M6

OCR
RECOGNISING ACHIEVEMENT

GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS C (GRADUATED ASSESSMENT)

MODULE M6 (SECTION B)

B276B

Candidates answer on the question paper.

OCR supplied materials:
None

Other materials required:
•   Geometrical instruments
•   Tracing paper (optional)
•   Scientific or graphical calculator

Tuesday 21 June 2011
Afternoon

Duration: 30 minutes

Candidate forename		Candidate surname	

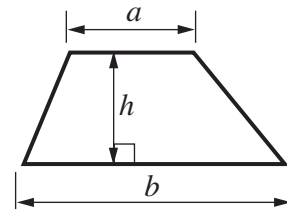| Centre number						Candidate number					

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.
•   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).
•   Show your working. Marks may be given for a correct method even if the answer is incorrect.
•   Answer **all** the questions.
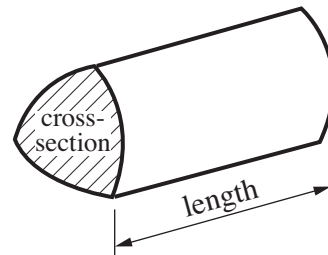•   Do **not** write in the bar codes.

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.

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

8 This is a sketch of a quadrilateral PQRS.
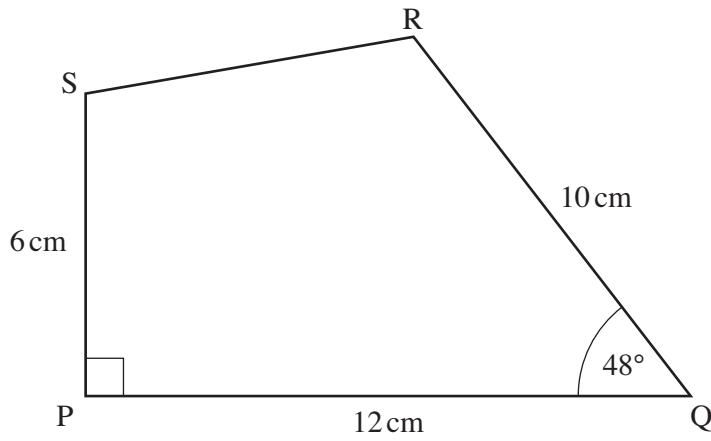
Not to scale

(a) Use ruler and protractor to construct this quadrilateral.
The side PQ has been drawn for you.

P ——————————————————————— Q
                        12 cm
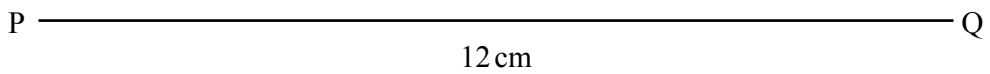
[3]

(b) Measure angle PSR in your quadrilateral.

(b) .... ° **[1]**

Turn over

9 This table shows the engine sizes and the CO_2 emissions of ten cars.

Engine size (litres)	1·0	1·2	1·2	1·3	1·6	1·6	1·8	2·0	2·5	3·0
CO_2 emissions (g/km)	105	138	125	130	159	179	152	170	235	249

(a) Complete the scatter diagram below.
The first eight points have been plotted for you.
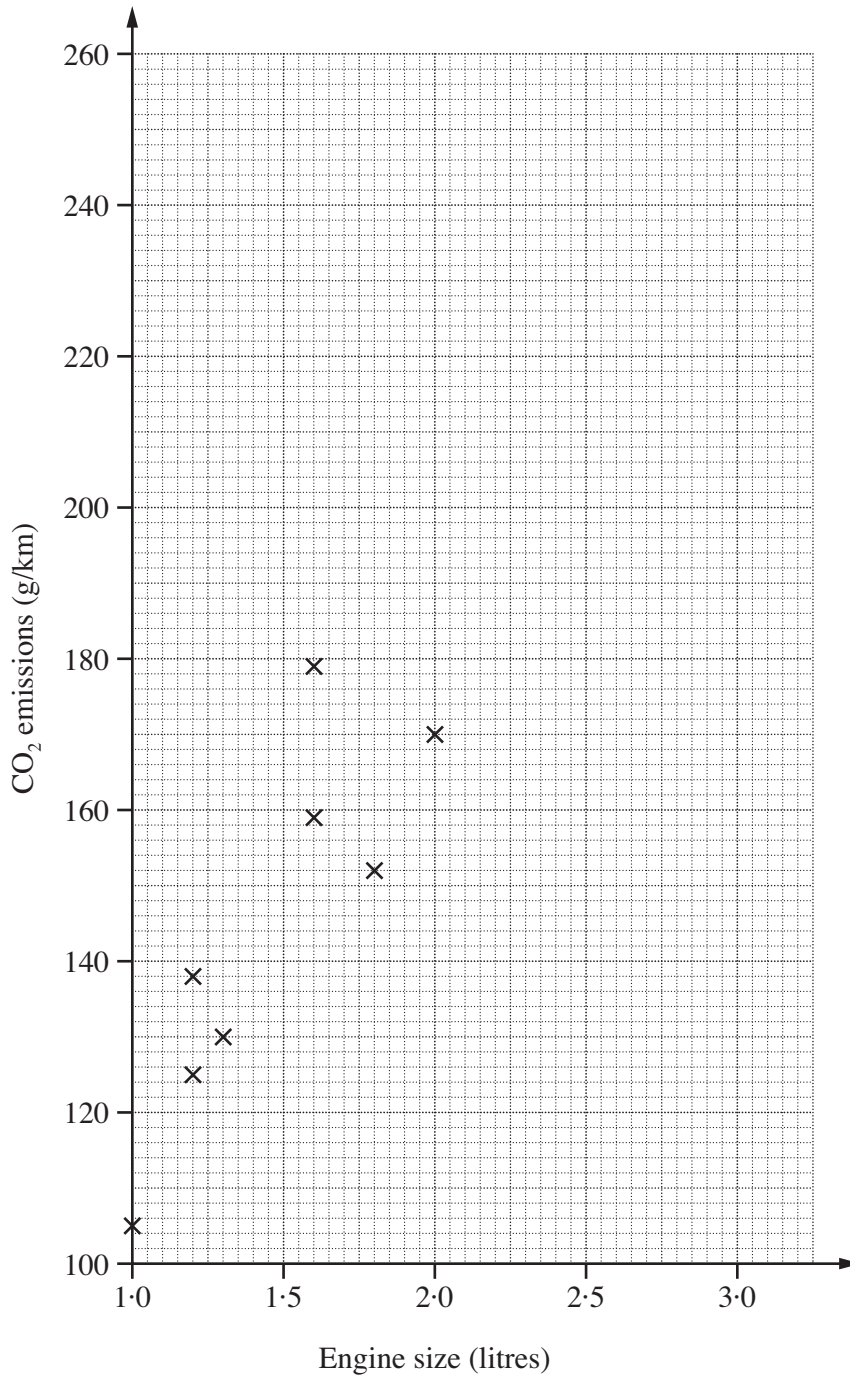
[1]

(b) What does the diagram show about the relationship between engine size and CO_2 emissions?

....

.... **[1]**

(c) Alwyn's car has an engine size of 2·2 litres.

Use the diagram to estimate the CO_2 emissions of his car.

(c) .... g/km **[1]**

10 Draw the graph of $x + 2y = 10$ for values of x from 0 to 10.
You may use this table to help you.

x	0		
y	5		
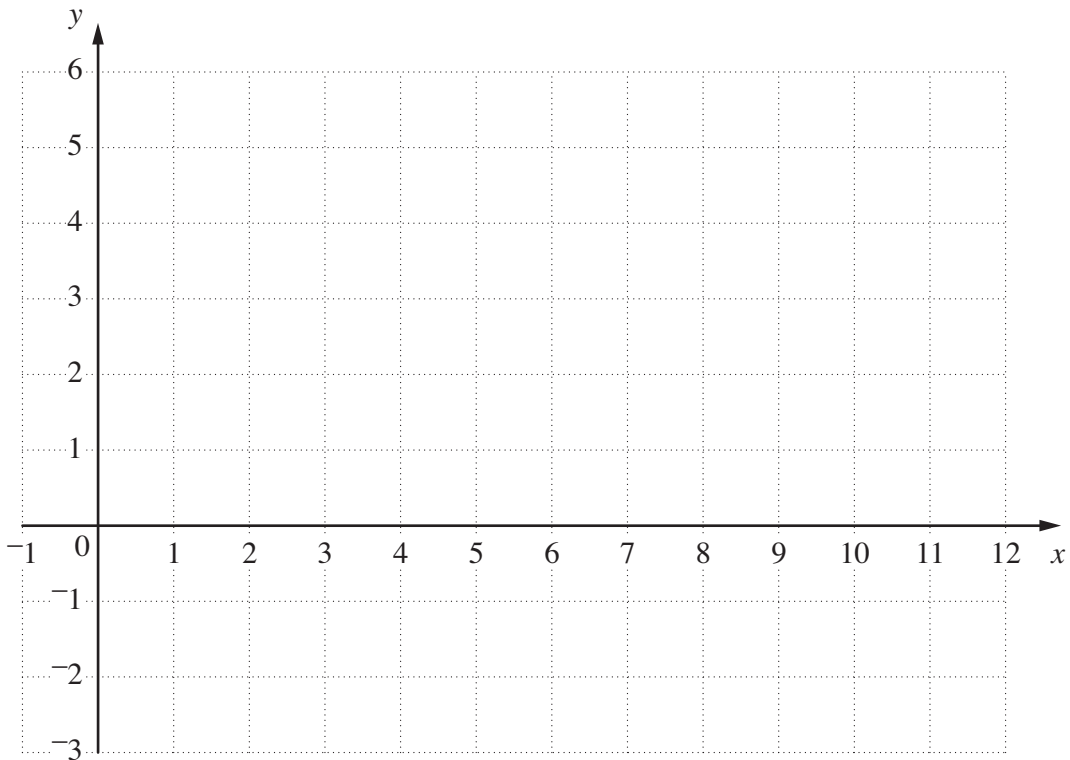
[3]

11 (a) On holiday Howard travelled 750 miles on motorways and 450 miles on ordinary roads.

Write down the ratio of the number of miles on motorways to the number of miles on ordinary roads.
Give your answer in its simplest form.

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

(b) Sandra travelled 840 miles altogether in France and Switzerland.
The ratio of the distance travelled in France to the distance travelled in Switzerland was 3 : 1.

How far did she travel in Switzerland?

(b) .... miles **[2]**

12 (a) Calculate.

$$\frac{25 \cdot 26 + 15 \cdot 6}{7 \cdot 8 - 1 \cdot 48}$$

Give your answer correct to 1 decimal place.

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

(b) Owain spends 2·25 hours watching television.
He says that 2·25 hours is 2 hours 25 minutes.
He is wrong.

Write 2·25 hours in hours and minutes.

(b) .... hours .... minutes **[1]**

13 Helen buys a 17·5 kg bag of lawn feed.
The lawn feed will cover an area of 500 m².

(a) How many square metres of lawn can 1 kilogram of the lawn feed cover?

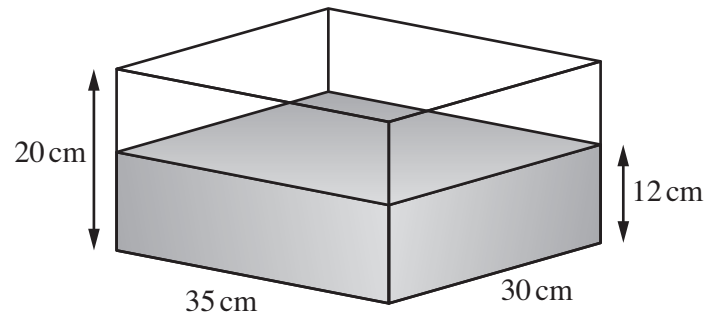**(a)** .... m² **[1]**

(b) Helen uses the 17·5 kg bag of lawn feed on her lawn.
Her lawn has an area of 180 m².

How much lawn feed should she have left?
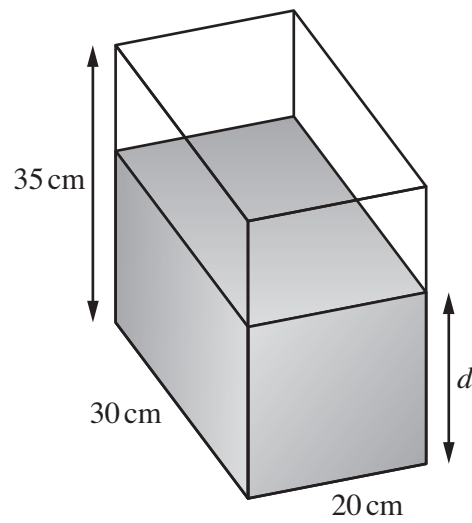
(b) .... kg **[3]**

TURN OVER FOR QUESTION 14

14 A watertight glass container is a cuboid measuring 35 cm by 30 cm by 20 cm.
The water in the container is 12 cm deep as shown.

The container is turned to stand on its end as shown.

Work out the depth, d, of the water in this position.

.... cm **[4]**