

Monday 16 January 2012 – Morning

GCSE MATHEMATICS C (GRADUATED ASSESSMENT)

B277A MODULE M7 – SECTION A

Candidates answer on the Question Paper.

OCR supplied materials:

None

Other materials required:

- Geometrical instruments
- Tracing paper (optional)

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. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- 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).
- 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.
- The total number of marks for this Section is **25**.
- This document consists of **8** pages. Any blank pages are indicated.

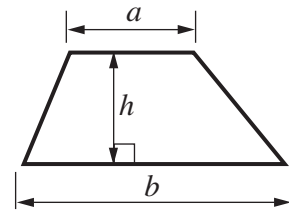
WARNING

No calculator can be used for Section A of this paper

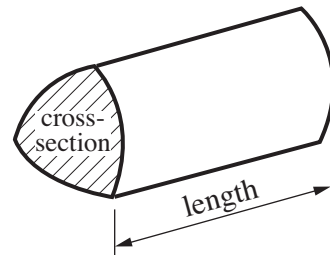
This paper has been pre modified for carrier language

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

1 (a) Find the square root of 225.

(a)..... [1]

(b) Work out.

$$5^3 - 6^2$$

(b)..... [2]

(c) Calculate.

(i) 6.5×0.2

(c)(i)..... [1]

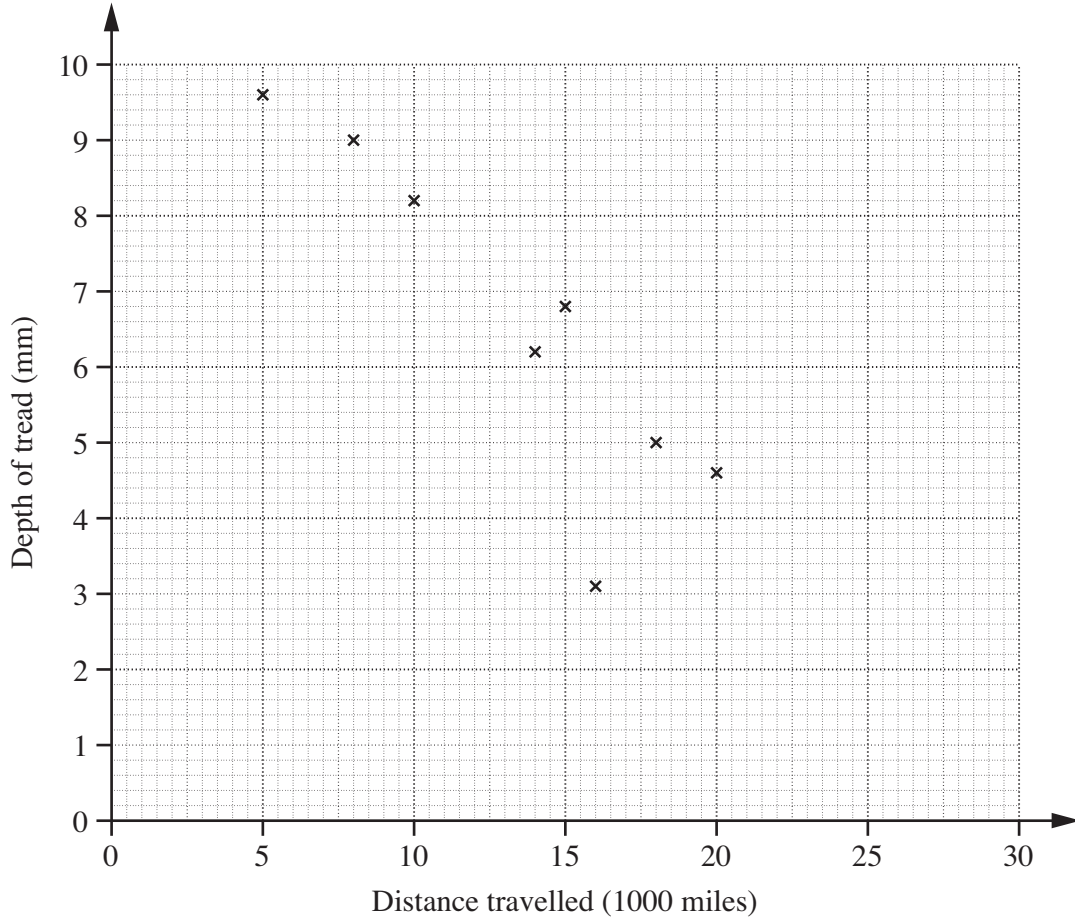
(ii) $12.4 \div 0.5$

(ii)..... [2]

- 2 A tyre manufacturer is investigating how its tyres wear out with use. This is done by recording the depth of tread on a tyre and the number of miles it has travelled. The table shows the results for ten tyres.

Distance travelled (1000 miles)	5	8	10	14	15	16	18	20	24	27
Depth of tread (mm)	9.6	9	8.2	6.2	6.8	3.1	5	4.6	3	2.1

The first eight points have been plotted on the scatter diagram.



(a) Complete the scatter diagram. [1]

(b) Describe the correlation shown.
 [1]

(c) One of these tyres has worn differently from the others.
 On the graph, circle the point representing this tyre. [1]

- 3 (a) The n th term of a sequence is $4 - 3n$.

Show that the first three terms of this sequence are 1 , -2 and -5 .

.....
.....
..... [2]

- (b) Here are the first four numbers of a different sequence.

2 7 12 17

Find the n th term of this sequence.

(b) [2]

4 Sam is playing a fruit machine.

The table below shows how many wins she has for different numbers of plays.

Number of plays	10	20	50
Number of wins	3	4	7
Relative frequency of winning	0.3	0.2

(a) Complete the table for the relative frequency of wins after 50 plays.
Give your answer as a decimal.

[1]

(b) Which of the relative frequencies is the best estimate of the probability that Sam wins on a play on the fruit machine?
Give a reason for your answer.

..... because [1]

(c) Use your answer from part (b) to estimate the number of wins that Sam would have in 1000 plays.

(c)..... [1]

5 (a) Simplify.

(i) $x^6 \times x^2$

(a)(i)..... [1]

(ii) $x^6 \div x^2$

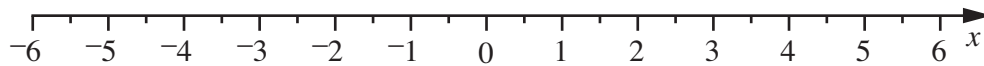
(ii)..... [1]

(b) (i) Solve.

$$10x - 3 < 22$$

(b)(i)..... [2]

(ii) Represent your solution to part (b)(i) on this number line.

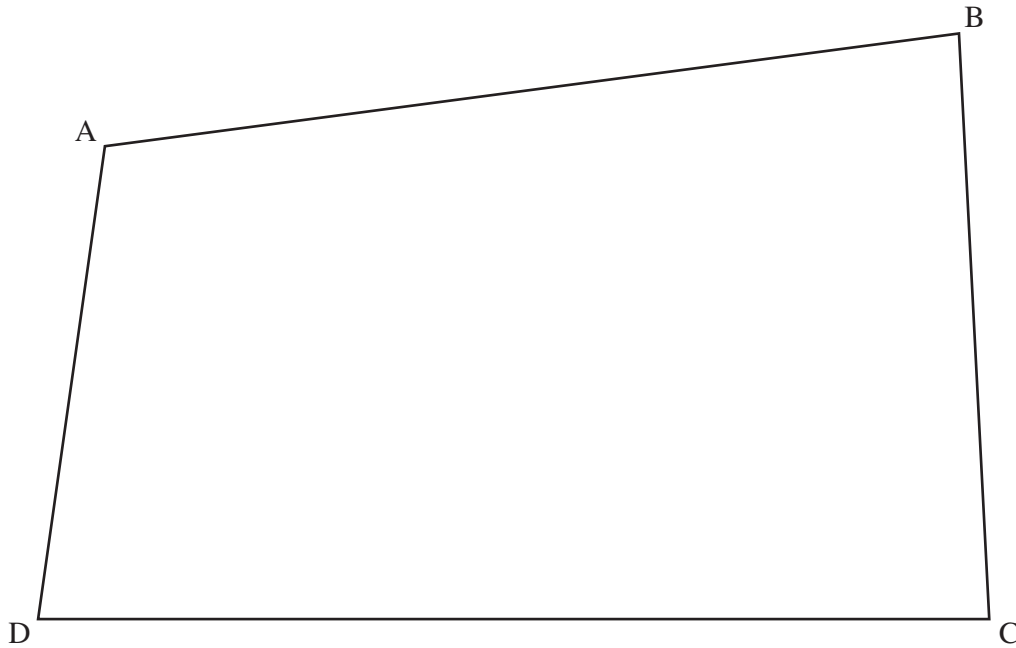


[1]

TURN OVER FOR QUESTION 6

6 In this question, leave in all your construction arcs.

The diagram shows the scale drawing of a garden ABCD.



Scale : 1 cm to 1 m.

A bird table, T, is placed in the garden so that it is

- 10 m from D,
- equidistant from AB and BC.

Use ruler and compasses to construct both of these loci.
Find and mark the position of T.

[4]

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