

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

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

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

**B275A**

**MATHEMATICS C  
(GRADUATED ASSESSMENT)**

**MODULE M5 (SECTION A)**

**MONDAY 21 JUNE 2010: Afternoon**

**DURATION: 30 minutes**

**SUITABLE FOR VISUALLY IMPAIRED CANDIDATES**

**Candidates answer on the Question Paper**

**OCR SUPPLIED MATERIALS:**

**None**

**OTHER MATERIALS REQUIRED:**

**Geometrical instruments**

**Pie chart scale (optional)**

**Tracing paper (optional)**

**WARNING**

**No calculator can be used for  
Section A of this paper.**

**READ INSTRUCTIONS OVERLEAF**

## **INSTRUCTIONS TO CANDIDATES**

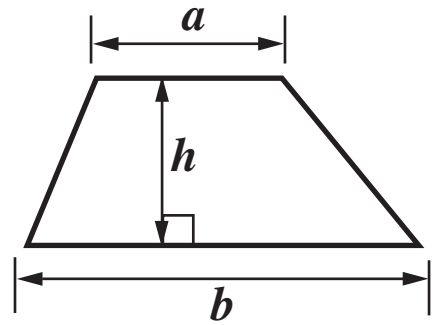
- **Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully and make sure that you know what you have to do before starting your answer.**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

## **INFORMATION FOR CANDIDATES**

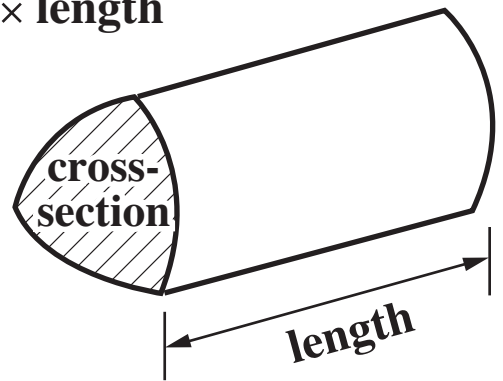
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **The total number of marks for this Section is 25.**

## FORMULAE SHEET

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



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



**1 A car emits 194 g of carbon per mile.**

- (a) Write down the number of grams of carbon per mile correct to 1 significant figure.  
[1 mark]**

**(a) \_\_\_\_\_ [1]**

- (b) Barry did a simple calculation in his head and ESTIMATED how much carbon the car would produce on a journey of 307 miles.**

**Write down a calculation he could have used.  
[2 marks]**

**(b) \_\_\_\_\_ = \_\_\_\_\_ g**

2 (a) Look at this list of numbers.

3	5	8	9
4	2	12	20

(i) Using TWO numbers from the list, make two equivalent fractions.

[1 mark]

$$\frac{\boxed{1}}{\boxed{\phantom{00}}} = \frac{\boxed{\phantom{00}}}{\boxed{12}}$$

(ii) Choose ONE number from the list to make a fraction that completes this statement.

[1 mark]

20% is the same as  $\frac{\boxed{1}}{\boxed{\phantom{00}}}$

**(b) Colette's train fare increases by 20% .  
She used to pay £15.**

**Work out the increase in her train fare.  
[2 marks]**

**(b) £ \_\_\_\_\_**

**BLANK PAGE**

- 3 Vipin counted the number of words on each line of a page of his writing.  
These are his results.**

<b>Number of words on a line</b>	<b>Frequency</b>
<b>9</b>	<b>2</b>
<b>10</b>	<b>4</b>
<b>11</b>	<b>5</b>
<b>12</b>	<b>6</b>
<b>13</b>	<b>2</b>
<b>14</b>	<b>1</b>

- (a) How many lines of writing did he count?  
[1 mark]**

**(a)** \_\_\_\_\_

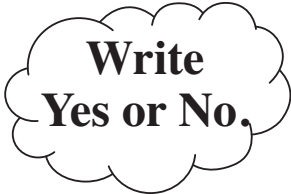


(b) Vipin said "My mode is 6."

Was Vipin correct?

You must explain your answer.

[1 mark]



\_\_\_\_\_ because \_\_\_\_\_ [1]

(c) Deepika wrote on the same sized paper as Vipin.

She also counted the number of words on each line of a page of her writing.

This table shows her mode and range.

Mode	16
Range	4

Make two comparisons between Vipin's and Deepika's writing.

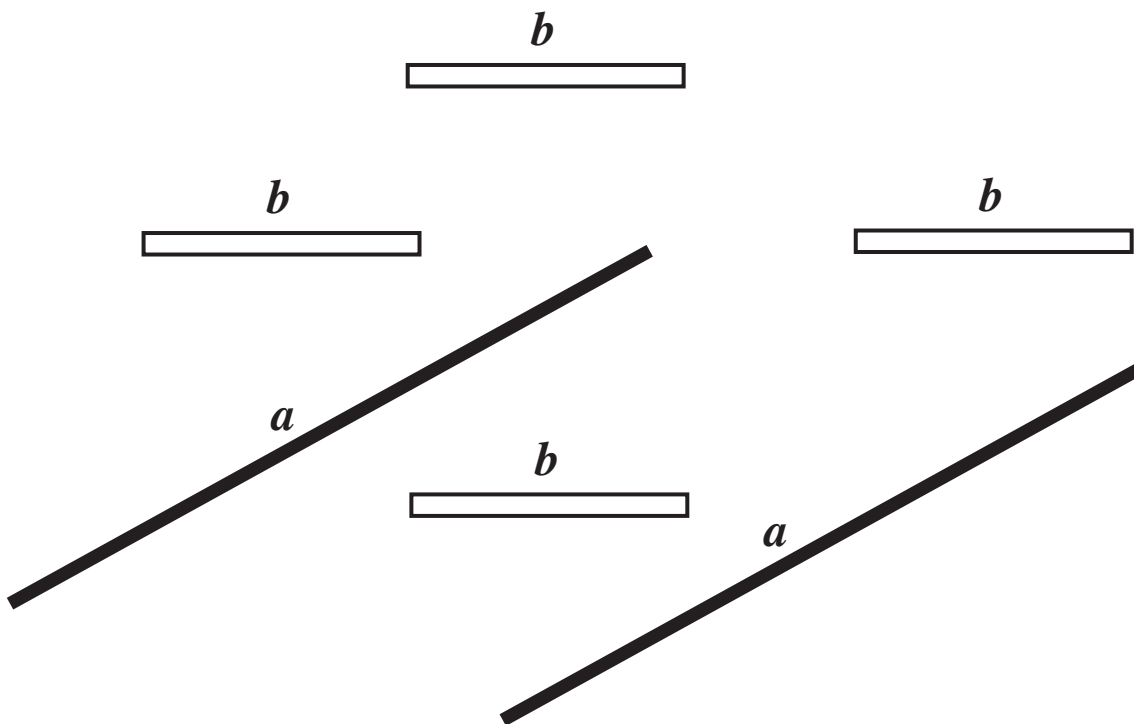
1. \_\_\_\_\_

\_\_\_\_\_ [1 mark]

2. \_\_\_\_\_

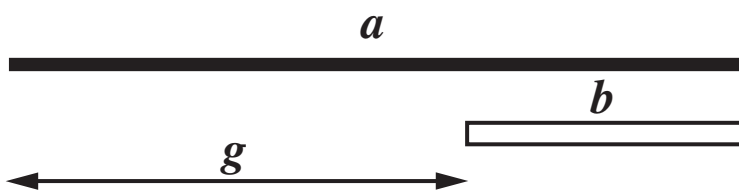
\_\_\_\_\_ [1 mark]

- 4 Billy has these algebra rods.  
Some have length  $a$  and some have length  $b$ .



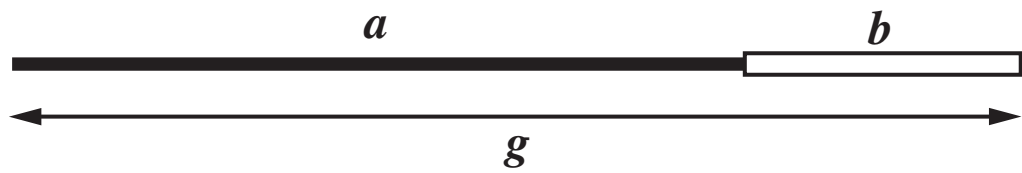
- (a) Billy arranges some of the rods.

Write down an expression for the length,  $g$ , shown by the arrow in each arrangement.  
The first one has been done for you.



$$g = \underline{a - b}$$

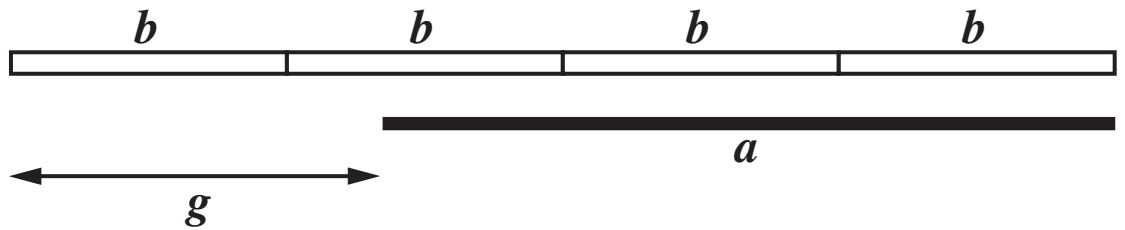
(i)



[1 mark]

(a)(i)  $g =$  \_\_\_\_\_

(ii)



[2 marks]

(ii)  $g =$  \_\_\_\_\_

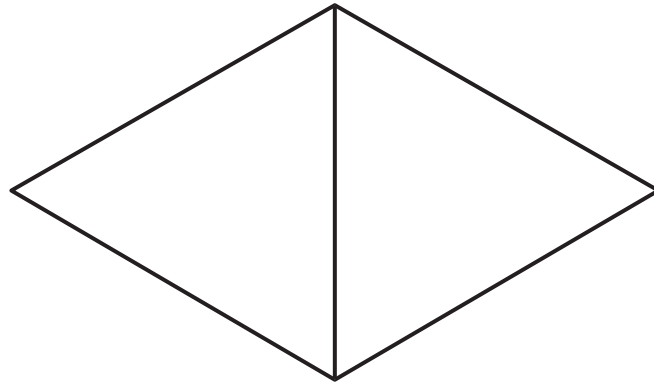
(b) If  $a = 24$  and  $b = 9$ , what is the value of  $g$  when  $g = a - b$ ?  
[2 marks]

(b) \_\_\_\_\_

- 5 (a) Use pencil, ruler and compasses to construct an equilateral triangle with each side 8 cm long. One side has been drawn for you. You must leave the arcs you use in your drawing. [2 marks]**



- (b) This is a drawing of two equilateral triangles joined together to make a quadrilateral.**



**(i) Jenny says:**

**All the sides are the same length so the quadrilateral is a square.**

**Explain how you know she is wrong.**

**[1 mark]**

---

---

**(ii) What is the special name for this quadrilateral?**

**[1 mark]**

**(b)(ii)** \_\_\_\_\_

**(iii) How many lines of symmetry does the quadrilateral have?**

**[1 mark]**

**(iii)** \_\_\_\_\_

**TURN OVER FOR QUESTION 6**

**6 Evan and Irma decide to visit Portsmouth for a day.  
They look up some places to visit.**

**(A) Aquarium**

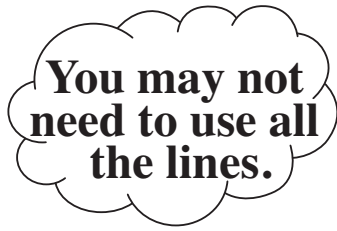
**(H) Historic Dockyard**

**(S) Spinnaker Tower**

**They can only visit two places but cannot decide which two.  
They write the names of the places on paper and put them in  
a hat.**

**Evan pulls out the place they will visit in the morning and  
Irma the place for the afternoon.**

- (a) Complete this table for the places they could visit.  
The first one has been done for you.  
[2 marks]



<b>Morning</b>	<b>Afternoon</b>
<b>S</b>	<b>A</b>

- (b) What is the probability that they visit the Spinnaker Tower in the morning and the Historic Dockyard in the afternoon?  
[1 mark]

(b) \_\_\_\_\_

**(c) What is the probability that they visit the Aquarium?  
[1 mark]**

**(c)** \_\_\_\_\_



### **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 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.**