

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C**

B276/B

MODULE M6 – SECTION B

SPECIMEN

Candidates answer on the question paper.

Time: 30 minutes

Additional Materials:

- Geometrical instruments
- Tracing paper (optional)
- Scientific or graphical calculator



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.
- 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

- 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.
- Section B starts with Question 6
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.

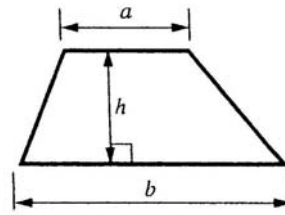
For Examiner's Use

Section B

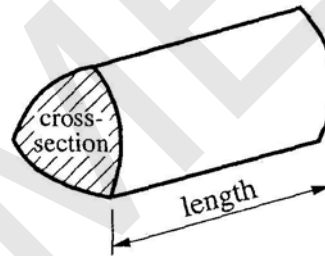
This document consists of 8 printed pages.

2
FORMULAE SHEET

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



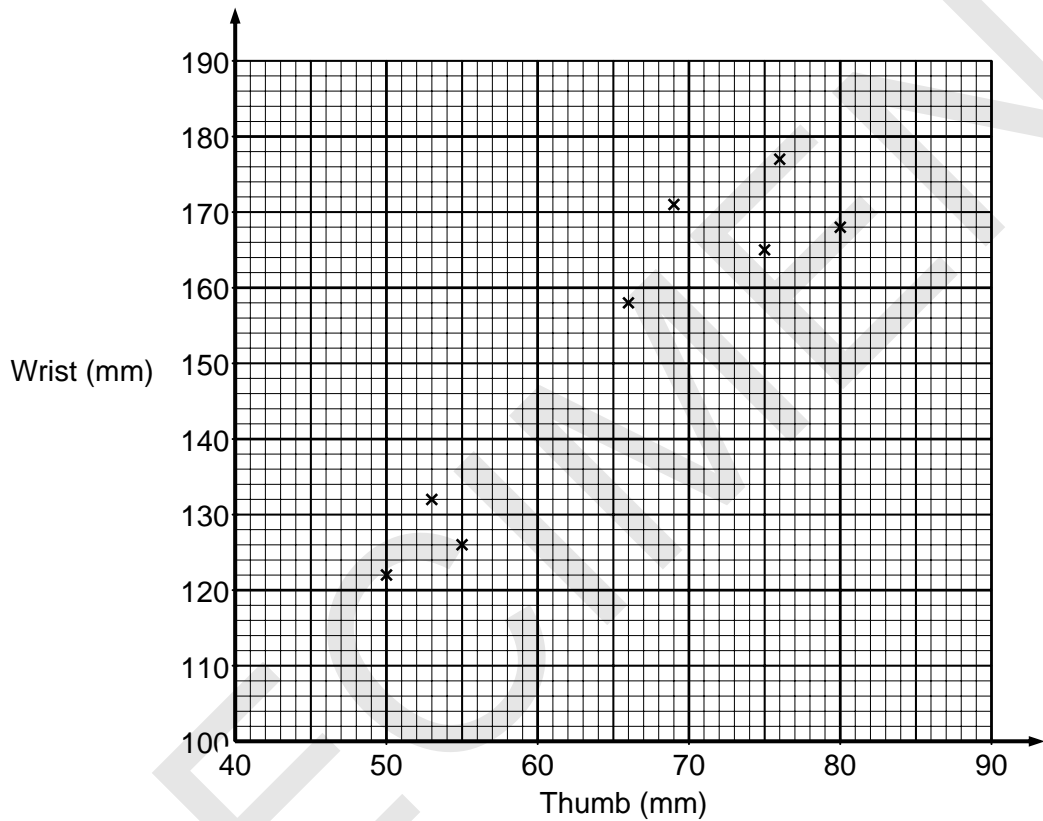
Volume of prism = (area of cross-section) x length



- 6 The table shows the measurements in millimetres around the thumbs and the wrists of 10 people.

Thumb (mm)	69	76	50	55	75	80	66	53	60	62
Wrist (mm)	171	177	122	126	165	168	158	132	135	149

- (a) Plot the last two points in the table to complete the scatter diagram below. The first eight points have been plotted for you.



- (b) What does the diagram show about the relationship between the thumb and wrist measurements?

.....

.....

- (c) Draw a line of best fit on the diagram.

- (d) Jasmine has a thumb measurement of 58 mm.

Use your line of best fit to estimate her wrist measurement.

- (d)

[1]

4

[Turn over

- 7 Apple-white paint is made by mixing white paint and green paint in the ratio 7 : 1.



How much green paint is needed to make 1000 millilitres of apple-white paint?

_____ ml [2]

2

- 8 Calculate.

$$\frac{18 \cdot 2 - 3 \cdot 9}{2 \cdot 6}$$

_____ [1]

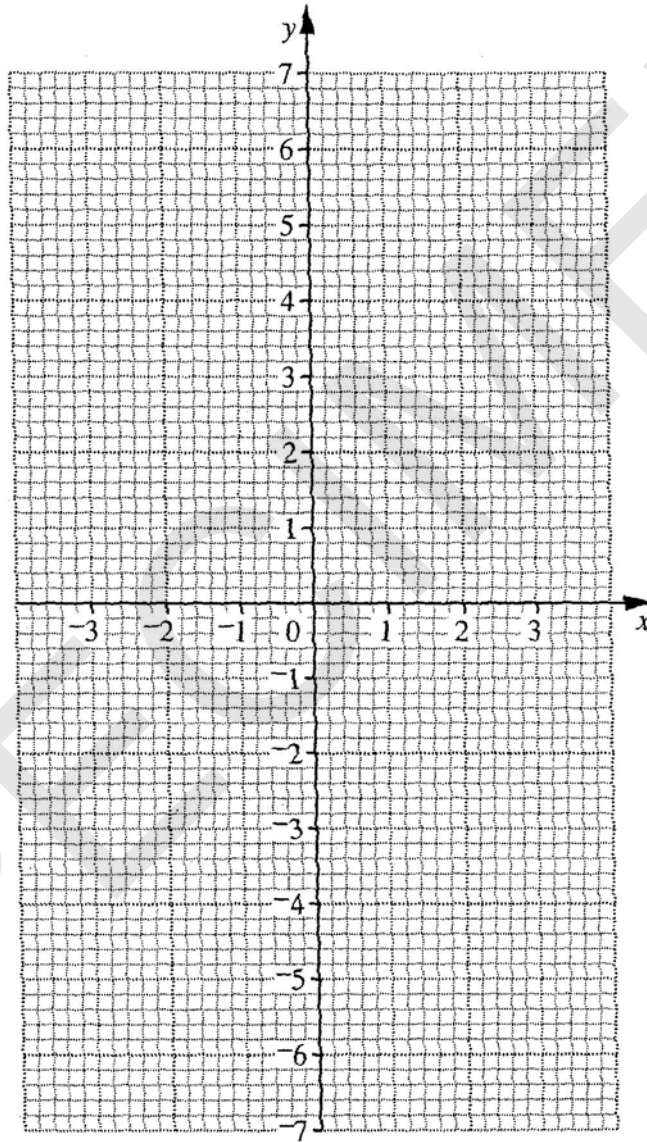
1

- 9 (a) Complete the table of values for $y = 2x - 1$.

x	-3	0	3
y	-7		

[1]

- (b) On the axes below draw the graph of $y = 2x - 1$.

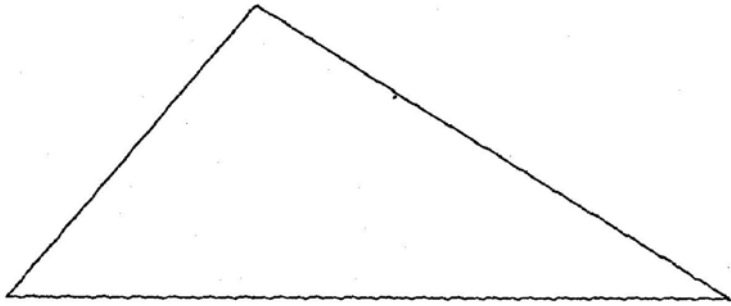


[2]

3

[Turn over

- 10 This triangle is drawn **accurately**.

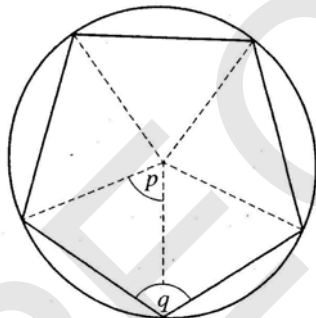


Use measurement from the diagram to calculate the area of the triangle in square centimetres. Show clearly the measurements you use.

_____ cm^2 [3]

3	

11



Not to scale

The diagram shows a regular pentagon drawn inside a circle.

Calculate

- (a) the angle at the centre, p ,

(a) _____ $^\circ$ [1]

- (b) the interior angle, q .

(b) _____ $^\circ$ [2]

3	

- 12 The rear wheel of Jane's bicycle has a diameter of 0.63 m.



- (a) Calculate the circumference of the rear wheel.

(a) _____ m [2]

- (b) Jane cycles 3 km to school.

Show that the rear wheel makes more than 1500 complete turns during her journey.

----- [2]

4

[Turn over

- 13 This stem and leaf diagram shows the speeds, in miles per hour, of thirty cars travelling along a road.

3	0	5	5	6	7	7	8					
4	0	0	5	6	6	7	7	7	8	9	9	9
5	0	0	0	0	0	3	4	4	5	5	5	

Key:

3	5	represents	35
---	---	------------	----

- (a) Find the range of these speeds.

(a) _____ mph [1]

- (b) The median of these speeds is 47.5 mph.

Explain how this can be found from the diagram.

 _____ [1]

- (c) The speed limit on the road is 50 mph.
 Drivers travelling at **more than** 50 mph
 will be fined.

What percentage of the thirty drivers will
 be fined?

(c) _____ % [3]

5	

Section B Total [25]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (OCR) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

OCR is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.

The maximum mark for this paper is 25.

SPECIMEN

6	(a)	(60, 135) and (62, 149) plotted within 1 mm	1								
	(b)	As thumb measurement increases, wrist measurement increases or positive correlation	1		1 for e.g. 'as one goes up, so does the other'						
	(c)	suitable line of best fit drawn	1								
	(d)	reading off from 58 mm ft their line of best fit	1		tolerance 1 mm						
			4								
7		125	2								
			2	M1	condone 875 : 125 for $1000 \div (7 + 1)$						
8		5.5	1								
			1								
9	(a)	<table border="1" style="display: inline-table; vertical-align: middle;"> <tbody> <tr> <td>-3</td> <td>0</td> <td>3</td> </tr> <tr> <td>-7</td> <td>-1</td> <td>5</td> </tr> </tbody> </table>	-3	0	3	-7	-1	5	1		
	-3	0	3								
-7	-1	5									
(b)	3 points plotted ft ruled line through all points	PL L1 3			tolerance 1 mm correct line only						
10		9.8 to 10.2 (x) 3.8 to 4.2	M1								
		Product $\times \frac{1}{2}$	M1		for a base and perp ht dep on their base and perp ht						
		18.62 to 21.42	A1 3		ans in range W1 only						
11	(a)	72	1								
	(b)	108	2	SC1	for 180 – their (a), or for 54 following 72 in (a)						
			3								

12	(a)	1.97 to 1.98	2	M1	for $0.63 \times \pi$ [allow 3.1 or better for π]; allow A1 for 2
	(b)	$1500 \times 9(a)$ their answer < 3km (3000)	M1 A1 4		
13	(a)	25	1	M1	for 6 seen
	(b)	mention of 47 and 48 being middle pair, and of finding the average of them/going halfway between them	1		
	(c)	20 cao	3 5		

Section B Total 25

Assessment Objectives Grid

Question	AO2	AO3	AO4	Total
6			4	4
7	2			2
8	1			1
9	3			3
10		3		3
11		3		3
12		4		4
13	2		3	5
Totals	8	10	7	25