OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

General Certificate of Secondary Education

MATHEMATICS C
(Graduated Assessment)

1966/2342B

INTERMEDIATE TERMINAL PAPER – SECTION B

Monday **5 JUNE 2006** Afternoon 1 hour

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

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

- 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 50.
- Section B starts with question 11.
- Use the π button on your calculator or take π to be 3·142 unless the question says otherwise.

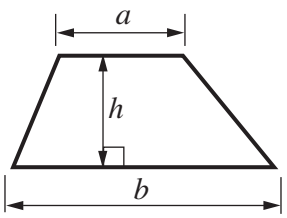
FOR EXAMINER'S USE	
Section B	

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

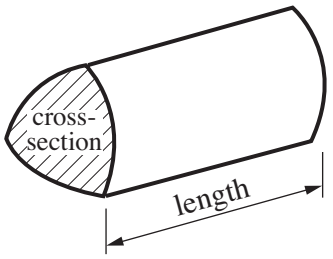
[Turn over

Formulae Sheet: Intermediate Tier

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



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



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11 **(a)** Here are the first four terms of a sequence.

2 $^{-}4$ 8 $^{-}16$

Write down the next two terms.

(a) ..... , ...[2]

(b) The n th term of a different sequence is $2n + 5$.

Write down the first three terms of this sequence.

(b) ..... , ... , ...[2]

(c) Here are the first four terms of another sequence.

3 7 11 15

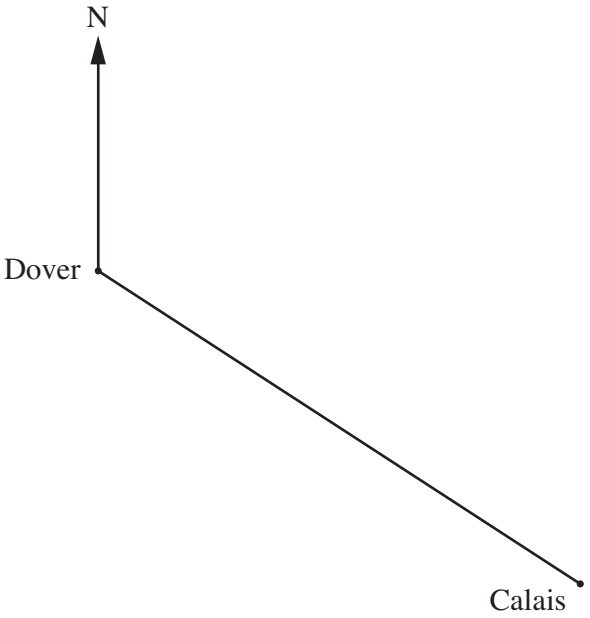
Find the n th term of this sequence.

(c) .....[2]

6

12 Mr and Mrs Mottram went on holiday to Paris.

(a) They travelled by ferry from Dover to Calais.
The scale drawing shows the positions of Dover and Calais.



Scale: 1 cm to 5 km

(i) What is the bearing of Calais from Dover?

(a)(i) .....° [1]

(ii) The scale drawing uses a scale of 1 cm to 5 km.

What is the actual distance from Dover to Calais?

(ii) .....km [2]

(b) The distance from Calais to Paris is 187 miles.
They drove at an average speed of 68 mph.

How long did the journey take?
Give your answer in hours and minutes.

(b) ..... hours .....minutes [3]

(c) The exchange rate between pounds and euros was £1 = €1·48.

(i) Before the holiday Mr Mottram changed £150 into euros.

How many euros did he receive?

(c)(i) € .....[2]

(ii) While in Paris Mrs Mottram bought a souvenir for €51·80.

On the ferry back she saw the same souvenir on sale for £30.

How much less was the souvenir on the ferry?
Give your answer in pounds.

(ii) £ .....[3]

11

13 Solve.

$3(4x - 1) = 27$

.....[3]

3

14 Calculate.

(a) $\dfrac{12{\cdot}74 - 4{\cdot}35}{1{\cdot}58 + 7{\cdot}16}$

Give your answer correct to two decimal places.

(a) .....[2]

(b) $\dfrac{2{\cdot}3 \times 10^{6}}{1{\cdot}84 \times 10^{-3}}$

Give your answer in standard form.

(b) .....[2]

4

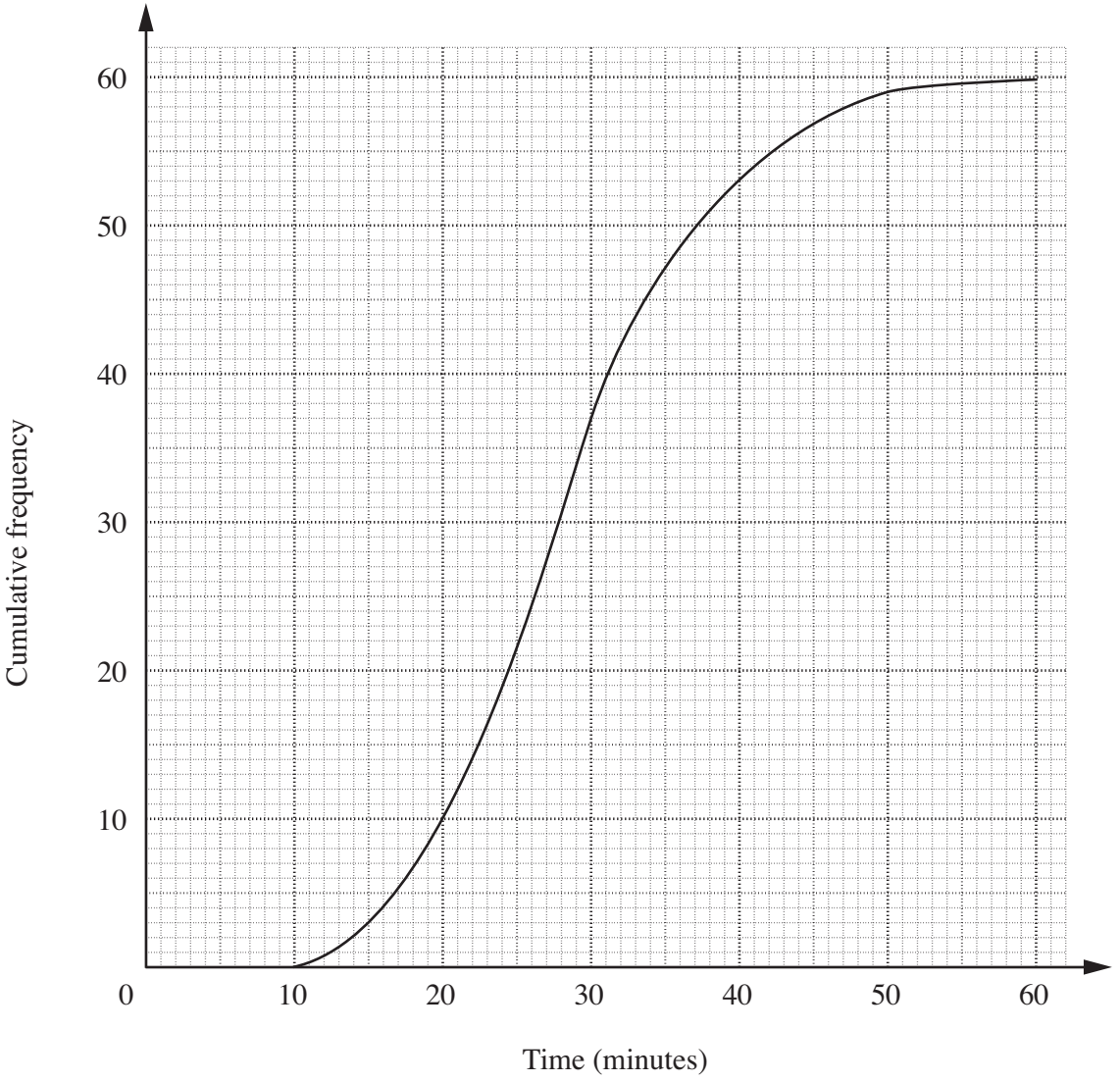
15 In a snooker competition, the length of time, t minutes, taken to complete each of 60 frames was recorded.
The results are summarised in the table below.

Time (t minutes)	Frequency
$10 < t \leqslant 20$	10
$20 < t \leqslant 30$	27
$30 < t \leqslant 40$	16
$40 < t \leqslant 50$	6
$50 < t \leqslant 60$	1

(a) Calculate an estimate of the mean time.

(a) .....minutes [4]

(b) This cumulative frequency diagram represents the same results.



Use the diagram to estimate

(i) the median time,

(b)(i) .....minutes [1]

(ii) the number of frames which lasted more than 35 minutes.

(ii) .....[2]

7

16 *Furniture Warehouse* is having a sale.

(a)

Before the sale, the price of a chair was £124.

The price is reduced by 15% in the sale.

Calculate the sale price.

(a) £.....[3]

(b) The price of a three-piece suite was reduced by 12%.

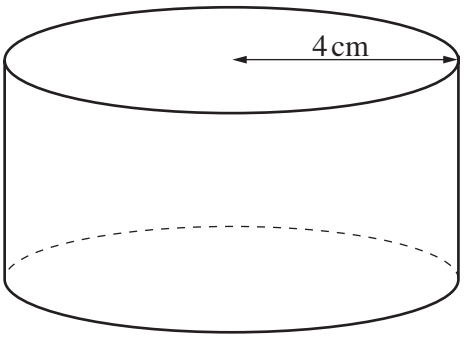
The **sale price** is £836.

Calculate the price **before** the sale.

(b) £ .....[3]

6

17



The diagram shows a solid cylinder.

The radius of the cylinder is 4 cm.

The volume of the cylinder is 186 cm^3.

(a) Work out the height of the cylinder.

(a) .....cm [3]

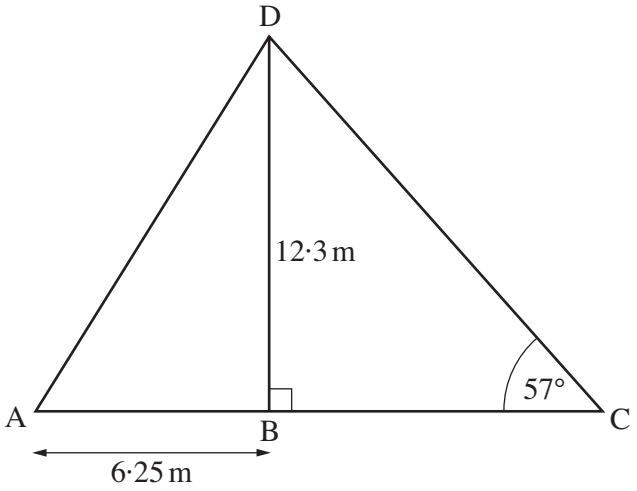
(b) The cylinder is made from platinum.
The density of platinum is 21·5 g/cm^3.

Work out the weight of the cylinder.
Give the units of your answer.

(b) .....[3]

6

18



Not to scale

The diagram shows a vertical flagpole, BD, standing on level ground.

The flagpole is supported by two ropes, AD and CD.

AB = 6·25 m, BD = 12·3 m and angle BCD = 57°.

(a) Calculate the length of AD.
Give your answer to a sensible degree of accuracy.

(a) .....m [4]

(b) Calculate the length of CD.

(b) .....m [3]

7

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