

GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)
MODULE M7 (SECTION A)

B277A

Candidates answer on the Question Paper

OCR Supplied Materials:
None

Other Materials Required:

- Geometrical instruments
- Tracing paper (optional)

Monday 21 June 2010
Afternoon

Duration: 30 minutes



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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MODIFIED LANGUAGE

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. Additional paper may be used if necessary but you must clearly show your Candidate Number, Centre Number and question number(s).

INFORMATION FOR CANDIDATES

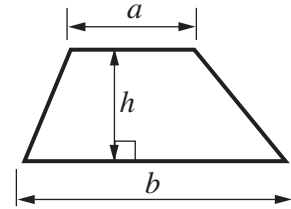
- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this Section is **25**.
- This document consists of **8** pages. Any blank pages are indicated.

WARNING

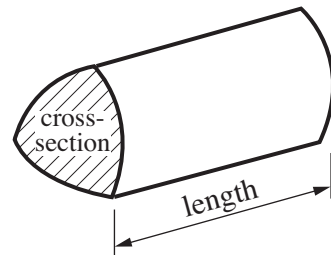
No calculator can be used for Section A of this paper

Formulae Sheet

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



$$\text{Volume of prism} = (\text{area of cross-section}) \times \text{length}$$



PLEASE DO NOT WRITE ON THIS PAGE

1 (a) Work out.

(i) $4^3 - \sqrt{49}$

(a)(i) [2]

(ii) $\frac{5^4 \times 5^3}{5^5}$

(ii) [2]

(b) Write down the reciprocal of 8.

(b) [1]

2 Hannah has completed some mathematics homework.
In each question her answer is wrong.

Explain why Hannah's answers **must** be incorrect. **Do not do any calculation.**

Question 1

$$0.93 \times 124.7 = 128.1$$

.....
..... [1]

Question 2

$$35.4 \div 0.47 = 16.8$$

.....
..... [1]

3



Calculate the special offer price for this satellite navigation system.

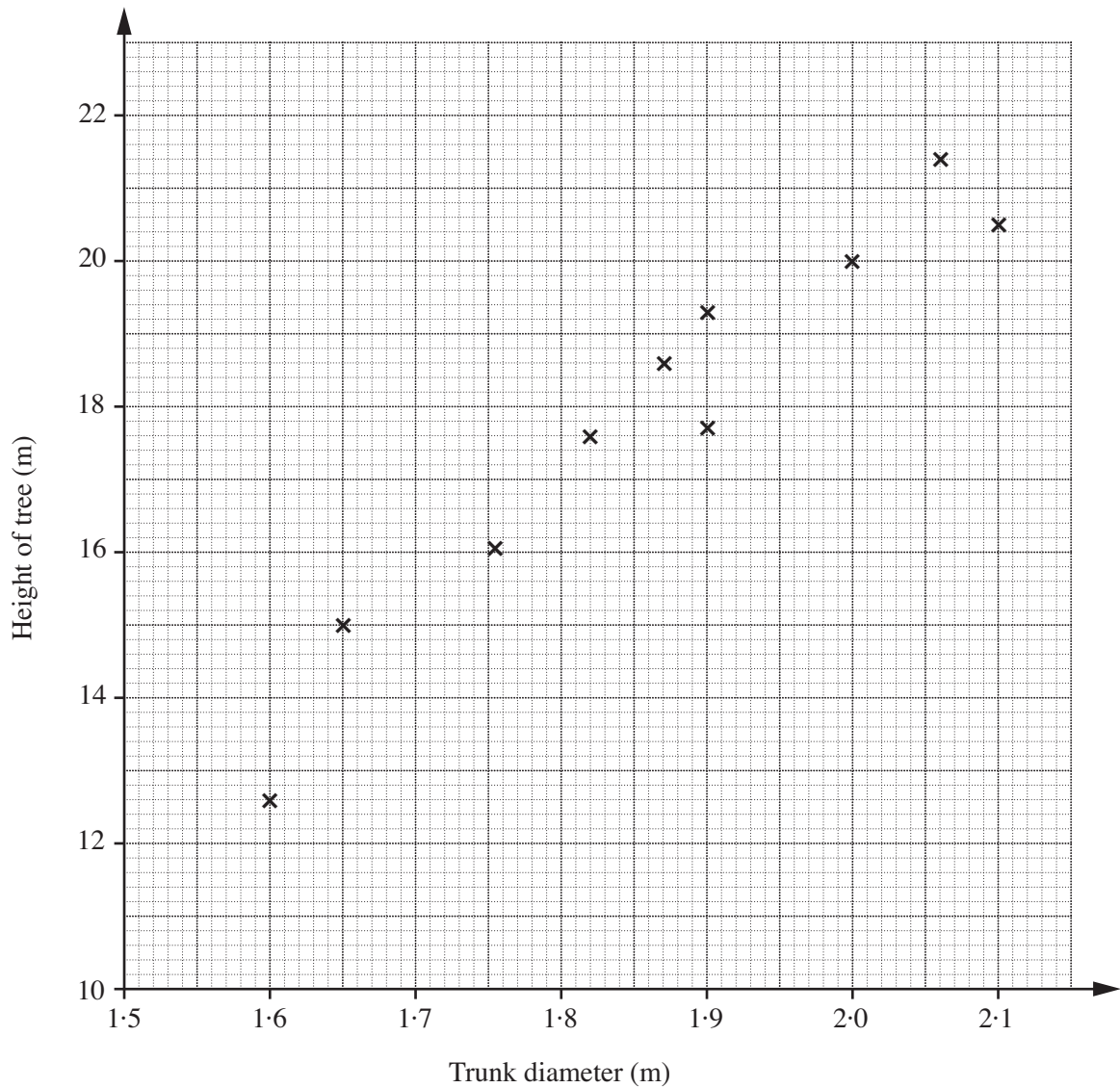
£ [3]

4 The point A has coordinates $(-2, 5)$ and the point B has coordinates $(4, 1)$.

Find the coordinates of the midpoint of the line AB.

(..... ,) [2]

5 This scatter diagram shows the trunk diameters and heights of 10 oak trees.



(a) Describe the correlation shown.

..... [1]

(b) Another tree has trunk diameter 1.6 m and height 19 m.

Is this tree likely to be an oak tree?
Give a reason for your answer.

..... because

..... [1]

6

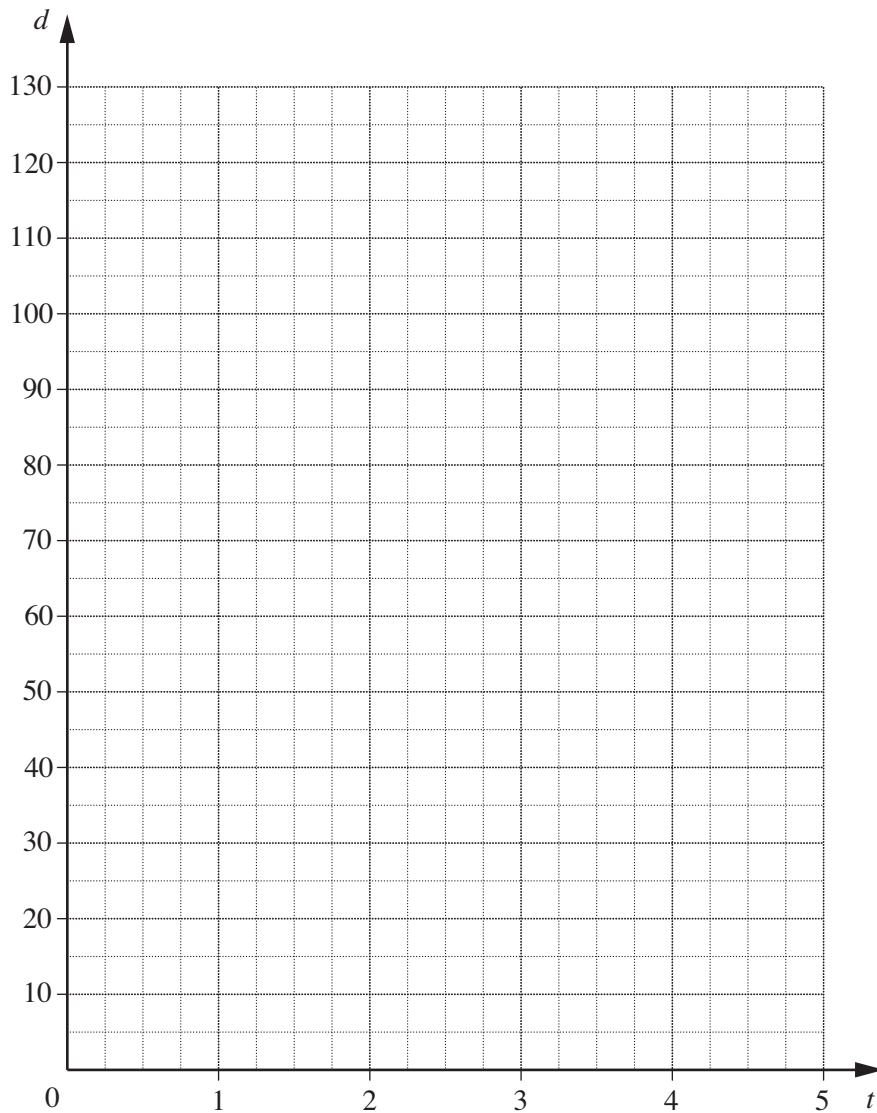
6 The distance, d metres, a raindrop falls is given by $d = 5t^2$, where t is the time in seconds after it leaves the cloud.

(a) Complete this table of values for $d = 5t^2$.

t	0	1	2	3	4	5
d	0	5		45		125

[2]

(b) Draw the graph of $d = 5t^2$ for $t = 0$ to 5.

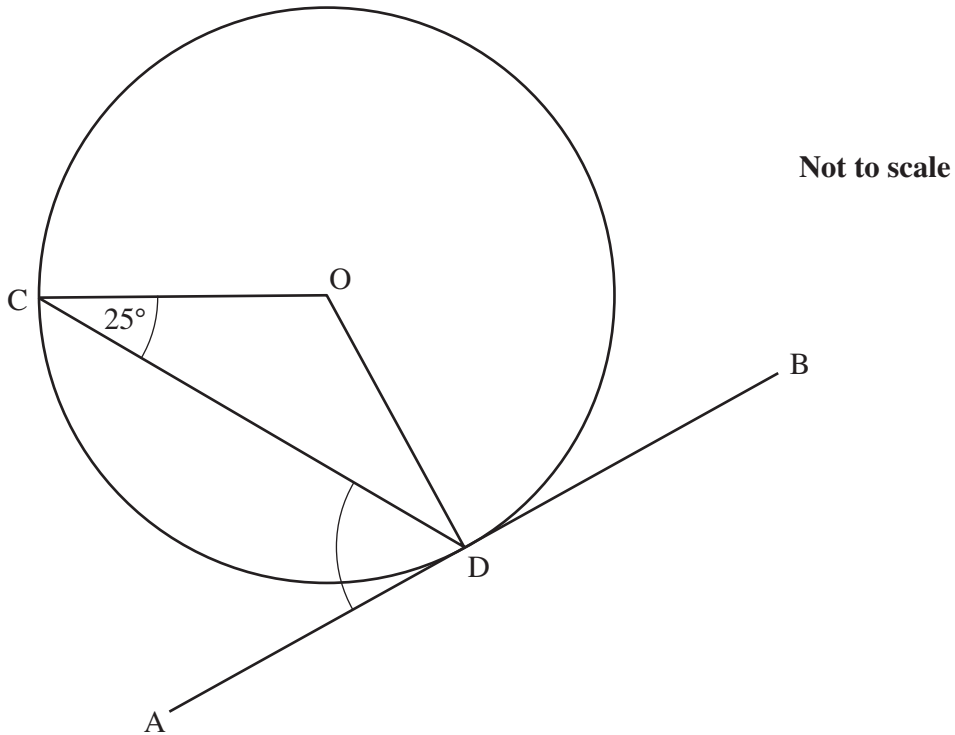


[2]

(c) Use your graph to estimate the distance fallen by the raindrop after 2.5 seconds.

(c) m [1]

- 7 ADB is the tangent at D to the circle, centre O.
 C is a point on the circumference.
 Angle $OCD = 25^\circ$.



Calculate angle CDA.
 Show each step of your calculation.

.....° [3]

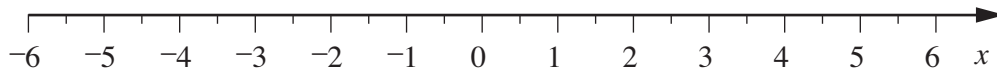
TURN OVER FOR QUESTION 8

8 (a) Solve.

$$3x - 2 \leq 10$$

(a) [2]

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



[1]

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