

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

**B277B**

Candidates answer on the Question Paper

**OCR Supplied Materials:**  
None

- Other Materials Required:**
- Geometrical instruments
  - Tracing paper (optional)
  - Scientific or graphical calculator

**Monday 21 June 2010  
Afternoon**

**Duration: 30 minutes**



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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**INSTRUCTIONS TO CANDIDATES**

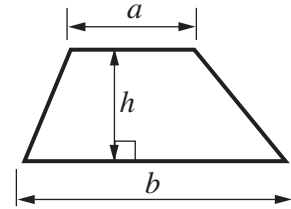
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show your working. 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. Additional paper may be used if necessary but you must clearly show your Candidate Number, Centre Number and question number(s).

**INFORMATION FOR CANDIDATES**

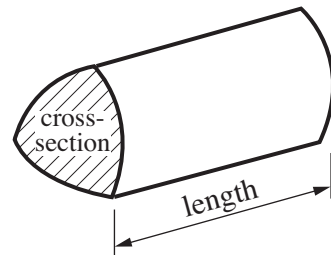
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Section B starts with question 9.
- You are expected to use a calculator in Section B of this paper.
- Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.
- The total number of marks for this Section is **25**.
- This document consists of **8** pages. Any blank pages are indicated.

## 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**

- 9 Hugo makes pink paint by mixing red paint and white paint in the ratio 1 : 8.  
Hugo makes 31.5 litres of pink paint altogether.

How much red paint and how much white paint does he use?

red ..... litres  
white ..... litres [2]

10 (a) Solve.

$$5(4x - 7) = 50$$

(a) ..... [3]

(b) Expand.

$$(x + 5)(x + 2)$$

(b) ..... [2]

(c) Rearrange this formula to make  $x$  the subject.

$$y = 3x - 5$$

(c) ..... [2]

11 The table below summarises the weights of a group of 100 athletes.

Weight ( $w$ kg)	Frequency
$40 < w \leq 50$	10
$50 < w \leq 60$	26
$60 < w \leq 70$	30
$70 < w \leq 80$	25
$80 < w \leq 90$	9

(a) Calculate an estimate of the mean weight of these athletes.

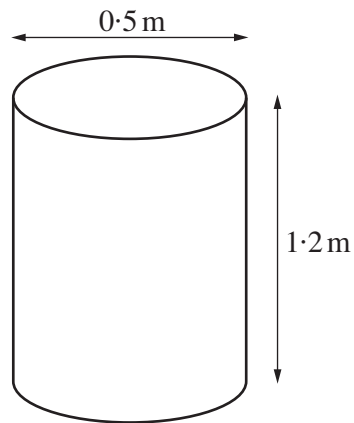
(a) ..... kg [4]

(b) An athlete is chosen at random from this group.

What is the probability that this athlete weighs **over** 70 kg?

(b) ..... [2]

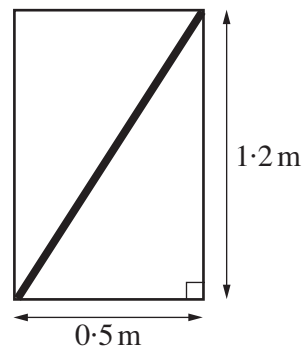
- 12 A cylindrical drum is shown below.  
Its diameter is 0.5 m.  
Its height is 1.2 m.



- (a) Calculate the volume of the drum.

(a) .....m<sup>3</sup> [3]

(b) A rod is stored in the drum diagonally, as shown.



**Not to scale**

Does a rod of length  $1.4\text{ m}$  fit inside the drum?  
Show a calculation to justify your answer.

.....

.....

.....

.....

.....

.....

.....

..... [4]

**TURN OVER FOR QUESTION 13**

- 13 Ian takes part in a marathon to raise money for charity.  
He takes 3 hours and 45 minutes to complete the distance of 42·195 km.

Calculate his average speed.

..... km/h [3]



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