



M4

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)
MODULE M4 – SECTION B**

B274B



Candidates answer on the question paper.

OCR supplied materials:
None

Other materials required:

- Geometrical instruments
- Tracing paper (optional)
- Electronic calculator

**Tuesday 1 March 2011
Morning**

Duration: 30 minutes



Candidate forename		Candidate surname	
-----------------------	--	----------------------	--

Centre number							Candidate number				
---------------	--	--	--	--	--	--	------------------	--	--	--	--

INSTRUCTIONS TO CANDIDATES

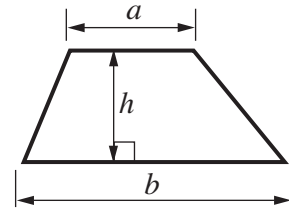
- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer 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.
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

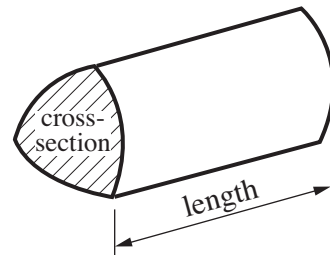
- The number of marks is given in brackets [] at the end of each question or part question.
- Section B starts with question 8.
- You are expected to use a calculator in Section B of this paper.
- The total number of marks for this Section is **25**.
- This document consists of **12** pages. Any blank pages are indicated.

Formulae Sheet

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



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



PLEASE DO NOT WRITE ON THIS PAGE

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

Date	28 Aug	4 Sept	11 Sept	18 Sept	25 Sept	2 Oct	9 Oct	16 Oct
Number of goals	1	1	2	1	1	2	1	1

(a) (i) What was the mean number of goals?

(a)(i) [3]

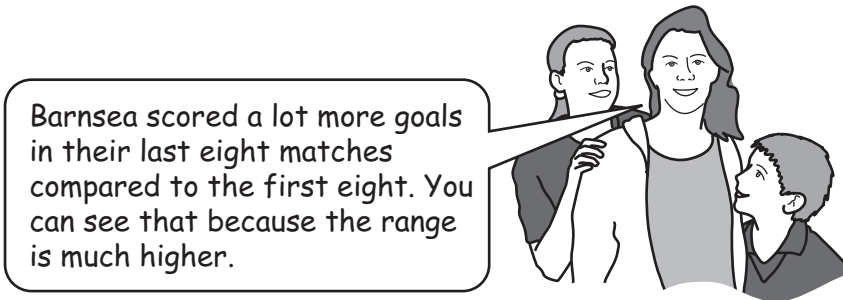
(ii) What was the range?

(ii) [1]

(b) These are the statistics for Barnsea Town’s **last** 8 matches.

Mean 1.25
Range 4

Sally says:



Is Sally right?
Give a reason for your answer.

Write Yes
or No.

..... because

..... [1]

9 (a) Complete this table.

Fraction	Decimal	Percentage
$\frac{4}{5}$	=	= 80%

[1]

(b) Complete.

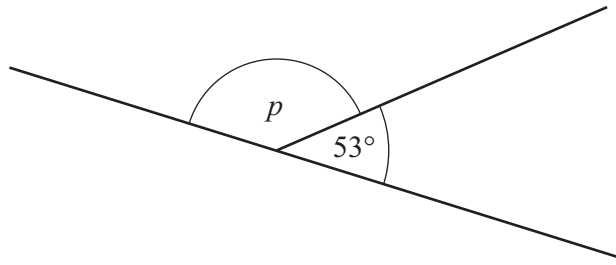
(i) $\frac{\square}{8} = 75\%$

[1]

(ii) $10\% = \frac{2}{\square}$

[1]

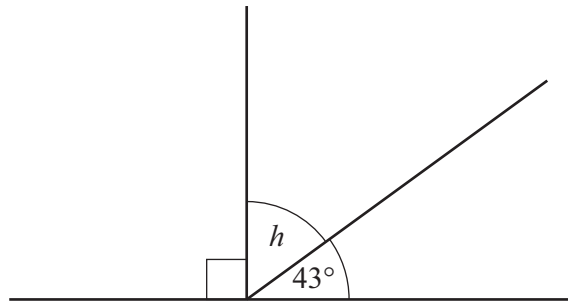
10 (a) Work out the size of angle p .



Not to scale

(a)..... ° [1]

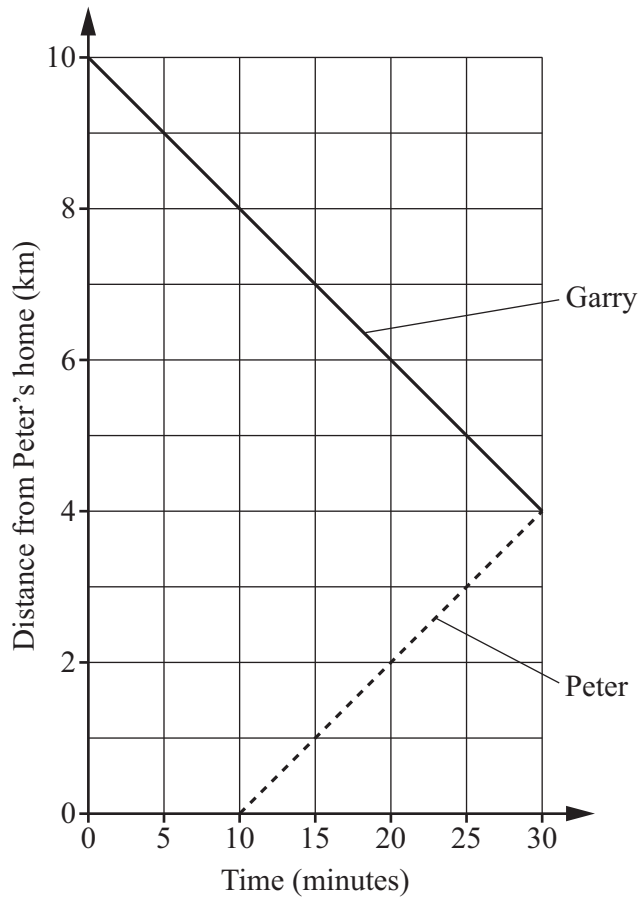
(b) Work out the size of angle h .



Not to scale

(b) ° [2]

- 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?

(a) km [1]

- (b) What can you say about the speed each boy was cycling at?

.....
 [1]

- 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.

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

- (a) Complete the table.

[1]

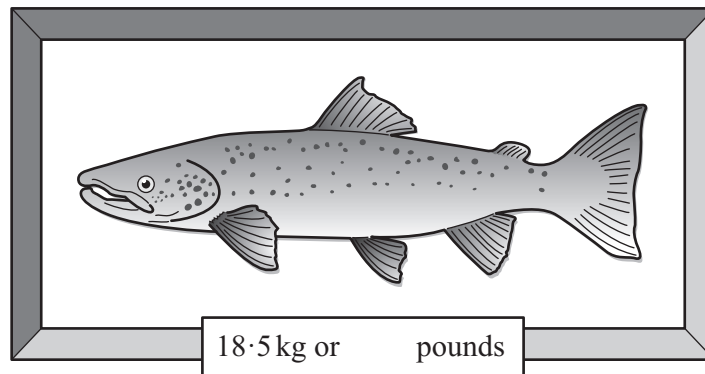
- (b) Jamal starts to write a formula to work out the **total number of hooks** (h) when he knows the width (w metres) of the curtain.

Complete Jamal's formula.

$$h = 8 \times \dots\dots\dots + \dots\dots\dots$$

[2]

- 13 This salmon is displayed in a case.

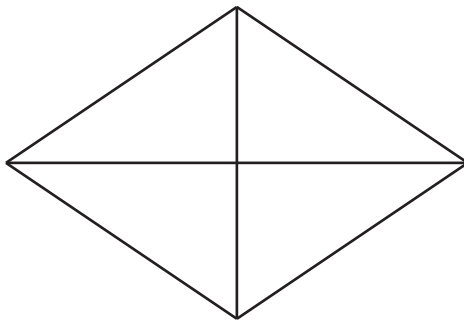


It has a sign showing the weight in kilograms and pounds, but the figures for the pounds have fallen off.

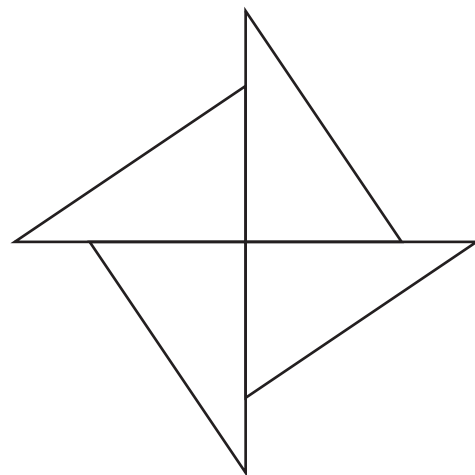
What should the number of pounds be?

..... [1]

- 14 Under each shape, write its order of rotation symmetry.



.....



.....

[2]

- 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.

	Cost of one day-time unit	Cost of one night-time unit	Standing Charge for one whole day
Britpower	10·21	5·86	21·2

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.




.....[4]

TURN OVER FOR QUESTION 16

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

These are some of his results.

Number landing 'point up'	
Number landing 'point down'	284
Total	1000

What is the experimental probability that the pin lands 'point up'?

..... [2]

PLEASE DO NOT WRITE ON THIS PAGE

PLEASE DO NOT WRITE ON THIS PAGE



Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact the Copyright Team, First Floor, 9 Hills Road, Cambridge CB2 1GE.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.