

Oxford Cambridge and RSA Examinations
General Certificate of Secondary Education

MATHEMATICS B (MEI)
PAPER 1 SECTION A
INTERMEDIATE TIER

1968/2312A

Specimen Paper 2003

Additional materials: Geometrical instruments
Tracing paper (optional)

Candidates answer on the question paper.
Calculators are **not** allowed.

TIME 45 minutes.

Candidate Name

Centre Number

Candidate Number

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INSTRUCTIONS TO CANDIDATES

- Write your name in the space above.
- Write your 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.
- Show all your working. Marks may be given for working which shows that you know how to solve the problem, even if you get the answer wrong.

YOU ARE NOT ALLOWED TO USE A CALCULATOR IN THIS PAPER.

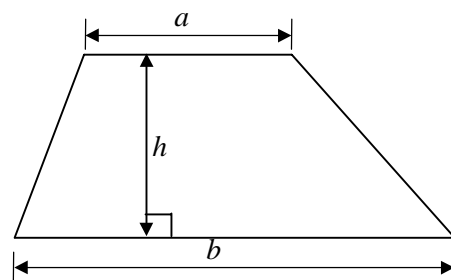
INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.

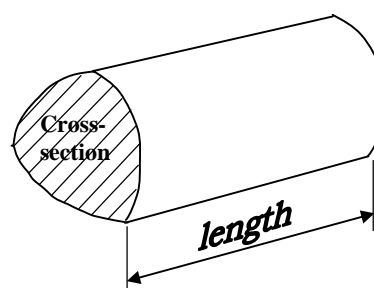
For Examiner's Use Only	
Section A	
Section B	
TOTAL	

FORMULAE SHEET: INTERMEDIATE TIER

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



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



- 1 The cost of 26 theatre tickets was £422.50.
What was the cost of one ticket?

Answer _____ [3]

- 2 A circular lawn has a radius of 10 metres.
Calculate the area of the lawn.
Use $\pi = 3.14$ in this calculation.

Answer _____ [3]

3 Gurbax is investigating the number of CDs that some of his friends have bought this year.

He designs a data collection sheet.
One of his questions is shown below.

How many CDs have you bought? (Tick one)				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0 - 10	10 - 20	20 - 30	30 - 40	40+

(a) State two things which are wrong with this question.

Answer _____

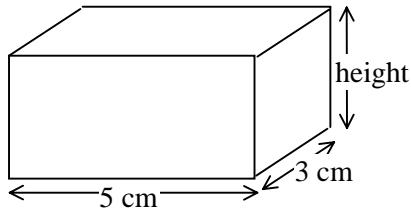
[2]

(b) Write a better question below.

(Tick one)				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

[2]

- 4 (a) The volume of the cuboid below is 120cm^3 .
Work out the height.



Answer (a) _____ cm [2]

- (b) Write down the dimensions of another cuboid whose volume is 120cm^3 .

Answer (b) _____ cm \times _____ cm \times _____ cm [1]

- 5 A school has 150 students.
Of these, 81 are girls.
What percentage of the students are girls?

Answer _____ % [2]

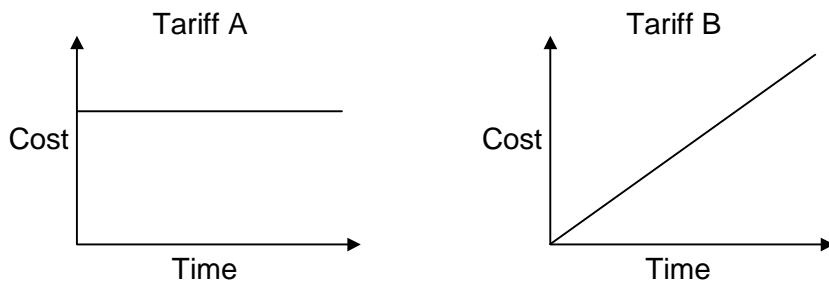
6 A company offers Clare two tariffs for internet use.

Tariff A: £40 a month, unlimited time
Tariff B: Two pence per minute

(a) Calculate how many minutes Clare will have to use in a month before Tariff A is cheaper.

Answer (a) _____ minutes [2]

(b) The company produces these diagrams to help Clare decide which tariff to use.



Give two ways in which the presentation can be improved.

Answer _____
_____ [2]

(c) The company is producing new advertising material.
The manager has to decide whether to compare tariffs numerically as in (a)
or graphically as in (b).

Explain which method you think is best.

Answer _____

_____ [1]

7 Solve this equation.

$$5(2x + 7) = 11 + 4x$$

Answer $x =$ _____ [3]

8 A map of Great Britain is shown on the opposite page.
A motoring atlas gives the distance from London to Glasgow as 639 kilometres.

- (a) Graeme drives from London to Glasgow.
He drives for 7 hours and 53 minutes.
Estimate his average speed in kilometres per hour.
Show any approximations you make.

Answer _____ km/h [2]

- (b) Kerry drives from Cardiff to Preston.
Her average speed is 61 kilometres per hour.
Estimate the time she spends driving.
Show any measurements you take and approximations you make.

Answer _____ hours [4]



9 A line l has equation $y = 6 + 2x$.

(a) Make x the subject of the equation.

Answer (a) _____ [2]

(b) State the gradient of line l .

Answer (b) _____ [1]

(c) Find the equation of the line parallel to l which passes through $(3, 10)$.

Answer (c) _____ [2]

10 Jim says 'Prime numbers are always odd.'
Explain what a prime number is, and prove that Jim is wrong.

Answer _____

_____ [2]



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MARK SCHEME

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SECTION A

1	422.50 ÷ 26 attempted	M1	
	£16.25	A2	A1 for correct figures or decimal point correct.
2	314m ²	B3	B2 for 314 B1 for attempt at 100 or 10 ²
3	(a) time	B1	
	overlap	B1	allow other sensible comments
	(b) time scale	B1	
	cover range AND not overlap	B1	allow other sensible comments
4	(a) 8	B2	B1 for 120/(5 x 3)
	(b) Three numbers, product 120 (not 8, 5, 3)	B1	
5	(81 / 150) x 100	M1	
	54	A1	
6	(a) 4000/2	M1	B1 for 40/2 = 20
	(more than) 2000	A1	
	(b) Scales	B1	B1 for sensible comment
	Both lines on one diagram	B1	
	(c) Sensible comment	B1	
7	10x + 35 = 11 + 4x	M1	
	6x = -24	M1	
	x = -4	A1	
8	(a) 640/8	B1	
	80	B1	
	(b) Cardiff – Preston is about half as far	B1	
	Distance approx 300 to 320km	B1	
	300/60	B1	
	5	B1	

9	(a)	$y - 6 = 2x;$	M1	
		$x = \frac{1}{2}y - 3$ oe	A1	
	(b)	2	B1	
	(c)	$y = 2x + 4$	B2	B1 for $y = 2x + c$
10		Numbers with (exactly) 2 factors	B1	Accept 'Can only be divided by 1 and itself.'
		Counterexample: 2 is a prime number and is not odd.	B1	

