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

B292A

Paper 2 Section A (Foundation Tier)

**Friday 10 June 2011
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, 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.
- 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).
- 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.

INFORMATION FOR CANDIDATES

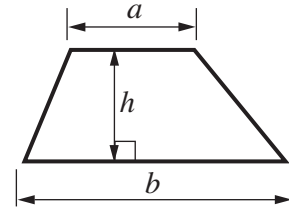
- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this Section is **50**.
- This document consists of **16** pages. Any blank pages are indicated.

WARNING

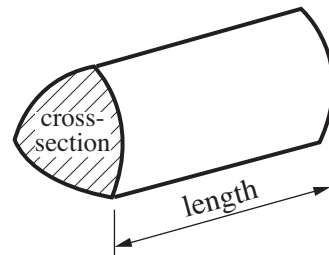
No calculator can be used for Section A of this paper

Formulae Sheet: Foundation Tier

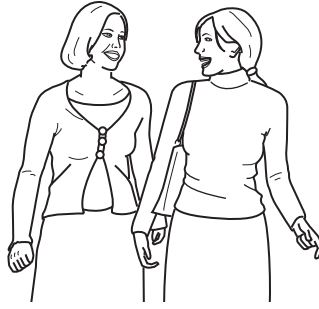
Area of trapezium = $\frac{1}{2} (a + b)h$



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

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1



Bobbie and Jo have just met for the first time.
They play a guessing game.

Select a word from this list to fill in each gap.

impossible	unlikely	evens	likely	certain
------------	----------	-------	--------	---------

(a) Bobbie says, “**Guess the month I was born in**”.

It is that Jo will guess correctly. [1]

(b) Jo says, “**Guess whether I am older or younger than my sister**”.

It is that Bobbie will guess correctly. [1]

2 A garden centre has the following prices.

Packets of seeds	£1.49 each.
Onion sets	£4.50 per kg.
Fruit bushes	£9.99 each.

Amy buys 3 packets of seeds, $\frac{1}{2}$ kg of onion sets and one fruit bush.

Work out the total cost.
Show your working.

£ [4]

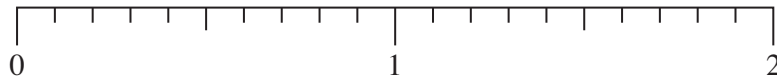
3

A	B	C	D
$1\frac{1}{5}$	$\frac{3}{2}$	$\frac{14}{20}$	$\frac{15}{50}$

(a) The number line is marked in tenths.

Mark and label fractions A, B, C, D on this line.

[4]



(b) Using the number line, work out $\frac{14}{20} - \frac{15}{50}$.

Give your answer as a fraction in its simplest form.

(b) [2]

Rectangle	Kite	Rhombus
Trapezium	Parallelogram	

(a) Which of the quadrilaterals listed above must have

(i) 4 equal sides,

(a)(i) [1]

(ii) 4 right-angled corners,

(ii) [1]

(iii) just one pair of parallel sides,

(iii) [1]

(iv) just one line of symmetry?

(iv) [1]

(b) Which two of the quadrilaterals listed above must have diagonals which cross at right angles?

(b)

..... [2]

5 (a) Solve this equation.

$$29 = x + 14 + 3x + 3$$

(a) [3]

(b) Multiply out.

$$g^2(2g - 3)$$

(b) [2]

6 (a) Write down the next term in each of these sequences.

(i) 1, 5, 9, 13, ...

(a)(i) [1]

(ii) 7, 4, 1, -2, ...

(ii) [1]

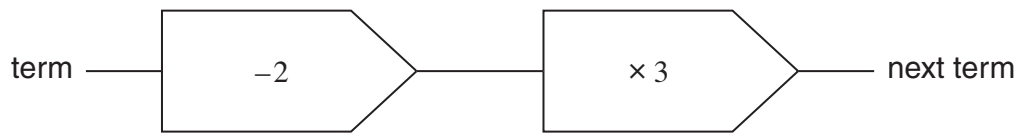
(iii) 3, 6, 12, 24, ...

(iii) [1]

(iv) 1, 3, 6, 10, ...

(iv) [1]

(b)



This rule is used to generate sequences.

(i) Find the next term in the sequence which starts with 6.

(b)(i) [1]

(ii) Describe what happens when the sequence starts with 3.

..... [1]

7 (a) Mike is using this recipe for making custard.

<p><u>Serves 5</u></p> <p>1 pint milk 55 ml cream 1 vanilla pod 4 egg yolks 30 g caster sugar 2 level teaspoons cornflour</p>

Mike wants to make enough custard for 8 people.

How much cream should he use?

(a) ml [2]

(b) Soraya is using the same recipe as Mike.
She has plenty of the other ingredients but only 72 g of caster sugar.

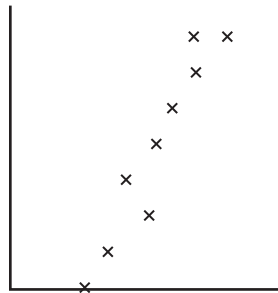
For how many people can Soraya make custard?

(b) [2]

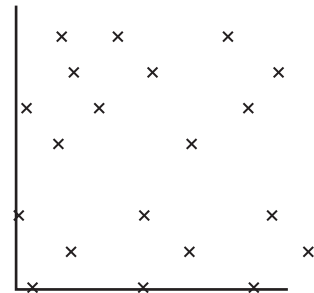
8 Here are some scatter diagrams.



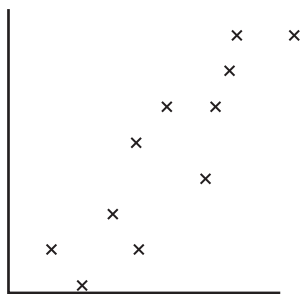
A



B



C



D



E



F



G

Complete the following sentences.

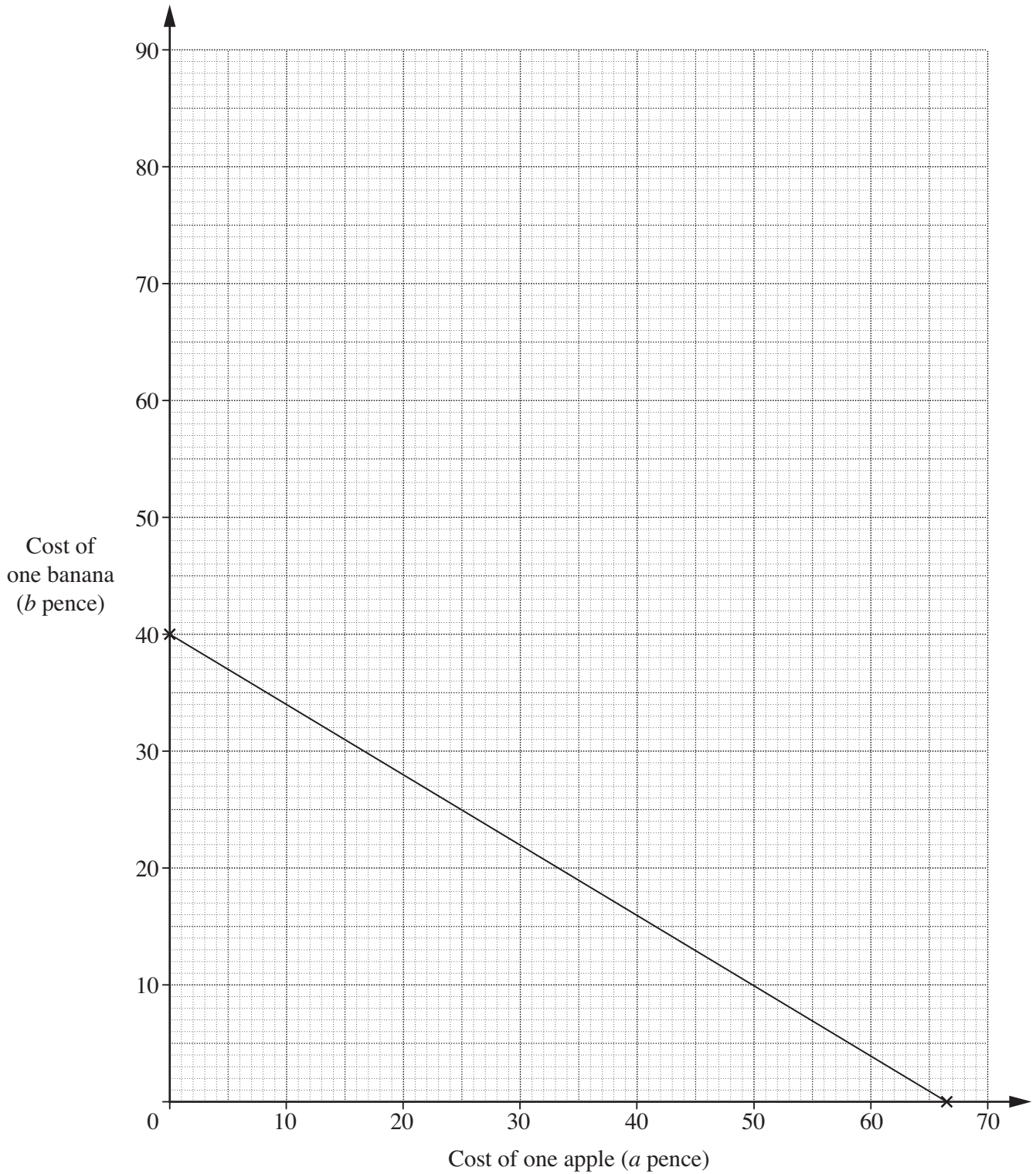
- (a) Strong, but not perfect, negative correlation is shown in diagram [1]
- (b) Weak positive correlation is shown in diagram [1]
- (c) No correlation is shown in diagram [1]
- (d) Perfect positive correlation is shown in diagram [1]

- 9 Janine buys 3 apples and 5 bananas. The total cost is £2.00.
The cost of one apple is a pence and the cost of one banana is b pence.

(a) Explain why $3a + 5b = 200$.

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

The graph of $3a + 5b = 200$ is drawn on the grid.



(b) Winston buys 4 apples and 2 bananas. The total cost is £1.64.

Write down a second equation in a and b .

(b) [2]

(c) (i) On the grid, draw a graph of the equation you found in part (b). [2]

(ii) Use the graphs to find the cost of one apple and the cost of one banana.

apple pence

banana pence [2]

TURN OVER FOR QUESTION 10

10 (a) Show that the interior angle of a regular pentagon is 108° .

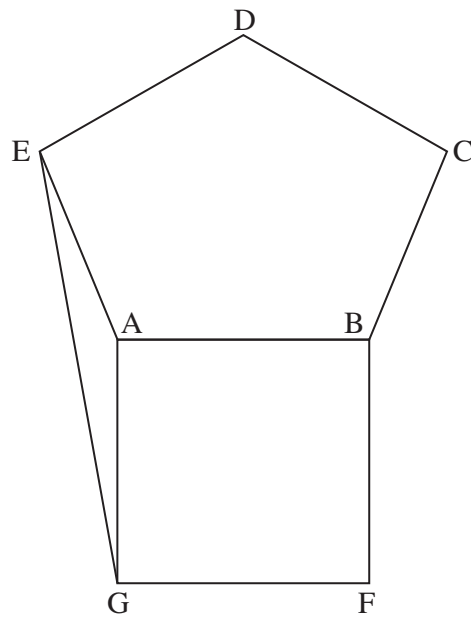
.....

.....

.....

..... [2]

(b) ABCDE is a regular pentagon.
ABFG is a square.



Not to scale

Calculate angle AEG.
Show each step of your calculation.

(b)^o [3]

15
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