OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
General Certificate of Secondary Education

MATHEMATICS C
(Graduated Assessment)

1966/2338A

MODULE M8 – SECTION A

Wednesday **28 JUNE 2006** Morning 30 minutes

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

Candidate Name	

Centre Number						Candidate Number				

TIME 30 minutes

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 25.

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

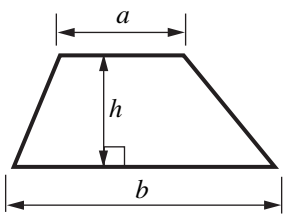
FOR EXAMINER'S USE	
Section A	
Section B	
TOTAL	

This question paper consists of 7 printed pages and 1 blank page.

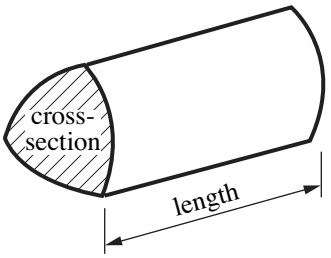
[Turn over

Formulae Sheet

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



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



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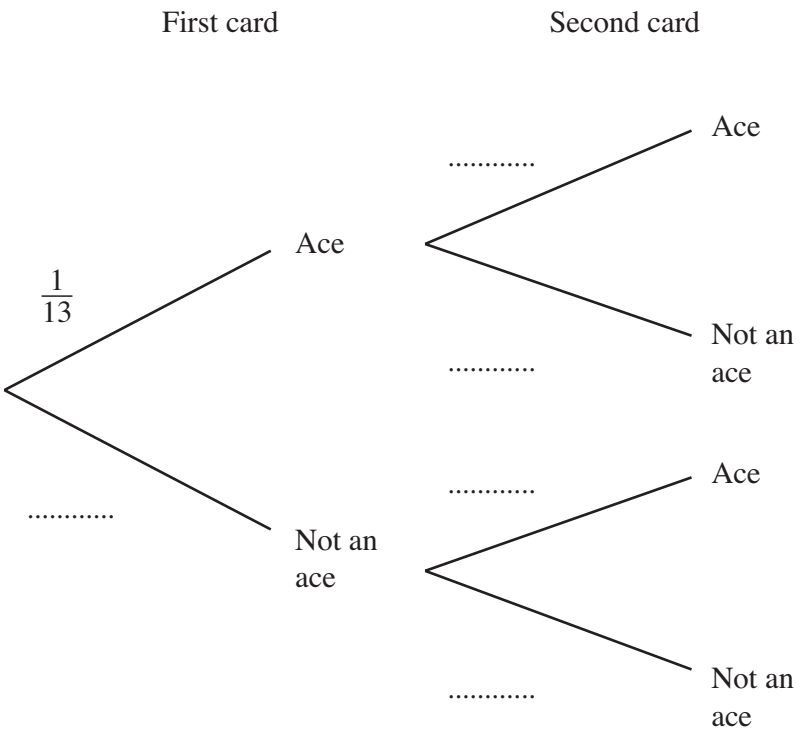
1 The probability of randomly choosing an ace from a pack of 52 playing cards is $\frac{1}{13}$.

Colin chooses a card at random from the pack, returns it to the pack, shuffles the pack and chooses another card at random.

(a) Complete the tree diagram to show the results of Colin's choices.



[2]

(b) Calculate the probability that Colin chooses two aces.

(b) .....[2]

4

[Turn over

2 **(a)** These are the first four terms of a sequence.

4 11 18 25

Write down an expression for the nth term of this sequence.

(a) .....[2]

(b) Make x the subject of this formula.

$y = 2(2x + 3)$

(b) .....[3]

5

3 In the following formulae, a and b represent lengths.

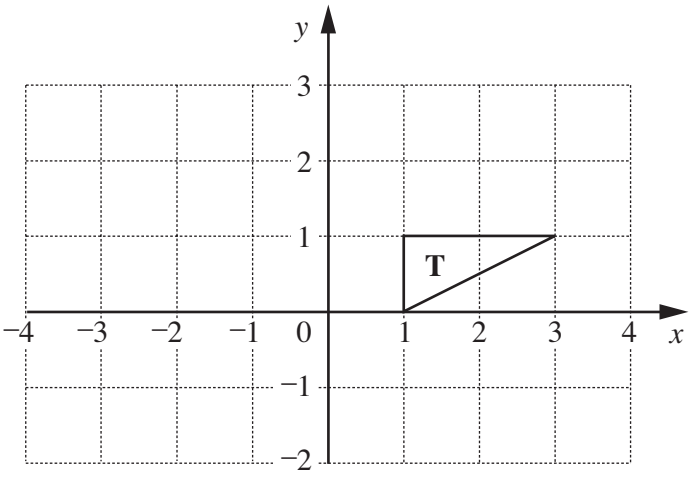
State whether each formula represents a length, an area, a volume or none of these.

$a^2 + 2ab$ $b^3 + ab$ $\pi(a + b)$

.... [3]

3

4



Find the **single** transformation that is equivalent to

a reflection in the line $y = x$ followed by a reflection in the line $x = 1$.

You may use the diagram above to help you.

.....

.....[3]

3

5 The length of a shelf is 200 cm correct to the nearest centimetre.

What are the upper and lower bounds of this length?

Lower bound .....cm

Upper bound .....cm [2]

2

6 **(a)** Write as a single power of 3.

$$\frac{3^4 \times 3^5}{3}$$

(a) .....[2]

(b) Which one of these fractions can be expressed as a recurring decimal?
You do not need to calculate the decimal equivalents.

$$\frac{3}{8} \qquad \frac{9}{32} \qquad \frac{7}{15} \qquad \frac{3}{25}$$

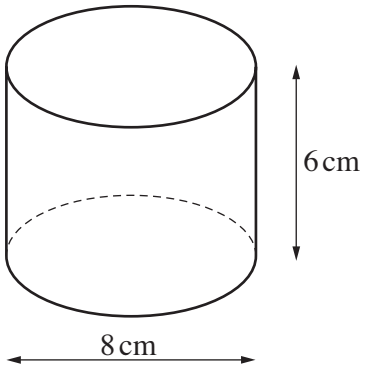
(b) .....[1]

(c) Express $\frac{5}{9}$ as a recurring decimal.

(c) .....[1]

4

7



A solid cylinder has diameter 8 cm and height 6 cm.

Find the **total** surface area of the cylinder.
Leave your answer as a multiple of π.

.....cm^2 [4]

4

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