Candidate Forename		Candidate Surname	

Centre Number					Candidate Number				

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GENERAL CERTIFICATE OF SECONDARY EDUCATION

B277A

MATHEMATICS C (GRADUATED ASSESSMENT)

MODULE M7 – SECTION A

MONDAY 21 JUNE 2010: Afternoon
DURATION: 30 minutes

SUITABLE FOR VISUALLY IMPAIRED CANDIDATES

Candidates answer on the Question Paper

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Geometrical instruments
Tracing paper (optional)

<div style="border:1px solid">

WARNING
No calculator can be used for
Section A of this paper.

</div>

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.

- 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 <u>ALL</u> the questions.

- 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 <u>25</u>.

FORMULAE SHEET

Area of trapezium $= \frac{1}{2}(a + b)h$
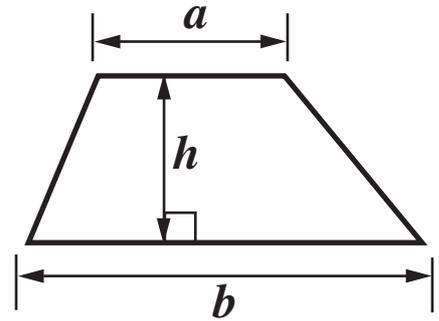
Volume of prism = (area of cross-section) × length
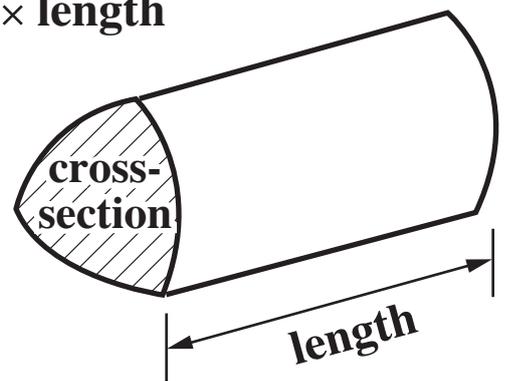
1 **(a) Work out.**

    (i) $4^3 - \sqrt{49}$
       [2 marks]

                                                    (a)(i) _____

    (ii) $\dfrac{5^4 \times 5^3}{5^5}$
        [2 marks]

                                                    (ii) _____

(b) Write down the reciprocal of 8.
    [1 mark]

                                                    (b) _____

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

$$0 \cdot 93 \times 124 \cdot 7 = 128 \cdot 1$$
[1 mark]

_____

_____

QUESTION 2

$$35 \cdot 4 \div 0 \cdot 47 = 16 \cdot 8$$
[1 mark]

_____

_____

3 **Calculate the special offer price for this satellite navigation system.**
[3 marks]

Special Offer

Satellite Navigation System
was £140

Now reduced by 20%

£ _____

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 marks]

(_____ , _____)

5   This scatter diagram shows the trunk diameters and heights of 10 oak trees.
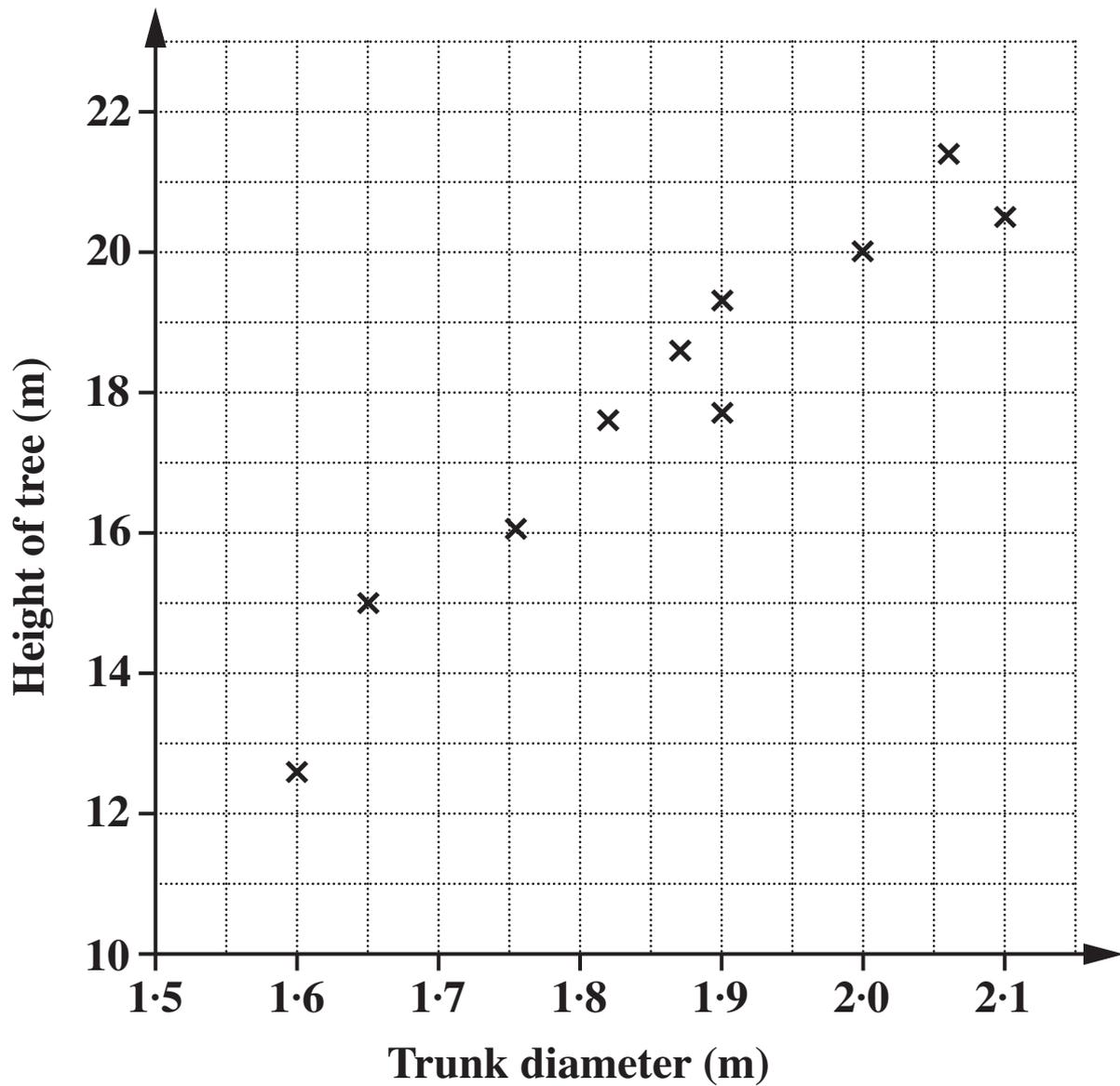
(a)   Describe the correlation shown.
[1 mark]

_____

8

(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.
[1 mark]

_____ because _____

_____ [1]

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 $d = 5t^2$.
[2 marks]

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

10

(b) Draw the graph of $d = 5t^2$ for $t = 0$ to 5.
[2 marks]
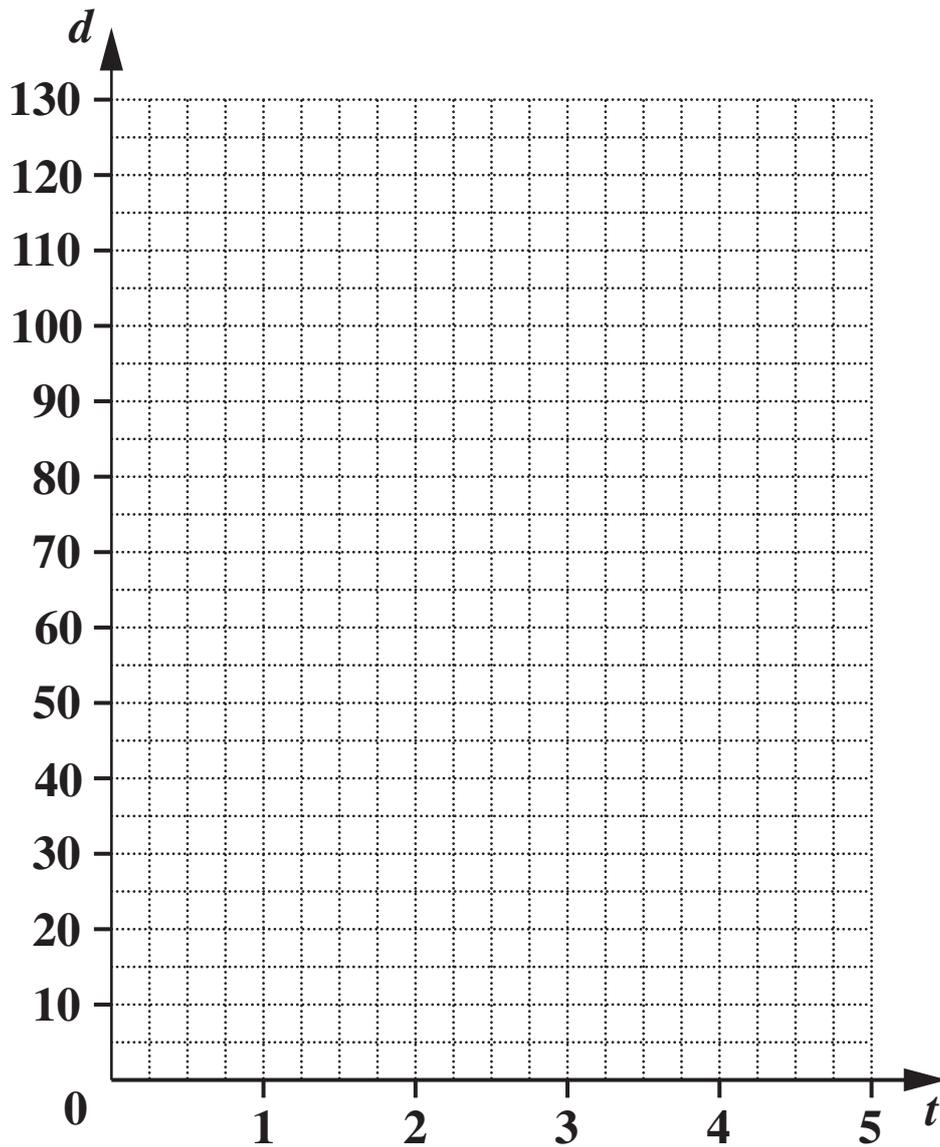
(c) Use your graph to estimate the distance fallen by the raindrop after 2·5 seconds.
[1 mark]

(c) _____ m

7   ADB is the tangent at D to the circle, centre O.
C is a point on the circumference.
Angle OCD = 25°.

Not to scale
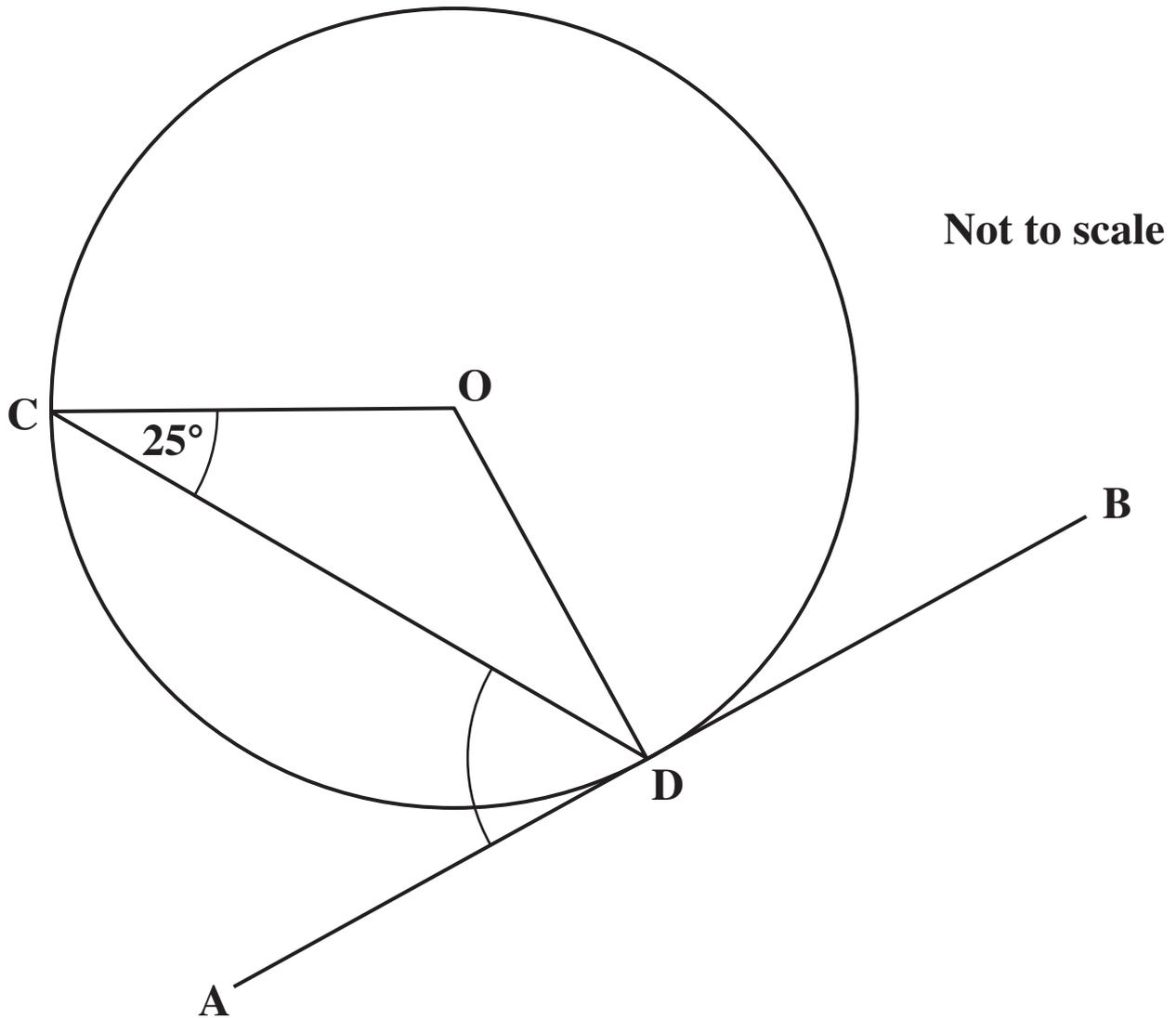
Calculate angle CDA.
Show each step of your calculation.
[3 marks]

_____ °

8 **(a)** Solve.

$$3x - 2 \leqslant 10$$
[2 marks]

(a) _____

(b) Represent your solution to part (a) on this number line.
[1 mark]

$$\begin{array}{ccccccccccccc} \text{−6} & \text{−5} & \text{−4} & \text{−3} & \text{−2} & \text{−1} & \text{0} & \text{1} & \text{2} & \text{3} & \text{4} & \text{5} & \text{6} \, x \end{array}$$

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