

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

## B274B

Candidates answer on the question paper

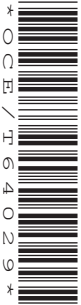
**OCR Supplied Materials:**  
None

**Other Materials Required:**

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

**Tuesday 23 June 2009**  
**Morning**

**Duration: 30 minutes**



Candidate Forename		Candidate Surname	
--------------------	--	-------------------	--

Centre Number						Candidate Number				
---------------	--	--	--	--	--	------------------	--	--	--	--

**INSTRUCTIONS TO CANDIDATES**

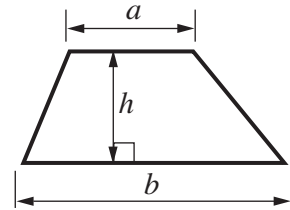
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Show your working. Marks may be given for a correct method even if the answer is incorrect.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

**INFORMATION FOR CANDIDATES**

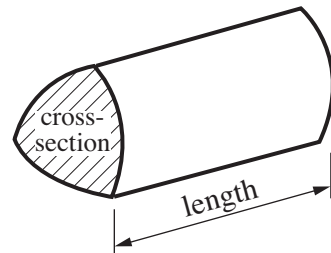
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Section B starts with question 7.
- You are expected to use a calculator in Section B of this paper.
- The total number of marks for this Section is **25**.
- This document consists of **8** pages. Any blank pages are indicated.

## Formulae Sheet

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



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



**PLEASE DO NOT WRITE ON THIS PAGE**

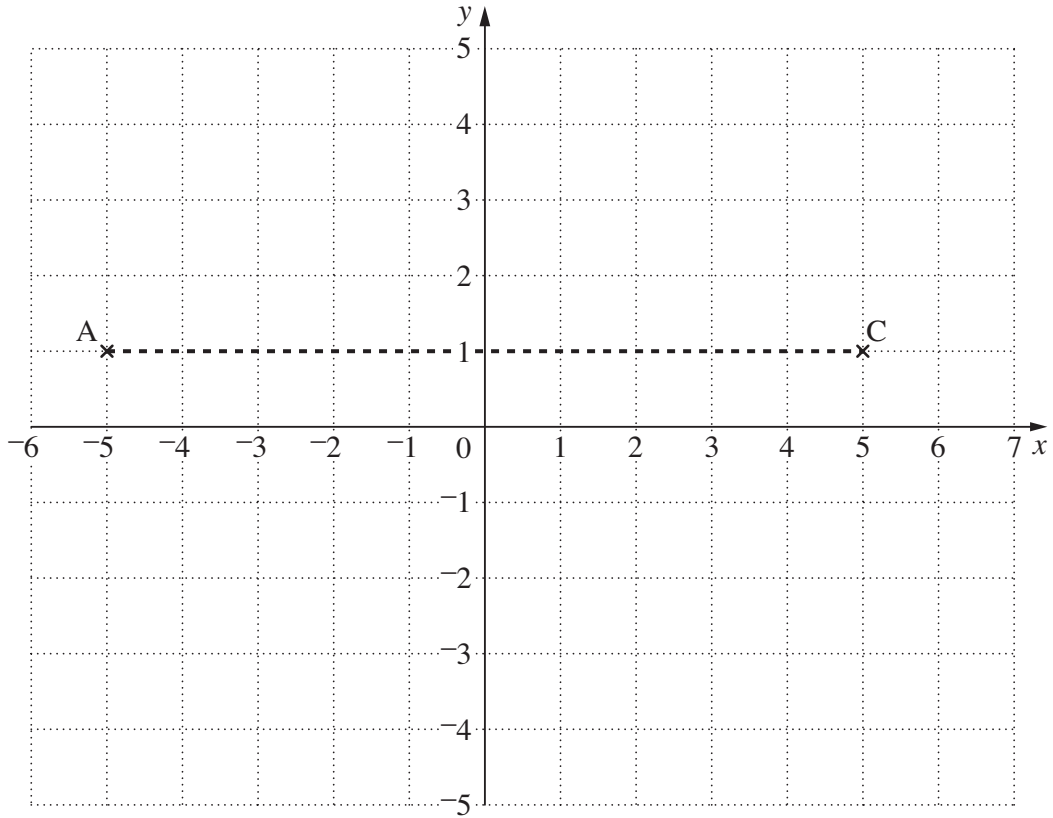
**Copyright Information**

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, is given to all schools that receive assessment material and is freely available to download from our public website ([www.ocr.org.uk](http://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 1PB.

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.



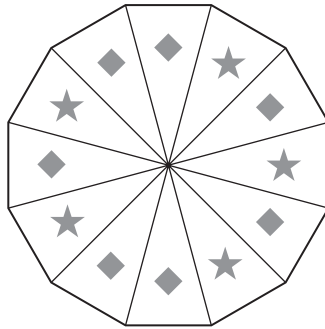
- (a) Write down the coordinates of point A. (a) (....., .....) [1]
- (b) Plot the point  $(-3, -2)$ .  
Label it B. [1]
- (c) Reflect point B in the line AC.  
Label the image D. [1]
- (d) Join points A, B, C and D.

Write down the special name of the quadrilateral ABCD.

(d) ..... [1]

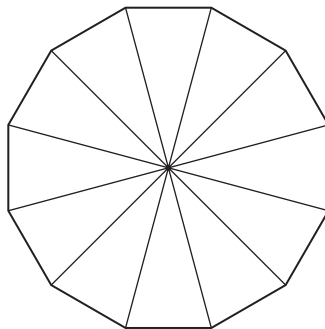
- 8 (a) A fair spinner is used in a game.  
A player wins a prize if it lands on a star (★).

What is the probability of winning a prize with **this** spinner?



(a) ..... [2]

- (b) Sara makes a different fair spinner.

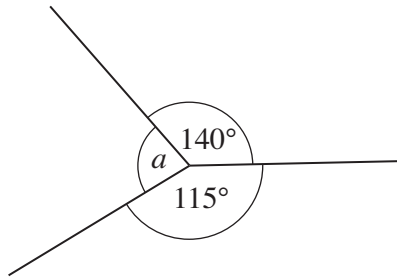


A player wins a prize if it lands on a star (★).  
She puts a shape in each section of this blank spinner.

How many stars must Sara put on this spinner so that  
the probability of winning is  $\frac{1}{4}$ ?

(b) ..... [2]

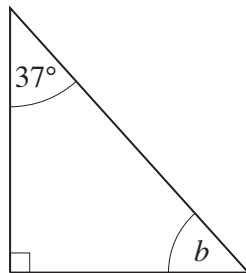
- 9 (a) Work out angle  $a$ .



Not to scale

(a) ..... ° [2]

- (b) Work out angle  $b$ .



Not to scale

(b) ..... ° [2]

10 Carlos and Lisa each do the newspaper crossword every day. They each recorded the time it took them to finish the crossword for ten days.

(a) Here are Carlos' times in minutes.

18      14      29      8      15      26      11      17      15      20

(i) Find his median time.

(a)(i) ..... minutes [2]

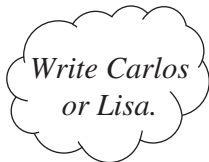
(ii) Find the range of these times.

(ii) ..... minutes [1]

(b) The median and range of Lisa's times, in minutes, are shown below.

Median	Range
14	24

Who took longer, on average, to do the crossword?  
Explain how you know.



..... because .....

..... [1]

11 Here is a recipe for Strawberry Smoothie.

Strawberry Smoothie	
Serves 6	
1 kg	strawberries
2	bananas
200 ml	natural yoghurt
1 teaspoon	vanilla extract
1 tablespoon	clear honey
500 ml	orange juice

(a) Marlon makes Strawberry Smoothie for three people.

What weight of strawberries does he need?

(a) ..... kg [1]

(b) Samina makes Strawberry Smoothie for twelve people.

How much natural yoghurt does she need?

(b) ..... ml [1]

(c) Trevor has 2 litres of orange juice.  
He has plenty of all the other ingredients.

How many servings of Strawberry Smoothie can he make?  
You must show your working.

(c) ..... [3]

**TURN OVER FOR QUESTION 12**

12 Karen sets a number puzzle.

I am thinking of two numbers.

The difference between the numbers is 0.5.

If I multiply the two numbers together the product is 333.

One of the numbers is a whole number.

(a) Jayden thinks that the numbers are 10 and 10.5.

Show that 10 and 10.5 are too small.

.....  
 ..... [1]

(b) Use trial and improvement to find Karen's two numbers.  
 Record your trials in the table below.  
 The table has been started for you.

First number	Second number	Product	Too small	Too large
10	10.5	$10 \times 10.5 =$	✓	

(b) ..... and ..... [3]