OCR
RECOGNISING ACHIEVEMENT

B274B

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

M4

TUESDAY 11 MARCH 2008

Morning
Time: 30 minutes

Candidates answer on the question paper
Additional materials (enclosed): None

Additional materials (required):
Geometrical instruments
Tracing paper (optional)
Electronic calculator

CUP/T57585

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.
- 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 8.
- You are expected to use a calculator in Section B of this paper.

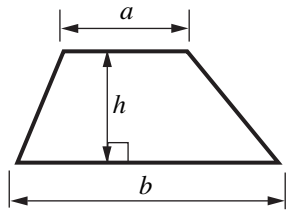
FOR EXAMINER'S USE	
SECTION B	

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

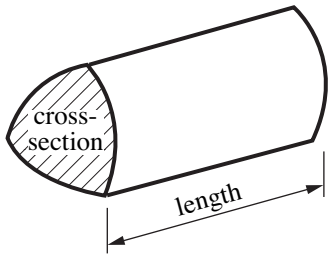
[Turn over

Formulae Sheet

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



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



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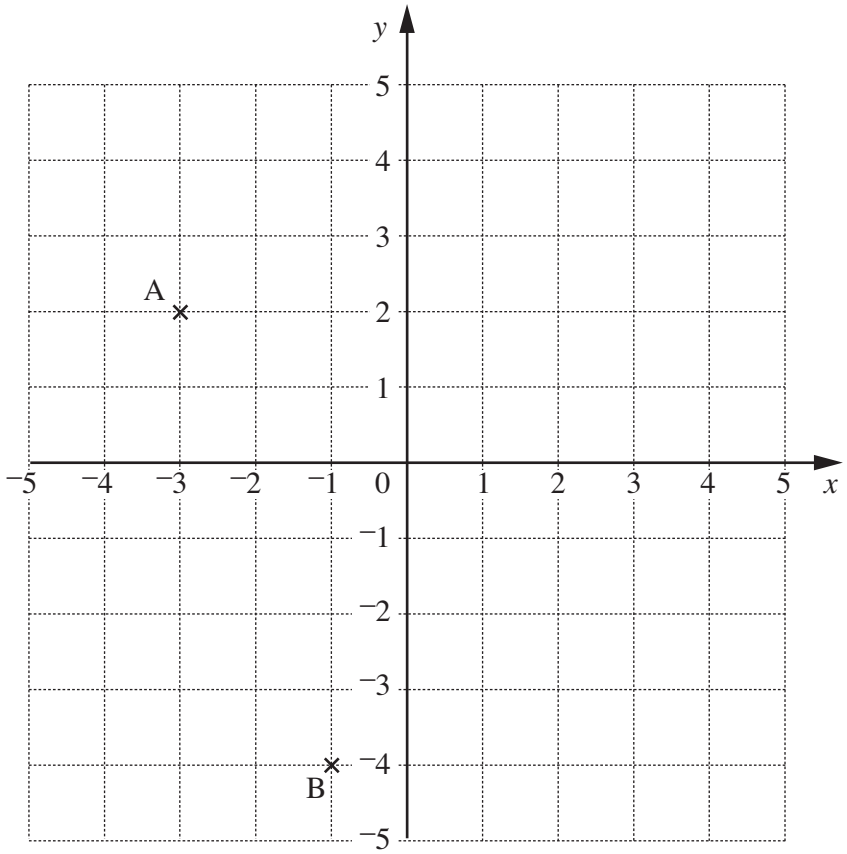


(a) (i) Mark the point C on the diagram so that these statements are all true.

ABC is a right-angled triangle.
The base of the triangle is 2.
The height of the triangle is 6.

Label your point C. [2]

(ii) Write down the coordinates of the point C.

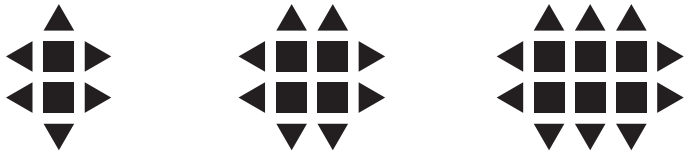
(a)(ii) (..... , ...)[1]

(b) (i) Mark the point $(-5, 4)$ on the diagram.
Label it D. [1]

(ii) Reflect the point D in the y-axis.
Label the image E. [1]

9 These patterns are made with triangles and squares.

Pattern 1 Pattern 2 Pattern 3



(a) This table shows the number of squares and triangles in each pattern.

Complete the table.

Pattern	1	2	3	4	5	6
Squares	2	4	6			
Triangles	6	8	10			

[2]

(b) Explain how to find the number of **squares** in Pattern 20 **without** drawing the pattern.

.....

..... [1]

(c) This is a rule to work out the number of triangles.

Number of triangles = Pattern number × 2
then add 4

(i) Dave draws Pattern 15.

Use the rule to work out the number of triangles he must draw.

(c)(i) ..... [1]

(ii) Jim draws a pattern with 50 triangles.

Use the rule to work out which Pattern number he draws.

(ii) ..... [1]

10 Juliet has a bag of sweets.

(a) She knows that the bag of sweets contains just 10 toffees and 30 mints.
She takes a sweet without looking.

Explain why the probability that she takes a toffee is $\frac{1}{4}$.

.....

..... [2]

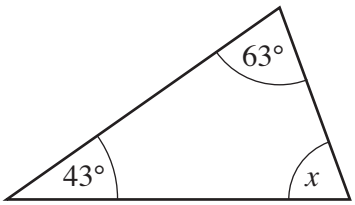
(b) Juliet eats some of the **mints** but no toffees.
She counts the sweets left in the bag.
She says "If I choose a sweet without looking, the probability that I get a toffee is $\frac{1}{3}$."

Complete this table to show how many of each type of sweet are left.

Toffee	Mint	Total
10	.....	.....

[2]

11 **(a)** Work out angle x.
Give a reason for your answer.

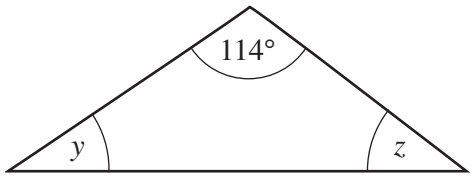


Not to scale

x = ...° because .....

..... [2]

(b) This diagram shows an isosceles triangle.



Not to scale

(i) Could angle y be 114°?
Explain your answer.

Write *Yes* or *No*

..... because .....

..... [1]

(ii) Work out angle z.
Show how you work out your answer.

(b)(ii) .....° [2]

12 **(a)** Alice keeps a record of how many miles she travels each day.
Here are her results for 10 days.

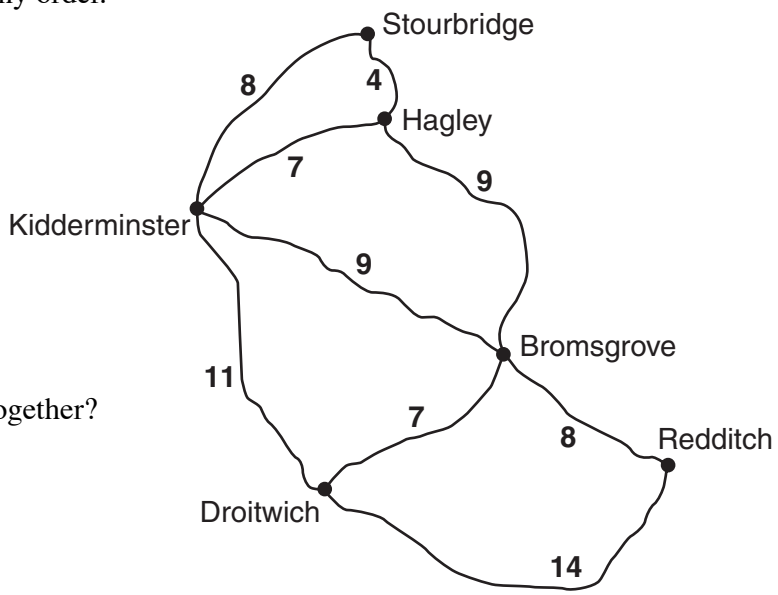
71 94 37 22 105 38 30 22 35 83

Work out the mean distance travelled each day.

(a) ..... miles [3]

(b) Alice lives in Bromsgrove (B).
Today she must visit Droitwich (D), Redditch (R) and Stourbridge (S)
and then return home.
She can visit the three towns in any order.

This diagram shows
the distances, in miles,
between the towns.



Find her shortest possible route.
How many miles is this route altogether?
You must show your working.

(b) Shortest route: B to ..... to B

Distance: ..... miles [3]

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