



**M2**

**GENERAL CERTIFICATE OF SECONDARY EDUCATION  
MATHEMATICS C (GRADUATED ASSESSMENT)  
MODULE M2 – SECTION A**

**B272A**

Candidates answer on the question paper.

**OCR supplied materials:**  
None

**Other materials required:**

- Geometrical instruments
- Tracing paper (optional)

**Thursday 20 January 2011  
Morning**

**Duration: 30 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**

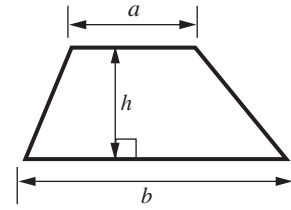
- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this Section is **25**.
- This document consists of **12** pages. Any blank pages are indicated.

**WARNING**

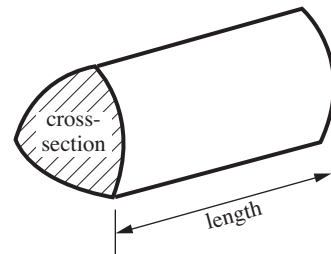
No calculator can be used for Section A of this paper

## Formulae Sheet

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

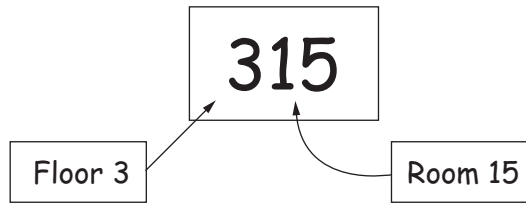


**Volume of prism** = (area of cross-section)  $\times$  length

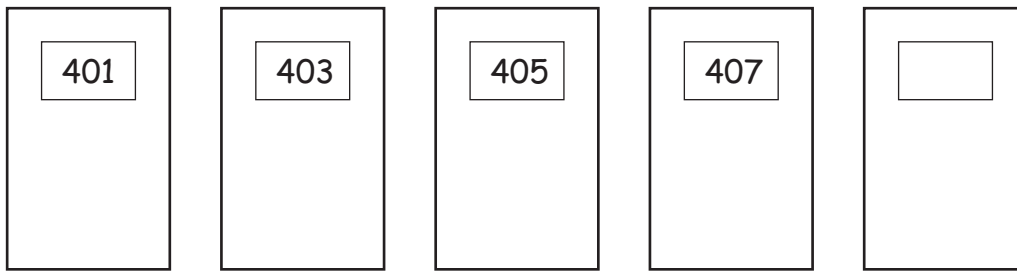


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- 1 The room doors in a hotel are numbered.  
The first digit shows which floor the room is on.



- (a) These are the doors for the first five rooms on one side of a corridor.



- (i) What number is on the fifth door?

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

- (ii) What is the mathematical name for the numbers on these doors?

(ii) ..... [1]

- (b) There are 40 rooms on each floor.  
Room number 402 is opposite room 401 and room 404 is opposite room 403 and so on.

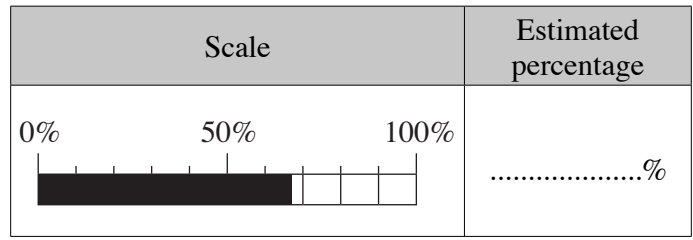
What room is opposite 440?

(b) ..... [1]

- (c) On which floor is room 923?

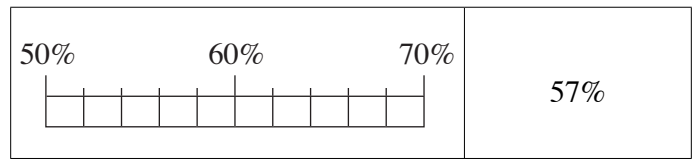
(c) ..... [1]

2 (a) Estimate the percentage shown on this scale.



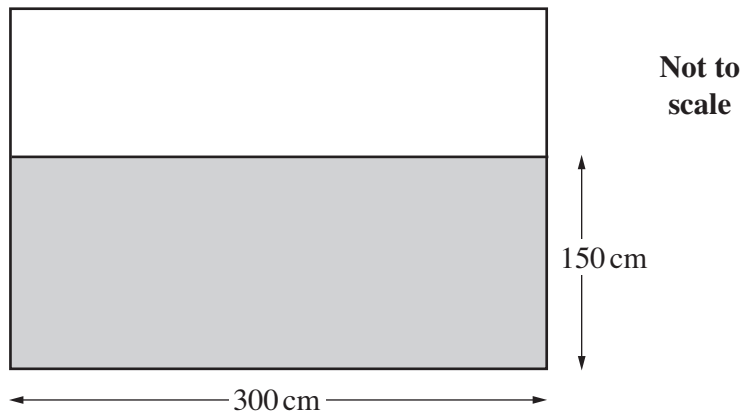
[1]

(b) Shade this scale to show 57%.



[1]

3 Barry is going to tile the shaded part of this wall in his bathroom.



(a) What is the length of the wall in metres?

(a) .....m [1]

(b) Barry will use tiles that measure 25 cm by 25 cm.

(i) Explain why 12 tiles will fit in a line across the wall.

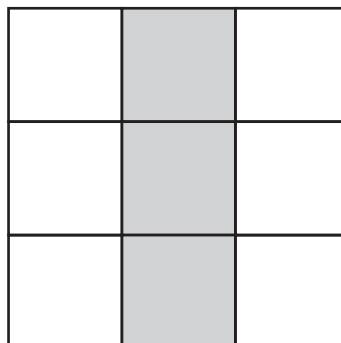
.....  
..... [1]

(ii) How many tiles will Barry need to cover the shaded part of the wall?

(b)(ii) ..... [3]

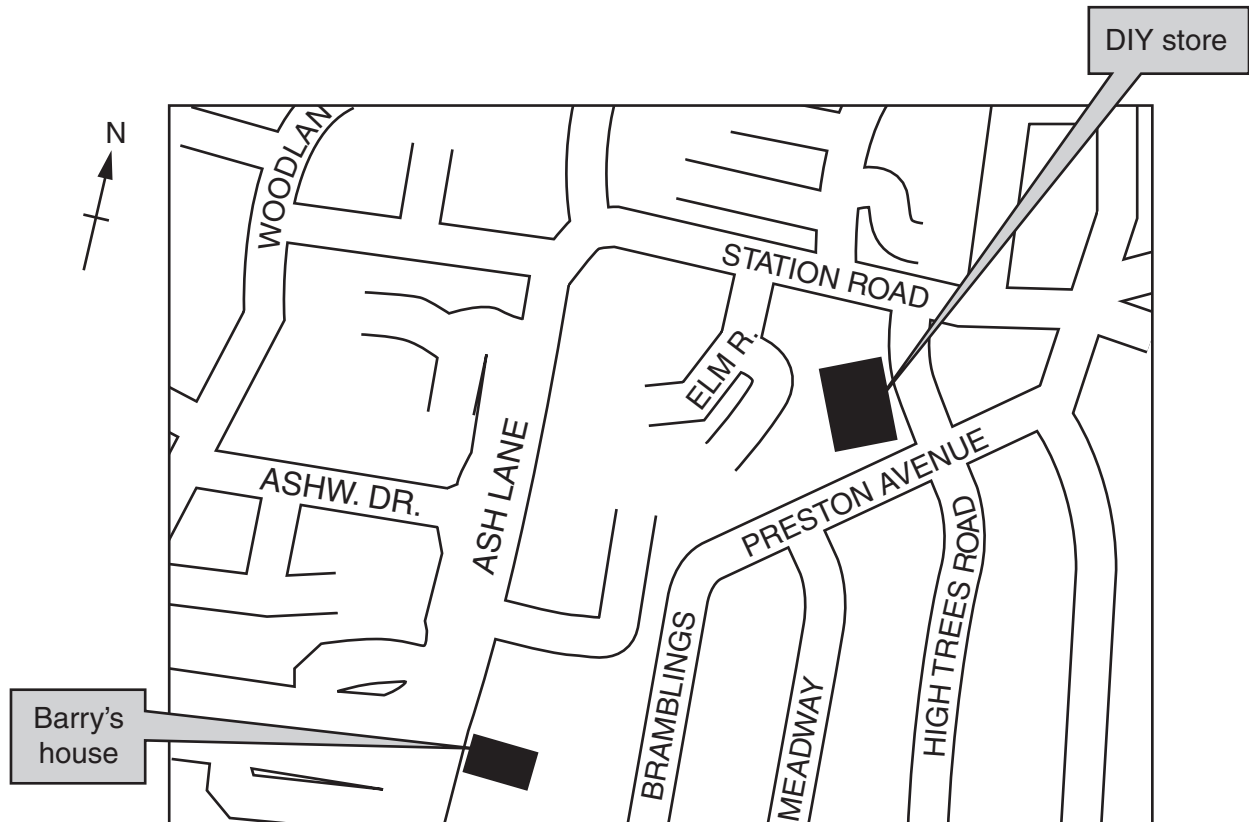
(c) Barry plans to use a repeating symmetrical pattern of grey and white tiles.

Shade **two** more squares so that this pattern has exactly four lines of symmetry.



[2]

- (d) Barry will collect the tiles from the DIY store in High Trees Road. He looks on this street plan.



Choose words from this list to complete the instructions for the route from Barry's house to the DIY store.

first	second	north	south
right	left	clockwise	anticlockwise

1. Come out of the house and turn right.
2. Drive ..... along Ash Lane.
3. Turn ..... along Station Road.
4. Take the ..... turn on the right.

[3]

- (e) Each tile weighs 180 g and they are sold in packs of 10.

What is the weight of one pack of tiles?  
Give your answer in kilograms.

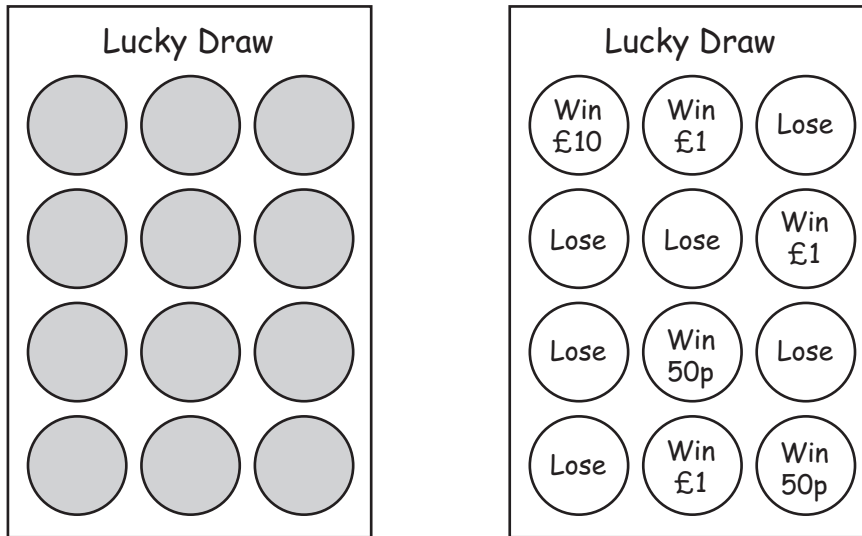
(e) .....kg [2]

- (f) When Barry gets to the DIY store he finds that they have **25% off** tiles.  
One pack of tiles normally costs £22.

Calculate how much money Barry saves when he buys one pack of tiles in the sale.

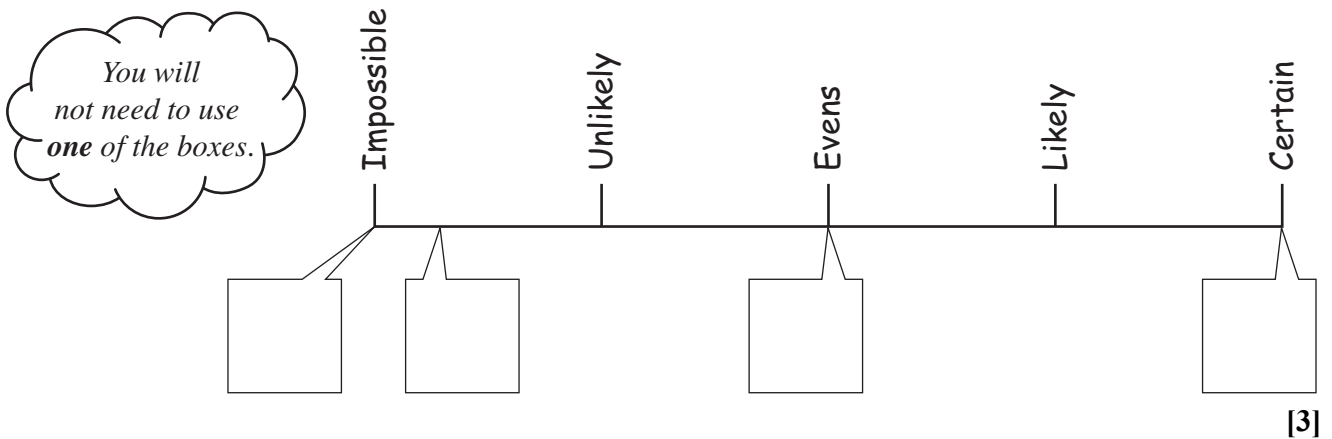
(f) £ ..... [2]

- 4 Katie has a scratch card that has these prizes hidden behind the silver circles. She has to scratch off **one** circle.



Write A, B or C in the correct box on the probability scale to show the probability that

- A Katie wins a prize,
- B Katie wins £10,
- C Katie wins £100.





- 5 Gemma makes a notice for her classroom notice board.  
She joins three sheets of A4 paper together  
so that there is no overlap, as shown below.

A4 paper  
measures  
21 cm by  
29.7 cm



**Not to  
scale**

How long is her finished notice?

..... cm [2]

**10**  
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