OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
General Certificate of Secondary Education

MATHEMATICS C
(Graduated Assessment)

1966/2342A

INTERMEDIATE TERMINAL PAPER – SECTION A

Monday **5 JUNE 2006** Afternoon 1 hour

Candidates answer on the question paper.
Additional materials:
Geometrical instruments
Pie chart scale (optional)
Tracing paper (optional)

Candidate Name

Centre Number | | | | | |

Candidate Number | | | | |

TIME 1 hour

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 50.

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

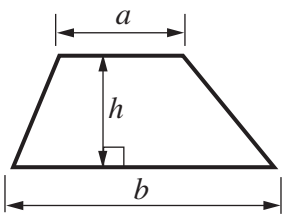
FOR EXAMINER'S USE	
Section A	
Section B	
TOTAL	

This question paper consists of 11 printed pages and 1 blank page.

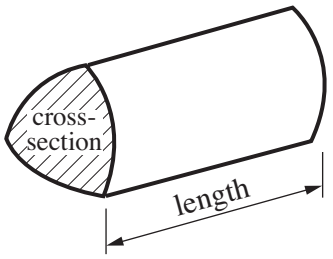
[Turn over

Formulae Sheet: Intermediate Tier

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

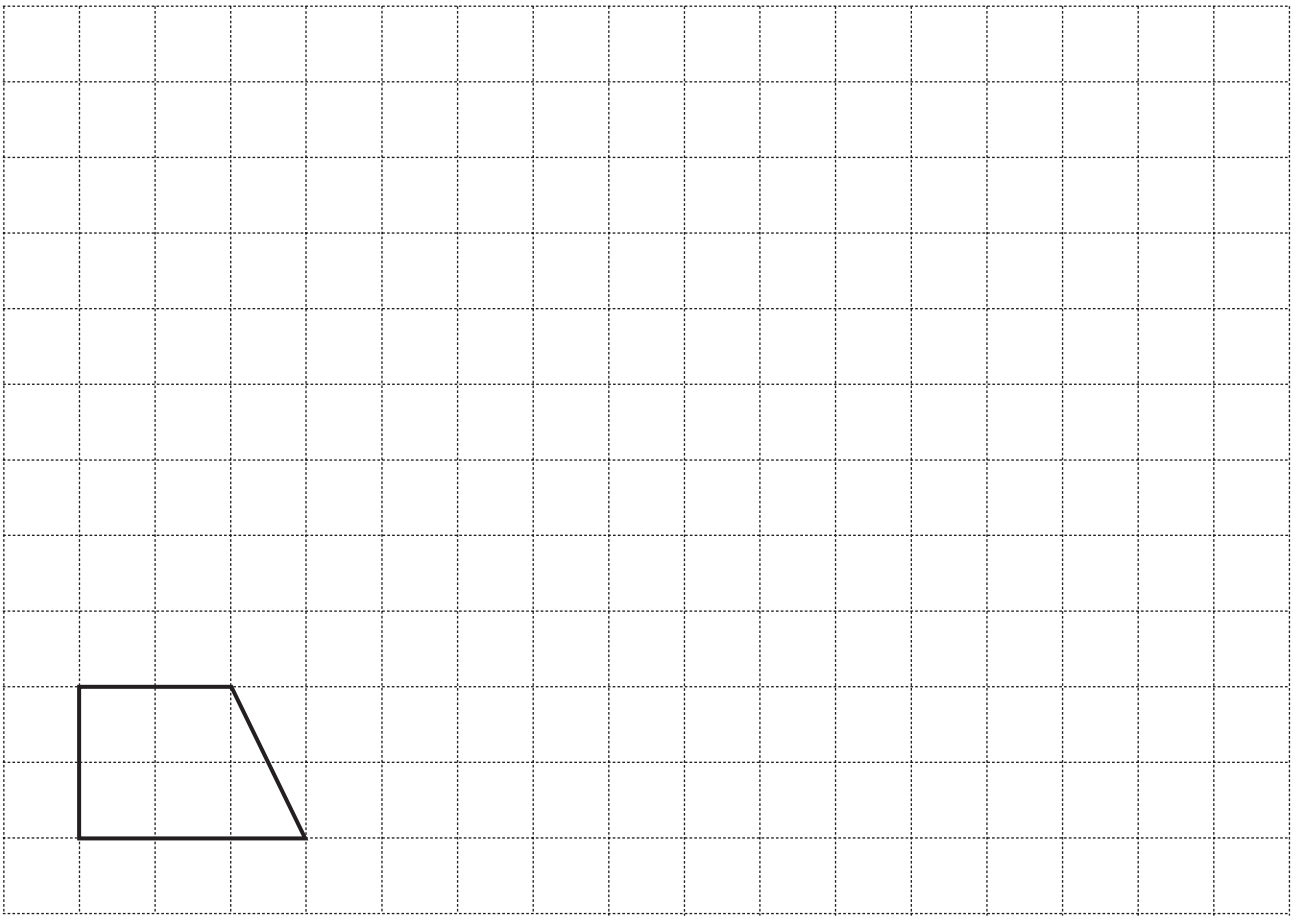


Volume of prism = (area of cross-section) × length



PLEASE DO NOT WRITE ON THIS PAGE

1



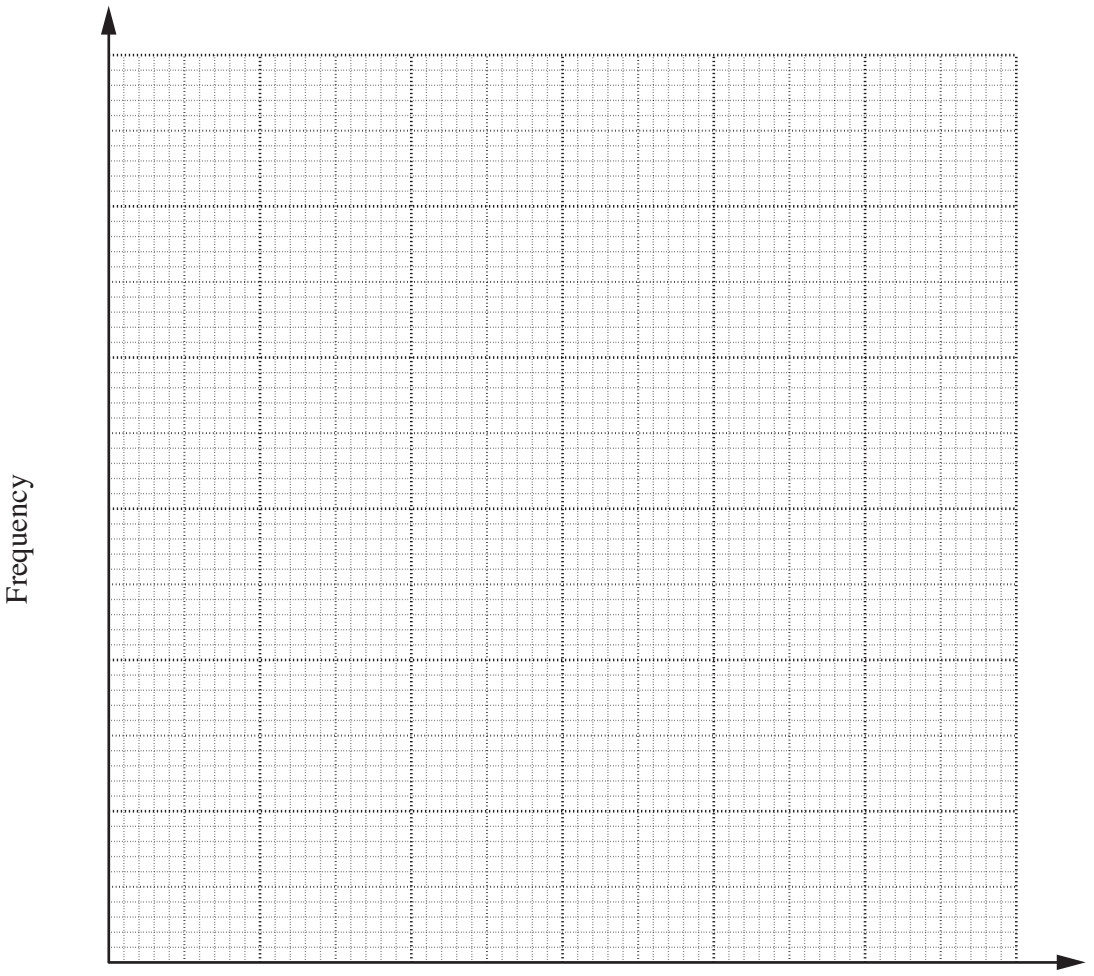
Draw an enlargement of this shape.
Use a scale factor of 3. [2]

2

2 The 30 players taking part in a rugby match were weighed.
The results are summarised in this table.

Weight (w kg)	$70 < w \leqslant 80$	$80 < w \leqslant 90$	$90 < w \leqslant 100$	$100 < w \leqslant 110$	$110 < w \leqslant 120$
Frequency	2	8	9	6	5

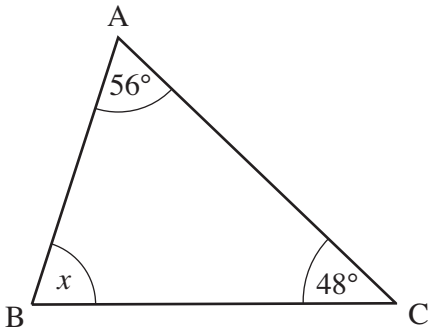
Draw a frequency diagram to represent this information.



[3]

3

3 **(a)**



Not to scale

(i) Work out angle x.

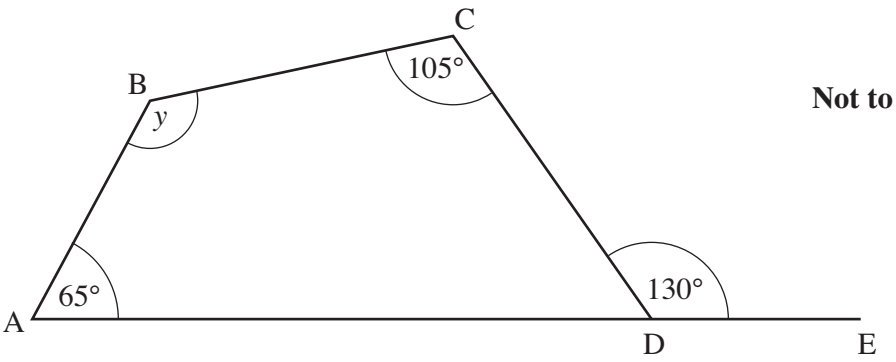
(a)(i) .....° [1]

(ii) Is triangle ABC isosceles?
Give a reason for your answer.

..... because .....

.....[1]

(b)



Not to scale

ADE is a straight line.

Work out angle y.
Give a reason for each step of your calculation.

y = ...° because .....

.....

.....[5]

7

[Turn over

4 Paula went shopping.
She bought some CDs, a ring and some clothes.

She spent a total of £160.

She spent $\frac{1}{5}$ of £160 on CDs.

She spent $\frac{3}{8}$ of £160 on the ring.

How much money did she spend on clothes?

£ .....[4]

4

5 **(a)** Write 37 out of 50 as a percentage.

(a) .....% [2]

(b) Work out.

(i) $16{\cdot}3 \times 28$
Show all your working.

(b)(i) .....[3]

(ii) $2\frac{1}{2} + 1\frac{1}{3}$

(ii) .....[3]

(c) **Estimate** the answer to $\frac{38{\cdot}1 \times 89}{32}$.

Show clearly the values you use.

(c) .....[2]

10

6 **(a)** Find the value of $a^2 + a$ when $a = -5$.

(a) .....[2]

(b) Rearrange $y = 5x - 3$ to make x the subject.

(b) .....[2]

4

7 Alex has a **biased** dice with faces numbered 1 to 6.

The table shows the probability of the dice showing each of the numbers 1 to 5.

Number	1	2	3	4	5	6
Probability	0·25	0·05	0·15	0·40	0·10	

(a) What is the probability the dice shows 6?

(a) .....[2]

(b) Alex throws the dice 200 times.

How many times would you expect the dice to show 1?

(b) .....[2]

4

8 **(a)** Expand and simplify.

$$2(3x + 1) + 5(2x - 3)$$

(a) .....[2]

(b) Factorise.

$$x^2 - 7x + 10$$

(b) .....[2]

4

9 **(a)** Write down all the integer values of n which satisfy this inequality.

$$^{-}5 < 3n \leqslant 12$$

(a) .....[3]

(b) Solve, algebraically, these simultaneous equations.

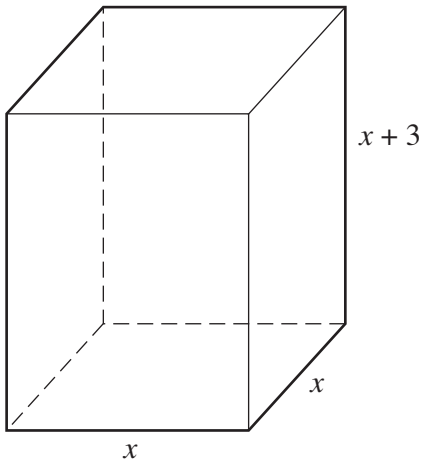
$$3x - 2y = 19$$
$$2x + y = 8$$

(b) x = ...

y = ...[3]

6

10 All the lengths in this question are in metres.



The diagram shows a cuboid.

(a) Show that the volume, V, of the cuboid is $V = x^3 + 3x^2$.

.....

.....

.....

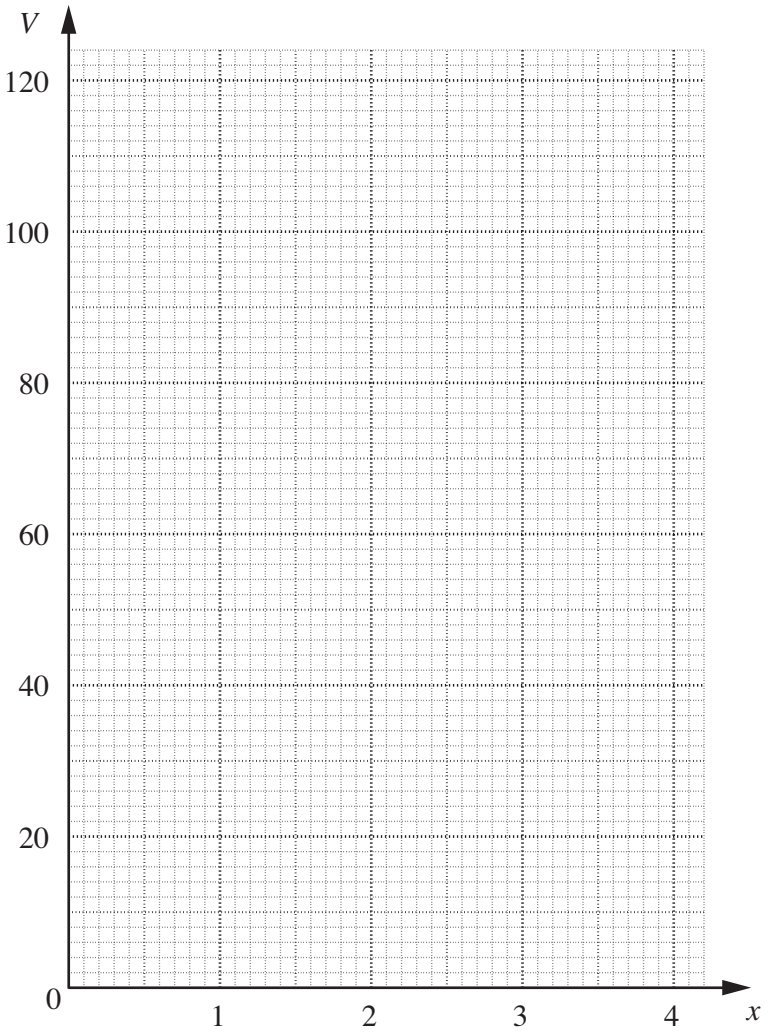
.....[2]

(b) Complete the table for $V = x^3 + 3x^2$.

x	0	1	2	3	4
V	0	4	20	54	

[1]

(c) Draw the graph of $V = x^3 + 3x^2$ on the grid below.



[2]

(d) The volume of the cuboid is $30\,m^3$.

Use your graph to find the length of the side x.

(d) .....m [1]

6

BLANK PAGE

PLEASE DO NOT WRITE ON THIS PAGE