



M7

**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

**Thursday 20 January 2011
Morning**

Duration: 30 minutes



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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INSTRUCTIONS TO CANDIDATES

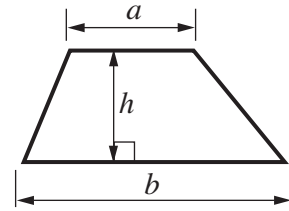
- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Show your working. 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

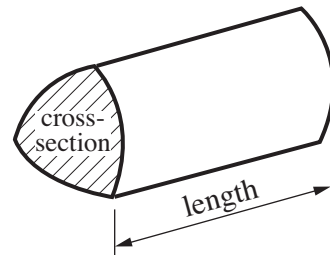
- The number of marks is given in brackets [] at the end of each question or part question.
- Section B starts with question 8.
- You are expected to use a calculator in Section B of this paper.
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
- The total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

Formulae Sheet

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



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



PLEASE DO NOT WRITE ON THIS PAGE

- 8 (a) A 13cm plant pot holds 0.8 litres of compost.

How many of these pots can be filled from a 60 litre bag of compost?

(a)..... [1]

- (b) A 60 litre bag of compost costs £4.92.

What would a 25 litre bag cost at the same price per litre?

(b) £ [2]

- (c) Sandra makes her own compost by mixing fibre, sand and soil in the ratio 2 : 3 : 5.

How much sand does she need to make 75 litres of compost?

(c)litres [2]

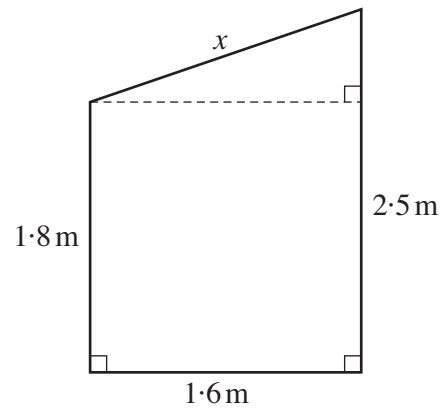
- 9 In the Olympics, 49 swimmers took part in the women's 100 m butterfly heats. The table shows the distribution of their times.

Time, (T seconds)	Frequency
$56 \leq T < 58$	4
$58 \leq T < 60$	33
$60 \leq T < 62$	8
$62 \leq T < 64$	1
$64 \leq T < 66$	3

Calculate an estimate of their mean time.
Write your answer correct to one decimal place.

..... seconds [4]

10 The diagram shows the side view of a shed.



Not to scale

Calculate the length x .
Give your answer to a suitable degree of accuracy.

.....m [4]

- 11** Asif asked a random sample of 80 pupils how they travel to school. The table shows his results.

Walk	Bus	Cycle	Taxi	Car
26	43	3	2	6

- (a) One of the 80 pupils is chosen at random.

What is the probability that this pupil walks to school?

(a)..... [1]

- (b) There are 1200 pupils in the school.

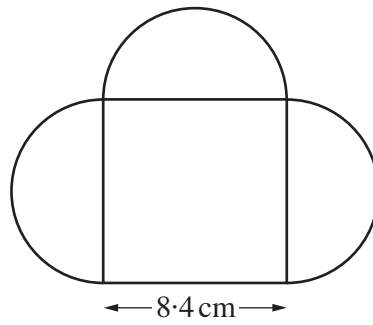
- (i) Explain why it is reasonable to use Asif's results to estimate the number of these 1200 pupils who walk to school.

.....
 [1]

- (ii) Estimate the number of these 1200 pupils who walk to school. You must show your working.

(b)(ii)..... [2]

12



This is the design for a company logo.
It is formed from a square of side length 8.4 cm and three semi-circles of diameter 8.4 cm.

Calculate the area of the logo.

.....cm² [4]

TURN OVER FOR QUESTION 13

13 One solution of the equation $x^3 - 4x = 10$ lies between 2 and 3.

Use trial and improvement to find this solution, correct to one decimal place.

You must show all your trials and their outcomes.

..... [4]



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