

GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS B (MEI)

B292B

Paper 2 Section B (Foundation Tier)

Candidates answer on the Question Paper

OCR Supplied Materials:

None

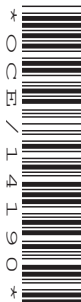
Other Materials Required:

- Geometrical instruments
- Scientific or graphical calculator
- Tracing paper (optional)

Friday 15 January 2010

Morning

Duration: 1 hour



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

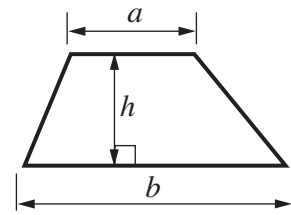
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show your working.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

INFORMATION FOR CANDIDATES

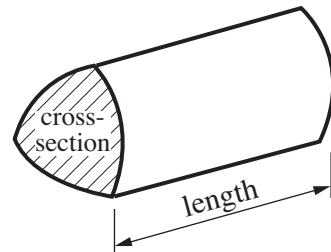
- The number of marks is given in brackets [] at the end of each question or part question.
- Section B starts with question 12.
- You are expected to use a calculator for this section of the paper.
- Use the π button on your calculator or take π to be 3.142 unless the questions says otherwise.
- The total number of marks for this Section is **50**.
- This document consists of **16** pages. Any blank pages are indicated.

Formulae Sheet: Foundation Tier

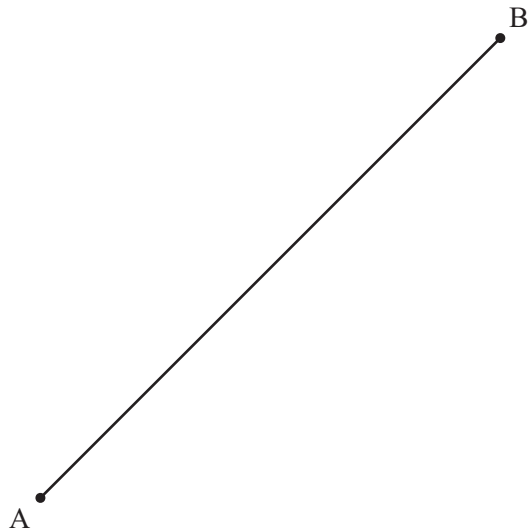
Area of trapezium = $\frac{1}{2} (a + b)h$



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

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12



- (a) Mark the midpoint of line AB.
Label it M. [1]
- (b) Draw a line parallel to line AB.
Label it CD. [1]
- (c) Draw a line perpendicular to line AB.
Label it EF. [1]

13

Square	Rectangle	Rhombus	Parallelogram
	Trapezium	Kite	Arrowhead

From the list in the box, choose the correct name for each of these quadrilaterals.



.....

.....

..... [3]

14 Here is a table to show egg sizes.

Weight	Size
Under 53 g	Small
53 – 63 g	Medium
63 – 73 g	Large
Over 73 g	Very Large

(a) What is the size of a 58 g egg?

(a)..... [1]

(b) An egg weighs 63 g.

Why is it difficult to decide the size of this egg using the table?

.....
 [1]

(c) Here are the weights, in grams, of 16 eggs.

65 57 49 66 52 54 81 60
 55 58 61 64 75 59 66 72

Fill in the frequency table for these eggs.

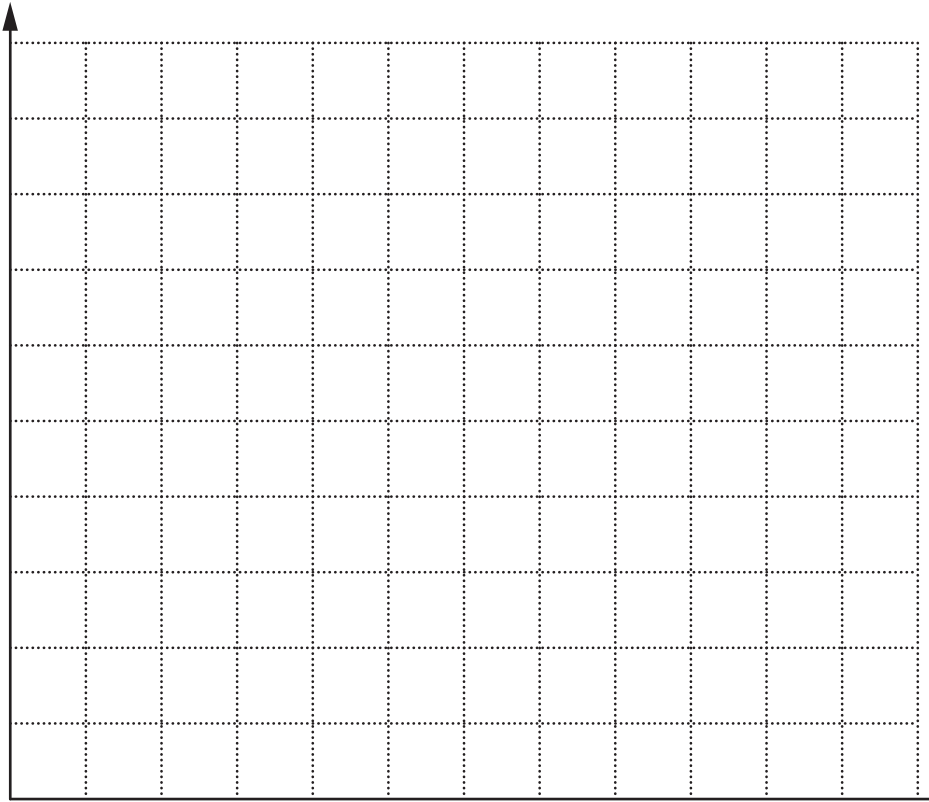
Size of eggs	Tally	Frequency
Small		
Medium		
Large		
Very Large		

[2]

(d) Explain how you can check that your frequency table contains all your data?

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

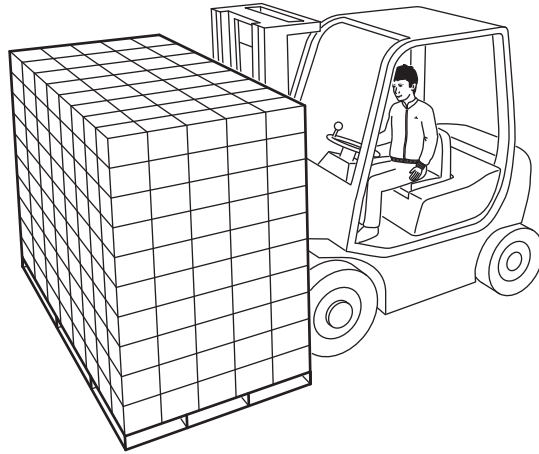
(e) On the grid, draw a bar chart to represent the data in your table.



[3]

(f) Which egg size is the mode?

(f) [1]



Eddie is loading pallets with boxes.
Each layer contains 8 rows with 5 boxes in each row.
A full pallet has 10 layers.

(a) Eddie fills 17 pallets.

How many boxes are there on 17 pallets?

(a)..... [3]

(b) A supermarket pays £1012 for the boxes on **one** full pallet.

What is the cost of one box?

(b) £ [2]



**SAVINGS
SCHEME**

**Invest your money at
4% per annum
simple interest**

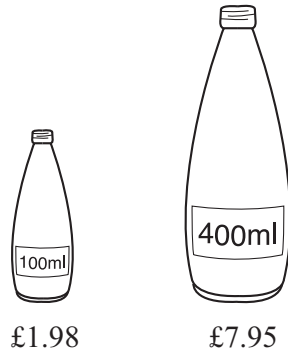
Ravi invests £2500 in this scheme.

How much will Ravi's investment be worth after 3 years?

£ [3]

17 In each part of this question you should show working to support your answer.

(a)

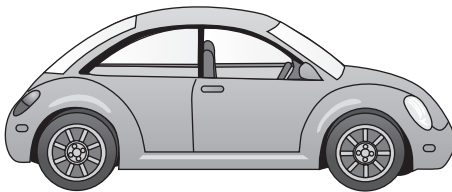


Which bottle is better value for money?

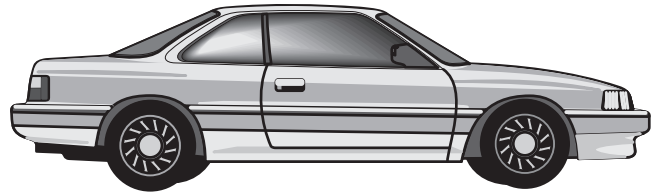
The bottle because

..... [2]

(b)



A
217 miles on
20 litres of petrol



B
200 miles on
19.2 litres of petrol

The two cars take part in a long-distance rally.

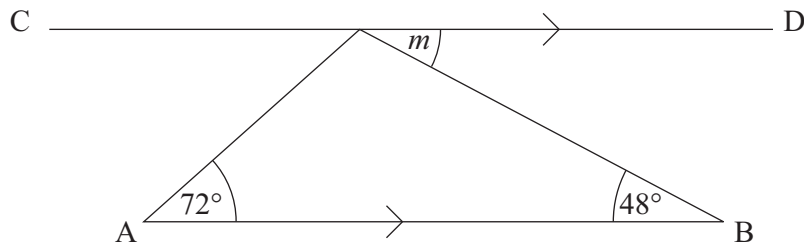
Which car will use less fuel?

Car because

.....

..... [3]

18 (a) In this diagram, line CD is parallel to line AB.

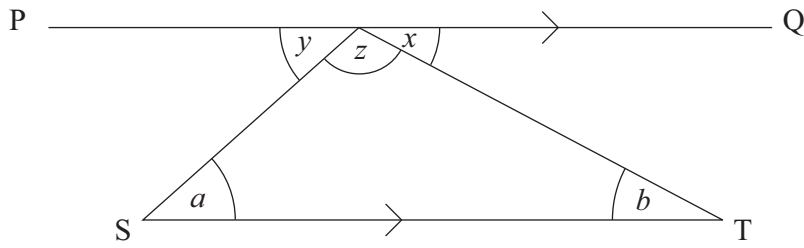


Not to scale

State the size of angle m .

(a)° [1]

(b) In this general diagram, line PQ is parallel to line ST.



Complete this proof that the angles in a triangle add up to 180° .

Angle $x =$ Angle and Angle $y =$ Angle

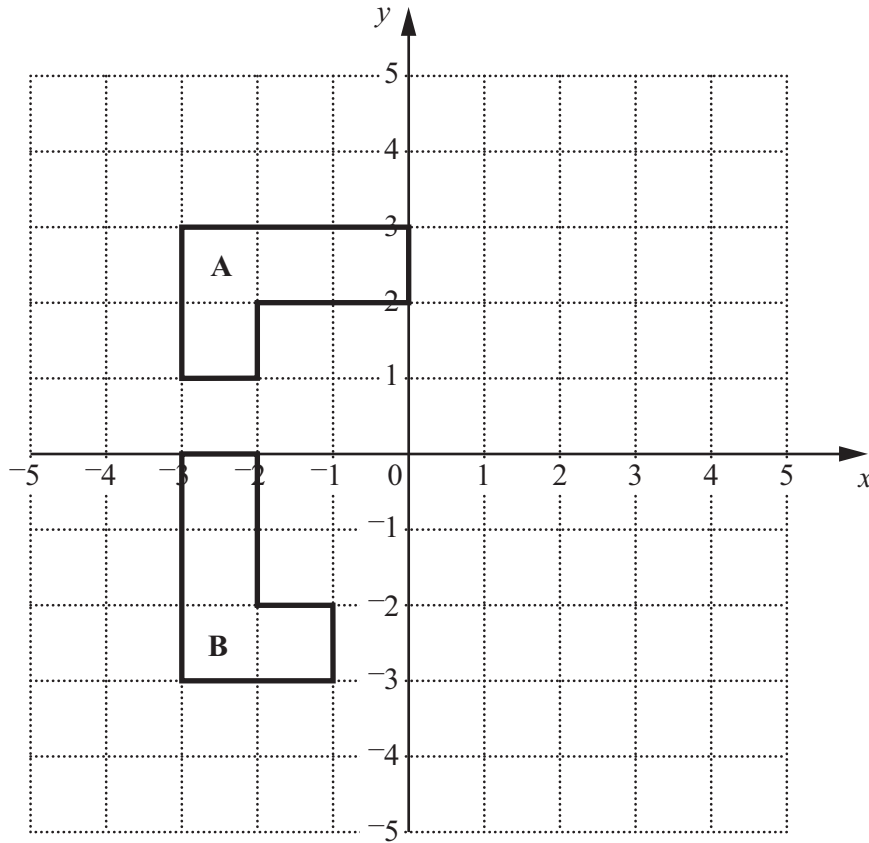
because

.....

$x + y + z = 180^\circ$ because

.....

So the angles in a triangle add up to 180° . [3]



(a) Describe fully the **single** transformation that will map shape **A** onto shape **B**.

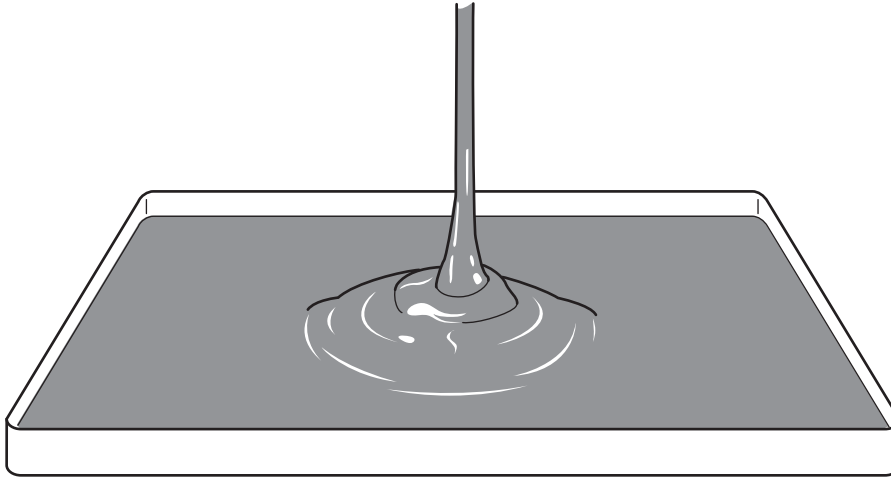
.....
 [3]

(b) Translate shape **A**, 4 right and 5 down.
 Label the image **C**.

[2]

(c) Reflect shape **A** in the line $x = 1$.
 Label the image **D**.

[2]



2400 cm^3 of liquid chocolate is poured into a tray to form a slab.

- (a) The liquid fills the tray to a uniform depth of 1.5 cm.

Calculate the surface area of the top of the slab.

(a) cm^2 [2]

- (b) The mass of the chocolate is 3 kilograms.

Calculate the density of the chocolate in grams per cubic centimetre.

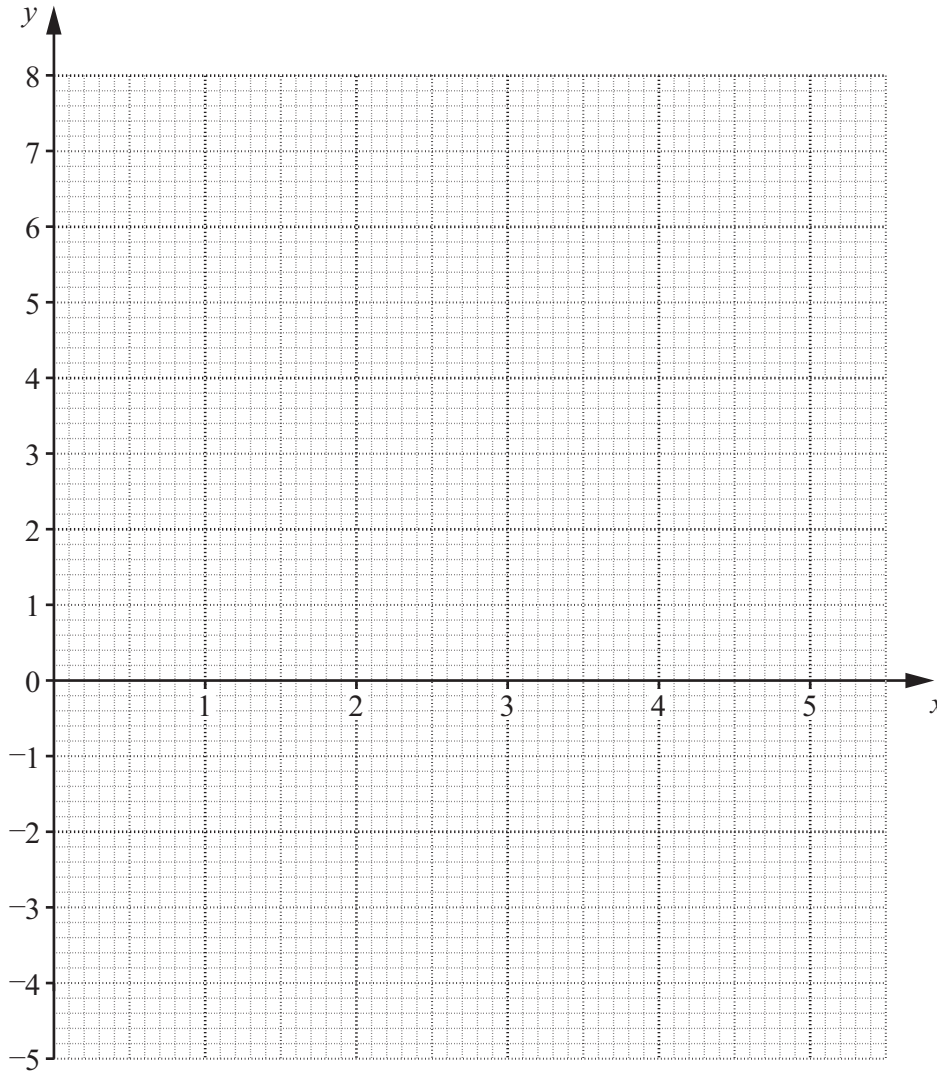
(b) g/cm^3 [3]

21 (a) Complete the table for $y = x^2 - 4x$.

x	0	1	2	3	4	5
y	0	-3	-4		0	

[1]

(b) On the grid draw the graph of $y = x^2 - 4x$.



[2]

(c) Use your graph to find one solution of the equation $x^2 - 4x = 1$.

(c) [1]

22 (a) In 2006 the population of the UK was 60 587 000.

Write 60 587 000 correct to 3 significant figures.

(a) [1]

(b) Write 5.4×10^3 as an ordinary number.

(b) [1]

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