

**GENERAL CERTIFICATE OF SECONDARY EDUCATION  
MATHEMATICS C (GRADUATED ASSESSMENT)**

**MODULE M3 – SECTION B**

**MONDAY 22 JANUARY 2007**

**M3 B243B**

Morning

Time: 30 minutes

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



Candidate  
Name

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Centre  
Number

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Candidate  
Number

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**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**

- You are expected to use a calculator in Section B of this paper.
- 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.
- Section B starts with question 6.

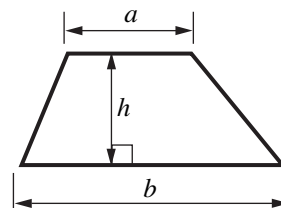
For Examiner's Use

Section B

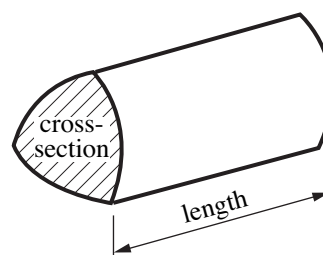
This document consists of **8** printed pages.

**Formulae Sheet**

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



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



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6 Work out.

(a)  $3 \cdot 6^2$

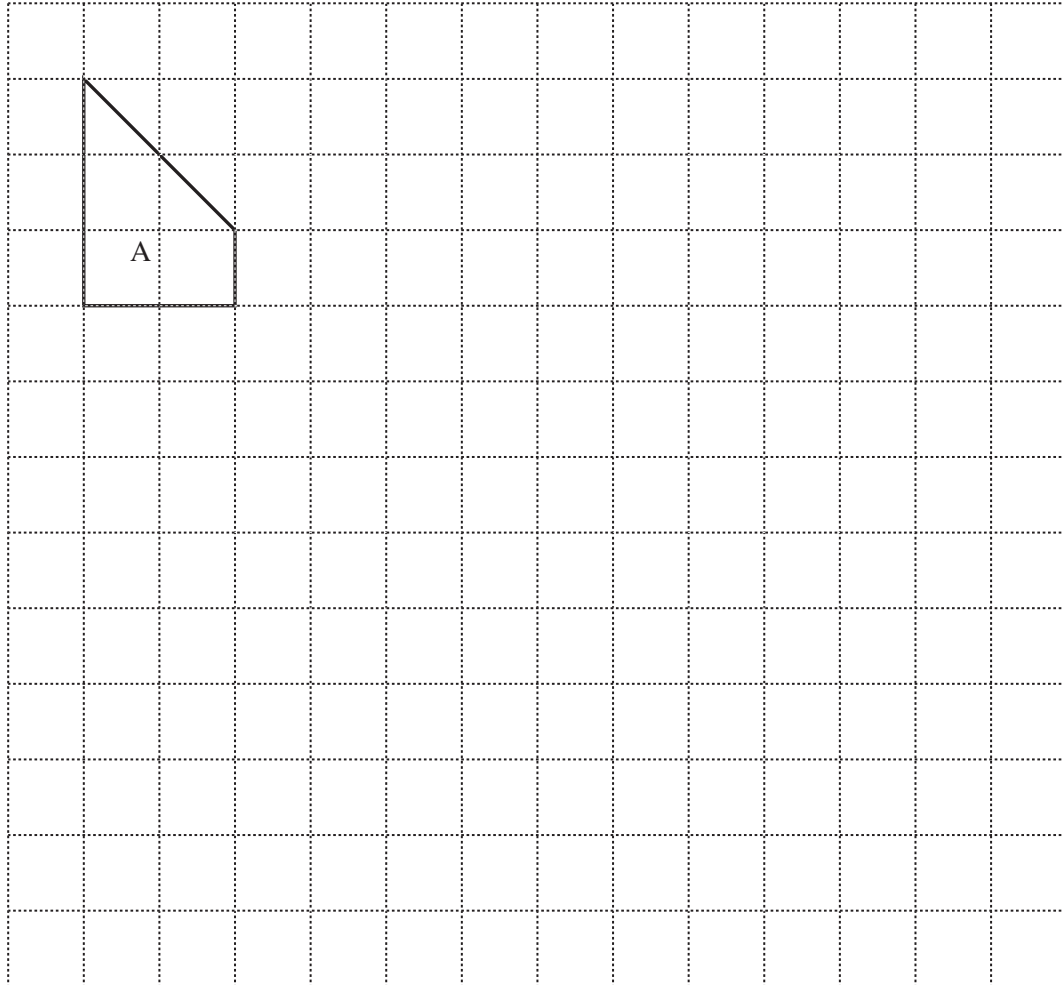
(a)..... [1]

(b)  $\sqrt{576}$

(b) ..... [1]

2

7



(a) Find the area of shape A.

(a).....cm<sup>2</sup> [1]

(b) On the grid, draw an enlargement of shape A.  
Use a scale factor of 3.

[2]

(c) The sloping side of shape A is 2.8 cm.

Without measuring, **explain** how you can work out the length of the sloping side of your enlargement.

..... [1]

4

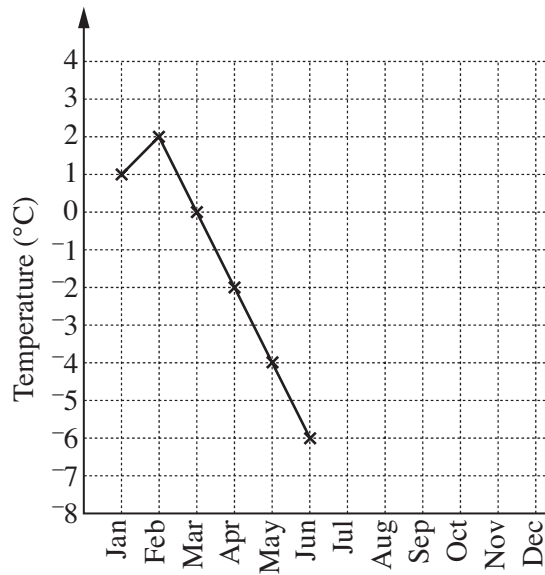
- 8 (a) The table shows the average monthly temperatures at a weather station near to the South Pole.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature ( $^{\circ}\text{C}$ )	1	2	0	-2	-4	-6	-7	-6	-4	-3	-1	0

- (i) Which month is the coldest?

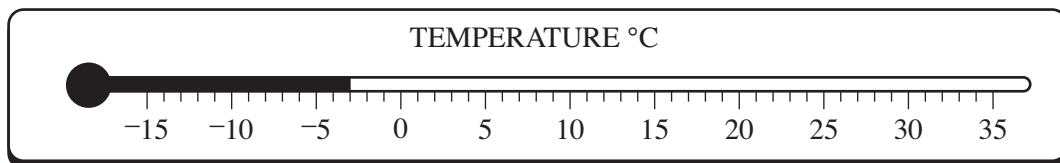
(a)(i)..... [1]

- (ii) Complete this line graph showing the monthly temperatures at the weather station.



[2]

- (iii) Which month's temperature is shown on this thermometer?



(iii)..... [1]

(b) This table shows the average February temperatures at a weather station in the UK.

Year	2000	2001	2002	2003	2004
Temperature ( $^{\circ}\text{C}$ )	1.9	0.4	2.4	2.0	1.5

(i) Find the mean of these temperatures.

(b)(i)..... $^{\circ}\text{C}$  [3]

(ii) Find the range of these temperatures.

(ii)..... $^{\circ}\text{C}$  [1]

8
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9 Solve.

(a)  $x + 5 = 15$

(a)..... [1]

(b)  $x - 1 = 10$

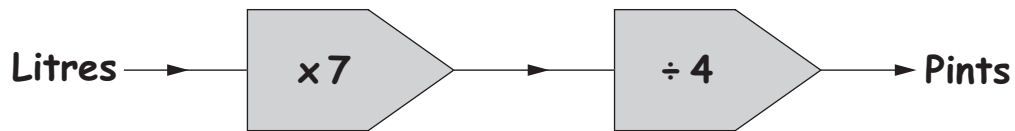
(b)..... [1]

(c)  $3x = 12$

(c)..... [1]

3
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- 10 (a) This number machine shows how to convert litres into pints.



An average human has 5·6 litres of blood in their body.

Use the number machine to convert 5·6 litres into pints.

(a)..... pints [2]

- (b) A baby has about 1100 millilitres of blood in their body.

What is 1100 millilitres in litres?

(b) ..... litres [1]

- (c) There are four main blood groups.

In the UK,  $\frac{4}{5}$  of people have blood group A.

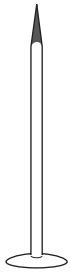
There are 60 million people in the UK.

Work out how many of these people have blood group A.

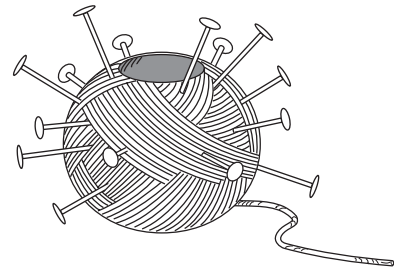
(c).....million [2]

5	
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- 11** In a game, 100 nails are hammered into a ball of string.



Some of the nails have painted tips:  
 8 have blue tips,  
 13 have red tips.  
 The rest are not painted.



Amy picks a nail at random.

What is the probability that she

**(a)** picks a nail with a red tip,

**(a)**..... [1]

**(b)** picks a nail which is not painted?

**(b)** ..... [2]

3

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