OCR
RECOGNISING ACHIEVEMENT

B277B

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

M7

TUESDAY 24 JUNE 2008

Morning
Time: 30 minutes

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

Additional materials (required):
Geometrical instruments
Tracing paper (optional)
Scientific or graphical calculator

CUP/T60668

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

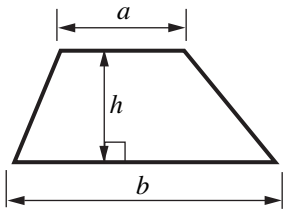
- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this Section is **25**.
- Section B starts with question 7.
- You are expected to use a calculator in Section B of this paper.
- Use the π button on your calculator or take π to be 3·142 unless the question says otherwise.

FOR EXAMINER'S USE	
SECTION B	

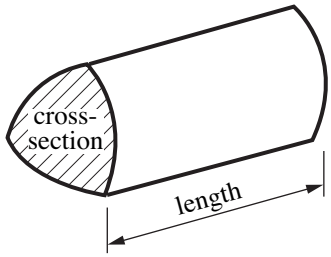
This document consists of **8** printed pages.

Formulae Sheet

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



Volume of prism = (area of cross-section) × length



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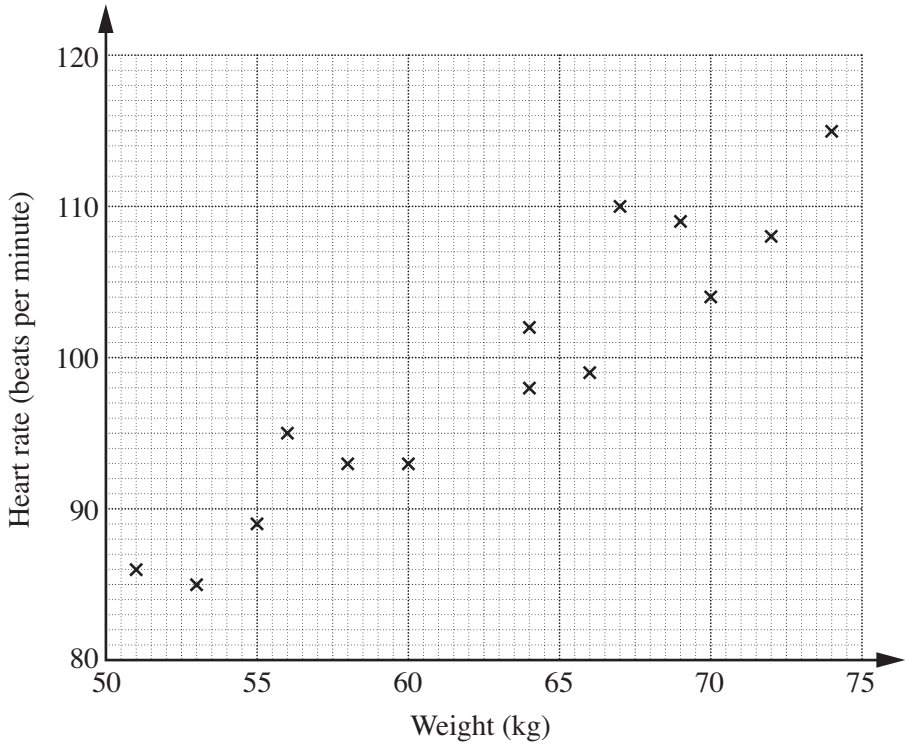
7 A group of students exercised for two minutes.
Their heart rates and weights were then recorded.
This scatter graph shows the results.



(a) What term describes the correlation?

(a) ..... [1]

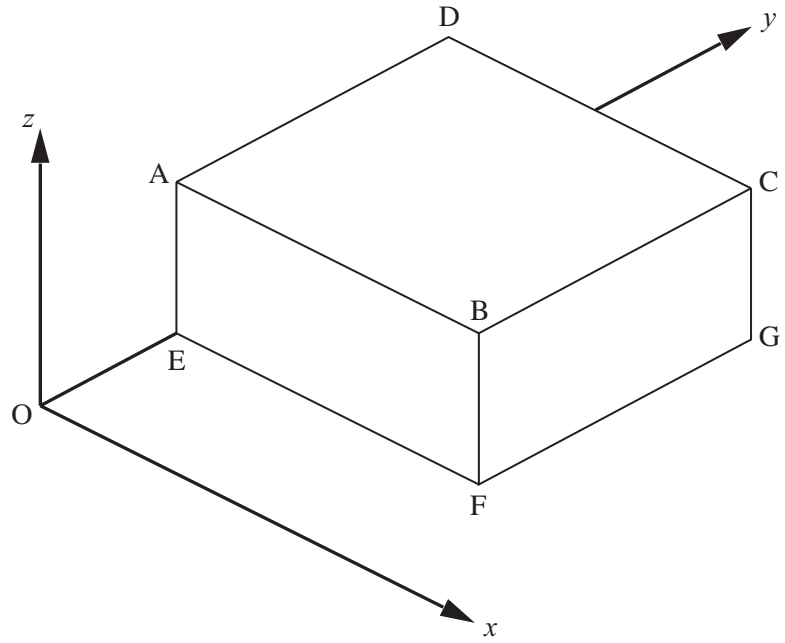
(b) (i) Draw a line of best fit on the scatter graph. [1]

(ii) Sandra weighs 62 kg.

Use your line of best fit to estimate her heart rate after exercising for two minutes.

(b)(ii) ..... beats per minute [1]

8 The edges of this cuboid are parallel to the axes as shown.
The coordinates of E are (0, 4, 0).
The coordinates of C are (9, 12, 5).



(a) Which vertex has coordinates (0, 12, 5)?

(a) ..... [1]

(b) What are the coordinates of B?

(b) (....., ..., ...) [1]

9 Here are the first five terms of a sequence.

6 10 14 18 22

Find an expression for the nth term of this sequence.

..... [2]

10 This table shows information about Year 4 pupils in a primary school.

	Can swim	Cannot swim
Boys	19	13
Girls	18	10

One pupil is chosen at random from this year group.

What is the probability that this pupil cannot swim?

..... [2]

11 The table shows the weight distribution of 40 students.

Weight (w kg)	Frequency
$40 \leqslant w < 45$	1
$45 \leqslant w < 50$	7
$50 \leqslant w < 55$	17
$55 \leqslant w < 60$	13
$60 \leqslant w < 65$	2

Calculate an estimate of the mean weight of the students.

..... kg [4]

12 **(a)** Show that one solution of the equation $x^3 + 3x = 11$ lies between 1 and 2.

.....

.....

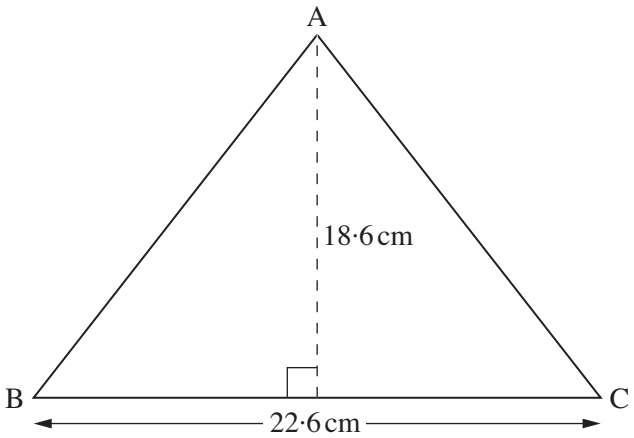
.....

..... [1]

(b) Use trial and improvement to find this solution, correct to one decimal place.
You must show all your trials and their outcomes.

(b) ..... [3]

13 ABC is an isosceles triangle with AB = AC.
Its height is 18·6 cm and BC = 22·6 cm.



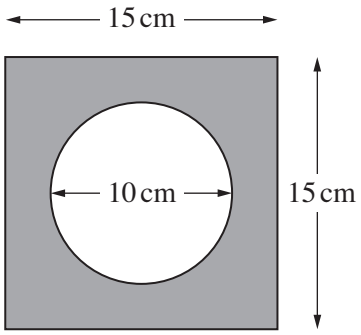
Not to scale

Work out the length of AB.
Write your answer to a suitable degree of accuracy.

..... cm [4]

TURN OVER FOR QUESTION 14

14



Not to scale

Calculate the shaded area between the square and the circle in this diagram.
Give the units of your answer.

..... [4]