

Candidate forename		Candidate surname	
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Centre number						Candidate number				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

B277B

**MATHEMATICS C
(GRADUATED ASSESSMENT)**

MODULE M7 – SECTION B

THURSDAY 20 JANUARY 2011: Morning

DURATION: 30 minutes

SUITABLE FOR VISUALLY IMPAIRED CANDIDATES

Candidates answer on the question paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Geometrical instruments

Tracing paper (optional)

Scientific or graphical calculator

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

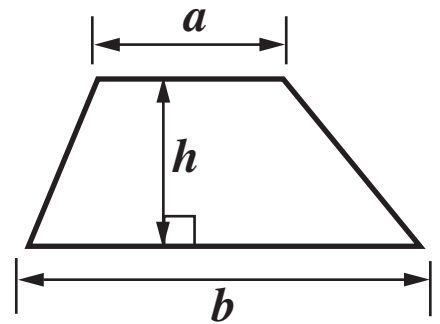
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**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

INFORMATION FOR CANDIDATES

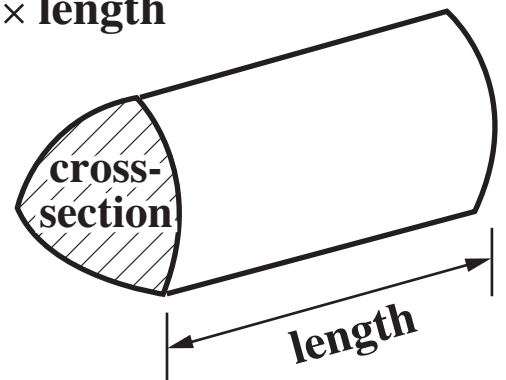
- **The number of marks is given in brackets [] at the end of each question or part question.**
- **Section B starts with question 8.**
- **You are expected to use a calculator in Section B of this paper.**
- **Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.**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

Formulae Sheet

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



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



8 (a) A 13 cm 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.

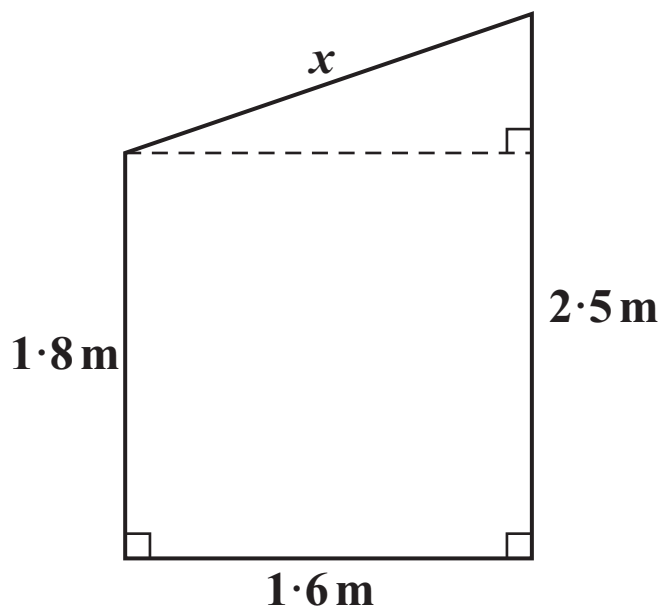
Time, (T seconds)	Frequency
$56 \leq T < 58$	4
$58 \leq T < 60$	33
$60 \leq T < 62$	8
$62 \leq T < 64$	1
$64 \leq T < 66$	3

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.

- 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.**

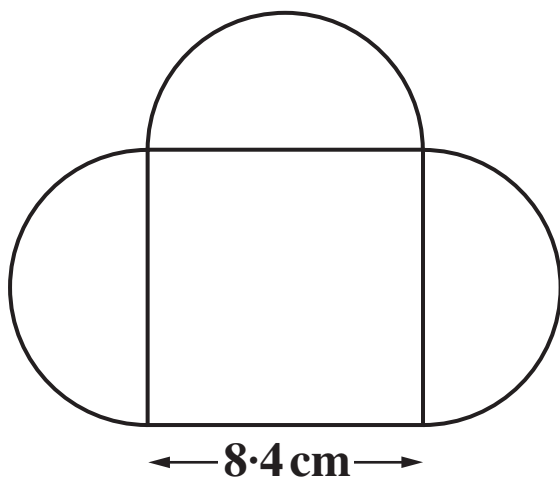
- (i) Explain why it is reasonable to use Asif's results to estimate the number of these 1200 pupils who walk to school.**

_____ **[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.

_____ cm^2 [4]

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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