

GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)
MODULE M8 – SECTION A

B278A

Candidates answer on the question paper

OCR Supplied Materials:
None

Other Materials Required:

- Geometrical instruments
- Tracing paper (optional)

Monday 9 March 2009
Morning

Duration: 30 minutes



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- 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.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

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**.
- This document consists of **8** pages. Any blank pages are indicated.

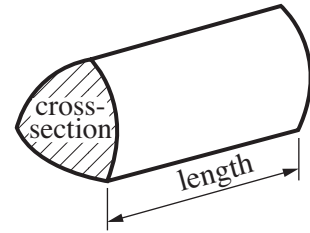
WARNING

No calculator can be used for Section A of this paper

FOR EXAMINER'S USE	
SECTION A	
SECTION B	
TOTAL	

Formulae Sheet

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

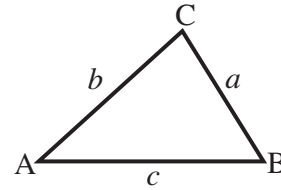


In any triangle ABC

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

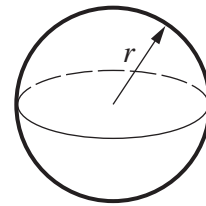
Cosine rule $a^2 = b^2 + c^2 - 2bc \cos A$

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



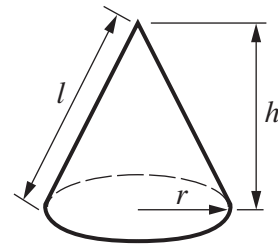
Volume of sphere = $\frac{4}{3} \pi r^3$

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

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

PLEASE DO NOT WRITE ON THIS PAGE

- 1 (a) Work out.

$$2\frac{2}{5} - 1\frac{3}{4}$$

Give your answer as a fraction in its simplest terms.

(a) [3]

- (b) Work out.

$$2\frac{2}{5} \times 1\frac{3}{4}$$

Give your answer as a mixed number in its simplest terms.

(b) [3]

2 (a) Solve.

$$6x > x + 10$$

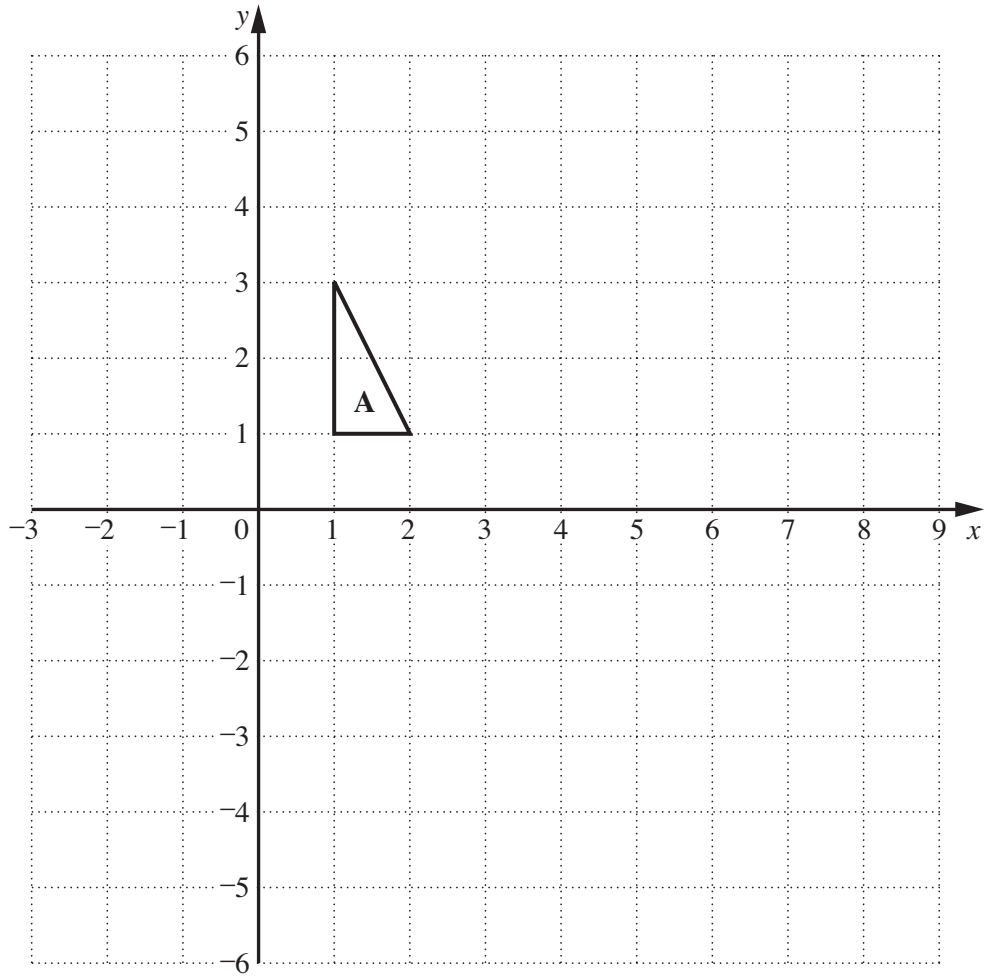
(a) [2]

(b) Factorise and solve this equation.

$$x^2 - 7x + 6 = 0$$

(b) [3]

3

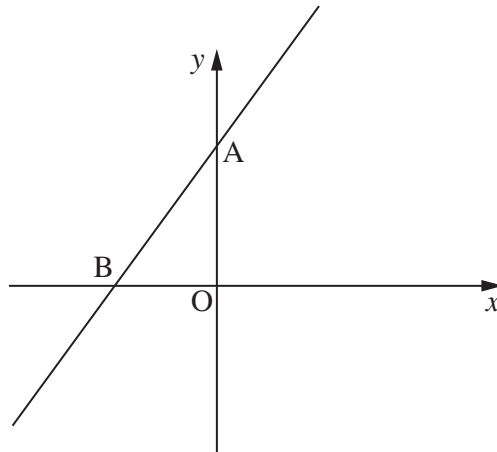


(a) Rotate triangle **A** through 180° about $(2, 1)$.
Label the image **B**. [2]

(b) Translate triangle **B** by $\begin{pmatrix} 4 \\ -2 \end{pmatrix}$.
Label the image **C**. [2]

(c) Describe fully the **single** transformation which maps triangle **A** onto triangle **C**.
.....
..... [2]

4 (a)



This is a sketch of the graph of $y = 2x + 5$.
The line crosses the axes at A and B.

Find the coordinates of A and B.

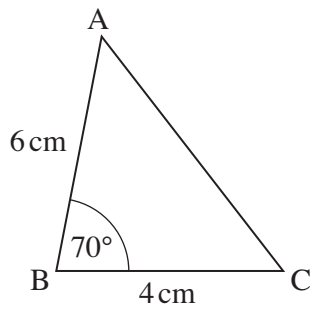
(a) A (..... ,)

B (..... ,) [3]

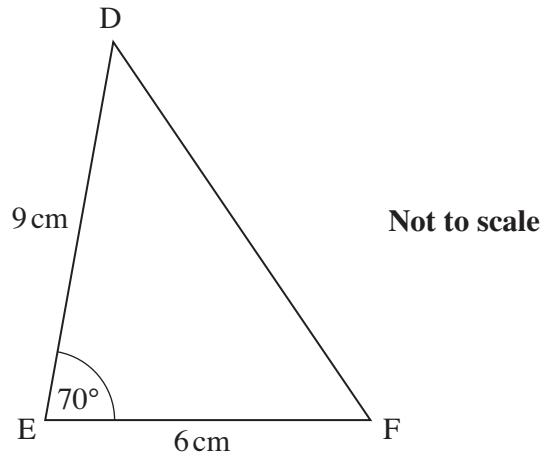
(b) Write down the equation of a line which is parallel to the line $y = 2x + 5$.

(b) [1]

6



8



Explain how you can tell from the diagram that triangles ABC and DEF are similar.

.....

..... [2]



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