

Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

B278A

**MATHEMATICS C
(GRADUATED ASSESSMENT)**

MODULE M8 – SECTION A

MONDAY 21 JUNE 2010: Afternoon

DURATION: 30 minutes

SUITABLE FOR VISUALLY IMPAIRED CANDIDATES

Candidates answer on the Question Paper

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Geometrical instruments

Tracing paper (optional)

WARNING

**No calculator can be used for
Section A of this paper.**

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

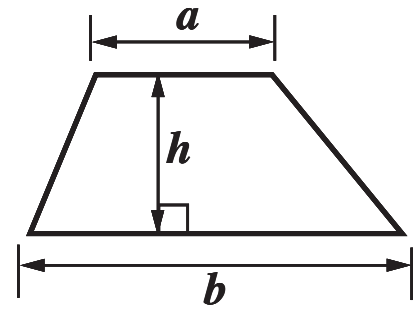
- **Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully and make sure that you know what you have to do before starting your answer.**
- **Show your working. Marks may be given for a correct method even if the answer is incorrect.**
- **Answer ALL the questions.**
- **Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your Candidate Number, Centre Number and question number(s).**

INFORMATION FOR CANDIDATES

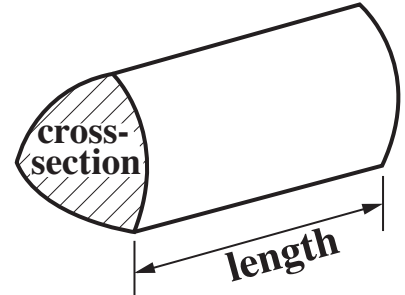
- **The number of marks is given in brackets [] at the end of each question or part question.**
- **The total number of marks for this Section is 25.**

FORMULAE SHEET

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



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

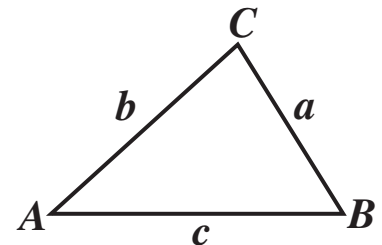


In any triangle ABC

Sine rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

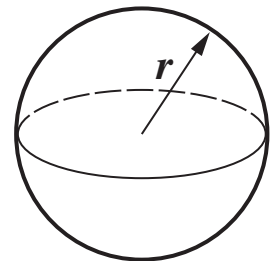
Cosine rule $a^2 = b^2 + c^2 - 2bc \cos A$

Area of triangle = $\frac{1}{2} ab \sin C$



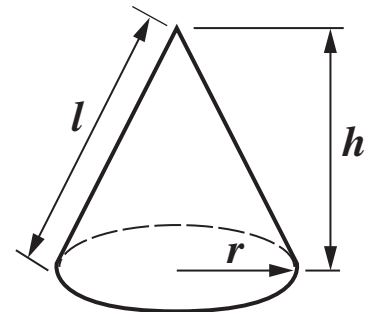
Volume of sphere = $\frac{4}{3}\pi r^3$

Surface area of sphere = $4\pi r^2$



Volume of cone = $\frac{1}{3}\pi r^2 h$

Curved surface area of cone = $\pi r l$



The Quadratic Equation

The solutions of $ax^2 + bx + c = 0$, where $a \neq 0$, are given by

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

1 Work out the following.

Give your answers as mixed numbers in their simplest terms.

(a) $2\frac{1}{3} + \frac{5}{6}$

[2 marks]

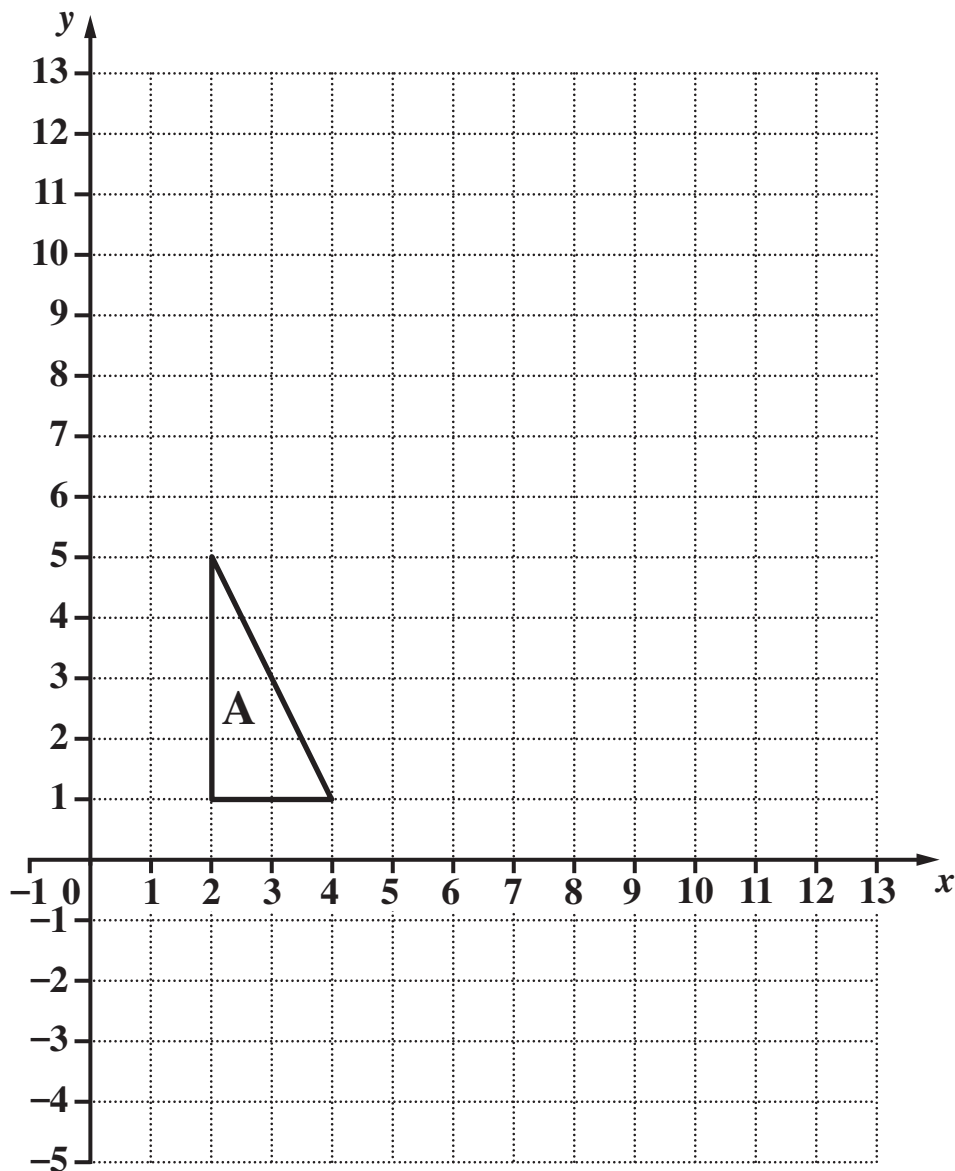
(a) _____

(b) $1\frac{1}{4} \times 5\frac{1}{3}$

[3 marks]

(b) _____

2 Use the diagram below to answer the questions which follow.



(a) Enlarge triangle A with centre $(0, 3)$ and scale factor $2\frac{1}{2}$.
Label the image B.

[3 marks]

(b) Complete the following statement.

[2 marks]

The single transformation that maps triangle

B onto triangle A is an enlargement with centre

(_____ , _____) and scale factor _____ .

- 3 (a) Express 0.0042 in standard form.
[1 mark]**

(a) _____

- (b) Calculate $(8.4 \times 10^4) + (6 \times 10^3)$.
Give your answer in standard form.
[2 marks]**

(b) _____

4 (a) Solve.

**(i) $3x + 1 = 2(4x - 3)$
[3 marks]**

(a)(i) _____

**(ii) $3x - 7 > x$
[2 marks]**

(ii) _____

(b) Factorise.

**$x^2 - 5x + 4$
[2 marks]**

(b) _____

5 Here are the equations of five straight lines.

A $y = 3x - 1$

B $y = -2x + 4$

C $y = 2x - 2$

D $y = 3x + 4$

E $y = 4x + 3$

(a) Which of these lines passes through (0, -2)?
[1 mark]

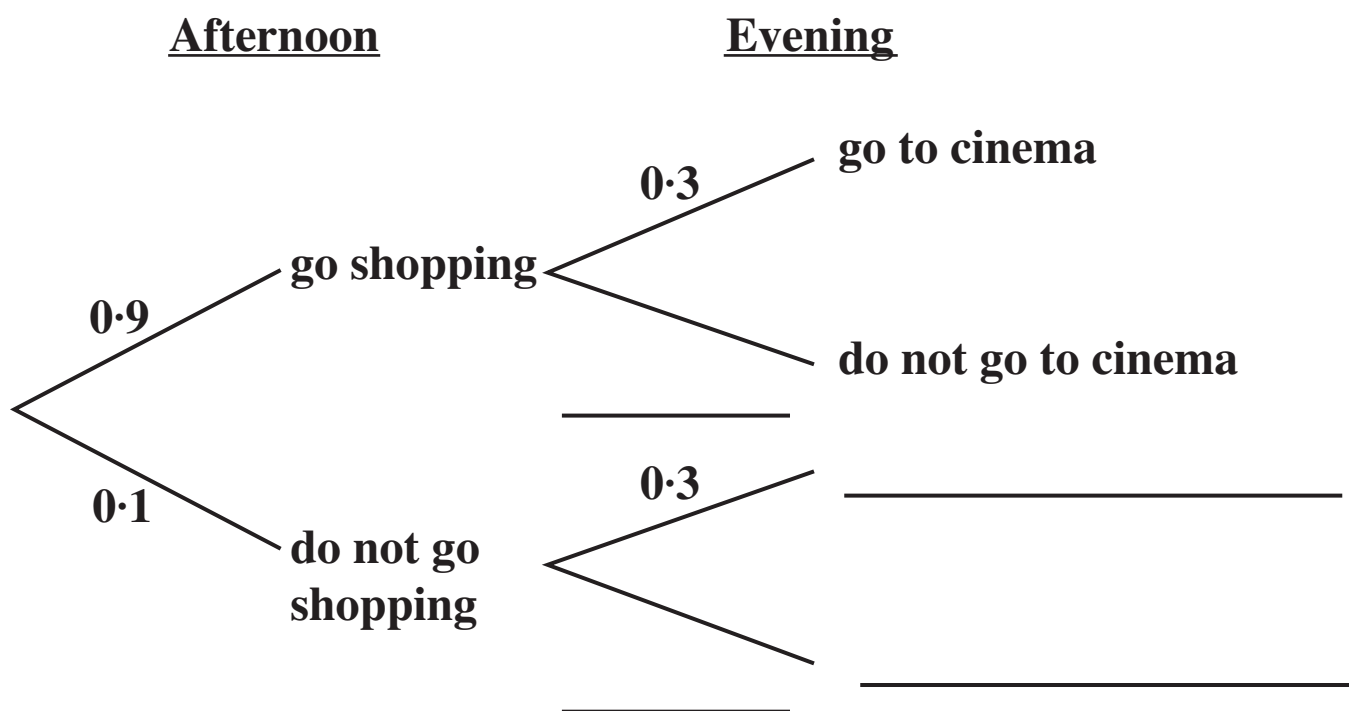
(a) _____

(b) Which two of these lines are parallel?
[1 mark]

(b) _____ and _____

- 6 Jane and her friends spend each Saturday afternoon and evening together.**
The probability that they go shopping in the afternoon is 0.9.
The probability that they go to the cinema in the evening is 0.3.
These events are independent.

- (a) Complete the tree diagram to represent this information.**
[1 mark]



- (b) Calculate the probability that, on a Saturday, they do not go shopping and do not go to the cinema.**
[2 marks]

(b) _____

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