Candidate Forename		Candidate Surname	

Centre Number						Candidate Number				

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GENERAL CERTIFICATE OF SECONDARY EDUCATION

B276B

MATHEMATICS C (GRADUATED ASSESSMENT)

MODULE M6 – SECTION B

THURSDAY 21 JANUARY 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
Tracing paper (optional)
Scientific or graphical calculator

READ INSTRUCTIONS OVERLEAF

DC (CW/SW) MEP10057 22983/2

INSTRUCTIONS TO CANDIDATES

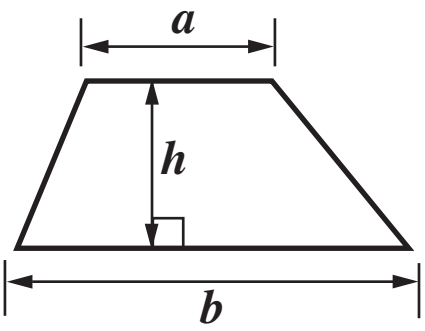
- **Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully and make sure that you know what you have to do before starting your answer.**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

INFORMATION FOR CANDIDATES

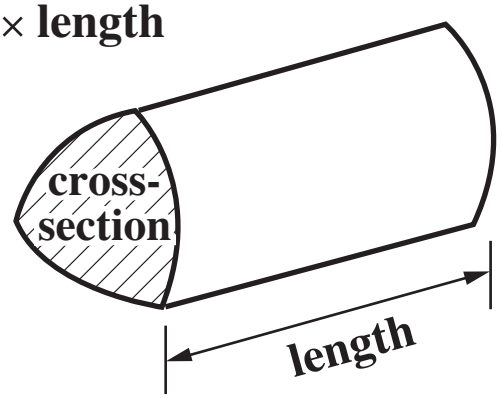
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **Section B starts with question 6.**
- **You are expected to use a calculator in Section B of this paper.**
- **Use the π button on your calculator or take π to be 3·142 unless the question says otherwise.**
- **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



6 Calculate $\sqrt{19{\cdot}53}$.
Round your answer correct to 2 decimal places.
[2 marks]

_____

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

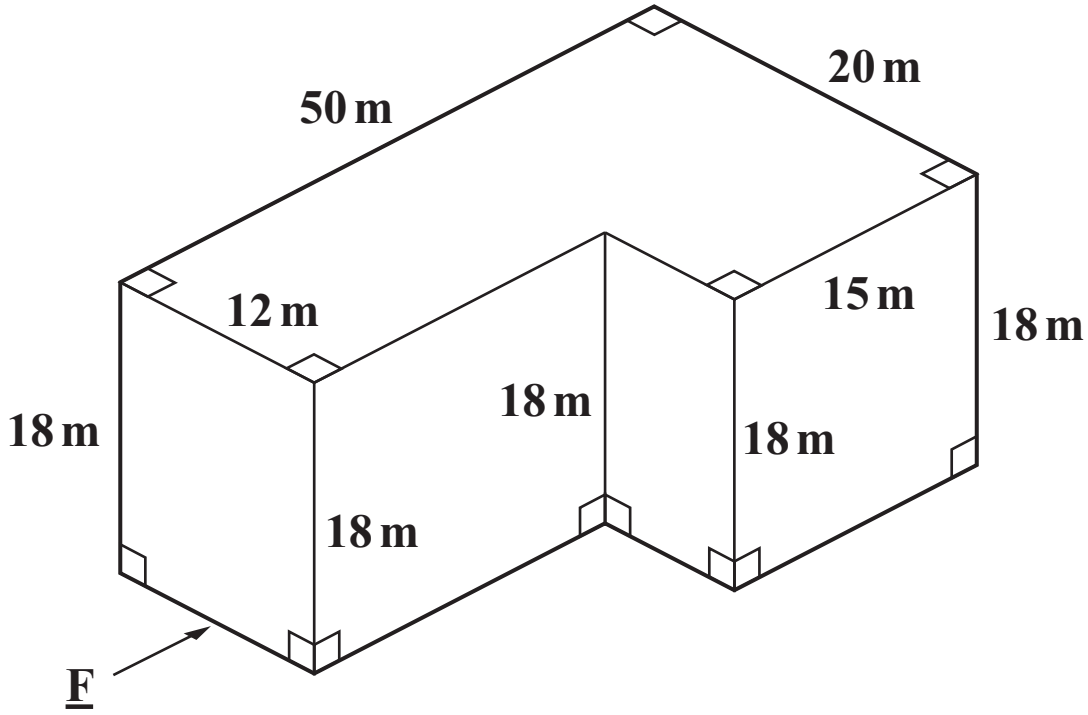
(a) $x = 2{\cdot}5$,
[1 mark]

(a) _____

(b) $x = -5$.
[1 mark]

(b) _____

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



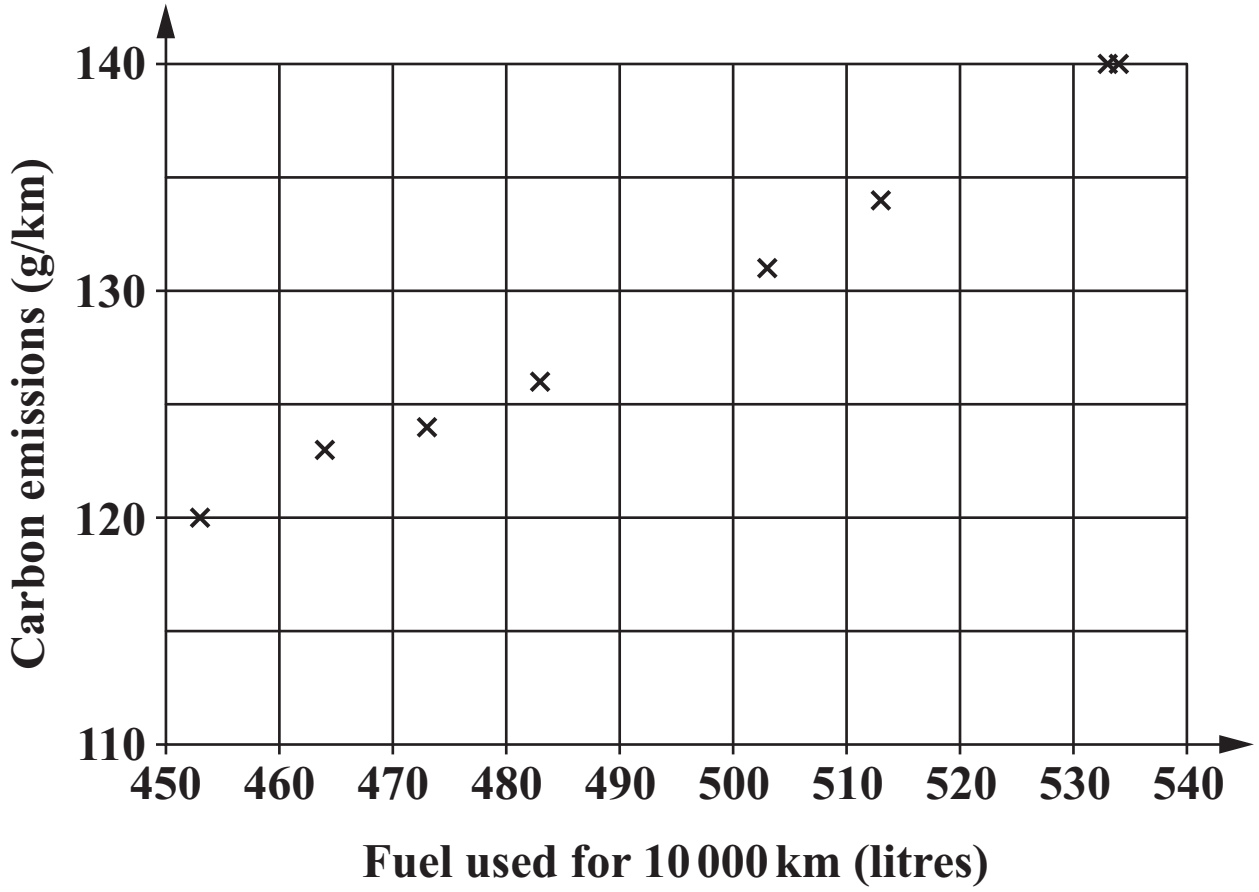
(a) Draw the elevation of the warehouse, viewed in the direction of arrow F.
Use a scale of 1 cm to 4 m.
[2 marks]

(b) Calculate the area of the roof.
[3 marks]

(b) _____ m^2

9 This scatter diagram represents data about fuel for cars.
For various models of cars from one manufacturer, it shows

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



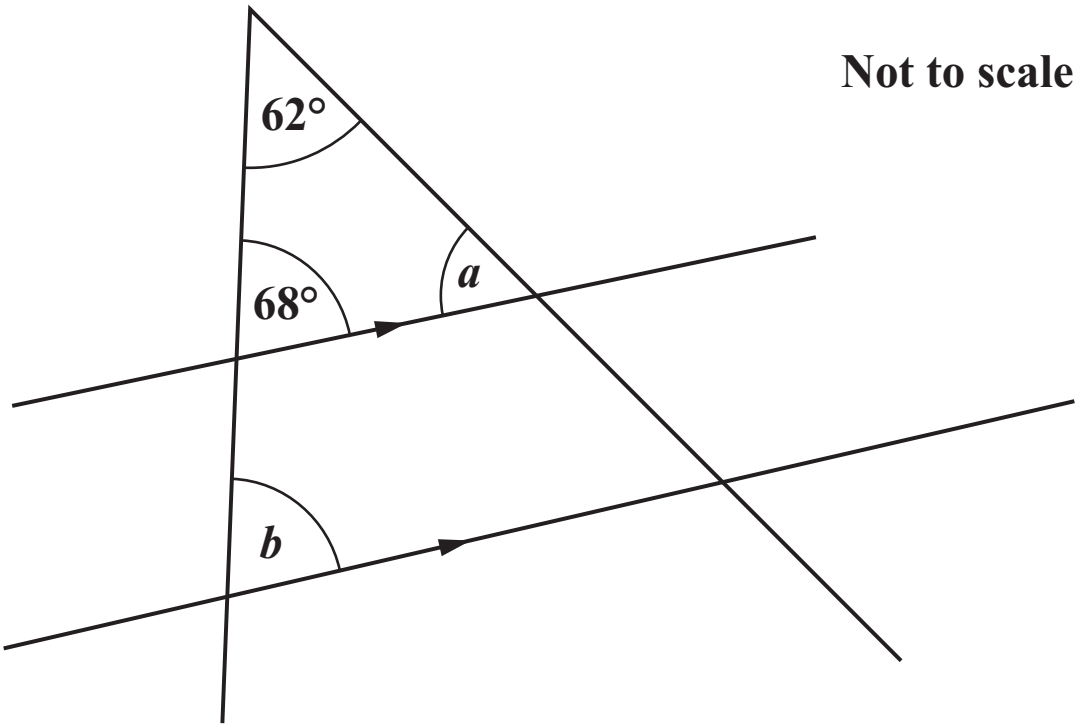
(a) Draw a line of best fit on the diagram.
[1 mark]

(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.
[1 mark]

(b) _____

10 Find the sizes of angles *a* and *b* in the diagram below. Give a reason for each answer.



***a* = _____° because _____**

_____

[2 marks]

***b* = _____° because _____**

_____

[2 marks]

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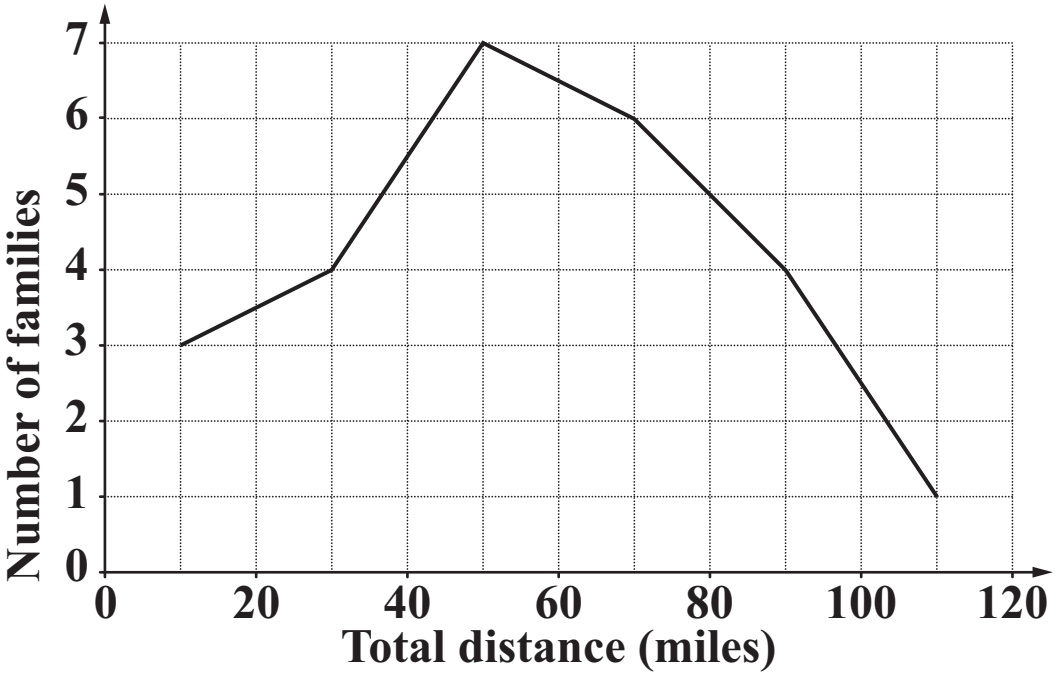
11 (a) This table shows the number of bicycles owned by the 30 families living in Orchard Road.

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.
[3 marks]

(a) _____

(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?
[1 mark]

(b)(i) _____

(ii) What is the modal class of these distances?
[1 mark]

(ii) _____ to _____ miles

(iii) What does the graph show about the total distance cycled last week by the family that cycled furthest? [1 mark]

_____

_____

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? [1 mark]

(a) _____

(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.
[3 marks]

(b) _____ m

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