OCR
RECOGNISING ACHIEVEMENT

B276A

GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)
MODULE M6 – SECTION A

M6

TUESDAY 11 MARCH 2008

Morning
Time: 30 minutes

Candidates answer on the question paper
Additional materials (enclosed): None

Additional materials (required):
Geometrical instruments
Tracing paper (optional)

CUP/T57744

Candidate Forename		Candidate Surname	
Centre Number		Candidate Number	

INSTRUCTIONS TO CANDIDATES

- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use blue or 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.

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**.

WARNING

You are not allowed to use a calculator in Section A of this paper.

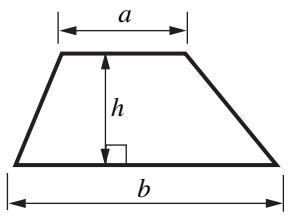
FOR EXAMINER'S USE	
SECTION A	
SECTION B	
TOTAL	

This document consists of **8** printed pages.

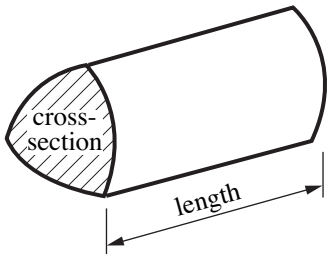
[Turn over

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

1 **(a)** Work out.

(i) $0{\cdot}2 \times 0{\cdot}3$

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

(ii) $2{\cdot}15 \div 5$

(ii) ..... [2]

(b) Work out.

$$\frac{9}{10} - \frac{1}{6}$$

Give your answer as a fraction in its simplest form.

(b) ..... [3]

2 The members of Helsby Sports Club took part in a 50 m swim.
This stem and leaf diagram shows their times, in seconds.

2	4	6	7	9					
3	1	4	5	6	8	8			
4	0	0	1	2	4	7	8	9	9
5	0	0	2	3	3	7			
6	0	5							

Key 3 | 5 = 35

(a) Find

(i) the range,

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

(ii) the median.

(ii) ..... seconds [2]

(b) Frodsham Sports Club also took part in the 50 m swim.
The Frodsham members had a median of 46 seconds and a range of 29 seconds.

Make two comments comparing the times of the members of the two clubs.

1. .....

.....

2. .....

..... [2]

(c) The probability that a member of Frodsham Sports Club swims the 50 m in less than 30 seconds is 0·15.

What is the probability that a member of Frodsham Sports Club takes 30 seconds or more to swim 50 m?

(c)..... [1]

3 **(a)** Work out the value of $x^2 - 4$ when $x = 5$.

(a) ..... [1]

(b) Darren is working out the value of $x^2 - 4$ when $x = {}^-3$.
This is his working.

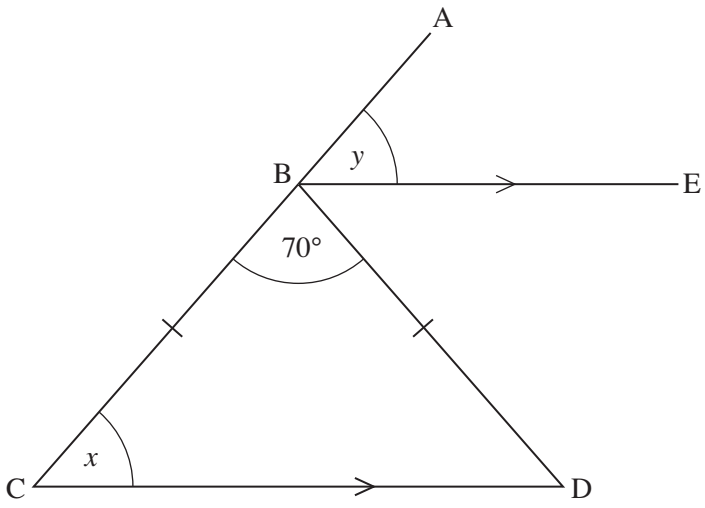
$$(^-3)^2 - 4 = {}^-9 - 4 = {}^-13$$

Explain what he has done wrong.

.....

..... [1]

4



Not to scale

In the diagram, ABC is a straight line.
BE is parallel to CD and BC = BD.
Angle CBD = 70°.

(a) Complete this sentence.

x = 55° because .....

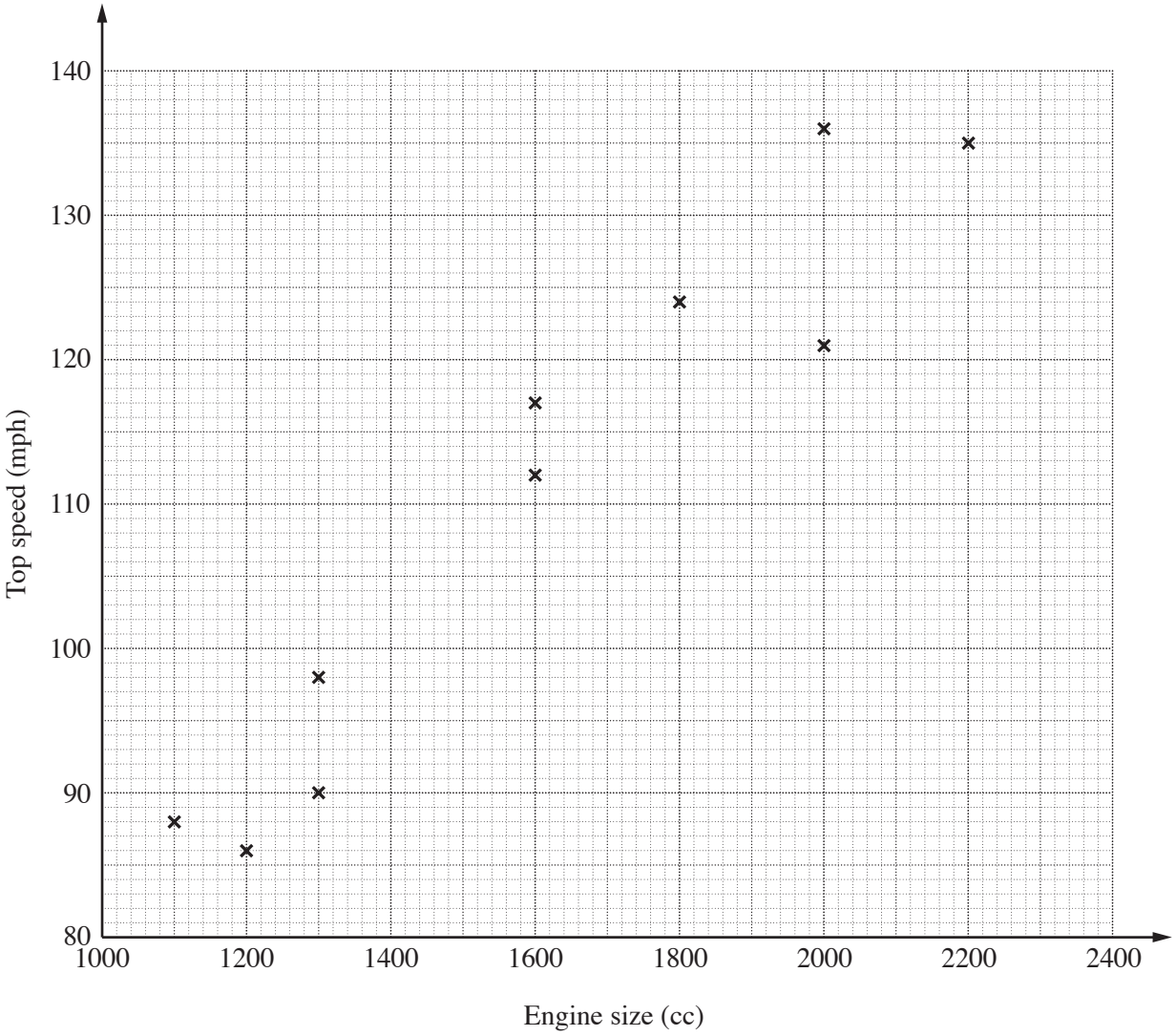
..... [1]

(b) Find angle y.
Give a reason for your answer.

y = ...° because .....

..... [2]

5 The scatter graph shows the engine sizes and the top speeds of ten cars.



(a) What does the diagram show about the relationship between the engine size and the top speed?

.....

.....

..... [1]

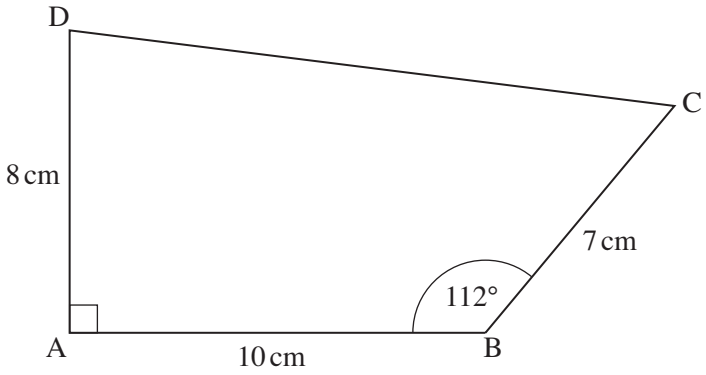
(b) **(i)** Draw a line of best fit on the diagram. [1]

(ii) Dave's car has an engine size of 1500 cc.

Use your line of best fit to estimate the top speed of the car.

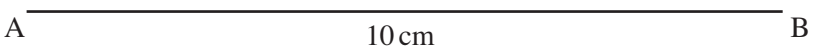
(b)(ii) ..... mph [1]

6 This is a sketch of the quadrilateral ABCD.



Not to scale

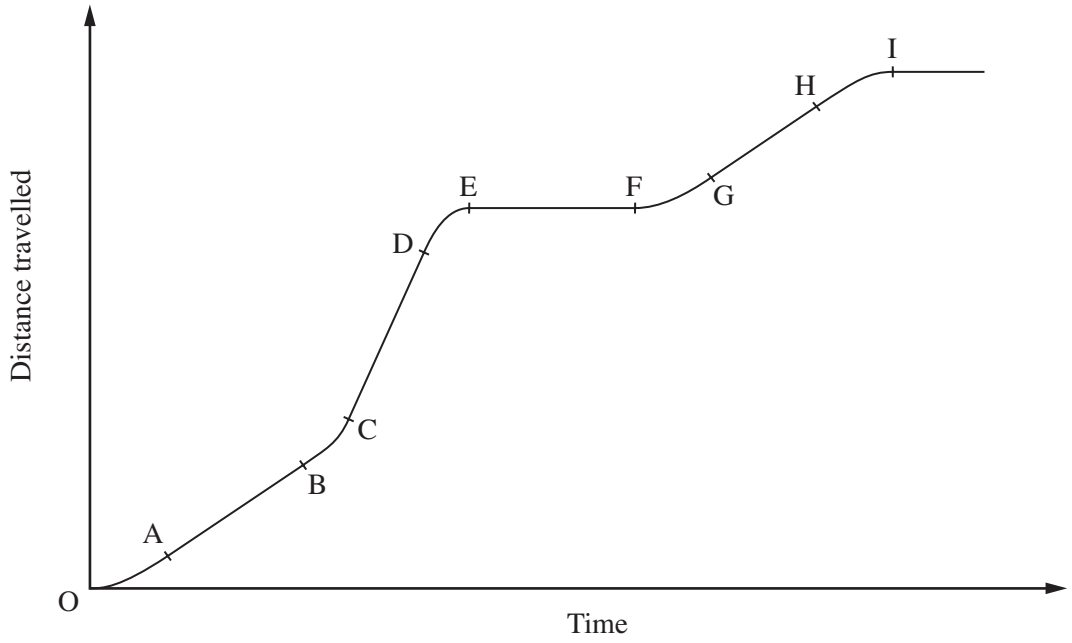
Draw accurately the quadrilateral ABCD.
The side AB has been drawn for you.



[3]

TURN OVER FOR QUESTION 7

7 Gary goes for a drive in his car.
Here is a distance-time graph for his journey.



(a) On which section of the journey is the car travelling fastest?

(a) ..... to ..... [1]

(b) State a section of the journey when the car is slowing down.

(b) ..... to ..... [1]