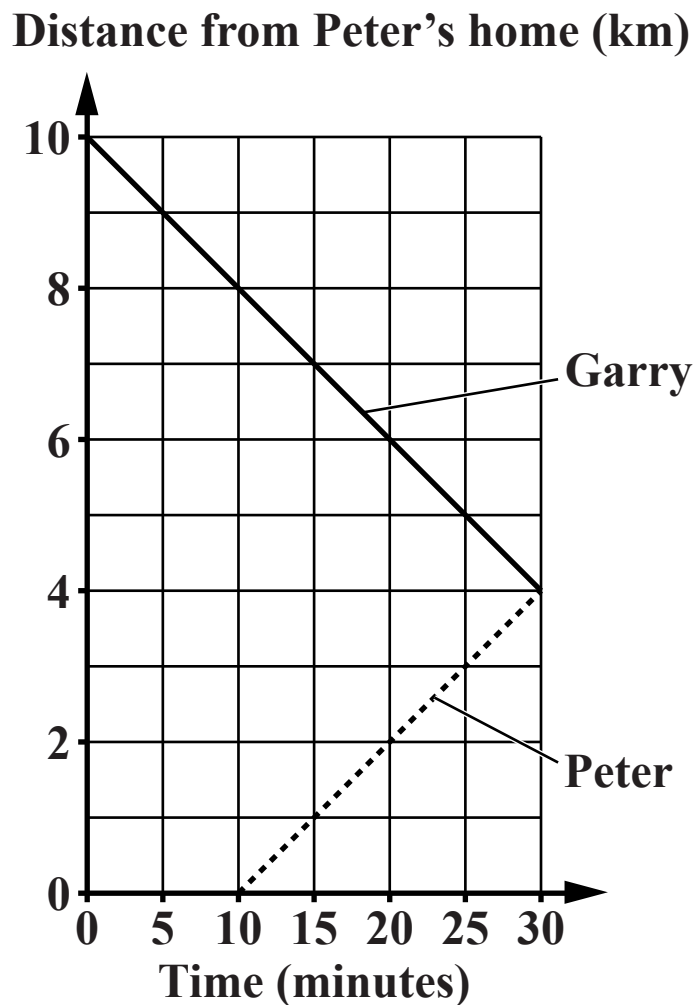
(a) \_\_\_\_\_<sup>o</sup>

**(b) Work out the size of angle  $h$ . [2 marks]**



(b) \_\_\_\_\_<sup>o</sup>

- 11 This graph represents two boys cycling at steady speeds from their homes to meet at the park.  
The road between their homes goes past the park.**



- (a) How far does Garry cycle to the park? [1 mark]**

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

**(b) What can you say about the speed each boy was cycling at? [1 mark]**

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- 12 Jamal works in a factory filling packs of curtain hooks for different width curtains.

There are always 2 extra hooks in each pack, in case of breakages.

This is the chart he uses.

<u>Width of curtain</u> <u>(<math>w</math> metres)</u>	1	1.5	2	2.5	3	3.5
<u>Number of hooks</u>	8	12	16	20		28
<u>Extra hooks</u>	2	2	2	2	2	2
<u>Total number of</u> <u>hooks (<math>h</math>)</u>	10	14	18	22		30

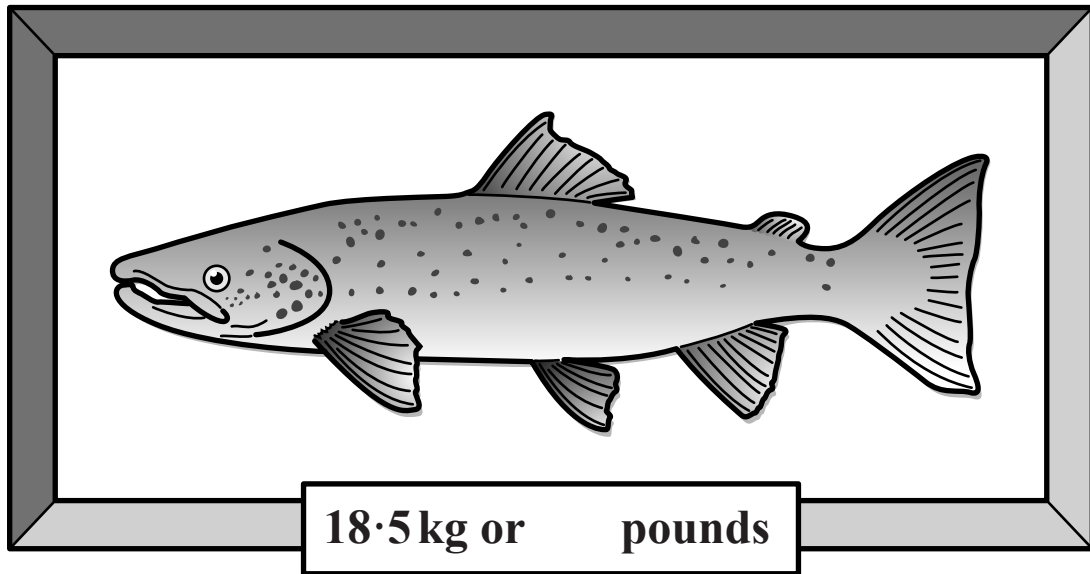
- (a) Complete the table. [1 mark]

- (b) Jamal starts to write a formula to work out the TOTAL NUMBER OF HOOKS ( $h$ ) when he knows the width ( $w$  metres) of the curtain.

Complete Jamal's formula. [2 marks]

$$h = 8 \times \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$

**13 This salmon is displayed in a case.**

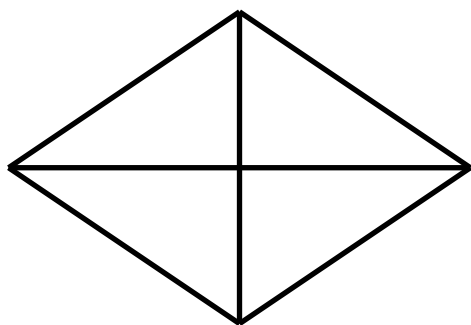


**It has a sign showing the weight in kilograms and pounds, but the figures for the pounds have fallen off.**

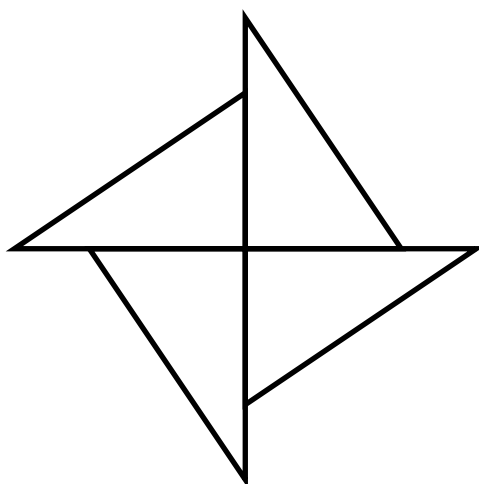
**What should the number of pounds be? [1 mark]**

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- 14 Under each shape, write its order of rotation symmetry.**  
**[2 marks]**



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- 15 Rita buys her electricity from Scotlec.  
Scotlec charges Rita £2·13 a day.**

**Here are the charges of another supplier, Britpower.  
ALL PRICES ARE IN PENCE.**

	<b>Cost of ONE day-time unit</b>	<b>Cost of ONE night- time unit</b>	<b>Standing Charge for ONE WHOLE day</b>
<b><u>Britpower</u></b>	<b>10·21</b>	<b>5·86</b>	<b>21·2</b>

**Rita works out that EACH DAY she uses:**

- **16 day-time units**
- **4 night-time units**

**Would Rita save money by switching to Britpower?  
You MUST show the working you use to decide.  
Don't forget to add the standing charge. [4 marks]**

- 16 Callum repeatedly drops a drawing pin to find out the chance that it lands ‘point up’.**

**These are some of his results.**

<b>Number landing ‘point up’</b>	
<b>Number landing ‘point down’</b>	<b>284</b>
<b>Total</b>	<b>1000</b>

**What is the experimental probability that the pin lands ‘point up’? [2 marks]**

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