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 23 JUNE 2009: 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

DC (CW/SW) OV90823 11301/2

INSTRUCTIONS TO CANDIDATES

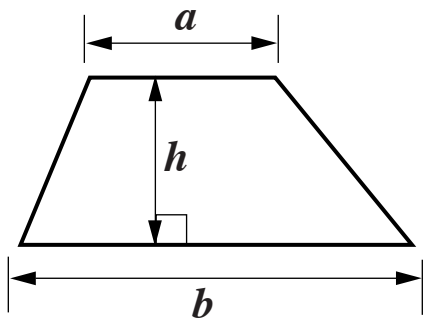
- **Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Show your working. Marks may be given for a correct method even if the answer is incorrect.**
- **Read each question carefully and make sure that you know what you have to do before starting your answer.**
- **Answer ALL the questions.**
- **Write your answer to each question in the space provided, however additional paper may be used if necessary.**

INFORMATION FOR CANDIDATES

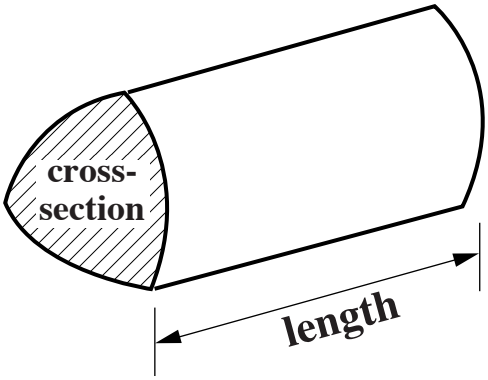
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **Section B starts with question 7.**
- **You are expected to use a calculator in Section B of this paper.**
- **The total number of marks for this Section is 25.**

FORMULAE SHEET

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

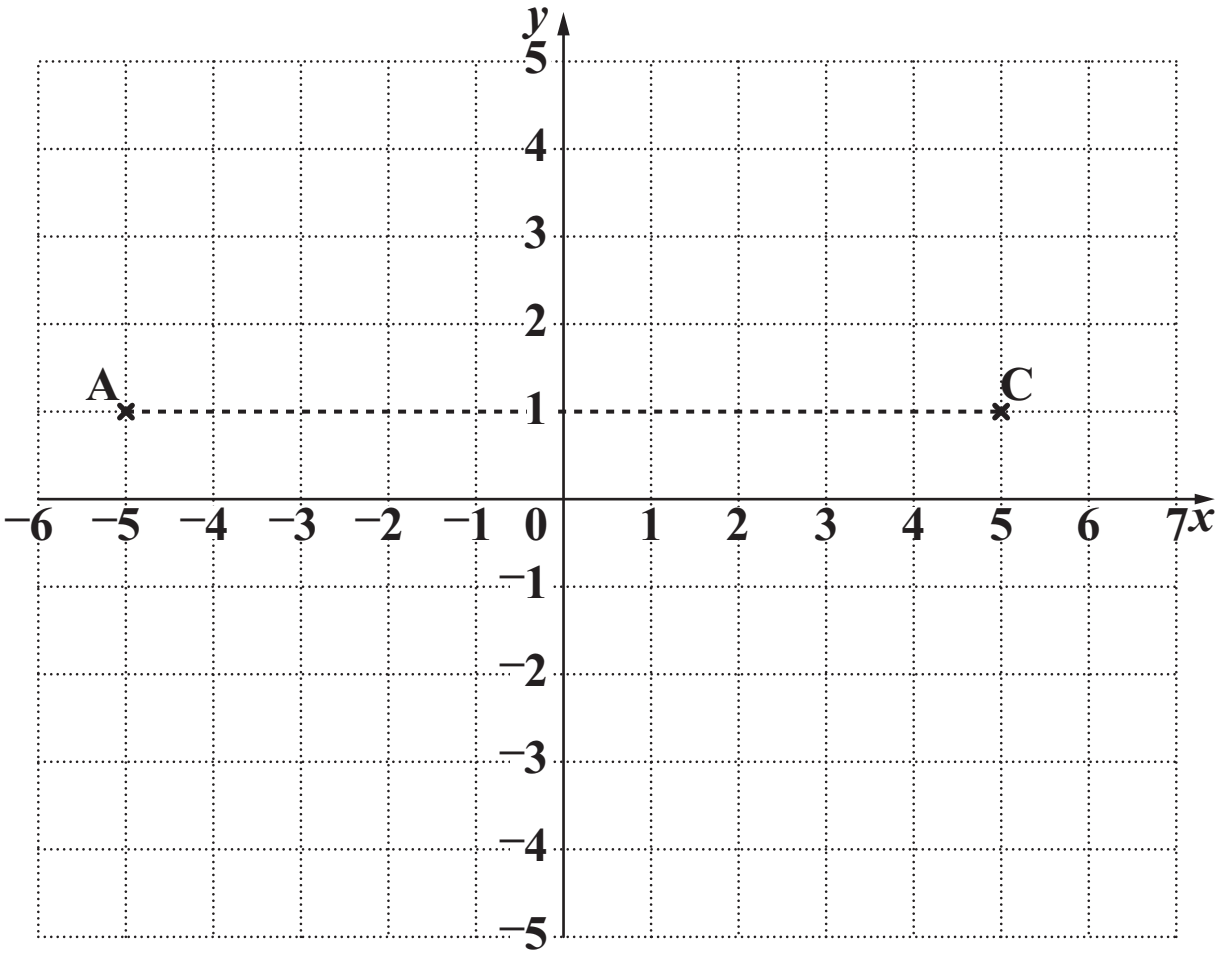


Volume of prism =
(area of cross-section) × length



PLEASE DO NOT WRITE ON THIS PAGE

7



(a) Write down the coordinates of point A.
[1 mark]

(a) (_____ , _____)

(b) Plot the point (−3, −2).
Label it B.
[1 mark]

(c) Reflect point B in the line AC.
Label the image D.
[1 mark]

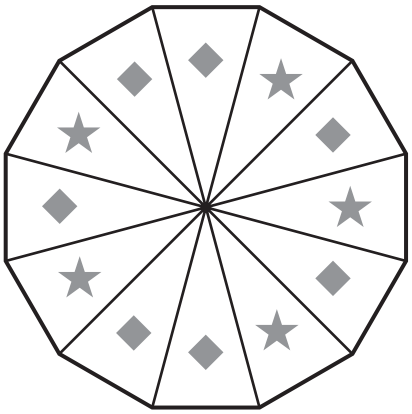
(d) Join points A, B, C and D.

Write down the special name of the quadrilateral ABCD.
[1 mark]

(d) _____

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

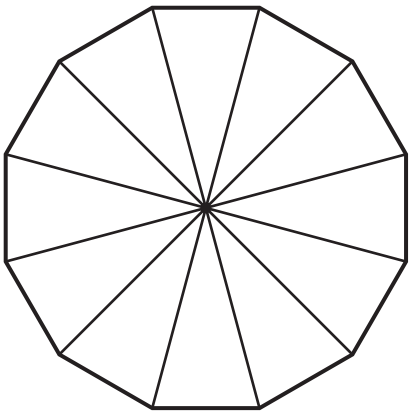
What is the probability of winning a prize with <u>THIS</u> spinner?



[2 marks]

(a) _____

(b) Sara makes a different fair spinner.

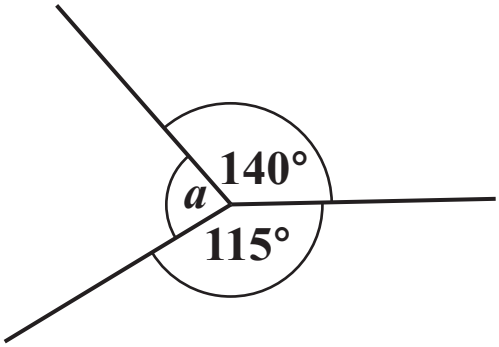


A player wins a prize if it lands on a star (★).
She puts a shape in each section of this blank spinner.

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

(b) _____

9 (a) Work out angle *a*.

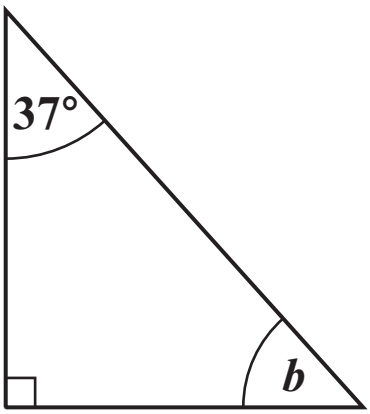


Not to scale

[2 marks]

(a) _____ °

(b) Work out angle *b*.



Not to scale

[2 marks]

(b) _____ °

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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.
[2 marks]

(a)(i) _____ minutes

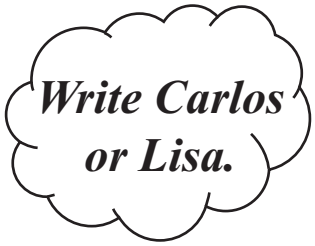
(ii) Find the range of these times.
[1 mark]

(ii) _____ minutes

(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.



[1 mark]

_____ because _____

_____

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?
[1 mark]

(a) _____ kg

(b) Samina makes Strawberry Smoothie for twelve people.

How much natural yoghurt does she need?
[1 mark]

(b) _____ ml

(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.
[3 marks]

(c) _____

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 mark]

_____

_____

(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 × 10·5 =	✓	

[3 marks]

(b) _____ and _____