OCR
RECOGNISING ACHIEVEMENT

GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)

M8 B248A

MODULE M8 – SECTION A

TUESDAY 13 MARCH 2007 Morning

Time: 30 minutes

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

CUP/T34706

Candidate Name

Centre Number

Candidate Number

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.

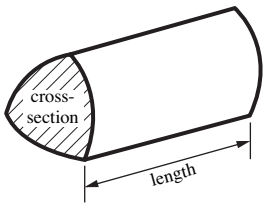
For Examiner's Use	
Section A	
Section B	
Total	

This document consists of **8** printed pages.

[Turn over

Formulae Sheet

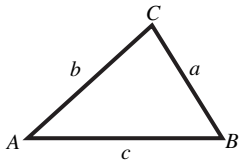
Volume of prism = (area of cross-section) × length



In any triangle ***ABC***

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

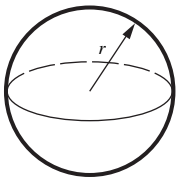
Cosine rule $a^2 = b^2 + c^2 - 2bc\cos A$



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

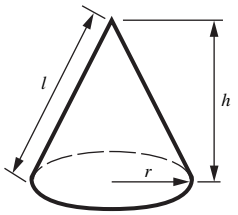
Volume of sphere = $\frac{4}{3}\pi r^3$

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



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

Curved surface area of cone = πrl



The Quadratic Equation

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

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

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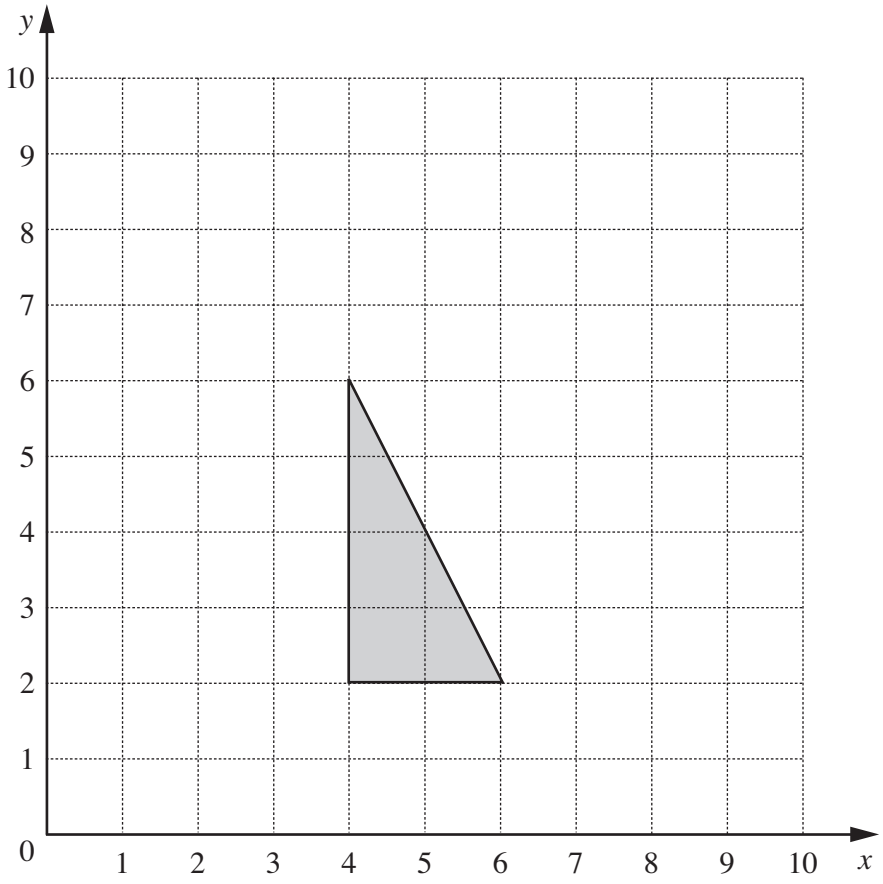
1



(a) Enlarge the triangle using scale factor 1·5 and centre (0, 0). [3]

(b) State a property of the triangle which is **not** changed by the enlargement.

..... [1]

4

2 **(a)** Work out.

(i) $\frac{2}{5} \div \frac{3}{4}$

Give your answer as a fraction.

(a)(i) ..... [2]

(ii) $3\frac{2}{3} \times 2\frac{1}{4}$

Give your answer as a mixed number.

(ii) ..... [3]

(b) Work out.

$$2 \times 10^{-3} + 4 \times 10^{-4}$$

Give your answer in standard index form.

(b) ..... [2]

7

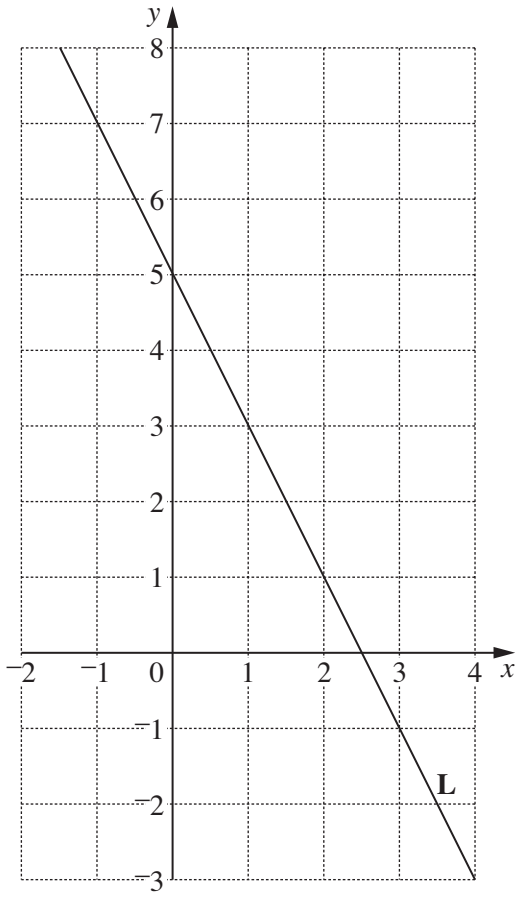
3 Expand and simplify.

$$(x-3)\,(x+5)$$

..... [3]

3

4



Find the equation of line **L**.

..... [3]

3

5 **(a)** Make r the subject of this formula.

$$F = \frac{\pi hr^2}{3}$$

(a) ..... [3]

(b) Given that r and h represent lengths, decide whether $F = \frac{\pi hr^2}{3}$ represents a length, an area or a volume.

Give a reason for your answer.

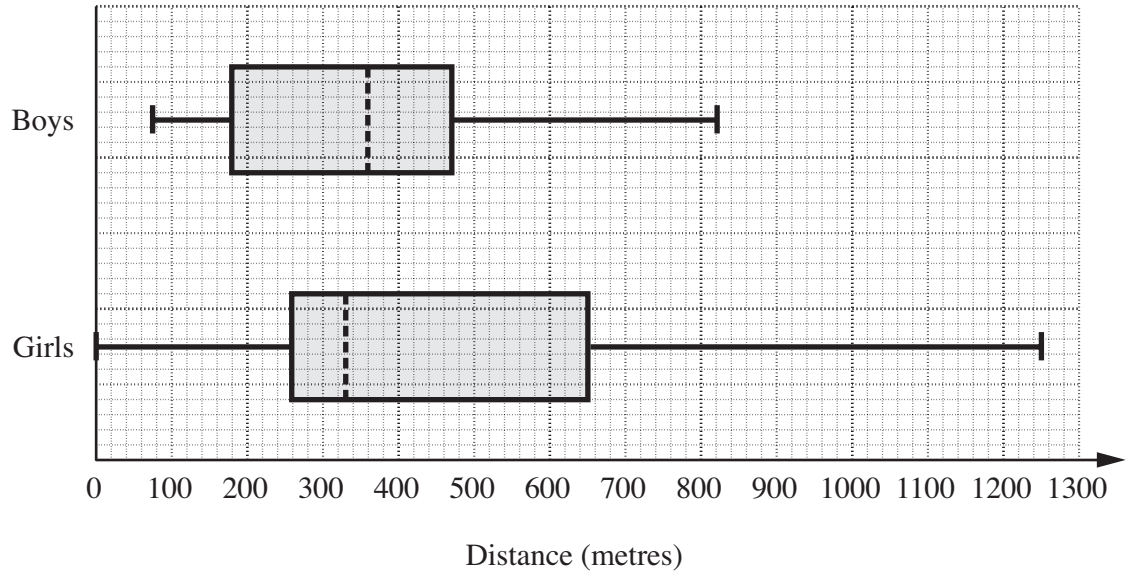
..... because .....

..... [1]

4

TURN OVER FOR QUESTION 6

6 Class 8P went swimming last week.
These box plots represent data for the distances swum by the boys and the girls.



(a) Find the interquartile range for the girls.

(a) ..... m [2]

(b) Make two comparisons between the distances swum by the boys and the girls.

1.....

.....

2.....

..... [2]

4