

**GENERAL CERTIFICATE OF SECONDARY EDUCATION  
MATHEMATICS C (GRADUATED ASSESSMENT)  
MODULE M6 – SECTION B**

**B276B**

Candidates answer on the Question Paper

**OCR Supplied Materials:**  
None

- Other Materials Required:**
- Geometrical instruments
  - Tracing paper (optional)
  - Scientific or graphical calculator

**Thursday 21 January 2010  
Afternoon**

**Duration: 30 minutes**



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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**MODIFIED LANGUAGE**

**INSTRUCTIONS TO CANDIDATES**

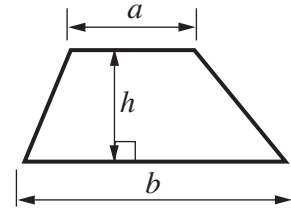
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show your working. 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**

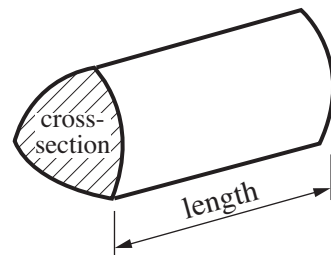
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Section B starts with question 6.
- You are expected to use a calculator in Section B of this paper.
- Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.
- 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**

- 6 Calculate  $\sqrt{19.53}$ .  
Round your answer correct to 2 decimal places.

.....[2]

- 7 Find the value of  $4x^2$  when

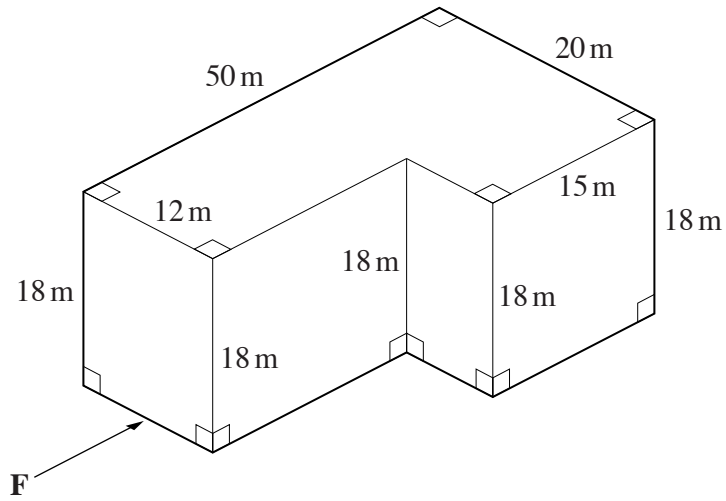
(a)  $x = 2.5$ ,

(a).....[1]

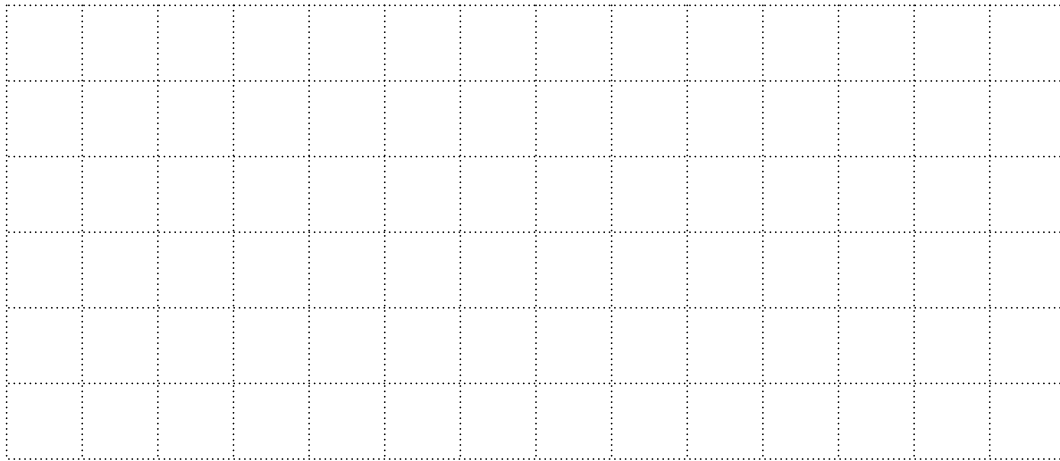
(b)  $x = -5$ .

(b) .....[1]

8 This is a sketch of a warehouse with a flat roof.



- (a) Draw the elevation of the warehouse, viewed in the direction of arrow **F**.  
Use a scale of 1 cm to 4 m.



[2]

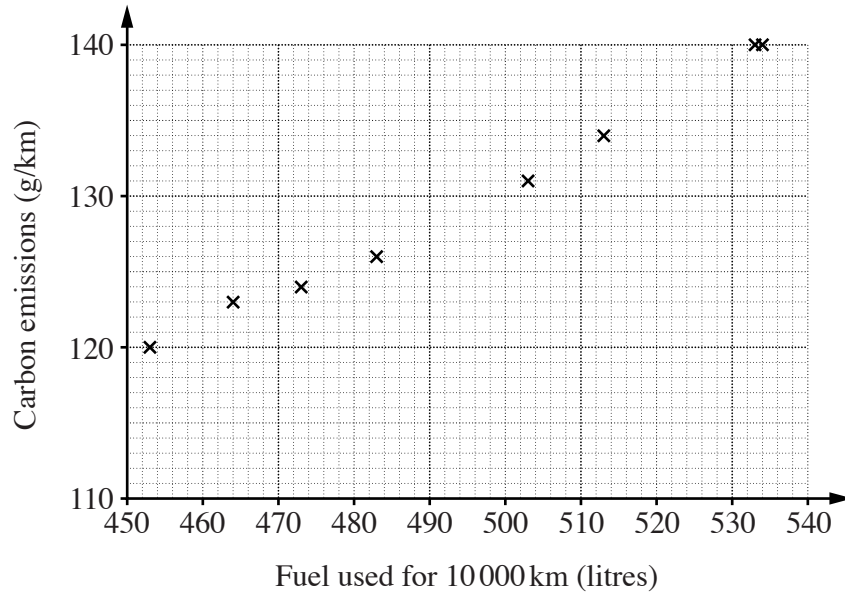
- (b) Calculate the area of the roof.

(b) .....m<sup>2</sup> [3]

9 This scatter diagram represents data about fuel for cars.

For various models of cars, it shows

- how many litres of fuel are used to travel 10 000 km
- the carbon emissions, in grams per km.



(a) Draw a line of best fit on the diagram.

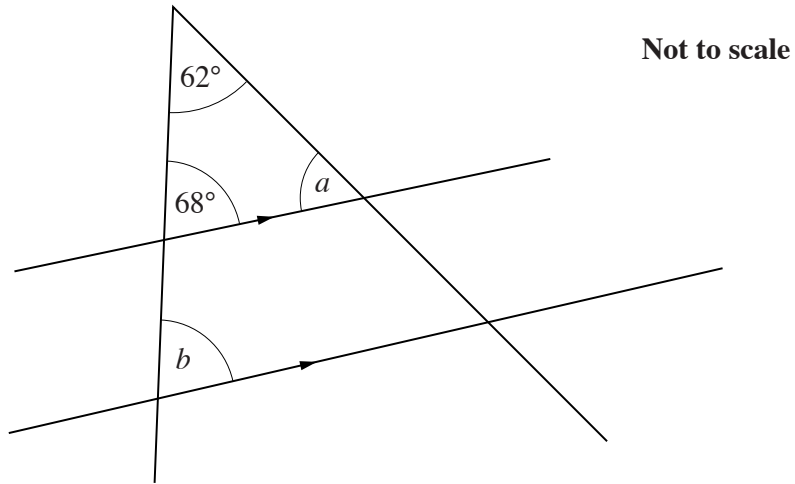
[1]

(b) Another car has carbon emissions of 136 g/km.

Use your line of best fit to estimate the number of litres of fuel used to travel 10 000 kilometres.

(b) ..... [1]

10



Find the sizes of angles  $a$  and  $b$ .  
Give a reason for each answer.

$a = \dots\dots\dots^\circ$  because  $\dots\dots\dots$   
 $\dots\dots\dots$  [2]

$b = \dots\dots\dots^\circ$  because  $\dots\dots\dots$   
 $\dots\dots\dots$  [2]

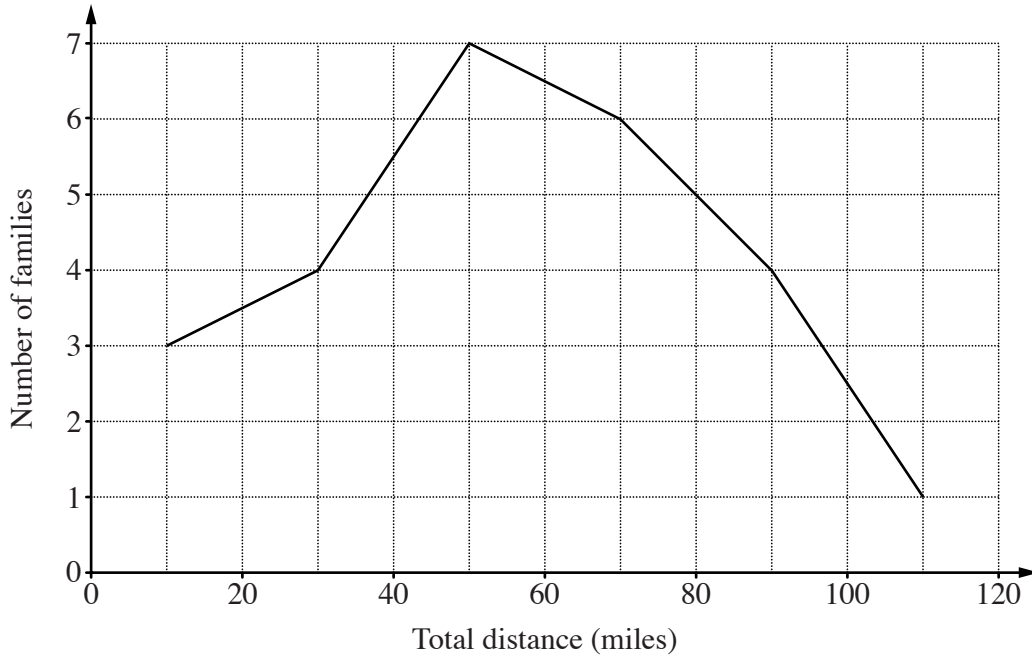
11 (a) This table shows the number of bicycles that 30 families own.

Number of bicycles	Number of families
0	5
1	4
2	6
3	7
4	5
5	2
6	1

Calculate the mean number of bicycles owned by these 30 families.

(a)..... [3]

- (b) This frequency polygon summarises the total distance cycled last week by each of the 25 families who own bicycles.  
The distances have been grouped into classes of equal width.



- (i) How many of these families cycled a total distance in the range 0 to 20 miles?

(b)(i)..... [1]

- (ii) What is the modal class of these distances?

(ii)..... to ..... miles [1]

- (iii) What does the graph show about the total distance cycled last week by the family that cycled furthest?

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

**TURN OVER FOR QUESTION 12**

12 (a) The computer on Jane’s bicycle showed that on one ride she had travelled for 45.35 minutes.

How many seconds are there in 0.35 minutes?

(a)..... [1]

(b) Jane’s bicycle wheels have diameter 65 cm.

How far does she travel on her bicycle when the wheels turn 60 times?  
Give your answer in metres.

(b) .....m [3]



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