

**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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**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.

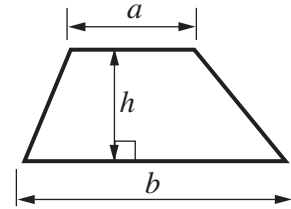
**WARNING**



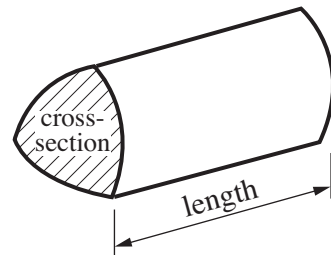
**No calculator can be used for Section A of this paper**

## 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.

**Without doing any calculation**, explain why Hannah's answers **must** be incorrect.

**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.

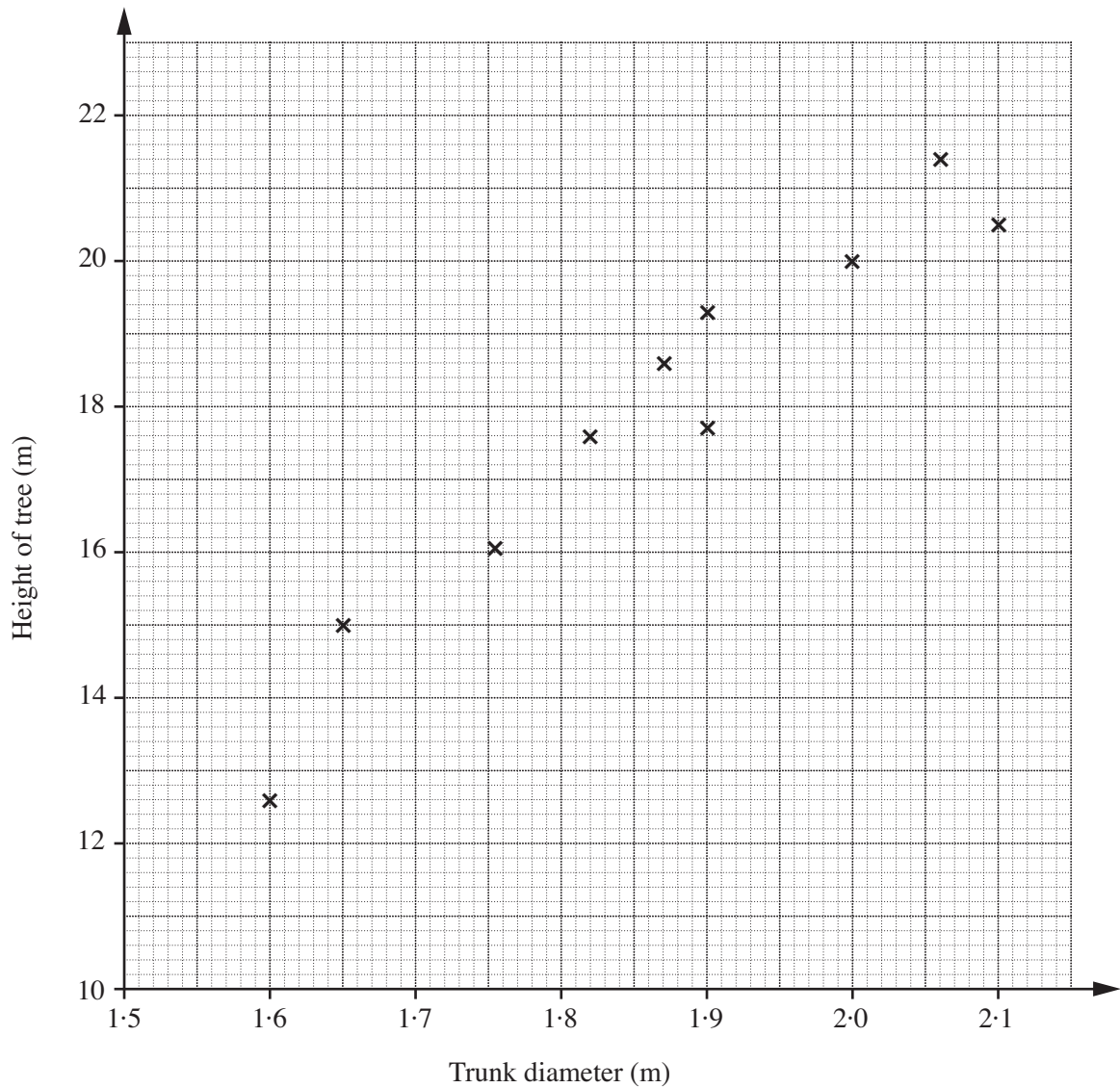
£ ..... [3]

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

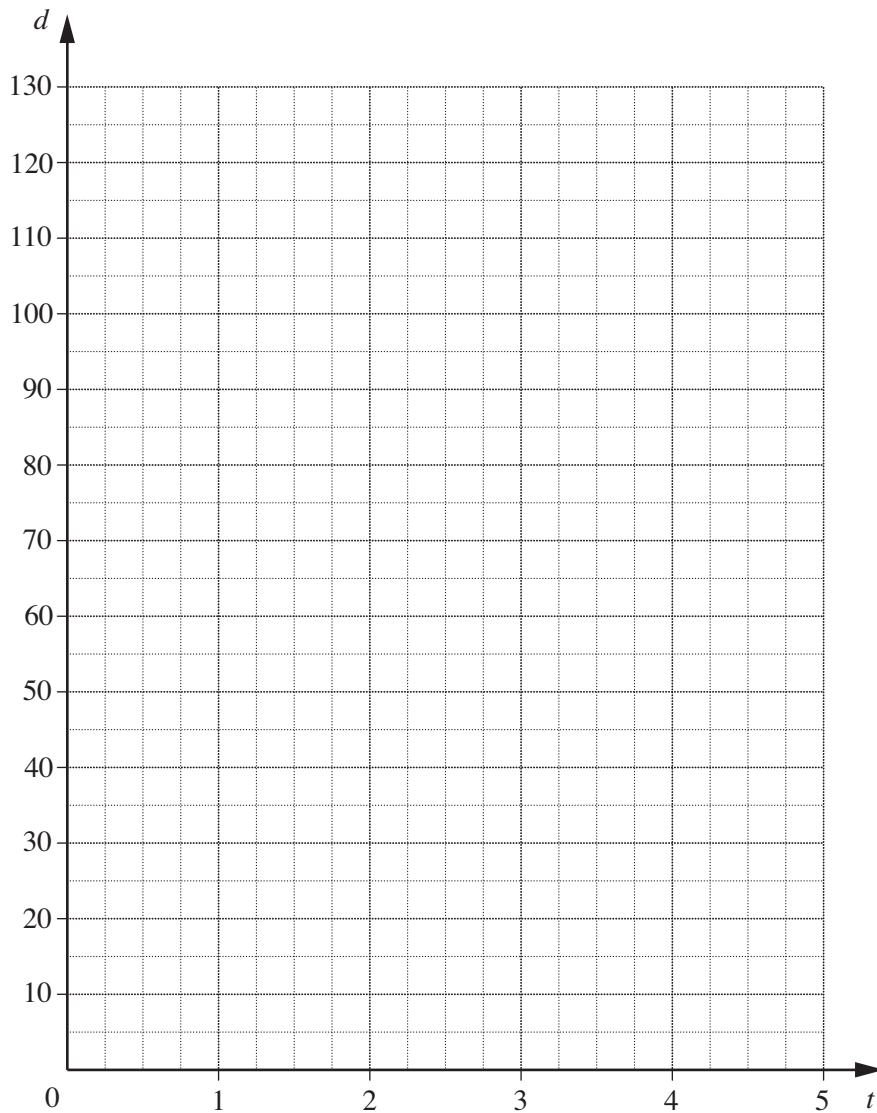
6 The distance,  $d$  metres, a raindrop falls is given by  $d = 5t^2$ , where  $t$  is the time in seconds after it leaves the cloud.

(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.

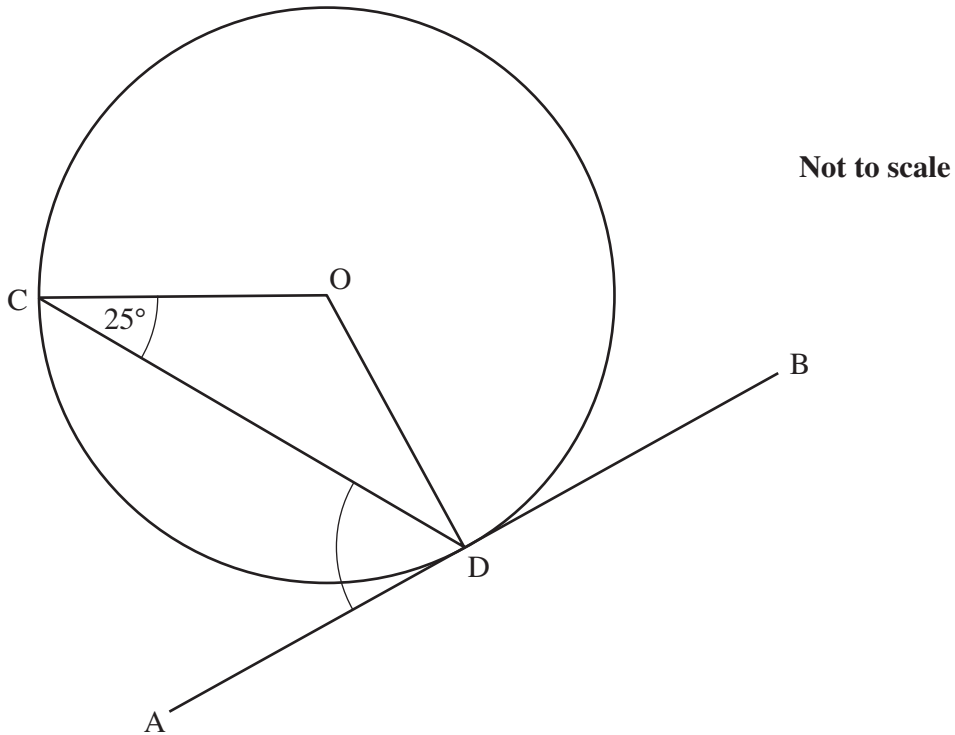


[2]

(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]

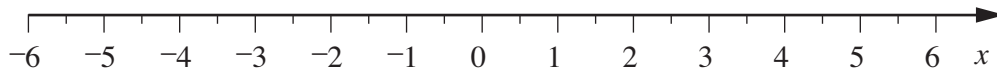
**TURN OVER FOR QUESTION 8**

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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