

Monday 16 January 2012 – Morning

GCSE MATHEMATICS C (GRADUATED ASSESSMENT)

B278A MODULE M8 – SECTION A

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:

- Geometrical instruments
- Tracing paper (optional)

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, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure 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.
- 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).
- Do **not** write in the bar codes.

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

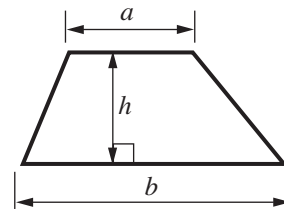


No calculator can be used for Section A of this paper

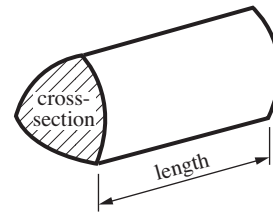
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Formulae Sheet

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



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

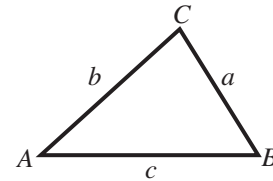


In any triangle ABC

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

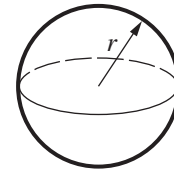
Cosine rule $a^2 = b^2 + c^2 - 2bc \cos A$

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



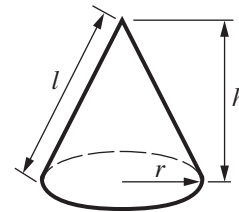
Volume of sphere = $\frac{4}{3}\pi r^3$

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

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

PLEASE DO NOT WRITE ON THIS PAGE

- 1 (a) Work out.

$$3\frac{1}{7} + 3\frac{2}{3}$$

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

(a) [3]

- (b) Work out.

$$3\frac{1}{7} \div 3\frac{2}{3}$$

Give your answer as a fraction in its simplest terms.

(b) [3]

2 (a) Solve.

$$5(2x + 1) = 6x - 7$$

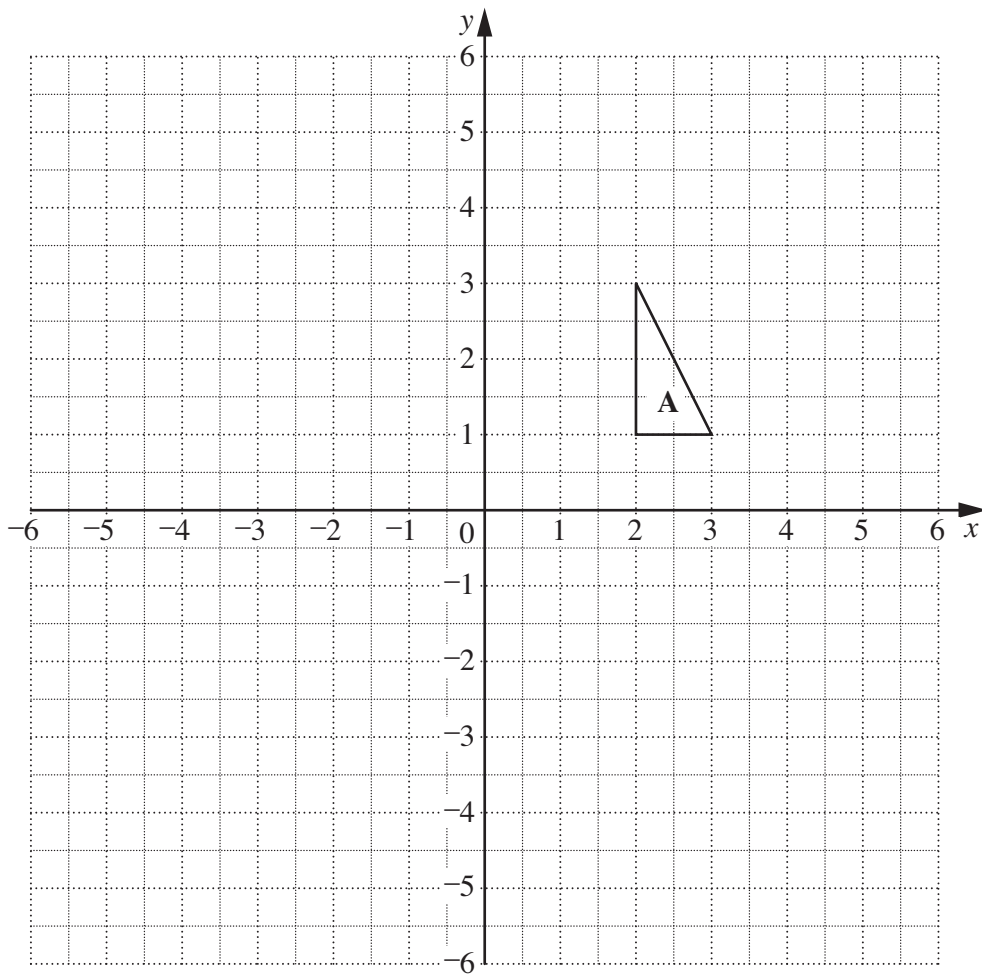
(a) [3]

(b) Factorise and solve this equation.

$$x^2 + 6x + 8 = 0$$

(b) [3]

- 4 (a) Triangle A is drawn on a coordinate grid.



Enlarge triangle A with centre $(0, 1)$ and scale factor 1.5 .
Label the image **B**.

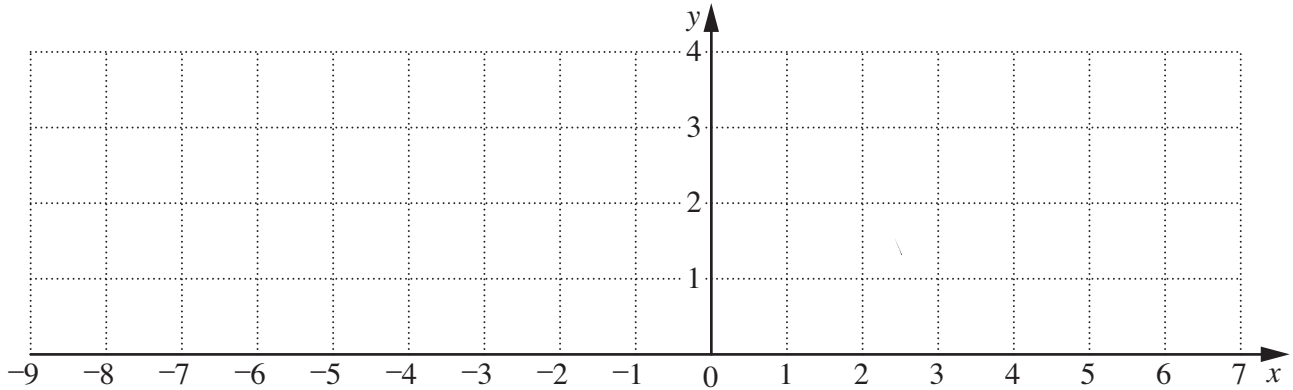
[3]

- (b) A shape is reflected in the line $x = 3$ and then its image is reflected in the line $x = -1$.

Find and describe fully the **single** transformation which is equivalent to the combination of these two transformations.

Show how you decide.

You may use this grid to help you explain your reasoning.



.....
 [4]

- 5 Work out.

$$(8.6 \times 10^{-3}) \times (2 \times 10^7)$$

Give your answer in standard form.

..... [2]

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