

**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)

**Tuesday 12 January 2010**

**Morning**

**Duration: 45 minutes**



Candidate Forename		Candidate Surname	
--------------------	--	-------------------	--

Centre Number							Candidate Number				
---------------	--	--	--	--	--	--	------------------	--	--	--	--

**INSTRUCTIONS TO CANDIDATES**

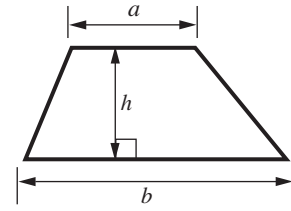
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show your working.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

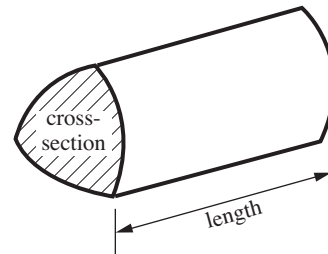
- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this Section is **36**.
- Section B starts with question 9.
- You are expected to use a calculator in Section B of this paper.
- Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.
- 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






**PLEASE DO NOT WRITE ON THIS PAGE**

- 9 (a) Dario asks his friends which of four television programmes they each prefer. He summarises his results in a pictogram.

Complete the key and fill in the gaps in the pictogram.

 represents ..... friends

Programme		Number of friends
Westenders		8
Ivyelms		.....
In and Out		12
Locals		.....

[4]

- (b) Seda asks nine of her friends how many different television programmes they each watch regularly. These are her results.

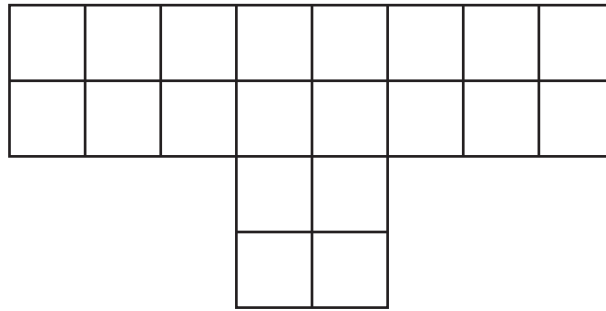
7 8 5 14 8 6 7 8 3

Find the mode and the median of these numbers.

The mode is .....

The median is ..... [3]

10 (a) This shape is made up of centimetre squares.



For this shape find

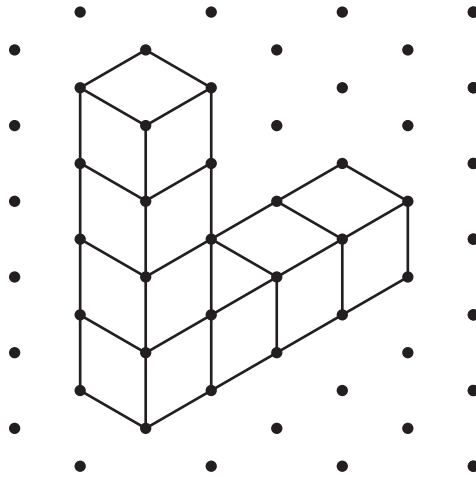
(i) the perimeter,

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

(ii) the area.

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

(b) The solid shape below is made up of centimetre cubes.  
There are no hidden cubes.



Find the volume of the shape.

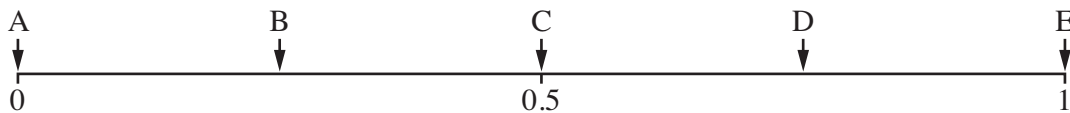
(b) ..... cm<sup>3</sup> [1]

- 11 Lightbulbs cost £1.65 each.  
Rose has a ten pound note to spend on lightbulbs.

What is the largest number of lightbulbs she can buy?  
How much change should she receive?

..... lightbulbs and ..... p change [3]

- 12 Here is a probability line.



- (a) Which arrow shows the probability that the first baby born in the UK in 2011 will be a boy?

(a) ..... [1]

- (b) Which arrow shows the probability that you will drink something tomorrow?

Explain why you chose that arrow.

Arrow.....because .....

..... [2]

13 (a) Write these correct to one decimal place.

(i) 23.135

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

(ii) 35.76

(ii) ..... [1]

(b) Use your calculator to work these out.

(i)  $89^2$

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

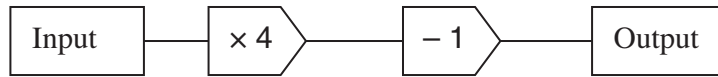
(ii)  $\sqrt{15.21}$

(ii) ..... [1]

(iii) the reciprocal of 0.125

(iii) ..... [1]

14 Here is a number machine.



(a) What is the Output when the Input is 3?

(a) ..... [1]

(b) What is the Output when the Input is  $\frac{1}{2}$ ?

(b) ..... [1]

(c) What is the **Input** when the **Output** is 7?

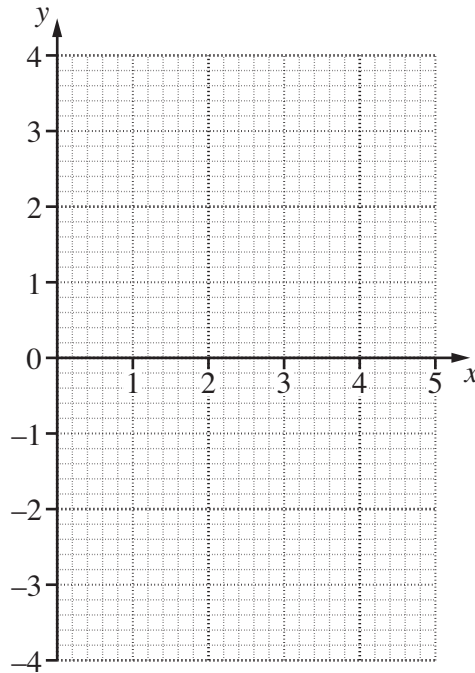
(c) ..... [2]

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

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

[1]

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



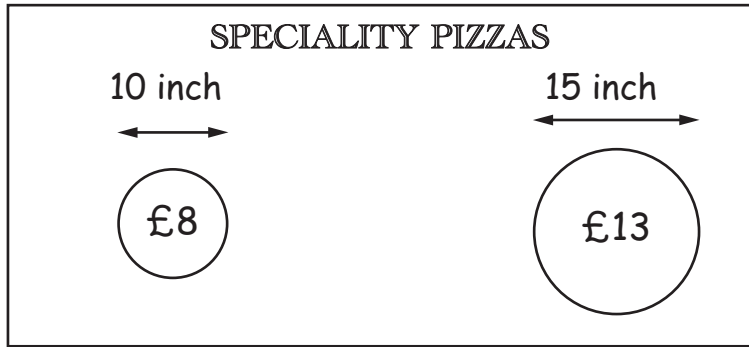
[2]

(c) On the same grid, draw the line  $y = 3$ .

[1]



16 Tony and Gordon compared pizzas.



Tony said, “The diameter of the big pizza is half as much again; it should only cost £12.”

Gordon said, “No, the area of the big pizza is more than twice as much; it is very good value.”

Write down calculations to show that Gordon is right.

.....

.....

.....

.....

.....

.....

.....

.....

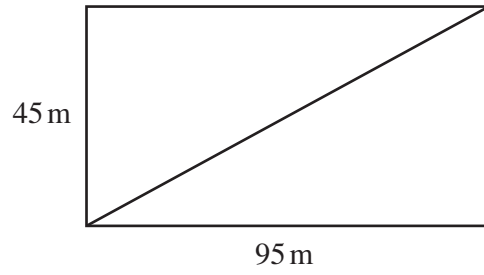
.....

.....

[4]

**TURN OVER FOR QUESTION 17**

- 17 A rectangular garden measures 95 m by 45 m.  
A path lies on a diagonal of the rectangle.



Not to scale

Calculate the length of the path.

..... m [3]

**PLEASE DO NOT WRITE ON THIS PAGE**

**PLEASE DO NOT WRITE ON THIS PAGE**



**Copyright Information**

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations, is given to all schools that receive assessment material and is freely available to download from our public website ([www.ocr.org.uk](http://www.ocr.org.uk)) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact the Copyright Team, First Floor, 9 Hills Road, Cambridge CB2 1GE.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.