



**M7**

**GENERAL CERTIFICATE OF SECONDARY EDUCATION  
MATHEMATICS C (GRADUATED ASSESSMENT)  
MODULE M7 (SECTION A)**

**B277A**



Candidates answer on the question paper.

**OCR supplied materials:**  
None

**Other materials required:**

- Geometrical instruments
- Tracing paper (optional)

**Tuesday 21 June 2011  
Afternoon**

**Duration: 30 minutes**



Candidate forename		Candidate surname	
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Centre number							Candidate number				
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**MODIFIED LANGUAGE**

**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. Pencil may be used for graphs and diagrams only.
- 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).
- Answer **all** the questions.
- Do **not** write in the bar codes.

**INFORMATION FOR CANDIDATES**

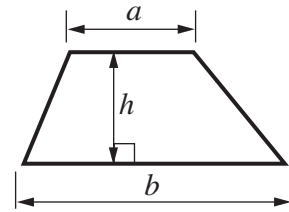
- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this Section is **25**.
- This document consists of **8** pages. Any blank pages are indicated.

**WARNING**

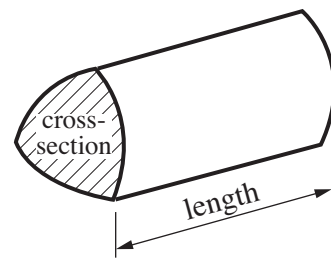
No calculator can be used for Section A of this paper

## Formulae Sheet

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



$$\text{Volume of prism} = (\text{area of cross-section}) \times \text{length}$$



**PLEASE DO NOT WRITE ON THIS PAGE**

- 1 (a) In Yvonne's school there are 220 students in Year 10 and 240 students in Year 11.

Write the ratio 220 : 240 in its simplest form.

(a) ..... [2]

- (b) There are 27 students in Yvonne's class.

The number of boys to the number of girls is in the ratio 5 : 4.

How many boys are in Yvonne's class?

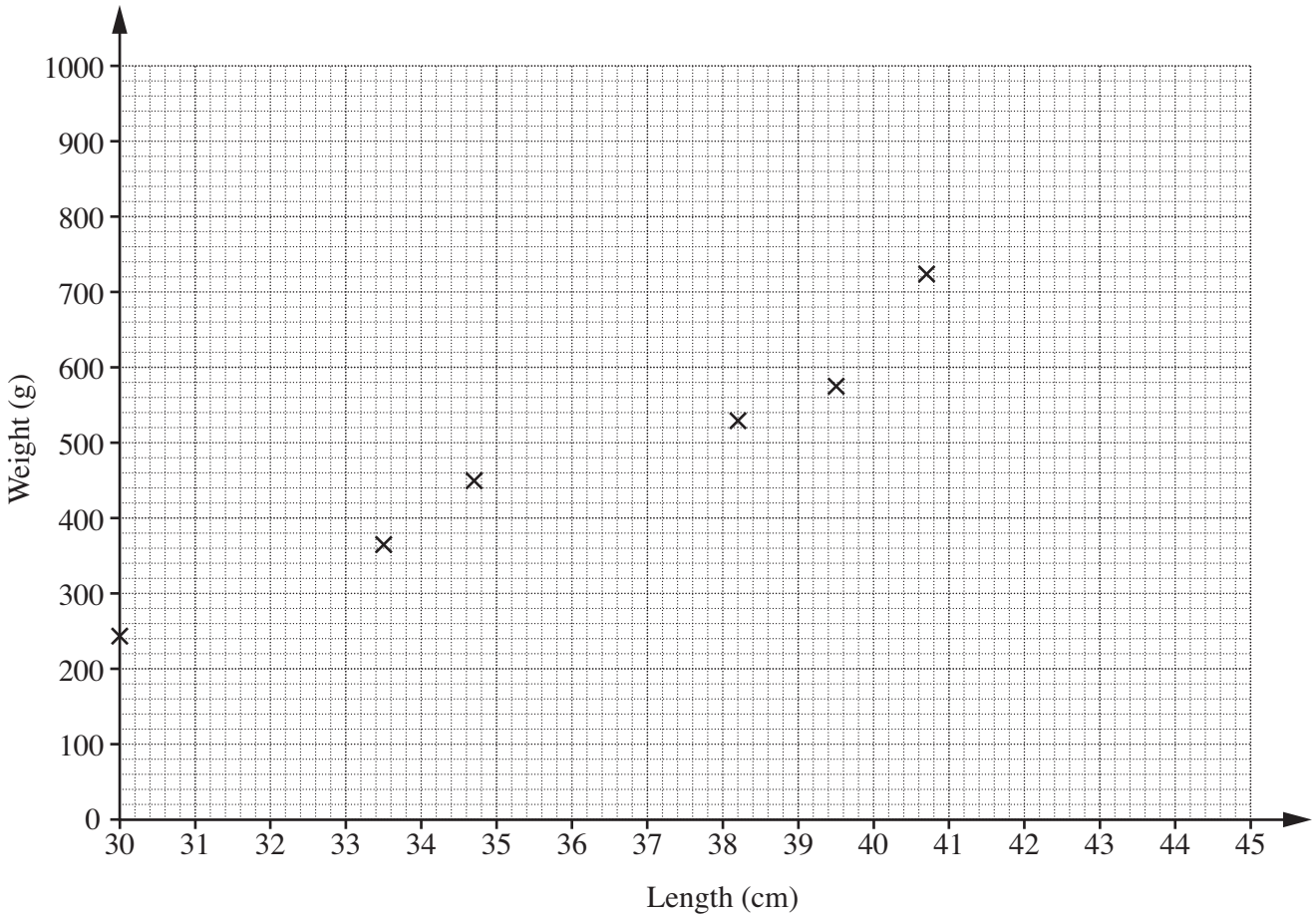
(b) ..... [2]

2 (a) This table shows the length and weight of eight fish.

Length (cm)	33.5	34.7	30.0	38.2	39.5	40.7	44.3	41.6
Weight (g)	363	450	242	530	575	725	920	720

(i) The information for the first six fish has been plotted on the scatter diagram.

Complete the diagram by plotting the points for the last two fish.



[1]

(ii) Describe the type of correlation and strength of the correlation shown in this diagram.

..... [1]

(iii) Draw a line of best fit.

[1]

(iv) Another fish is 36.5 cm long.

Use your line of best fit to estimate the weight of this fish.

(a)(iv) ..... g [1]

(b) A mackerel weighs 542 g, correct to the nearest gram.

What is the lower bound of the weight of the mackerel?

(b) ..... g [1]

3 (a) Solve.

$$3 + 2x > 4$$

(a) ..... [2]

(b) Here are the first four terms of a sequence.

21      26      31      36

Find an expression for the  $n$ th term of this sequence.

(b) ..... [2]

4 (a) Calculate as decimals.

(i) the reciprocal of 5

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

(ii)  $\frac{5}{9}$

(ii) ..... [2]

(b) Simplify the following.

Give your answers as powers of 5.

(i)  $5^2 \times 5^4$

(b)(i) ..... [1]

(ii)  $\frac{5^7}{5^3}$

(ii) ..... [1]

5 Multiply out.

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

..... [2]

6 Sasha made a dice numbered from 1 to 6.  
She threw the dice 200 times.  
She threw a six 50 times.

(a) Find the relative frequency of throwing a six with Sasha's dice.

(a) ..... [1]

(b) Compare Sasha's result with the probability of throwing a six from an ordinary fair dice.

Show how you worked out your answer.

.....  
..... [1]

**TURN OVER FOR QUESTION 7**

7 Use a ruler and compasses to construct the bisector of angle ABC.

Leave in all your construction lines.



[2]

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