M7

OCR
RECOGNISING ACHIEVEMENT

GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS C (GRADUATED ASSESSMENT)   **B277B**

MODULE M7 – SECTION B

Candidates answer on the question paper

OCR Supplied Materials:
None

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

Monday 9 March 2009
Morning

Duration: 30 minutes

Candidate Forename		Candidate Surname	

Centre Number					Candidate Number				

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, however additional paper may be used if necessary.

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 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.

FOR EXAMINER'S USE

SECTION B	

OCR is an exempt Charity

Turn over

Formulae Sheet

Area of trapezium $= \frac{1}{2}(a + b)h$
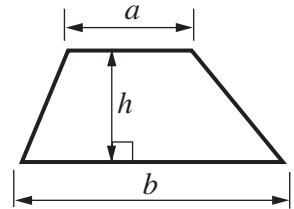
Volume of prism = (area of cross-section) × length
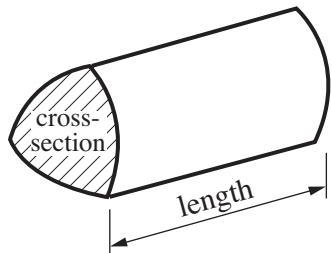
PLEASE DO NOT WRITE ON THIS PAGE

9   5 litres of petrol costs £5·35.

How much would 8·6 litres cost?

£ .... **[2]**

10   A digital television costs £850.
The price is reduced by 8%.

Calculate the reduced price.

£ .... **[3]**

Turn over

11 Bilal measures the heights of 80 trees.
His results are summarised in this table.

Height (h cm)	Midpoint	Frequency
$0 < h \leqslant 50$	25	3
$50 < h \leqslant 100$		14
$100 < h \leqslant 150$		15
$150 < h \leqslant 200$		23
$200 < h \leqslant 250$		17
$250 < h \leqslant 300$		8

Calculate an estimate of the mean height of the trees.

.... cm **[3]**

12 **(a)** Show that the equation $x^3 + x^2 = 20$ has a solution between 2 and 3.

....

....

.... **[1]**

(b) Use trial and improvement to find this solution correct to one decimal place.
You must show your trials and their outcomes.

(b) .... **[3]**

Turn over

13 (a) Multiply out.

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

(a) .... **[2]**

(b) Solve.

$$5(x + 2) = 12 + x$$

(b) .... **[3]**

14 A train travels 270 km in 2 hours 30 minutes.

Calculate the average speed of the train.

.... km/h **[3]**

15 The diagram shows a piece of land.
It is formed from a rectangle and a semicircle with radius 32 m.
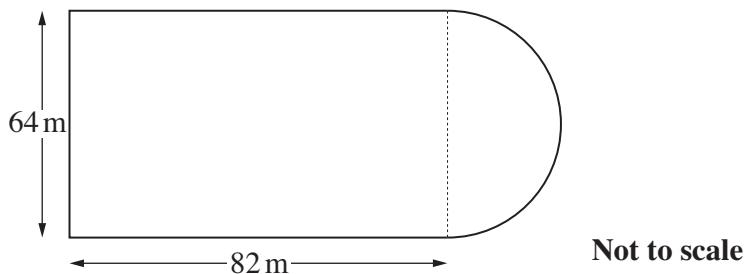
The land is valued at £5·50 per square metre.

Calculate the total value of this piece of land.

£ .... **[5]**

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