OCR
RECOGNISING ACHIEVEMENT

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GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS B (MEI)

B292A

Paper 2 Section A
(Foundation Tier)

OCE/10843

Candidates answer on the question paper

OCR Supplied Materials:
None

Other Materials Required:
- Geometrical instruments
- Tracing paper (optional)

Monday 1 June 2009
Morning

Duration: 1 hour

B292A

Candidate Forename		Candidate Surname	

Centre Number						Candidate Number				

MODIFIED LANGUAGE

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. You may ask for more paper, if you need it.

INFORMATION FOR CANDIDATES

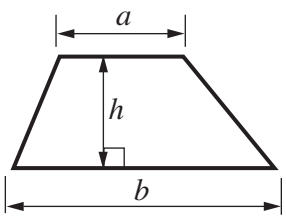
- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- The total number of marks for this Section is **50**.
- This document consists of **12** pages. Any blank pages are indicated.

WARNING

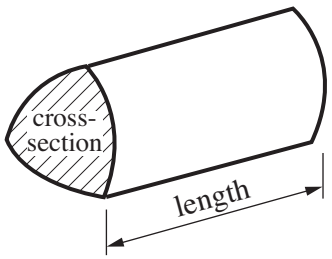
No calculator can be used for Section A of this paper

Formulae Sheet: Foundation Tier

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



Volume of prism = (area of cross-section) × length



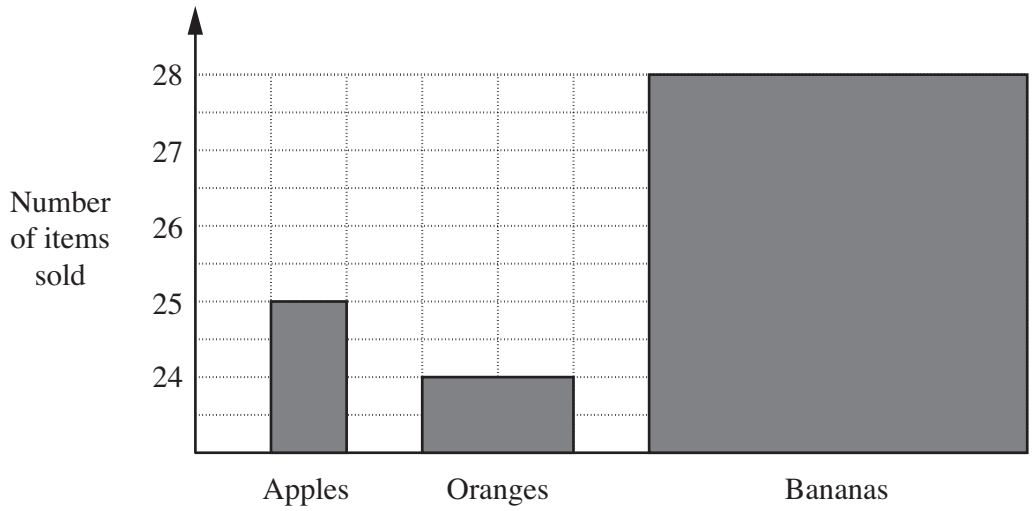
PLEASE DO NOT WRITE ON THIS PAGE

1 Complete the table to show equivalent fractions, decimals and percentages.

Fraction		Decimal		Percentage
.....	=	0.5	=	50%
.....	=	.....	=	25%
$\frac{1}{10}$	=	.....	=	.....

[5]

2 Chloe's school tuck shop sells 3 types of fruit.
Chloe looks at sales data from the shop and draws this bar chart.



(a) Give two reasons why her graph is misleading.

Reason 1 .....

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

Reason 2 .....

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

(b) Chloe says:

More than half the fruit sold were bananas.

Explain why she is wrong.

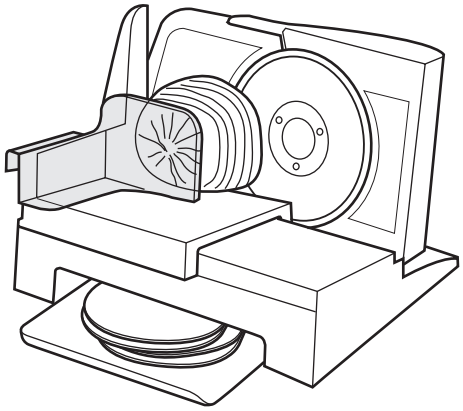
.....

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

(c) On the grid, draw a bar chart that correctly represents Chloe's data.

[3]

3



A ham joint is 21 cm long. It is being cut into slices 0.3 cm thick.

(a) Convert these into millimetres.

(i) 21 cm

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

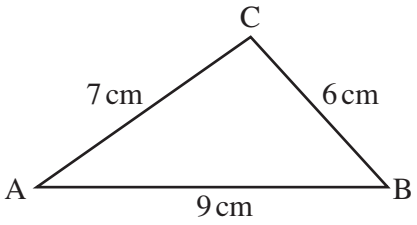
(ii) 0.3 cm

(ii) ..... mm **[1]**

(b) Use your answers to part **(a)** to find how many slices can be cut from the ham joint.

(b) ..... **[1]**

4 Here is a sketch of a triangle.



Not to scale

(a) Using ruler and compasses, construct triangle ABC accurately.
Leave in your construction lines. **[3]**

A

(b) **(i)** On your diagram draw a circle with centre A and radius 3 cm. **[1]**

(ii) Shade the region inside the triangle where all points are more than 3 cm from A. **[1]**

5 **(a)** Calculate the value of this expression.

$$4 \times 5 - 3 \times 2$$

(a) ..... **[1]**

Jack investigates the effect of placing a pair of brackets in this expression.

(b) Here is his first attempt.

$$(4 \times 5 - 3) \times 2$$

Calculate the value of this expression.

(b) ..... **[1]**

(c) Show two ways that Jack could place a pair of brackets in the expression to give two other different answers.
Write down your answers.

$4 \times 5 - 3 \times 2 =$ .....

$4 \times 5 - 3 \times 2 =$ ..... **[3]**

6 Calculate the following.
Give each answer as a fraction in its simplest form.

(a) $\frac{4}{7} \times \frac{1}{2}$

(a) ..... **[2]**

(b) $\frac{4}{7} - \frac{1}{2}$

(b) ..... **[2]**

7 **(a)** **Estimate** the value of $\frac{202 \times 59.7}{51.9 - 19.3}$.

(a) ..... **[2]**

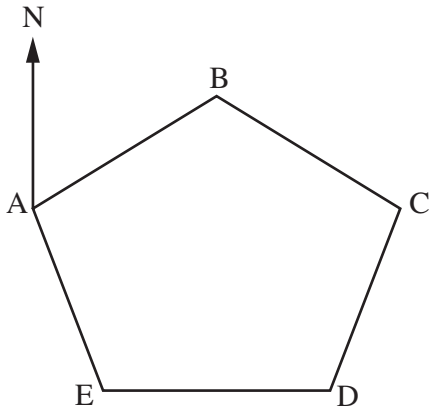
(b) Karen and Jasmine have a job-share.
They share the hours in the ratio 3 : 1.
One week they work a total of 36 hours.

Calculate how many hours they each work.

(b) Karen ..... hours

Jasmine ..... hours **[2]**

8



Not to scale

The diagram shows the course for a yacht race.
ABCDE is a regular pentagon.

(a) Show that angle ABC = 108°. **[2]**

(b) C is due east of A.

Find the bearing of

(i) C from A,

(b)(i) .....° **[1]**

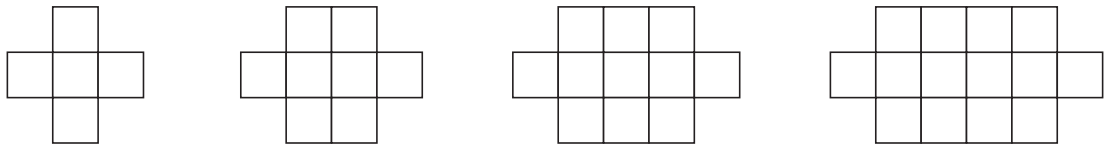
(ii) B from A,

(ii) .....° **[2]**

(iii) E from A.

(iii) .....° **[1]**

9



1 **2** **3** **4**

The diagram shows a sequence of patterns made from squares.

(a) How many squares are in pattern 5 and pattern 6?

(a) Pattern 5 .....

Pattern 6 ..... **[2]**

(b) Explain how you can find the answers to part **(a)** without drawing the shapes.

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

(c) Find an expression for the number of squares in the nth pattern.

(c) ..... **[2]**

(d) Is there a pattern in this sequence with exactly 632 squares?
Explain your answer.

..... because .....

.....

..... **[2]**

TURN OVER FOR QUESTION 10

10 Oliver has a large jar of coloured beads. He selected a bead at random, noted its colour and returned it to the jar. He repeated this 200 times.
His results are shown in this table.

Red	White	Blue	Black
34	66	62	38

(a) Use these figures to complete the table of relative frequencies.

Colour	Red	White	Blue	Black
Relative Frequency				

[2]

(b) Give a reason why the figures in the table in part **(a)** give a good estimate of the probability of selecting each of the colours.

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

(c) There are 4000 beads in the jar.

Estimate the number of blue beads in the jar.

(c) ..... **[2]**