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

**B291A**

Paper 1 Section A (Foundation Tier)

Candidates answer on the question paper.

**OCR supplied materials:**  
None

**Other materials required:**

- Geometrical instruments
- Tracing paper (optional)

**Tuesday 11 January 2011  
Morning**

**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, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure 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.
- 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).
- Answer **all** the questions.
- Do **not** write in the bar codes.

**INFORMATION FOR CANDIDATES**

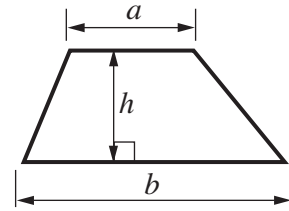
- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this Section is **36**.
- This document consists of **12** pages. Any blank pages are indicated.

**WARNING**

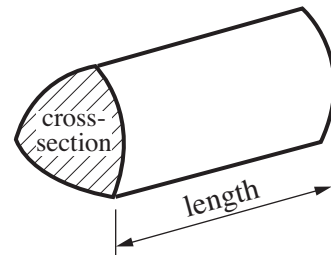
No calculator can be used for Section A of this paper

## Formulae Sheet: Foundation Tier

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

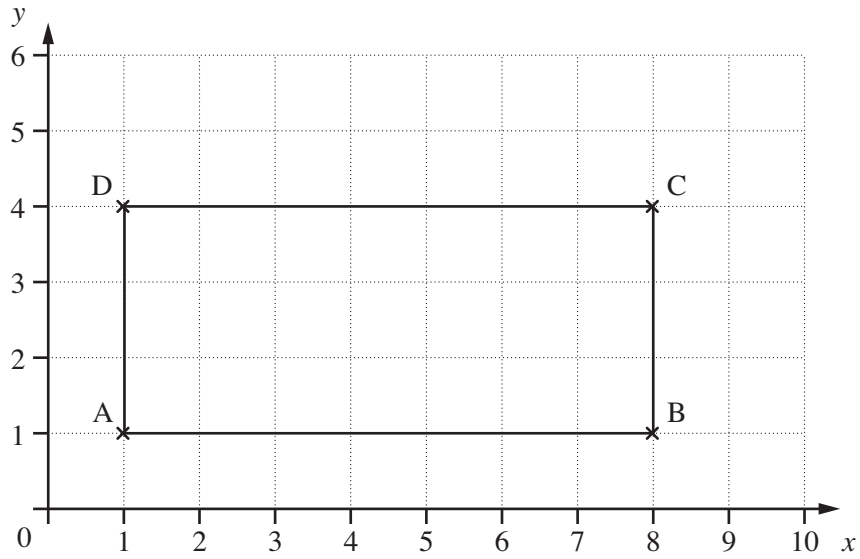


$$\text{Volume of prism} = (\text{area of cross-section}) \times \text{length}$$



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1



The diagram shows a quadrilateral ABCD, drawn on a centimetre grid.

(a) What type of quadrilateral is it?

(a) ..... [1]

(b) What are the coordinates of the point C?

(b) (..... , .....) [1]

(c) Find the perimeter of the quadrilateral ABCD.

(c) ..... cm [1]

(d) Find the area of the quadrilateral ABCD.

(d) .....cm<sup>2</sup> [1]

2 (a) Work out.

(i)  $530 - 245$

(a)(i) ..... [2]

(ii)  $17 \times 6$

(ii) ..... [1]

(iii)  $364 \div 7$

(iii) ..... [1]

(iv)  $82.3 + 3.9$

(iv) ..... [1]

(b)

4	10	2	30	3	5	15	20
---	----	---	----	---	---	----	----

What is the largest number you can make by multiplying together two of the numbers in the box?

(b) ..... [1]

3 (a) (i) Draw a straight line 8.5 cm long.

[1]

(ii) Using a ruler and protractor, draw an angle of  $55^\circ$ .



[1]

(iii) Using a ruler and protractor, draw an angle of  $120^\circ$ .



[1]

(b) Explain what is meant by an obtuse angle.

An obtuse angle is .....

..... [2]

4 (a) Write each of the following decimals as a fraction.

(i) 0.7

(a)(i) ..... [1]

(ii) 0.127

(ii) ..... [1]

(b) Write these decimals in order of size, starting with the smallest.

2.03    0.42    0.8    0.417

..... [2]  
*smallest*

5 Two coins, a 50p and a 20p, are to be spun at the same time.

Use the table to show the possible outcomes.  
 One has been done for you.

		20p	
		Head	Tail
50p	Head	..... , .....	H , T
	Tail	..... , .....	..... , .....

[2]

6 (a) Work out the following.

(i)  $\sqrt{64}$

(a)(i) ..... [1]

(ii)  $5^2$

(ii) ..... [1]

(iii)  $10^4$

(iii) ..... [1]

(b) Explain how you work out the cube of 6.

.....

..... [1]

7 Find the value of each of the following expressions when  $a = 5$  and  $b = -3$ .

(a)  $4a^2$

(a) ..... [2]

(b)  $10a + 2b$

(b) ..... [2]

8 For all whole number values of  $n$ , the following expressions can be described as

**always odd** or **always even** or **either odd or even**.

For each expression, determine which one of the descriptions is correct. Give your reasons.

(a)  $5n + 1$

The expression is .....

Reason: .....

.....

..... [2]

(b)  $2(n + 1)$

The expression is .....

Reason: .....

.....

..... [2]



- 9 Peter has correctly worked out this sum on his calculator, correct to 2 decimal places.

$$\frac{95.9}{0.81 \times 0.62} = 190.96$$

Jane does a rough check as follows.

$$\frac{95.9}{0.81 \times 0.62} \approx \frac{96}{1 \times 1} = 96$$

Jane tells Peter that his answer is too big.

However, Jane is wrong.

Carry out a more accurate approximation to demonstrate that the answer is close to 200.

.....

.....

.....

.....

..... [3]

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