

**GENERAL CERTIFICATE OF SECONDARY EDUCATION  
MATHEMATICS B (MEI)**

**B291B**

Paper 1 Section B (Foundation Tier)

Candidates answer on the Question Paper

**OCR Supplied Materials:**  
None

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

**Monday 7 June 2010  
Afternoon**

**Duration: 45 minutes**



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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**INSTRUCTIONS TO CANDIDATES**

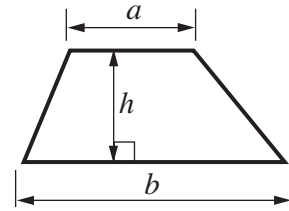
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show all your working. 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. Additional paper may be used if necessary but you must clearly show your Candidate Number, Centre Number and question number(s).

**INFORMATION FOR CANDIDATES**

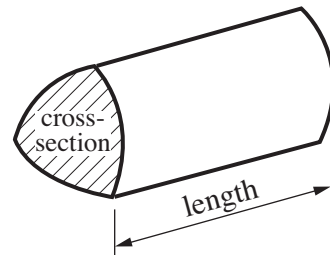
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Section B starts with question 11.
- You are expected to use a calculator in Section B of this paper.
- Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.
- The total number of marks for this Section is **36**.
- This document consists of **12** pages. Any blank pages are indicated.

## Formulae Sheet: Foundation Tier

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

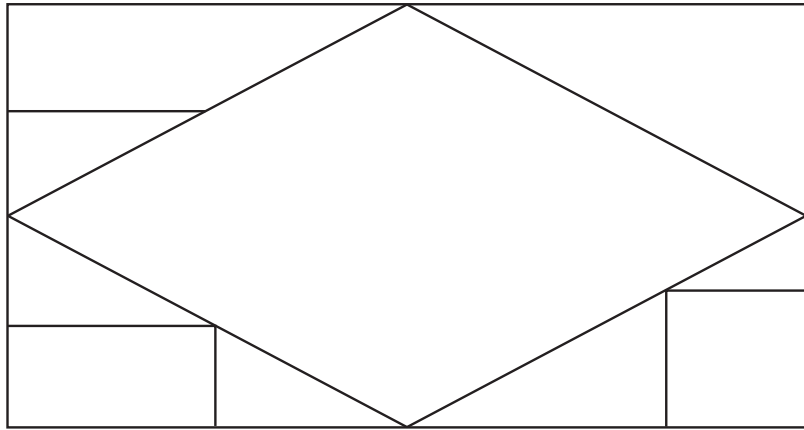


**Volume of prism** = (area of cross-section)  $\times$  length



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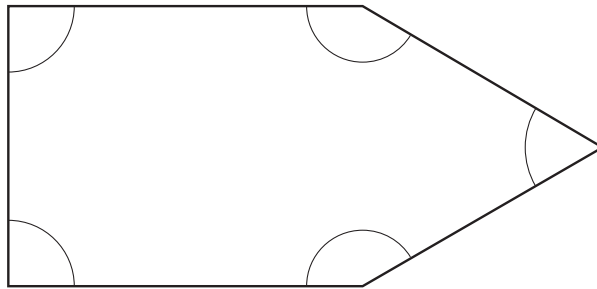
11 (a)



The diagram above is divided into shapes.

- (i) Label the square S. [1]
- (ii) Label the trapezium T. [1]
- (iii) Label the rhombus R. [1]

(b)



In the diagram

- (i) write  $x$  in an acute angle, [1]
- (ii) write  $y$  in an obtuse angle, [1]
- (iii) write  $z$  in a right angle. [1]

(c) Explain what is meant by a reflex angle.

A reflex angle is ..... [1]

12 Use your calculator to work these out.

(a)  $\sqrt{5.76}$

(a) ..... [1]

(b)  $13.5^2$

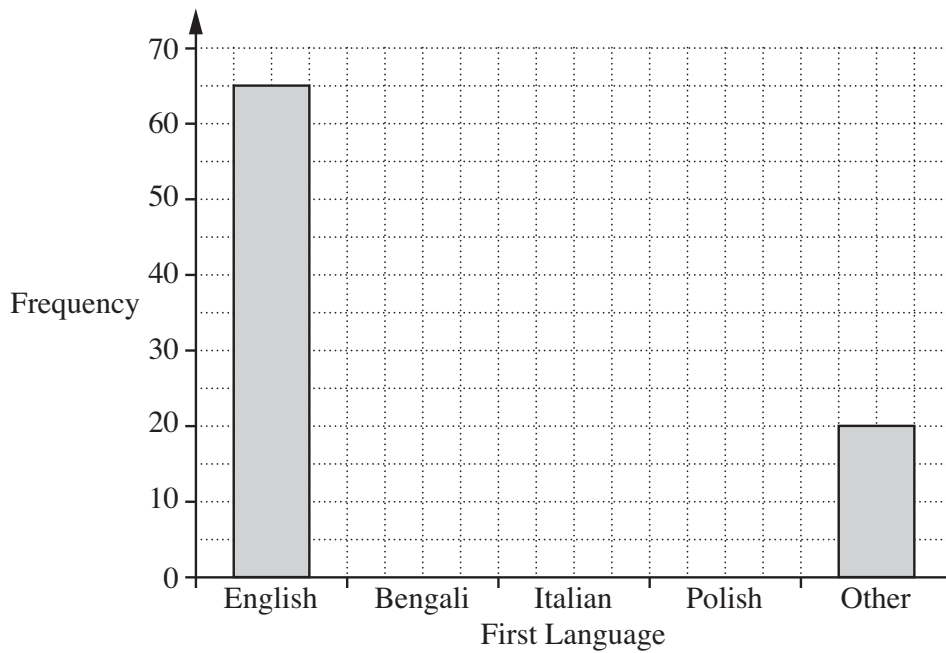
(b) ..... [1]

13 (a) The table shows the first language spoken at home by each Year 11 student in School A.

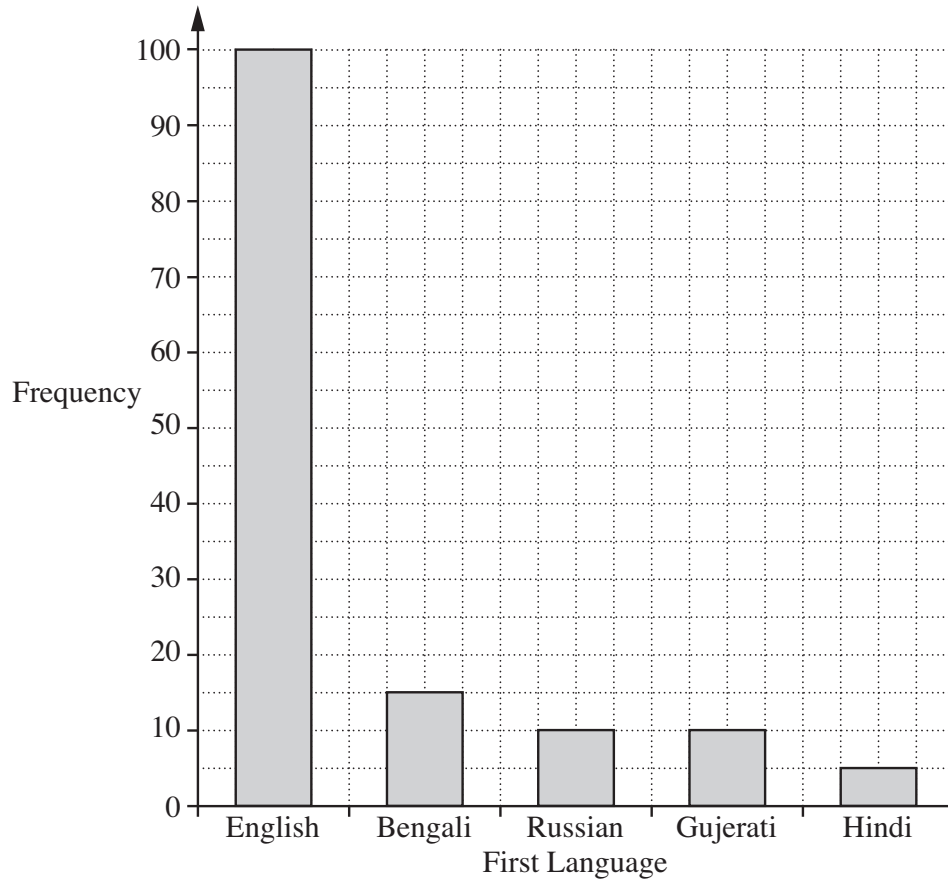
First Language	English	Bengali	Italian	Polish	Other
Frequency	65	30	15	10	20

Complete the bar chart to show this information.

[2]



(b) This bar chart shows the results for Year 11 students in School B.



(i) How many students are there in Year 11 in School B?

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

(ii) Write down one difference between the students in the two schools.

..... [1]

- 14 Segun asked thirteen friends how many cousins they each have. Their answers are recorded below.

3 6 4 5 9 11 3 2 6 7 3 4 2

- (a) Find the mode and the median of these numbers.

(a) The mode is .....

The median is ..... [3]

- (b) Calculate the mean of these numbers.

(b) The mean is ..... [3]

- 15 Work out the following expressions when  $m = 6$  and  $n = 2$ .

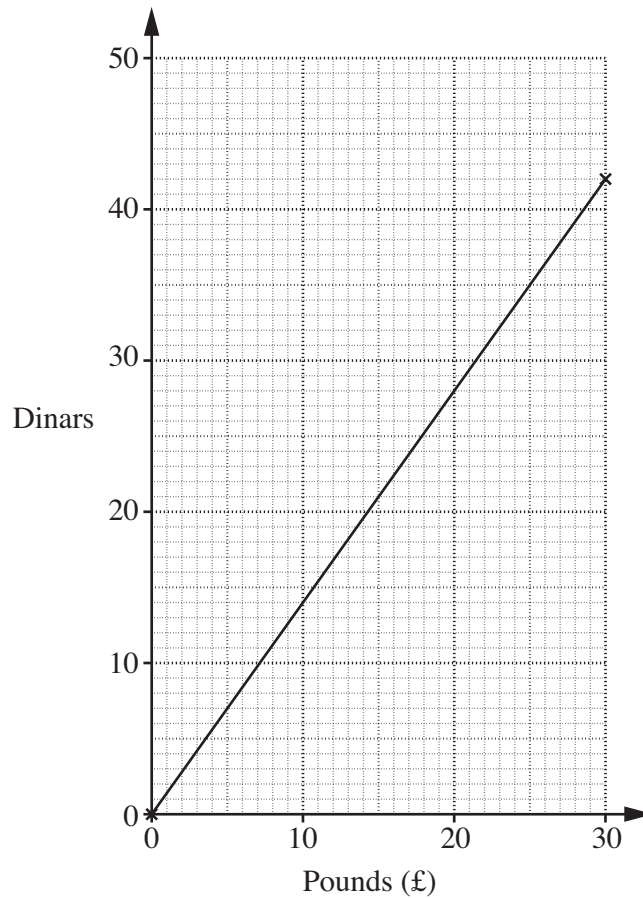
(a)  $3m + 5n$

(a) ..... [2]

(b)  $mn - \frac{m}{2}$

(b) ..... [2]

- 16 Ahmed is going abroad on holiday.  
The graph shows the conversion between pounds, £, and dinars.



- (a) Ahmed changes £20 into dinars.

How many dinars does he get for £20?

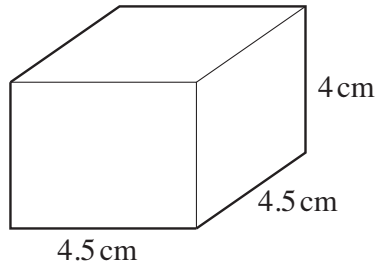
(a) ..... dinars [1]

- (b) A visa costs 11 dinars.

What is the price of a visa in pounds?

(b) £ ..... [1]

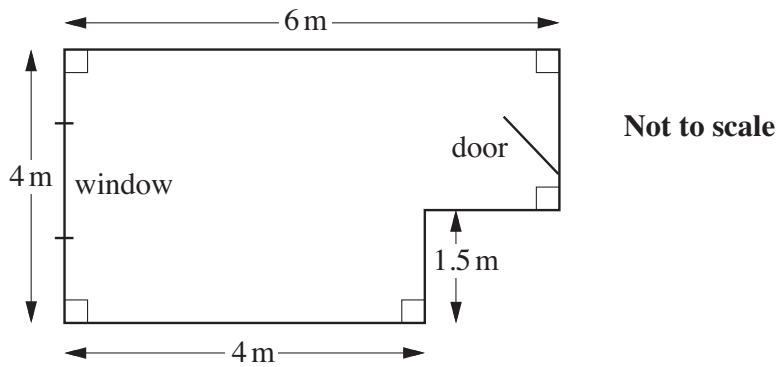
17 A cuboid has a square base, side 4.5 cm, and height 4 cm.



Find the volume of the cuboid.  
Give the units of your answer.

..... [3]

18 (a) This is the floor plan of Ryan’s office.

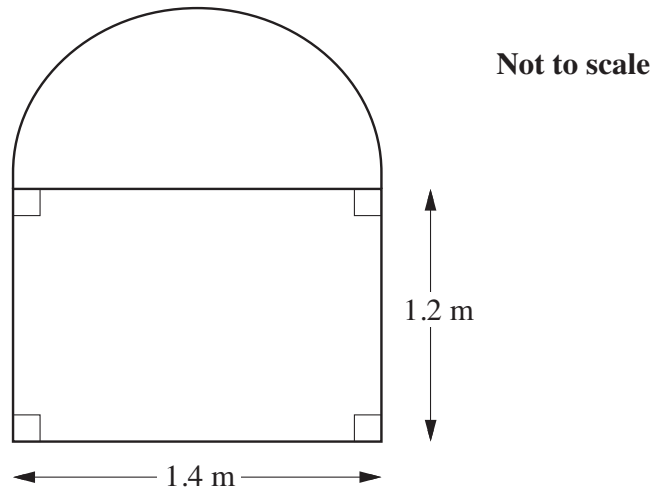


Work out the area of the floor.

(a) ..... m<sup>2</sup> [2]



- (b) This is the shape of the window in Ryan’s office. The top is a semi-circle and the bottom is a rectangle.



Work out the area of the window.

(b) ..... m<sup>2</sup> [4]

- (c) In an office, the area of the window should be at least 10% of the area of the floor.

Is the area of window in Ryan’s office large enough?

Explain your answer.

.....

.....

..... [2]

**10**  
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**11**  
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