

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C**

B277/A

MODULE M7 – SECTION A

SPECIMEN

Candidates answer on the question paper.

Time: 30 minutes

Additional Materials:

- Geometrical instruments
- Tracing paper (optional)



Candidate Name

Centre Number

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Candidate Number

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INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above.
- Answer **all** the questions.
- Use blue or black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- In many questions marks will be given for a correct method even if the answer is incorrect.
- Do **not** write in the bar code.
- Do **not** write outside the box bordering each page.
- WRITE YOUR ANSWER TO EACH QUESTION IN THE SPACE PROVIDED. ANSWERS WRITTEN ELSEWHERE WILL NOT BE MARKED.

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.



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

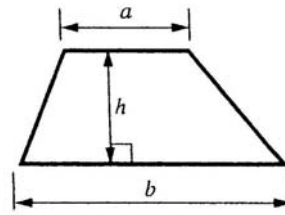
For Examiner's Use

Section A

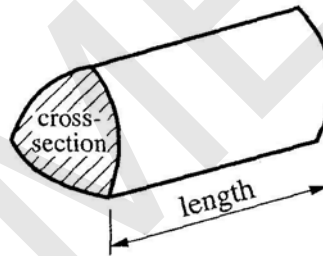
This document consists of **8** printed pages.

2
FORMULAE SHEET

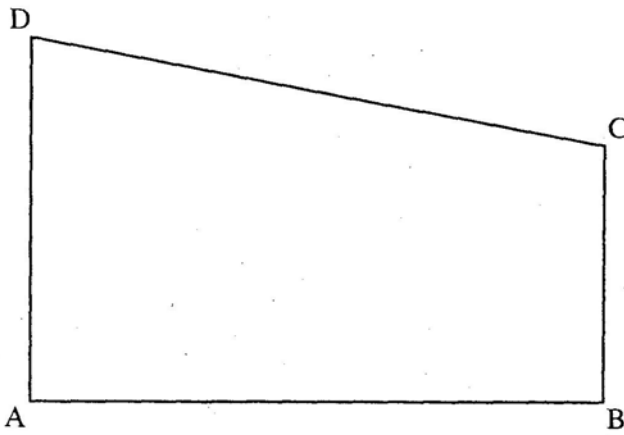
Area of trapezium = $\frac{1}{2}(a+b)h$



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



- 1 Use ruler and compasses only to answer this question.
Leave in all your construction lines.



The diagram shows a scale drawing, ABCD, of a garden.
The scale is **1 cm to 5 m**.

- (a) A rose bush, R is:

- ✦ Equidistant from AD and DC.
- ✦ 30 m from B.

Construct and label the position of R.

[3]

- (b) A tree is 16 m from A, correct to the nearest metre.

What is the least possible distance of the tree from A?

(b) _____ m [1]

4	
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[Turn over

- 2 (a) Write 350 as the product of its prime factors.

(a) _____ [2]

- (b) Find the highest common factor (HCF) of 350 and 105.

(b) _____ [2]

4

- 3 Estimate the answer to this calculation.
Show clearly the values you use.

$$\frac{\sqrt{143 \cdot 7}}{0.49}$$

_____ [2]

2

4 Solve.

(a) $3(2x+4) = x-13$

(a) _____ [3]

(b) $\frac{10+x}{3} = 7$

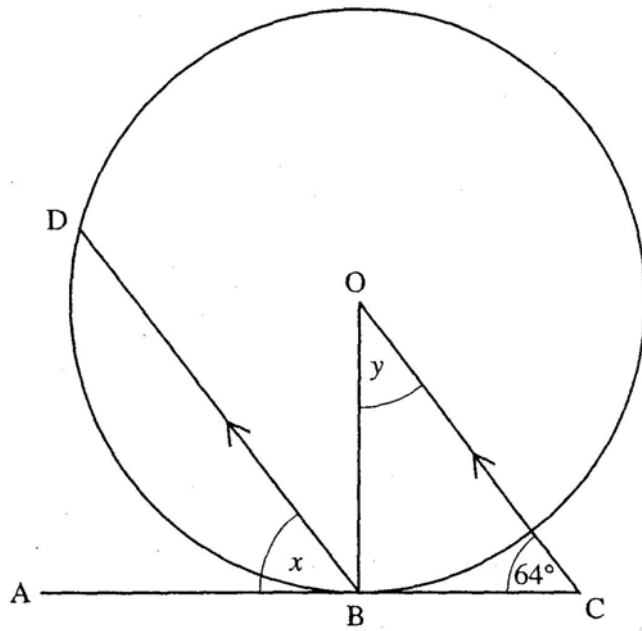
(b) _____ [2]

(c) $2x-3 > 6$

(c) _____ [2]

7	
---	--

[Turn over



Not to scale

ABC is a tangent to the circle, centre O.
 DB is parallel to OC.
 Angle OCB = 64° .

- (a) Find angle x .
 Give a reason for your answer.

$x =$ _____ $^\circ$ because _____

[2]

- (b) Work out angle y .
 Give reasons for your answer.

$y =$ _____ $^\circ$ because _____

[2]

4

- 6 Rearrange $y = 3x - 2$ to make x the subject.

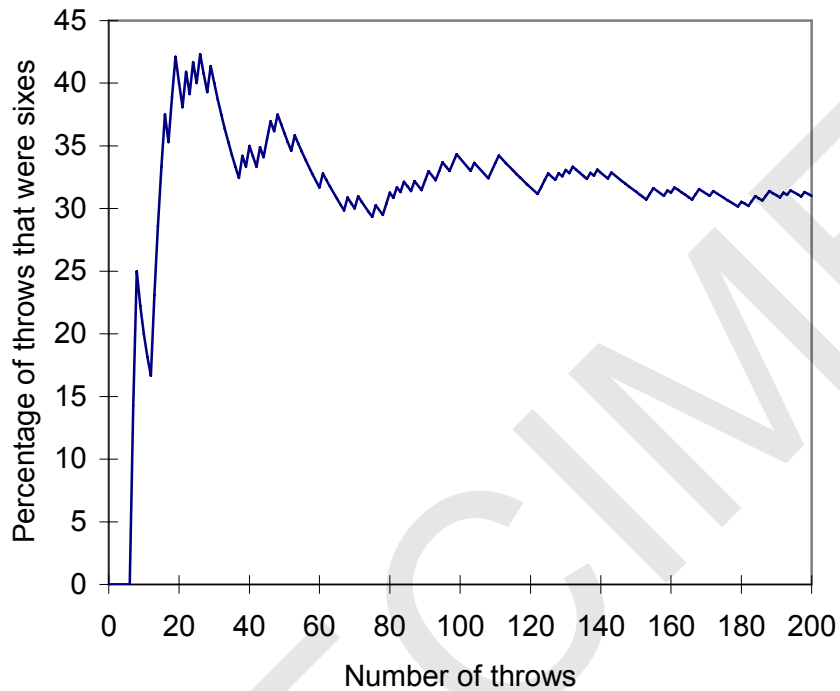
_____ [2]

2	
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[Turn over

- 7 Maria threw a six-sided dice numbered from one to six 200 times and recorded the results on a spreadsheet.
After each throw, she found the percentage of the throws so far that were sixes.
For instance, in the first 50 throws she had 16 sixes, which was 32% of the throws.

Here is a graph of the results.



How does this graph indicate that Maria's dice is biased?

[2]

2	
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Section A Total [25]

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Oxford Cambridge and RSA Examinations
General Certificate of Secondary Education

MATHEMATICS C

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MODULE M7 – SECTION A

Specimen Mark Scheme

The maximum mark for this paper is 25.

SPECIMEN

1	(a)	Correct position of R (Dep on arcs seen)	3	W1	for BR = 6cm or arc centre B radius 6cm (± 0.2 cm)
	(b)	15.5	1	M1	For bisector of ADC $\pm 2^\circ$
2	(a)	$2 \times 5^2 \times 7$ or $2 \times 5 \times 5 \times 7$	2	M1	for a correct first step or;
	(b)	35	2	W1	for no x signs used
			4	W1	for $3(x)5(x)7$ or correct factor tree
				W1	for answer 5×7
3		24 or 20	2	W1	for 12 or 0.5 seen
			2		
4	(a)	-5	3	M1	for $6x + 12$ seen and
				M1	for one correct algebraic step ft from their $6x + 12$
	(b)	11.	2	SC1	for embedded answer
				M1	for $10 + x = 21$
	(c)	$x > 4.5$ or $4\frac{1}{2}$ or $\frac{9}{2}$ i.s.w.	2	W1	for 4.5 etc seen or
			7	M1	for $2x > 9$
5	(a)	64	1		
		Corresponding angles	1		
	(b)	26	1		
		Angle between tangent and radius = 90	1		
			4		allow for two of tangent, radius and 90° .

6	$(x=)\frac{y+2}{3}$ or $(x=)\frac{y}{3}+\frac{2}{3}$ or $(x=)(y+2)/3$	2 2	W1 for $(x=)\frac{y+2}{3}$ or $(x=)\frac{\pm y\pm 2}{3}$ or M1 for $3x = y + 2$ or $\frac{y}{3} = x - \frac{2}{3}$
7	mention of 1/6 or 16 to 17% clear comparison/contrast with graph	1 1 2	or should land about 33 goes out of 200 etc e.g. this graph is settling at 30 to 35%; numbers needed – ‘this graph is too high’ is not sufficient

Section A Total 25

Assessment Objectives Grid

Question	AO2	AO3	AO4	Total
1		4		4
2	4			4
3	2			2
4	7			7
5		4		4
6	2			2
7			2	2
Totals	15	8	2	25

SPECIMEN