RECOGNISING ACHIEVEMENT

Oxford Cambridge and RSA Examinations

General Certificate of Secondary Education

Mathematics C (Graduated Assessment) 1966/2336A

MODULE M6 – SECTION A

Specimen Paper 2003

Candidates answer on the question paper.

Additional materials:

Geometrical Instruments
Tracing Paper (optional)

TIME 30 minutes.

Candidate Name	Centre Number	Candidate Number

INSTRUCTIONS TO CANDIDATES

- Write your name, Centre number and candidate number in the boxes above.
- Answer **all** the questions.
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- There is a space after most questions. Use it to do your working. In many questions marks will be given for a correct method even if the answer is incorrect.

INFORMATION FOR CANDIDATES

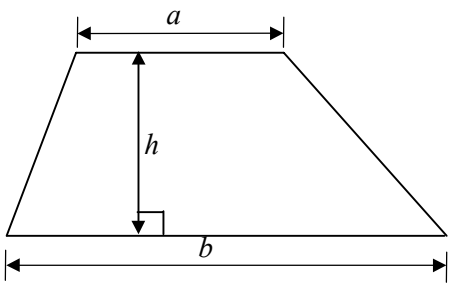
- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this section is 25.

For Examiner's Use	
Section A	
Section B	
Total	

WARNING
You are not allowed to use a calculator in Section A of this paper.

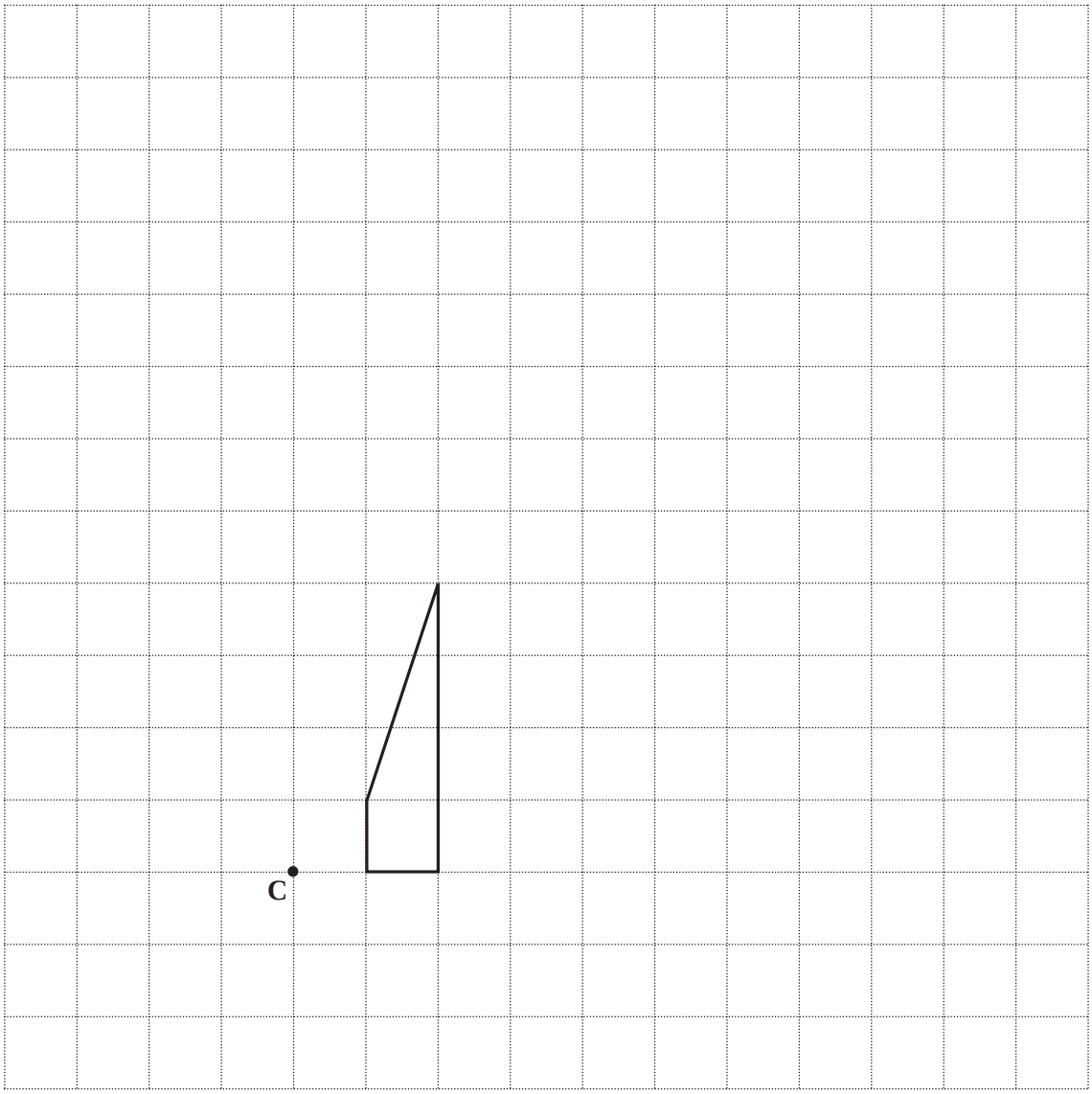
FORMULA SHEET: FOUNDATION TIER

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



1 Enlarge this shape using a scale factor of 3.

Use C as the centre of enlargement.



[3]

3

2 The expression $n^2 + n + 17$ generates prime numbers for some values of n.

Substitute these numbers into this expression.

(a) $n = 4$

(a) _____ [1]

(b) $n = -3$

(b) _____ [2]

3

3 Solve these equations.

(a) $3x + 2 = 2x + 5$

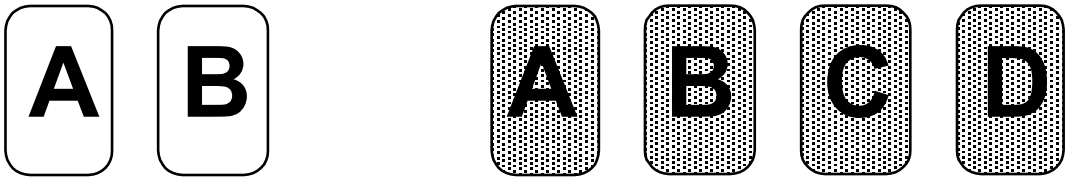
(a) $x =$ _____ [2]

(b) $2(x + 3) = 15$

(b) $x =$ _____ [2]

4

4 Here are two sets of cards, one set white and the other set grey.



A card is chosen at random from each set.

(a) Complete this table listing all the possible outcomes.

You will not need to use all the spaces.

White Card	Grey Card
A	A
A	B

[1]

(b) What is the probability of choosing two cards with the same letter?

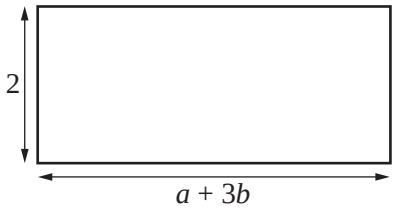
(b) _____ [1]

(c) What is the probability of choosing two cards with different letters?

(c) _____ [2]

4

5 **(a)** This rectangle has area $2(a + 3b)$.



Multiply out $2(a + 3b)$.

(a) _____ [1]

(b) This rectangle has area $3a + 12$.

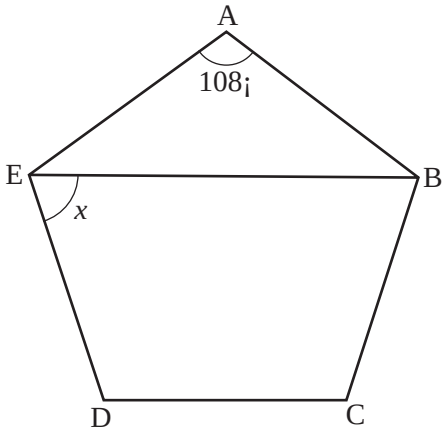
The width of the rectangle is 3.

Write down an expression for the length of the rectangle.

(b) _____ [2]

3

6 ABCDE is a regular pentagon.



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Calculate the size of angle x
Give reasons for your answer.

$x =$ _____ ° because _____

_____

_____

_____

_____ [4]

4

7 Calculate

(a) $\frac{3}{8} \times \frac{1}{2}$,

(a) _____ [1]

(b) $\frac{3}{8} \div 6$.

(b) _____ [1]

2

8 This table shows the temperature, in degrees Celsius, in some cities.

Amsterdam	− 7
Athens	5
Paris	2
Manchester	3
Geneva	

(a) How many degrees warmer was it in Paris than Amsterdam?

(a) _____ [1]

(b) In Geneva it was 7 degrees colder than in Paris.

What was the temperature in Geneva?

(b) _____ °C [1]

2

RECOGNISING ACHIEVEMENT

Oxford Cambridge and RSA Examinations

General Certificate of Secondary Education

Mathematics C (Graduated Assessment) 1966/2336B

MODULE M6 – SECTION B

Specimen Paper 2003

Candidates answer on the question paper.

Additional materials:

Geometrical Instruments
Tracing Paper (optional)
Electronic Calculator

TIME 30 minutes.

Candidate Name	Centre Number	Candidate Number

INSTRUCTIONS TO CANDIDATES

- Write your name, Centre number and candidate number in the boxes above.
- Answer **all** the questions.
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
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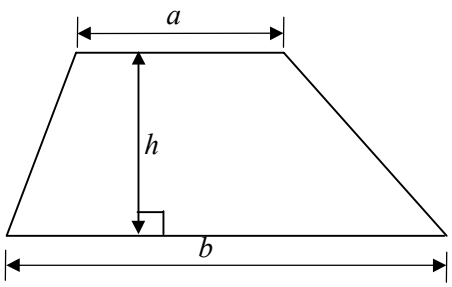
INFORMATION FOR CANDIDATES

- You are expected to use a calculator in Section B of this paper.
- 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.

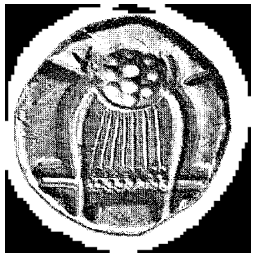
For Examiner's Use	
Section B	

FORMULA SHEET: FOUNDATION TIER

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



9 Ancient coins were made of electrum.
Electrum is a mixture of gold and silver in the ratio 4:1.



(a) What is the weight of gold in an electrum coin weighing 20 g?

(a) _____ g [2]

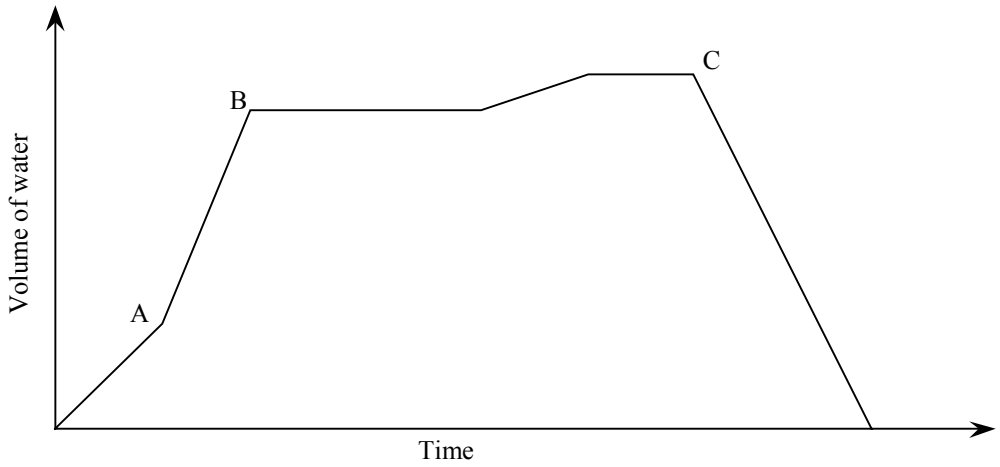
(b) Ancient medals were made of a different mixture of gold and silver.
55% of this mixture was gold.

Write down the ratio of gold to silver in this mixture.
Give your answer in its simplest form.

(b) _____ : _____ [2]

4

10 This sketch shows what happens to the volume of water in a bath.



At the start the plug was put in and the cold tap was turned on fully.

(a) What happened at A?

_____

_____ [1]

(b) What happened at C?

_____

_____ [1]

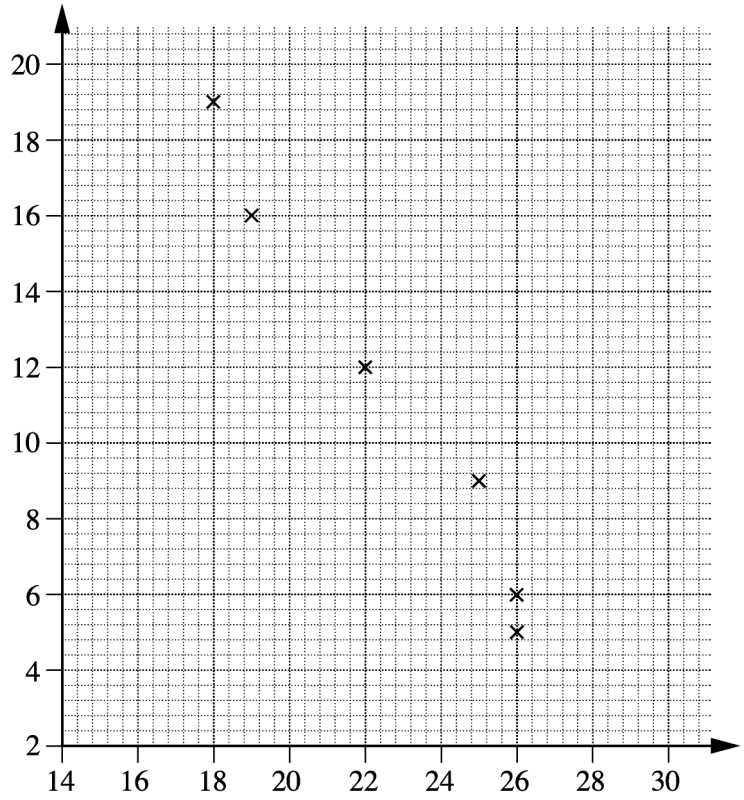
2

11 Amy wants to compare daily temperatures in Birmingham and Cape Town for 12 days.
This table shows the temperatures.

Temperature in Cape Town (°C)	26	26	25	22	19	18	17	18	18	21	23	24
Temperature in Birmingham (°C)	5	6	9	12	16	19	20	20	17	13	9	6

The first six points have been plotted on the scatter diagram below.

(a) Plot the last six points.



[2]

(b) What does the diagram show about the relationship between the temperature in Birmingham and the temperature in Cape Town?

_____

_____

_____

_____ [1]

3

12 **(a)** Calculate, correct to 2 decimal places.

$$\frac{1}{3{\cdot}4 + 2{\cdot}01}$$

(a) _____ [2]

(b) Calculate.

$$\frac{4{\cdot}9^2 - 3{\cdot}1^2}{3{\cdot}7}$$

(b) _____ [2]

4

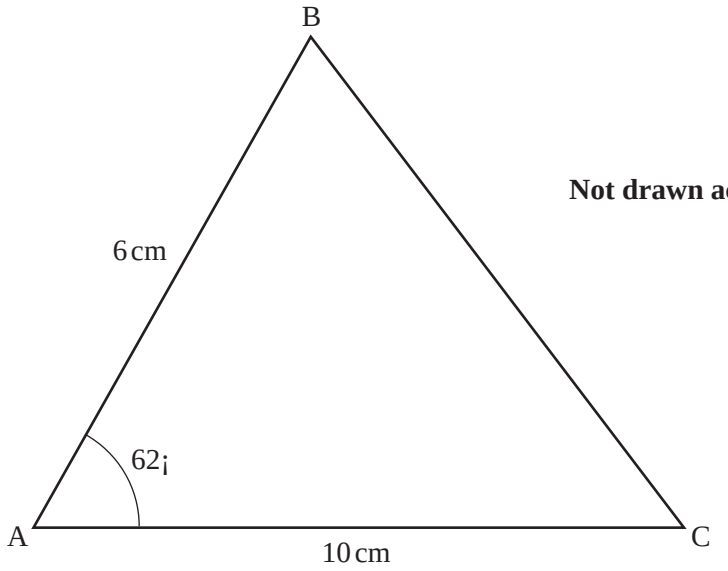
13 The Barringer Crater in Arizona is circular.
It has a diameter of 1·6 km.

Calculate the circumference of the Barringer Crater.

_____ km [2]

2

14



The diagram shows triangle ABC.

(a) Construct triangle ABC in the space below.
The side AC has been drawn for you.

A C

[1]

(b) Measure the size of angle C.

(b) _____ ° [1]

2

15 John and Peter did some gardening.
They shared the money they were paid in the ratio of the number of hours they worked.

John worked for 5 hours.
Peter worked for 7 hours.

They were paid a total of £28·80.

How much did they each receive?

John £ _____ [1]

Peter £ _____ [1]

2

16 A holiday company offers a discount of 5%.

Michael booked a holiday.
The full cost of the holiday was £910.

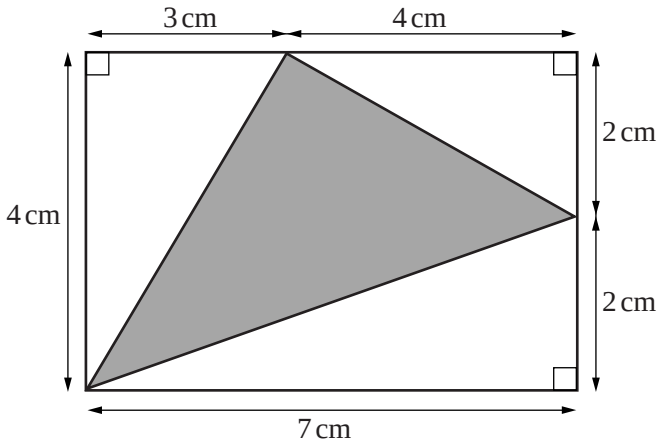
How much did Michael pay after the discount?

£_____ [2]

2

17 ABCD is a rectangle measuring 4 cm by 7 cm.

Work out the area of the grey triangle.



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_____ [4]

4

RECOGNISING ACHIEVEMENT

Oxford Cambridge and RSA Examinations

General Certificate of Secondary Education

Mathematics C (Graduated Assessment) 1966/2336

MODULE M6

MARK SCHEME

Specimen Paper 2003

SECTION A

1	Correct enlargement	W3 **[3]**	W2 for correct enlargement in the wrong place M1 for evidence of use of centre
2	**(a)** 37 **(b)** 23	W1 W2 **[3]**	 W1 for 9 – 3 + 17 seen
3	**(a)** 3 **(b)** 4.5	W2 W2 **[4]**	M1 for $3x - 2x = 5 - 3$ M1 for $2x + 6 = 15$
4	**(a)** Correct table **(b)** $\frac{1}{4}$ or 0.25 or 25% **(c)** $\frac{3}{4}$ or 0.75 or 75%	W1 W1 W2 **[4]**	 M1 for $1 - \frac{1}{4}$ f.t
5	**(a)** $2a + 6b$ **(b)** $a + 4$	W1 W2 **[3]**	 M1 for $(3a + 12) \div 3$
6	72°	 **[4]**	W2 for 72˚ with no reasoning Or M1 ABE isosceles M1 ∠AEB=36° M1 ∠BED= 108 – 36 A1 72°
7	**(a)** $\frac{3}{16}$ **(b)** $\frac{1}{16}$	W1 W1 **[2]**	
8	**(a)** 9 **(b)** ⁻ 5	W1 W1 **[2]**	

Total for Section A: 25

SECTION B

9	**(a)** 16	W2	M1 for 20 ÷ (4+1)
	(b) 11:9	W2	W1 for 55 : 45
		[4]	
10	**(a)** Hot water on	W1	
	(b) Plug pulled out	W1	
		[2]	
11	**(a)** 6 points plotted correctly	W2	W1 for 4 correct
	(b) (Negative) correlation or equivalent	W1	
		[3]	
12	**(a)** 0·18	W2	W1 for 0.1848 …
	(b) 3.89	W2	W1 for 14.4 seen
		[4]	
13	5 (**.** 0……)	W2	M1 for π x 1.6
		[2]	
14	**(a)** Correct triangle	W1	Allow ± 0.1 cm and ± 1°
	(b) 35 to 37	W1	
		[2]	
15	12 and 16.80	W2	M1 for 28.8 ÷ 12
		[2]	
16	864.50	W2	M1 for 0.95 x 910
		[2]	
17	11 cm²	W4	M3 for 28 – (6+4+7) (or 11) or M2 for 2 correct areas seen or M1 for use of formula for the area of a triangle
		[4]	

Total for Section B: 25

Total mark available: 50

MODULE: M6				16	7	5	14	7	3	2	2	5			Grades		
Question	Topic	Syll Ref	Mod Ref	N	Man A	NMan A	SSM	HD	UA 1	UA2	UA3	Multi-s	Units	Acc	F	E	D
1	Enlargement	F3/3c	S6.6				3										3
2	Substitution	F2/5c	A6.3			3											3
3	Equation	F2/5e	A6.2		4												4
4	Probability	F4/4f	D6.1,D5.1					4								4	
5	Brackets	F32/5b	A6.1		3												3
6	Polygons	F3/2c,2g,1j	S6.1				4				3	4					4
7	Fractions	F2/3d	N6.4	2												2	
8	Directed numbers	F2/3a	N6.5	2												2	
	Section A Total			**4**	**7**	**3**	**7**	**4**			**3**	**4**				**8**	**17**
9	Ratio	F2/2f,3f	N6.3	4													4
10	Graphs	F2/1e,6c	A6.5			2				2						2	
11	Scatter diagrams	F4/4a,5b,1e	D6.2					3		1							3
12	Use of calculator	F2/3o	N6.1	4													4
13	Circumference	F3/4h	S6.2				2										2
14	Construction	F3/4d	S6.3				2									2	
15	Division in ratio	F2/2f,3f	N6.3	2													2
16	Percentages	F2/3m	N6.2	2													2
17	Areas	F3/4f,1b	S6.4				4		3			4	1				4
	Section B Total			**12**		**2**	**8**	**3**	**3**	**3**		**4**	**1**			**4**	**21**
	Total			**16**	**7**	**5**	**15**	**7**	**3**	**3**	**3**	**8**	**1**			**12**	**38**