

**GENERAL CERTIFICATE OF SECONDARY EDUCATION**  
**MATHEMATICS C (GRADUATED ASSESSMENT)**  
MODULE M7 – SECTION A

## B277A

Candidates answer on the Question Paper

**OCR Supplied Materials:**

None

**Other Materials Required:**

- Geometrical instruments
- Tracing paper (optional)

**Thursday 21 January 2010**  
**Afternoon**

**Duration: 30 minutes**



Candidate Forename		Candidate Surname	
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Centre Number							Candidate Number				
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**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.
- 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, 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.
- The total number of marks for this Section is **25**.
- This document consists of **8** pages. Any blank pages are indicated.

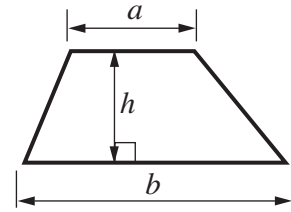
**WARNING**



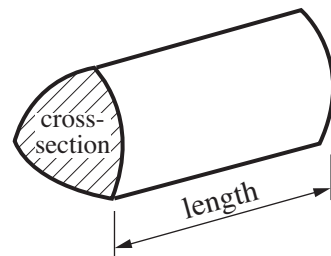
No calculator can be used for Section A of this paper

## Formulae Sheet

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

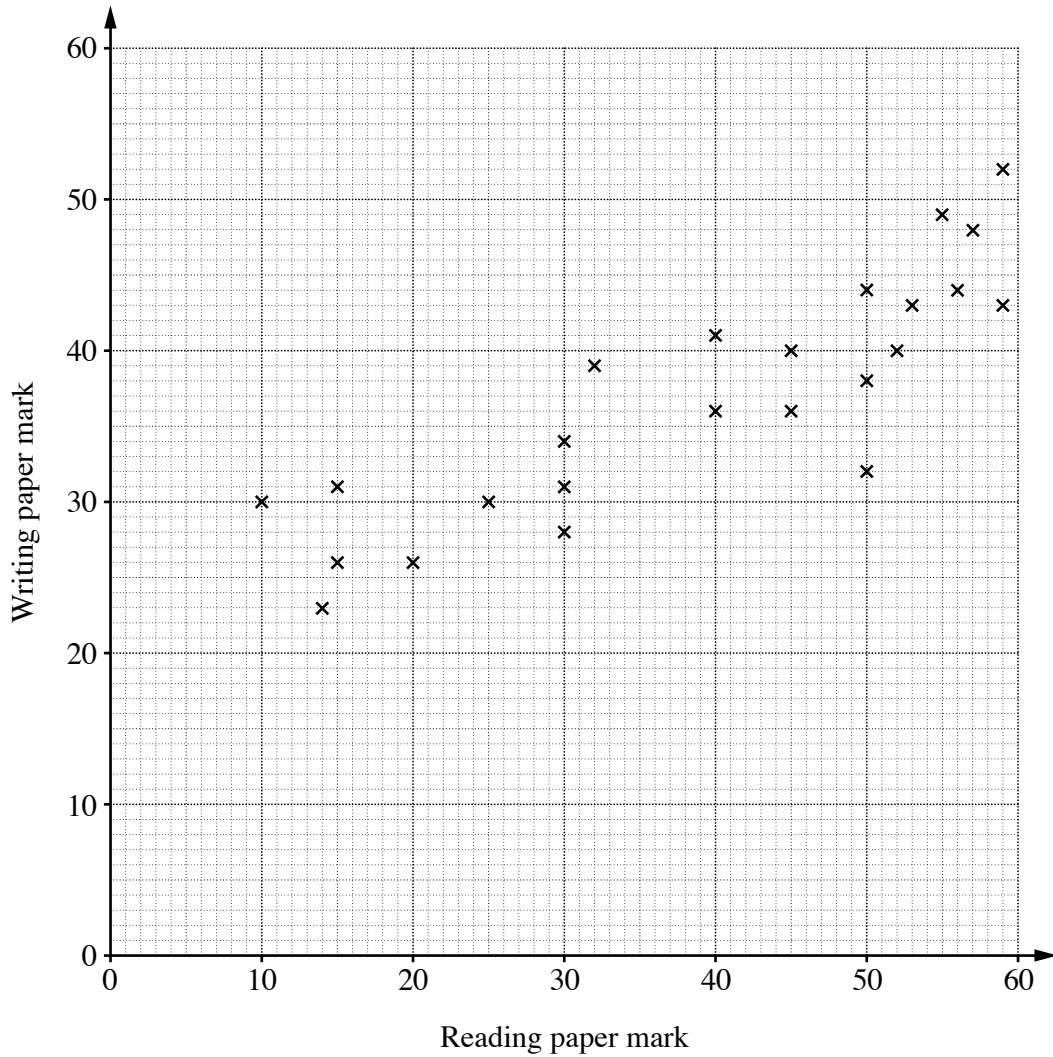


**Volume of prism** = (area of cross-section)  $\times$  length



**PLEASE DO NOT WRITE ON THIS PAGE**

- 1 There are two papers in an English exam.  
 There is a reading paper and a writing paper.  
 This scatter diagram shows the marks of 24 pupils who took both papers.



(a) Describe the correlation.

(a) ..... [1]

(b) Jane scored 42 on the reading paper but was absent for the writing paper.

Draw a line of best fit and use it to estimate a mark for Jane on the writing paper.

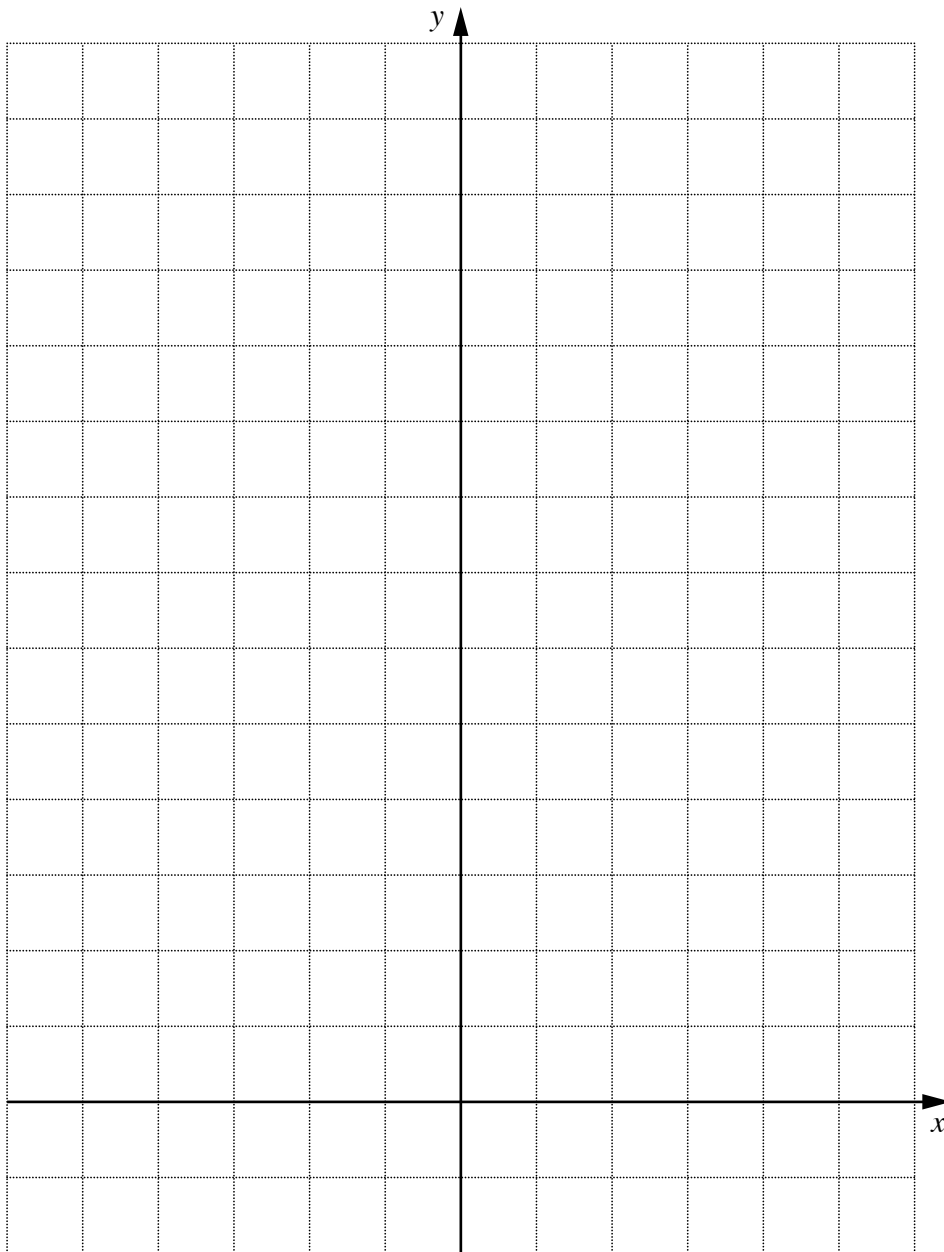
(b) ..... [2]

- 2 (a) Complete the table for  $y = 3x^2$ .

$x$	-2	-1	0	1	2
$y$		3	0	3	

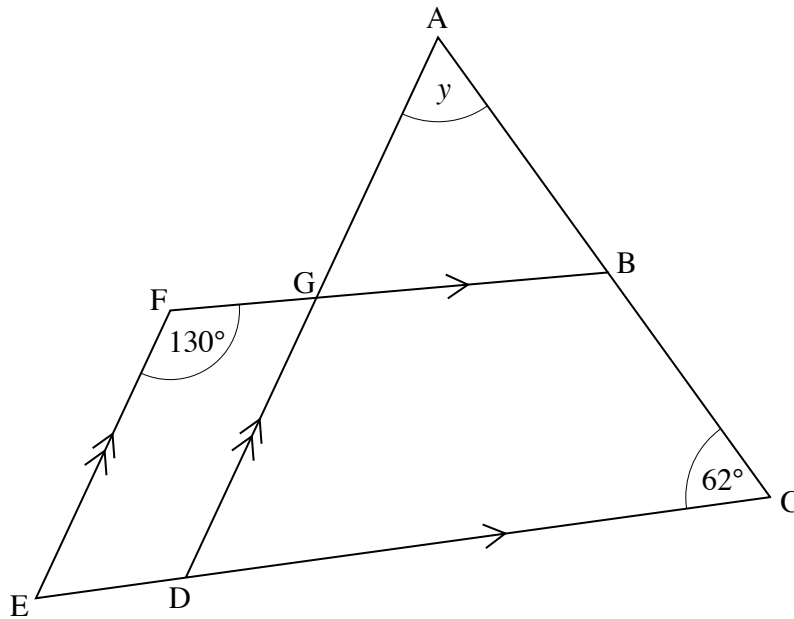
[1]

- (b) Draw the graph of  $y = 3x^2$ .



[3]

- 3 In this diagram, FB is parallel to EC and EF is parallel to DA.  
Angle EFG =  $130^\circ$  and angle ACD =  $62^\circ$ .



Not to scale

Calculate angle  $y$ .  
Show your working clearly.

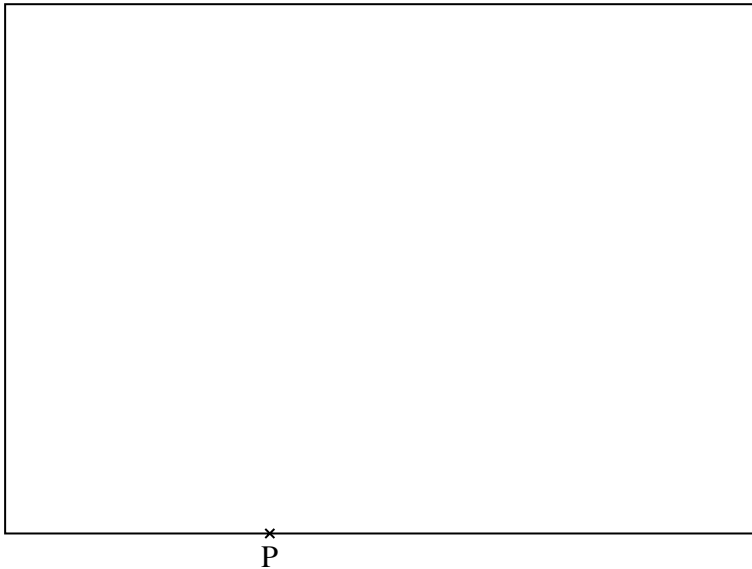
..... $^\circ$  [3]

4 Estimate.

$$\frac{48.8 \times 6.1}{19.7 - 9.6}$$

..... [2]

5 This is an accurate plan of a hall floor.



Scale: 1 cm to 2 m

(a) Use ruler and compasses only to answer this question.

Jules is using an electric carpet cleaner which he plugs in at point P. The carpet cleaner can reach 12 m from P.

Shade the part of the floor which **cannot** be reached by the carpet cleaner.

[2]

(b) A door in the hall is 88 cm wide, correct to the nearest centimetre.

What is the minimum width of the door?

(b) ..... cm [1]

6 The  $n$ th term of a sequence is  $n^2 + 5$ .

(a) Write down the first three terms of this sequence.

(a) ..... [2]

(b) Is the number 174 in this sequence?  
Explain your answer clearly.

..... because .....  
..... [2]

7 A box contains milk and plain chocolates in the ratio 3 : 2.  
There are 20 chocolates in the box.

How many milk chocolates are in the box?

..... [2]

8 Find the lowest common multiple (LCM) of 25 and 30.

..... [2]

**TURN OVER FOR QUESTION 9**

9 Rearrange  $x = 4y + 1$  to make  $y$  the subject.

..... [2]



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