

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

B292A

Paper 2 Section A (Foundation Tier)

**Friday 11 June 2010
Morning**

Duration: 1 hour

Candidates answer on the Question Paper

OCR Supplied Materials:
None

Other Materials Required:

- Geometrical instruments
- Tracing paper (optional)



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 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.
- The total number of marks for this Section is **50**.
- This document consists of **12** pages. Any blank pages are indicated.

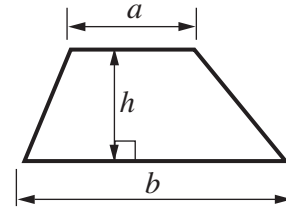
WARNING



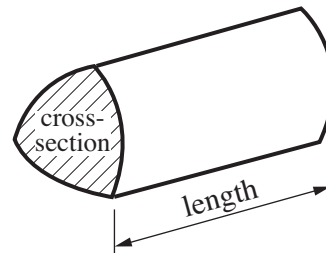
No calculator can be used for Section A of this paper

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 (a)



(i) What fraction of the diagram is shaded?

(a)(i) [1]

(ii) What percentage of the diagram is shaded?

(ii) % [1]

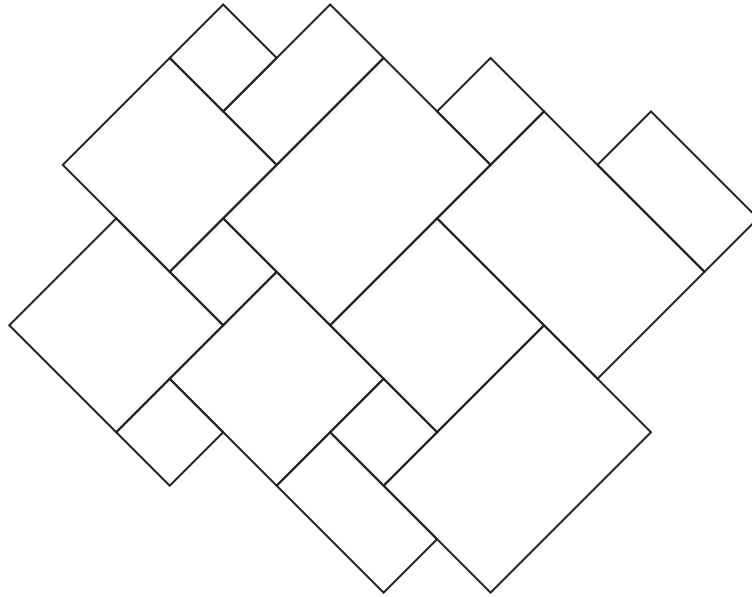
(iii) Add shading to the diagram so that exactly half of the diagram is shaded. [1]

(b) Write these in order, smallest first.

20% $\frac{1}{10}$ 0.3

(b) , , [2]
smallest

2 The diagram shows part of a tiled floor.



(a) Name the two shapes used as tiles here.

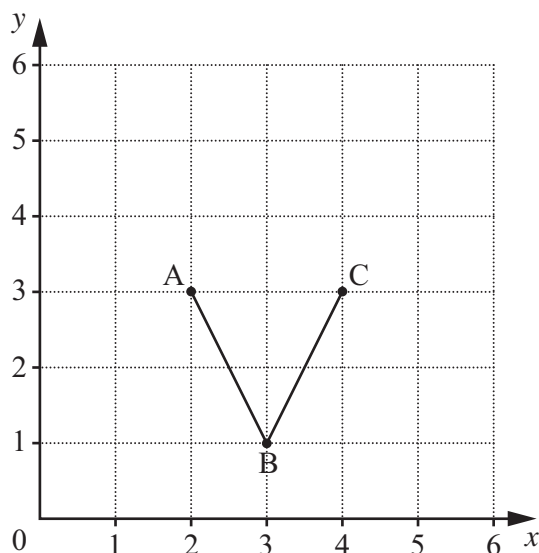
(a)
 [2]

(b) On the diagram, find two congruent tiles.

Place a cross inside each of them.

[1]

3



- (a) Write down the coordinates of point C. (a) (.....,) [1]
- (b) Plot the point (3, 5), and label it D.
Complete the quadrilateral ABCD. [1]
- (c) Write down the mathematical name of the quadrilateral ABCD.
(c) [1]
- (d) On the grid, draw the lines of symmetry for this quadrilateral. [2]

4 A person living in London is chosen at random.

Draw lines to join the words to complete each sentence.
The first one has been done for you.

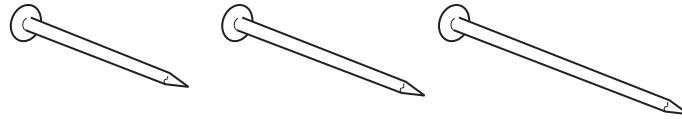
The probability that this person

- has met the queen is ... unlikely.
- has a heart is ... evens.
- is female is ... very unlikely.
- is left handed is ... certain.

[2]

5

6

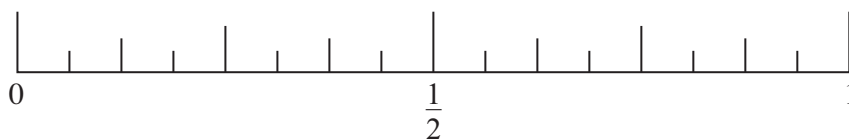


Archie has nails of three different lengths.

- Nail **A** is $\frac{3}{4}$ inch long
- Nail **B** is $\frac{5}{8}$ inch long
- Nail **C** is $\frac{11}{16}$ inch long

The diagram shows an enlarged ruler.

(a) Mark and label the lengths of **A**, **B**, and **C** on the ruler.



[3]

(b) How much longer is nail **A** than nail **B**?

(b) [1]

6 Here is Rory's homework.

Complete the teacher's comments.

(a) Calculate $3 + 4 \times 5 = 35$

Wrong, Rory. The correct answer is

What you did wrong was

.....

[2]

(b) Calculate $2 \times 3^2 = 36$

Wrong again. The correct answer is

What you did wrong was

.....

[2]

(c) Write x times 3 in algebra.

$$x \times 3$$

Rory, this is not the best way. It should be

[1]

(d) Write y divided by z in algebra.

$$\frac{z}{y}$$

Rory, this is wrong. It should be

[1]

- 7 At a wedding, tables are placed in a line.
 Three chairs are placed along one side of each table.
 A chair is placed at each end of the line.

Here is the diagram for 3 tables.
 It needs 11 chairs.



- (a) Draw the diagram for 4 tables.

[1]

- (b) How many chairs are needed with 4 tables?

(b) chairs [1]

- (c) Complete the following.

Number of tables	1	2	3	4	5
Number of chairs			11		

[2]

- (d) How many chairs are needed with 8 tables?

(d) [1]

(e) The expression for the number of chairs needed with n tables is $3n + 2$.

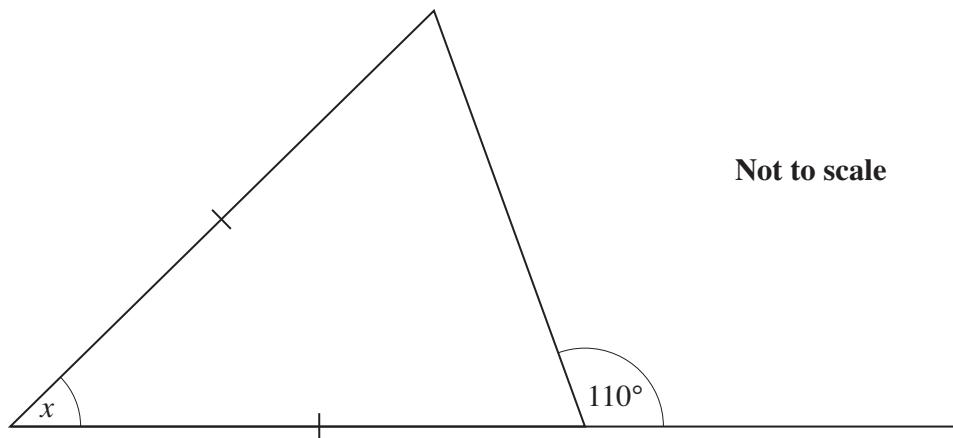
(i) Explain why '3n' is in the expression.

..... [1]

(ii) Explain why '+ 2' is in the expression.

..... [1]

8



The diagram shows an isosceles triangle with one of its sides extended.

Calculate the angle x .

.....° [3]

- 9 (a) Work out the following.

$$\frac{2}{3} \times \frac{1}{5}$$

(a) [1]

- (b) Calculate $\frac{2}{11}$ as a recurring decimal.

(b) [2]

- (c) A charity concert raises £250.
This money is divided between food aid and medical aid in the ratio 3:7.

How much of this money is given to food aid?

(c) £ [2]

- 10 (a) Georgia tosses a biased coin.
The probability it lands on heads is 0.6.

Calculate the probability that the coin lands on tails.

(a) [1]

- (b) Ghalib threw a six sided die 20 times.
His results are shown in the table.

Number on die	1	2	3	4	5	6
Frequency	0	3	6	4	2	5

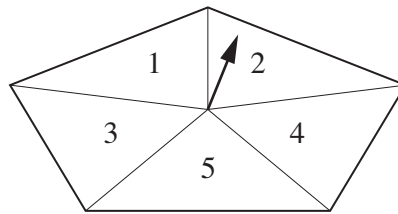
Ghalib says, “This is evidence that the die is biased.”

Is he correct? State your reason.

..... because

..... [1]

- (c)



Class 10B’s Maths teacher made a spinner as shown in the diagram.
She spun it 200 times.
Her results are shown in this table.

Number on spinner	1	2	3	4	5
Frequency	42	44	30	32	52

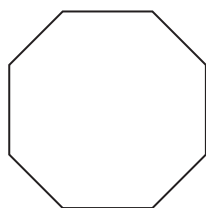
As a class exercise the members of 10B spun the spinner a total of 3000 times.

Estimate how many of the 3000 spins resulted in a 3.

(c) [3]

TURN OVER FOR QUESTION 11

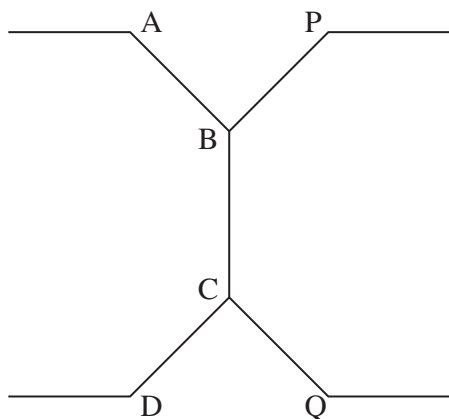
11 (a) Calculate the interior angle of a regular octagon.



Not to scale

(a) ° [2]

(b)



Not to scale

ABCD and PBCQ each form part of a regular octagon.

(i) Using your answer to part (a), explain why regular octagons alone do not tessellate.

.....

 [2]

(ii) A tessellation is made with regular octagons and another regular shape.

What is the name of this shape?

(b)(ii) [1]