

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
General Certificate of Secondary Education

MATHEMATICS B (MEI)
PAPER 2 SECTION A
INTERMEDIATE TIER

1968/2315A

Wednesday **15 JUNE 2005** Morning 1 hour

Candidates answer on the question paper.

Additional materials:

- Geometrical instruments
- Tracing paper (optional)

Candidate Name	Centre Number	Candidate Number												
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TIME 1 hour

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.
- 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.

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.



WARNING

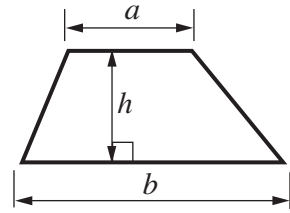
You are not allowed to use a calculator in Section A of this paper.

FOR EXAMINER'S USE	
Section A	
Section B	
TOTAL	

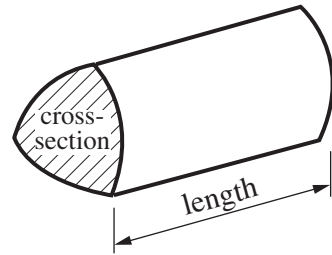
This question paper consists of 10 printed pages and 2 blank pages.

Formulae Sheet: Intermediate Tier

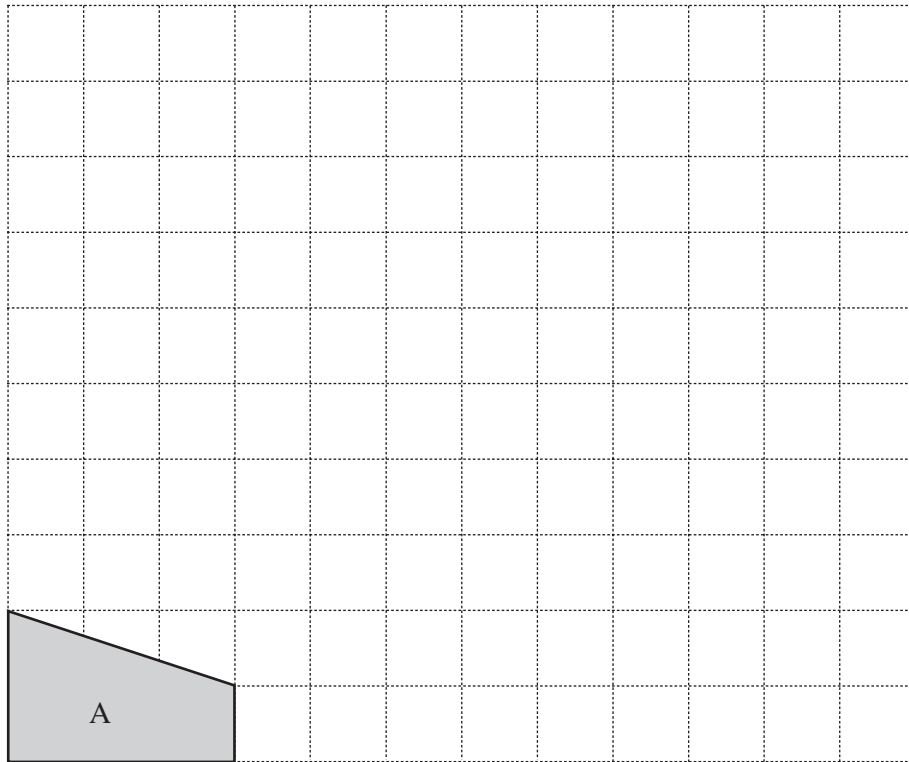
Area of trapezium = $\frac{1}{2}(a + b)h$



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



1 Draw an enlargement of shape A with scale factor 3.



[2]

2 Work out the cost of 1.6 kg of tomatoes at £1.50 per kg.

£[2]

- 3 (a) This table shows the ages of people who use the gym at the health club one day. There are 189 people altogether.

Age in years on last birthday	Number of people
0 to 9	5
10 to 19	16
20 to 29	23
30 to 39	37
40 to 49	43
50 to 59	30
60 to 69	20
70 to 79	13
80 to 89	2

One of these people is chosen at random.
Find the probability that this person's age on the survey day is

- (i) under 10,

(a)(i)[1]

- (ii) 50 or over.

(ii)[2]

- (b) This notice was at the health club in January.

Battle of the sexes!
450 males
660 females
had a swim over the Christmas period.

Write the ratio of males to females as simply as possible.

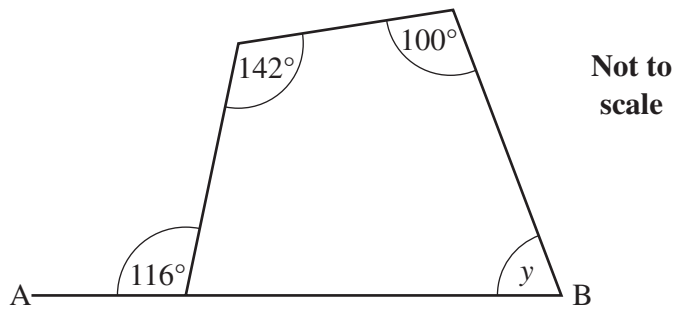
(b) :[2]

- (c) There were 50 people at the health club one lunchtime.
30 of them were female.

What percentage of the people at the health club were female?

(c)[2]

4



AB is a straight line.
Find angle y , giving your reasons.

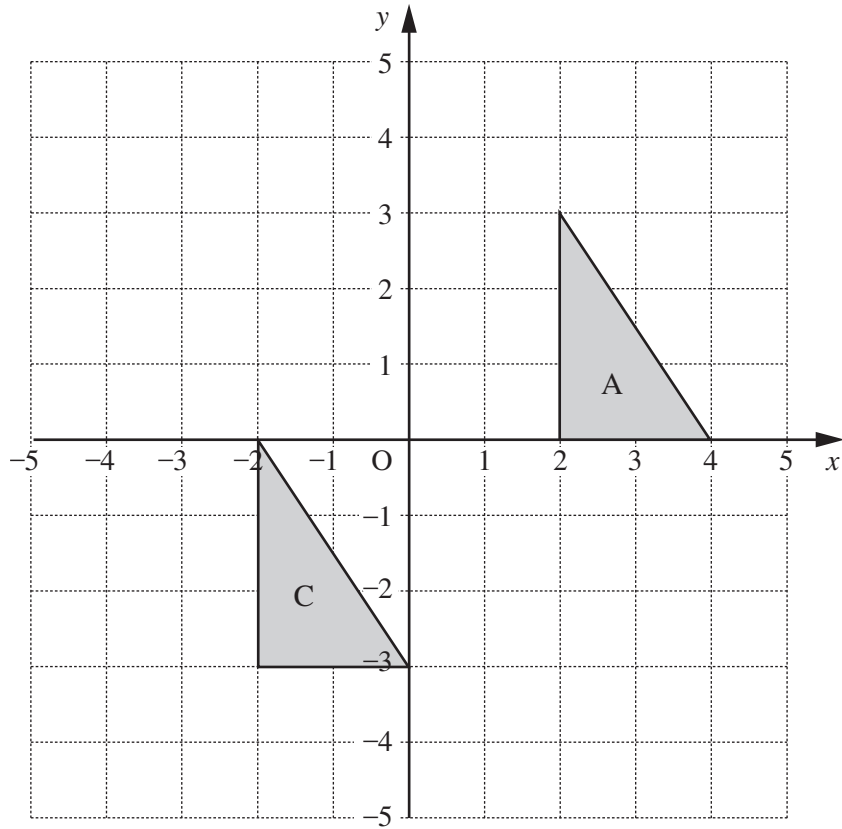
$y = \dots\dots\dots^\circ$ because
.....[3]

- 5 Una takes 4 minutes to knit 140 stitches.

At this rate, how many stitches will she knit in 30 minutes?

.....[3]

6



- (a) Rotate triangle A through 90° anticlockwise about the origin. Label the image B. [3]
- (b) Describe the single transformation which maps triangle A onto triangle C.

.....
[3]

7 Work this out, giving your answer as a fraction in its simplest terms.

$$\frac{2}{5} \div \frac{8}{15}$$

.....[3]

- 8 Sanjit threw a six-sided die numbered one to six 200 times and recorded the results on a spreadsheet.

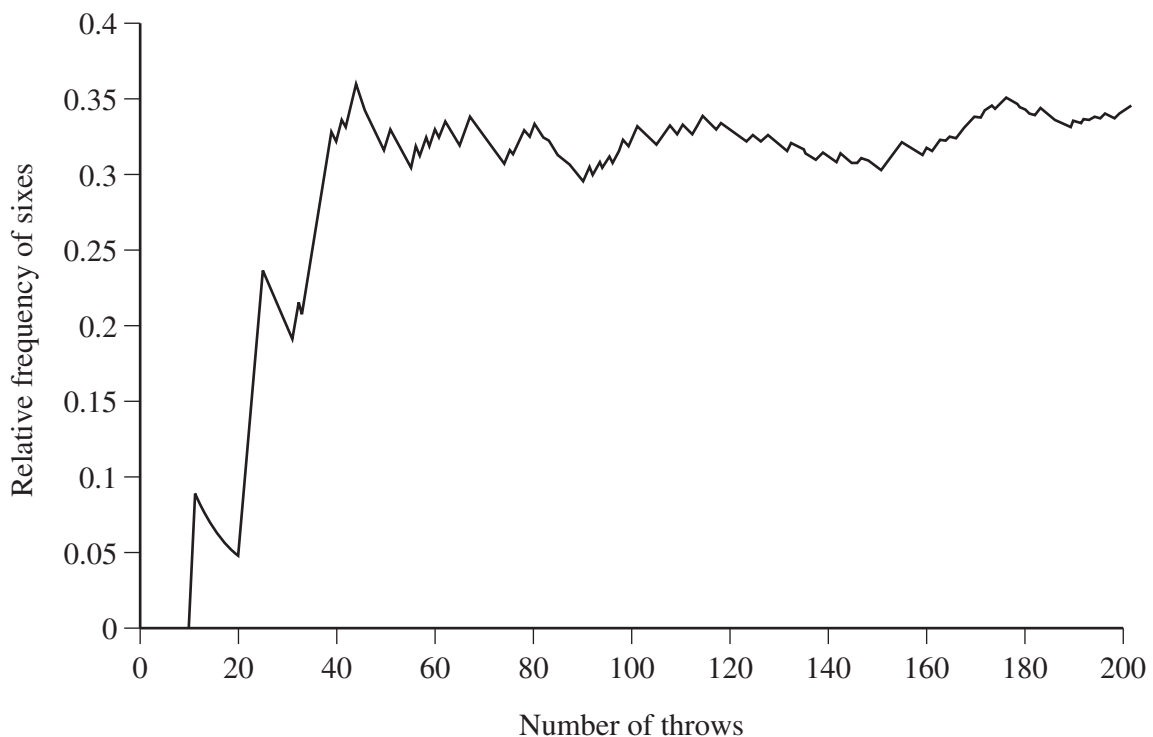
He calculated the relative frequency of the number of sixes thrown.
This table shows some of his results.

Total number of throws	10	20	100	150	200
Total number of sixes	0	1	33	48	69
Relative frequency of sixes	0	0.05	0.33		0.345

- (a) Complete the relative frequency row in the table.
Show how you obtained your answer.

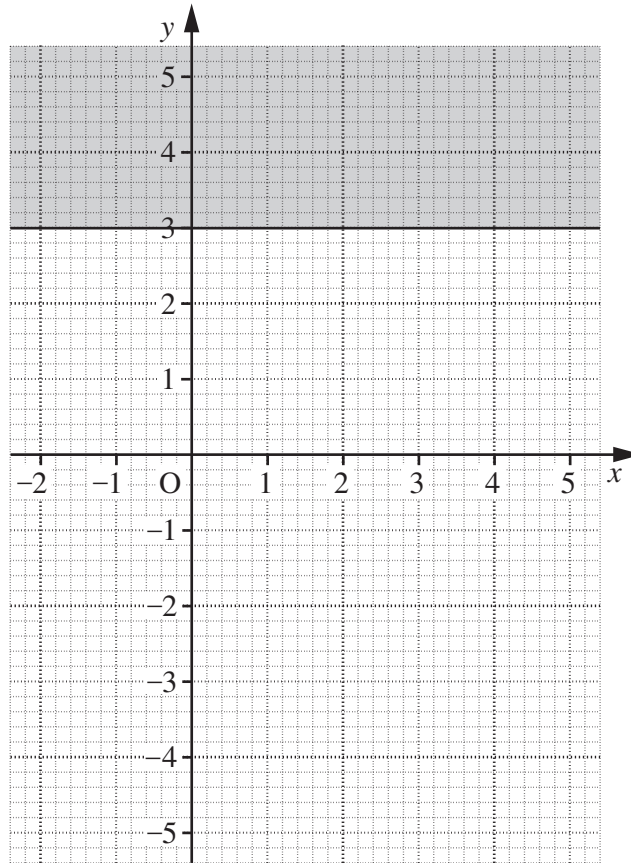
[2]

Sanjit then used the computer to draw this relative frequency graph of the number of sixes he threw.



- (b) How does this graph indicate that Sanjit's die is biased?

.....
[2]



(a) On the grid, draw the graph of $y = 2x - 1$.

[3]

(b) Write down an inequality satisfied by the shaded region.

(b)[1]

(c) Write down the coordinates of a point which is in the shaded region and which satisfies the inequality $y < 2x - 1$.

(c) (.....,) [1]

10 (a) Simplify.

(i) $a \times a \times a$

(a)(i)[1]

(ii) $b^2 \times b^4$

(ii)[1]

(iii) $c^5 \div c^9$

(iii)[1]

(b) Make t the subject of $s = \frac{1}{2}at^2$.

(b)[3]

(c) Solve these simultaneous equations algebraically.

$$\begin{aligned} 3x + y &= 4 \\ 2x + 4y &= 1 \end{aligned}$$

(c) $x =$

$y =$ [3]

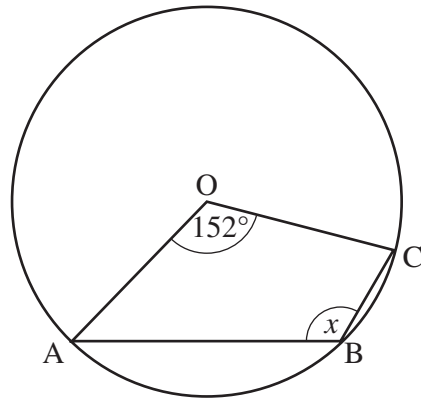
(d) Solve this quadratic equation by factorising.

$$x^2 + 2x - 8 = 0$$

(d)[3]

- 11 O is the centre of this circle.
A, B and C are on the circumference.

Work out angle x .



Not to
scale

..... $^\circ$ [3]

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