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Centre Number						Candidate Number				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

B292A

MATHEMATICS B (MEI)

**Paper 2 Section A
(Foundation Tier)**

MONDAY 1 JUNE 2009: Morning

DURATION: 1 hour

SUITABLE FOR VISUALLY IMPAIRED CANDIDATES

Candidates answer on the question paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Geometrical instruments
Tracing paper (optional)
Diagram for question 4 (inserted)

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

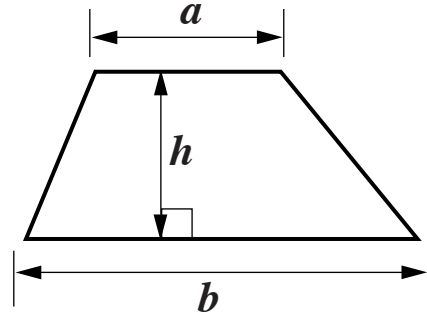
- **Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully and make sure that you know what you have to do before starting your answer.**
- **Show your working. Marks may be given for a correct method even if the answer is incorrect.**
- **Answer ALL the questions.**
- **Write your answer to each question in the space provided, however additional paper may be used if necessary.**
- **Do not use a calculator for Section A of this paper.**

INFORMATION FOR CANDIDATES

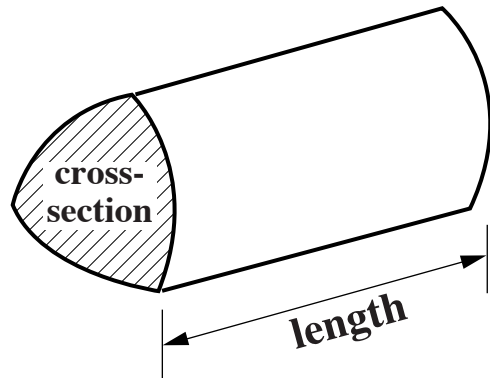
- **The number of marks is given in brackets [] at the end of each question or part question.**
- **The total number of marks for this Section is 50.**

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

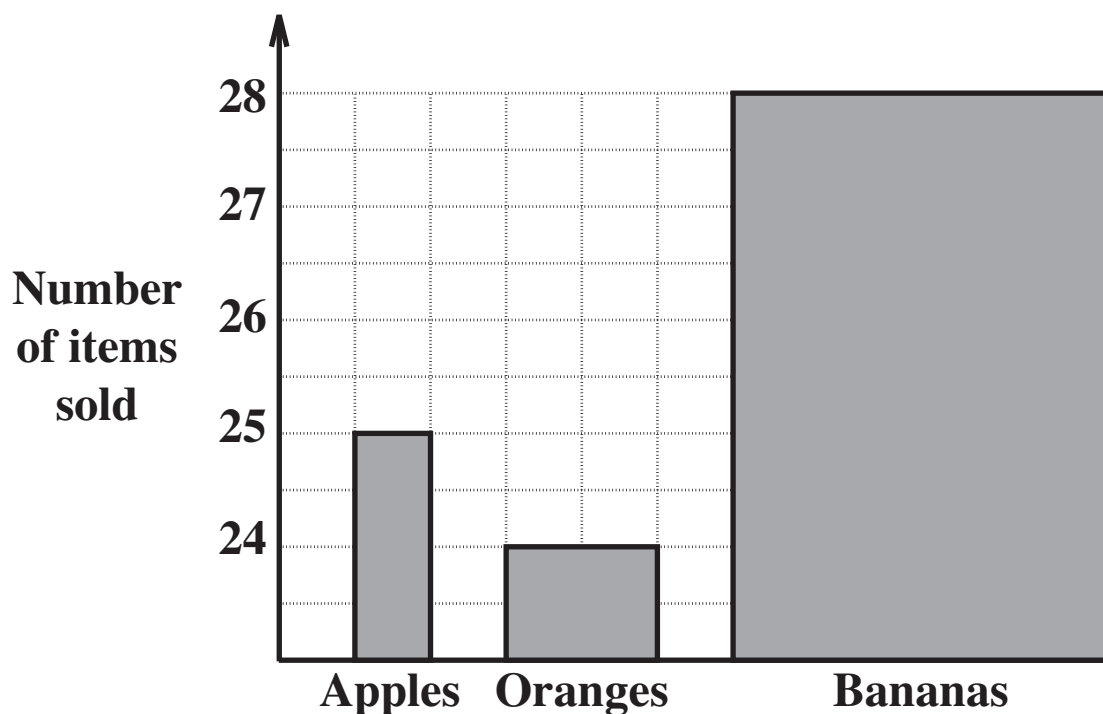
1 Complete the table below to show equivalent fractions, decimals and percentages. [5 marks]

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

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QUESTION 2 STARTS ON PAGE 6

- 2** Chloe's school tuck shop sells 3 types of fruit. Chloe draws this bar chart based on sales data from the shop.



- (a) Give two reasons why her graph is misleading. [2 marks]

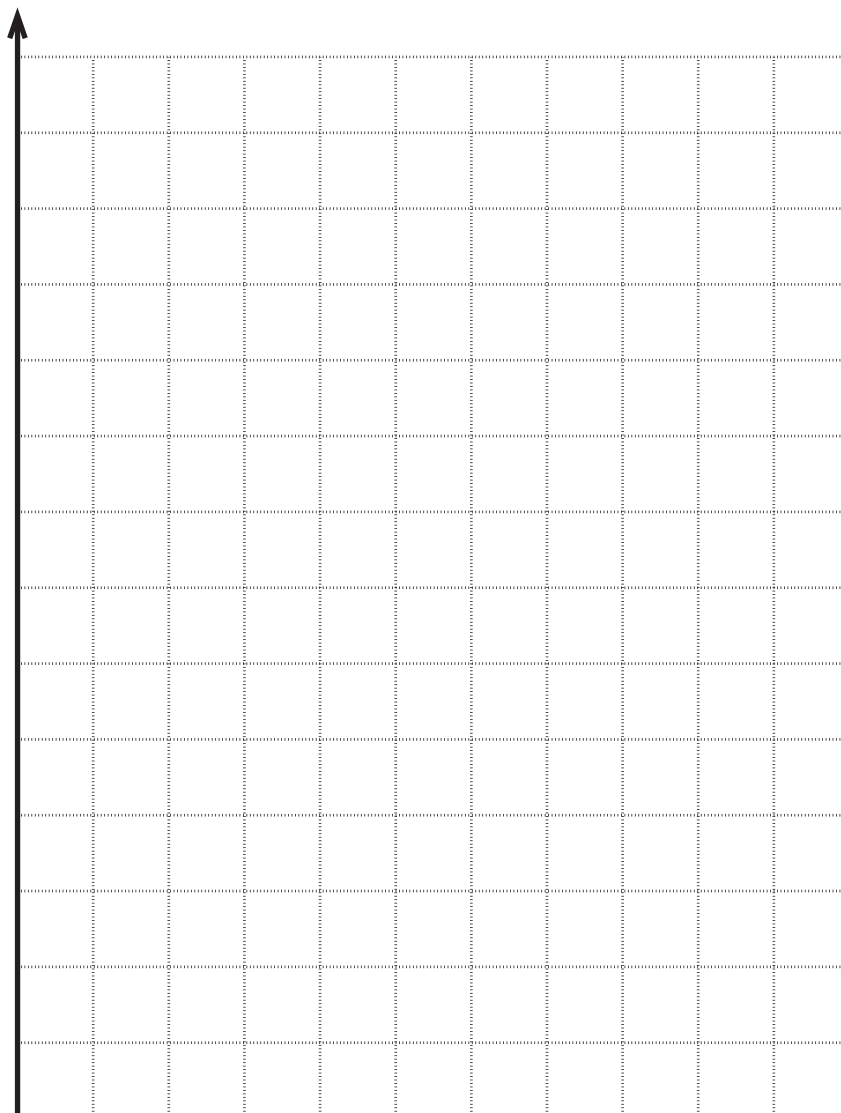
Reason 1 _____

Reason 2 _____

(b) Chloe says that more than half the fruit sold were bananas.

Explain why she is wrong. [1 mark]

(c) On the grid below, draw a bar chart that correctly represents Chloe's data. [3 marks]



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
[1 mark]**

(a)(i) _____ mm

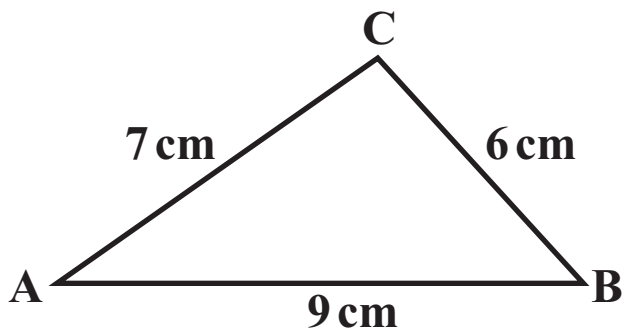
**(ii) 0.3 cm
[1 mark]**

(ii) _____ mm

(b) Use your answers to part (a) to find how many slices can be cut from the ham joint. [1 mark]

(b) _____

- 4 Look at the sketch of a triangle below.
It is not to scale.**



- (a) Using ruler and compasses, construct triangle ABC accurately.**

Use the separate sheet.

The point A has been put on the sheet for you.

Leave in your construction lines. [3 marks]

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

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

5 (a) Calculate the value of the expression below.

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

[1 mark]

(a) _____

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. [1 mark]

(b) _____

(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 below. [3 marks]

$$4 \times 5 - 3 \times 2 = \underline{\hspace{2cm}}$$

$$4 \times 5 - 3 \times 2 = \underline{\hspace{2cm}}$$

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

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

[2 marks]

(a) _____

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

[2 marks]

(b) _____

7 (a) **ESTIMATE** the value of

$$\frac{202 \times 59.7}{51.9 - 19.3}$$

[2 marks]

(a) _____

(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. [2 marks]

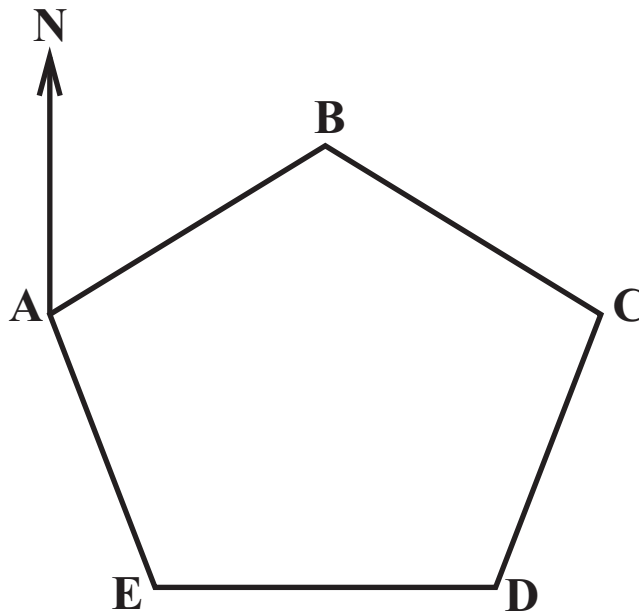
(b) **Karen** _____ **hours**

Jasmine _____ **hours**

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QUESTION 8 STARTS ON PAGE 14

- 8** Look at the diagram below.
It is not to scale.



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

- (a) Show that angle $ABC = 108^\circ$
[2 marks]**

(b) C is due east of A.

Find the bearing of

(i) C from A
[1 marks]

(b)(i) _____ °

(ii) B from A
[2 marks]

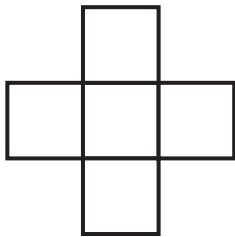
(ii) _____ °

(iii) E from A
[1 mark]

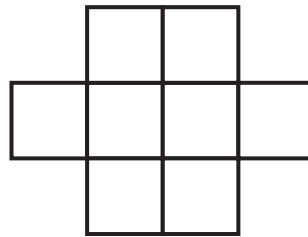
(iii) _____ °

9 Look at the diagram below.

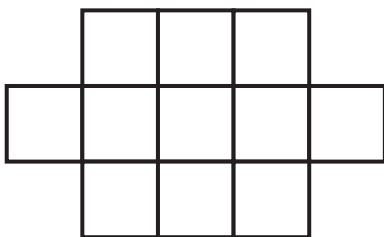
Pattern 1



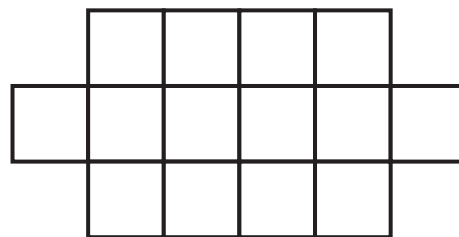
Pattern 2



Pattern 3



Pattern 4



It shows a sequence of patterns made from squares.

**(a) How many squares are in pattern 5 and pattern 6?
[2 marks]**

(a) Pattern 5 _____

Pattern 6 _____

(b) Explain how you can find the answers to part (a) without drawing the shapes. [1 mark]

(c) Find an expression for the number of squares in the n th pattern. [2 marks]

(c) _____

**(d) Is there a pattern in this sequence with exactly 632 squares?
Explain your answer. [2 marks]**

_____ because _____

- 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 the table below.

Red	White	Blue	Black
34	66	62	38

- (a) Use these figures to complete the table of relative frequencies below. [2 marks]

<u>COLOUR</u>	<u>RELATIVE FREQUENCY</u>
Red	
White	
Blue	
Black	

- (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 mark]
-

(c) There are 4000 beads in the jar.

Estimate the number of blue beads in the jar. [2 marks]

(c) _____



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