OCR
RECOGNISING ACHIEVEMENT

B272B

GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)
MODULE M2 – SECTION B

M2

MONDAY 21 JANUARY 2008

Morning
Time: 30 minutes

Candidates answer on the question paper
Additional materials: Geometrical instruments
Tracing paper (optional)
Electronic calculator

CUP/T55584

Candidate Forename		Candidate Surname	
Centre Number		Candidate Number	

INSTRUCTIONS TO CANDIDATES

- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use blue or 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.
- Do **not** write in the bar codes.
- Do **not** write outside the box bordering each page.
- Write your answer to each question in the space provided.

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.
- Section B starts with question 4.
- You are expected to use a calculator in Section B of this paper.

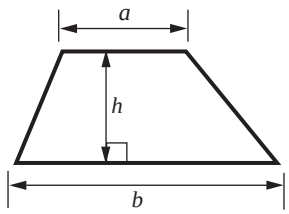
FOR EXAMINER'S USE	
SECTION B	

This document consists of **8** printed pages.

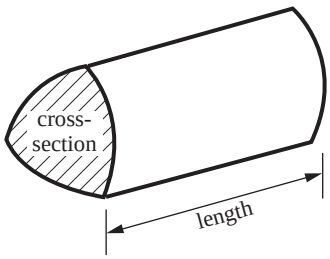
[Turn over

Formula Sheet

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

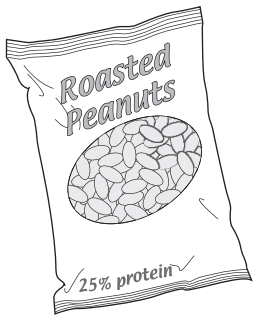


Volume of prism = (area of cross-section) × length



PLEASE DO NOT WRITE ON THIS PAGE

4 **(a)** Peanuts contain 25% protein.

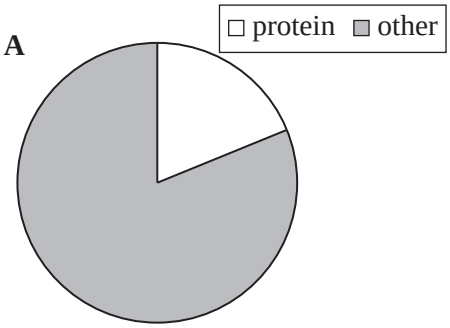


(i) Write 25% as a fraction.

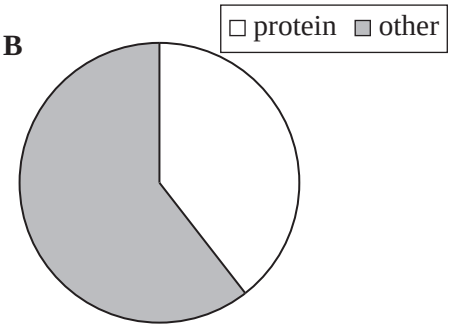
(a)(i)..... [1]

(ii) Which one of these pie charts shows this information correctly?

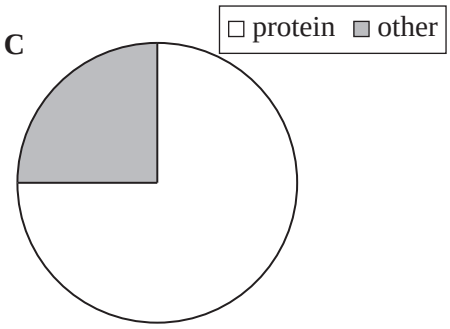
A



B



C



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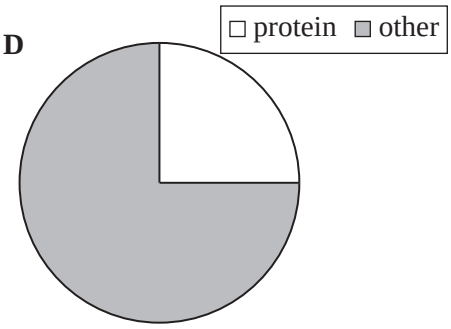
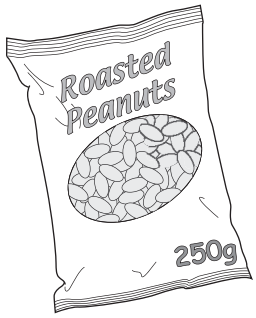


(ii)..... [1]

(b) Half of the weight of a peanut is fat.
This bag contains 250 g of peanuts.

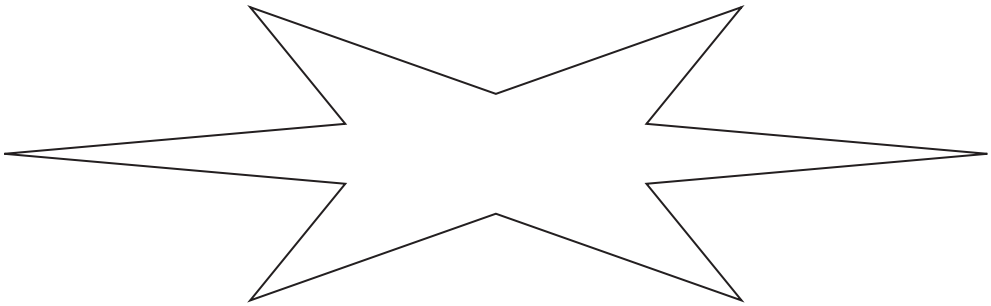
Work out half of 250.



(b) ..... [1]

3

5 Draw all the lines of symmetry on this shape.

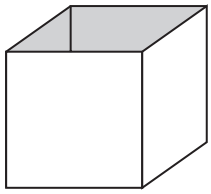


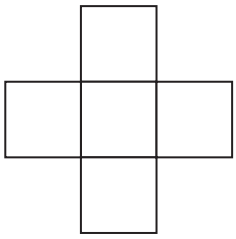
[2]

2

6 Here are some nets.

Put a tick (✓) under those nets which **do** make a box without a lid.
Put a cross (✘) under those nets which **do not** make a box without a lid.





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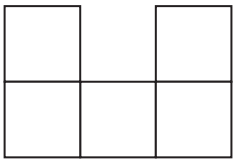

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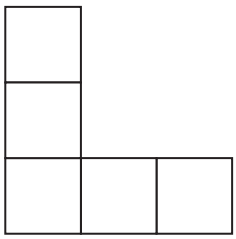

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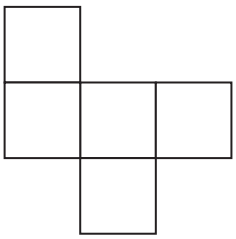


.....

[2]

2

7 Here is part of a spreadsheet showing number patterns.

	A	B	C	D	E	F	G	
1	1	3	5	7	9	11	13	
2	5	7	9	11	13	15	17	
3	9	11	13	15	17	*Y*	21	
4	13	15	17	19	21	23	25	
5	17	19	21	23	25	27	29	
								Z

(a) Work out the two missing numbers *Y* and *Z*.

(a) *Y* = ... [1]

Z = ... [1]

(b) Explain how you worked out the number *Z*.

.....

..... [1]

3

8 Most girls reach half their adult weight at age nine.
Jade is nine.
She weighs 31 kg.

Use the rule to find how much she should weigh when she is an adult.

..... kg [2]

2

9 This table shows the calories used each hour for some activities.

	Calories used in one hour	
Activity	**Man**	**Woman**
Sleeping	65	55
Sitting	90	70
Standing	120	100
Walking	220	180
Walking uphill	440	360
Running	600	420

(a) A man walks uphill for one hour.

How many calories will he use?

(a)..... [1]

(b) A woman runs for 2 hours.

How many calories will she use?

(b) ..... [1]

(c) A man sleeps for 8 hours and then sits for 4 hours.

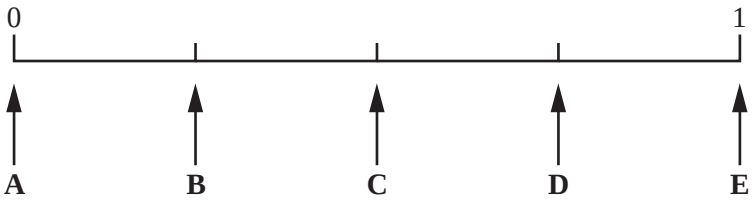
How many calories will he use in total?

(c)..... [3]

5

10 Amber has a fair 4-sided dice.
It is numbered 1, 2, 3 and 4.

She throws the dice.



(a) Explain how you can tell that arrow **A** points to the probability of Amber scoring 5.

.....

..... [1]

(b) Complete these sentences.

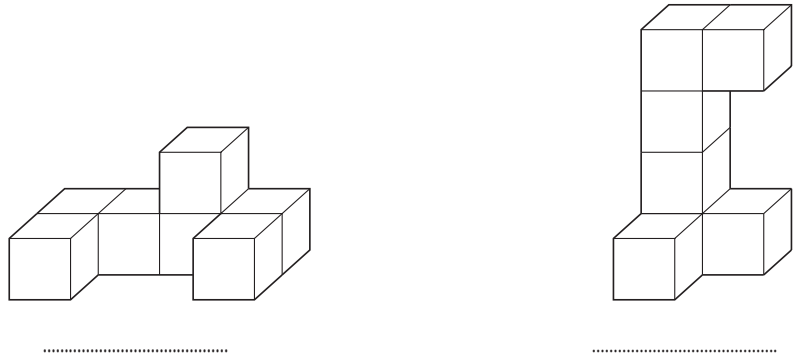
Arrow ..... points to the probability of Amber scoring 4.

Arrow ..... points to the probability of Amber scoring a number **less than** 5.

[2]

3

11 Each of these models is made from 7 cubes.
Put a tick (✓) under the models that **have** reflection symmetry.
Put a cross (✘) under the models which do **not have** reflection symmetry.



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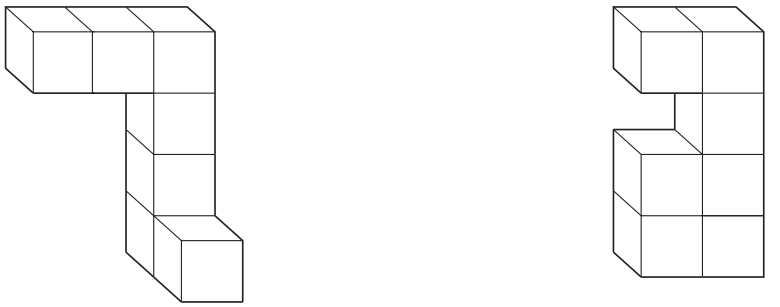


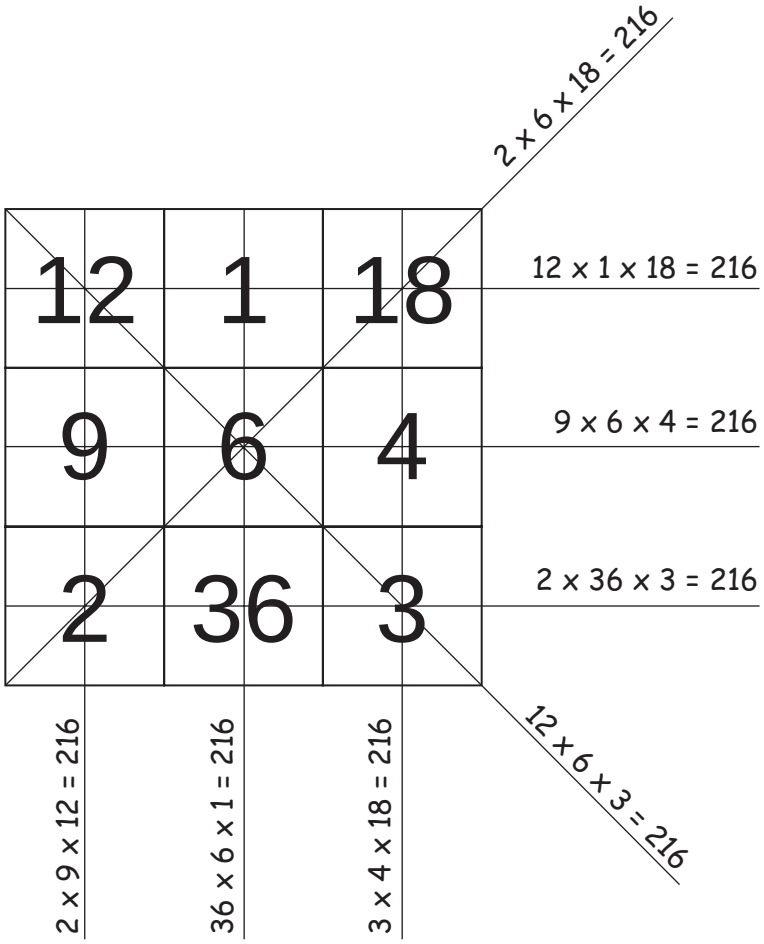
....

[2]

2

TURN OVER FOR QUESTION 12

12 Here is a magic multiplication square.
When the three numbers in each row, column or diagonal are multiplied together, the answer is the same.



Here is a different magic multiplication square.

Find the missing numbers.

2	256	8
.....	16	4
32	1	.....

[3]

3