OCR
RECOGNISING ACHIEVEMENT

GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS C (GRADUATED ASSESSMENT) M6 B246A

MODULE M6 – SECTION A

WEDNESDAY 27 JUNE 2007 Morning

Candidates answer on the question paper. Time: 30 minutes

Additional materials: Geometrical instruments
Tracing paper (optional)

CUP/T39109

Candidate Name

Centre Number

Candidate Number

INSTRUCTIONS TO CANDIDATES

- Write your name, Centre Number and Candidate Number in the boxes above.
- Answer **all** the questions.
- Use blue or black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- In many questions marks will be given for a correct method even if the answer is incorrect.
- Do **not** write in the bar code.
- Do **not** write outside the box bordering each page.
- WRITE YOUR ANSWER TO EACH QUESTION IN THE SPACE PROVIDED. ANSWERS WRITTEN ELSEWHERE WILL NOT BE MARKED.

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.

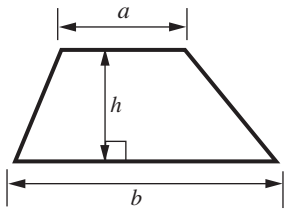
For Examiner's Use	
Section A	
Section B	
Total	

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

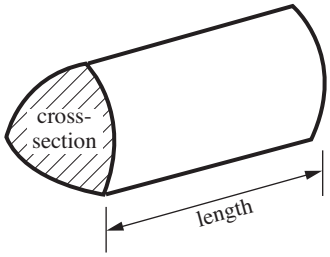
[Turn over

Formulae Sheet

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



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



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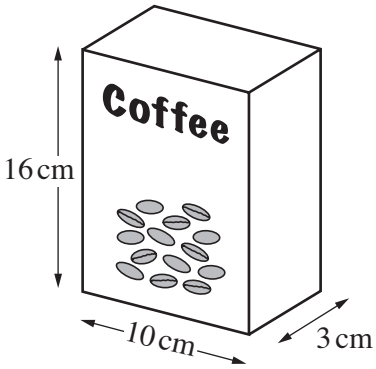
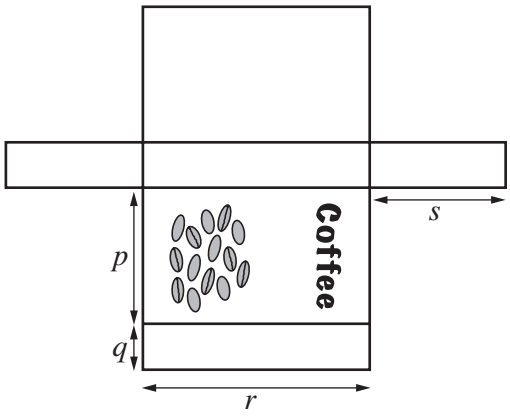
1 Coffee beans are sold in boxes.



The boxes can be made from nets like this. (The flaps have not been drawn.)



Not to scale

(a) The front of a box is shown on the net.

Which part of the net is the base of the box?
Write B on this part. [1]

(b) What are the lengths p, q, r and s on a full-size net?

p = ... cm, q = ... cm, r = ... cm, s = ... cm [1]

(c) Work out the surface area of the box.

(c) .....cm^2 [3]

5

2 The pulse rates, in beats per minute, of 20 people were recorded as they left work.

The results are shown in this stem and leaf diagram.

6	2 3 3 5 7 9
7	1 4 5 8 8
8	1 1 2 4 6
9	2 9
10	1 2

Key 8 \| 1 represents 81 beats per minute

(a) Work out the range of the pulse rates.

(a) ..... [1]

(b) The pulse rates of another 20 people were recorded as they left an aerobics class.
These are the results:

97	130	136	136	115	121	137	129	128	124
129	102	132	135	135	110	124	129	128	108

Show these results in a stem and leaf diagram.

9	.....
10	.....
11	.....
12	.....
13	..... [2]

(c) Make two comments comparing the pulse rates of the two groups.

1 .....

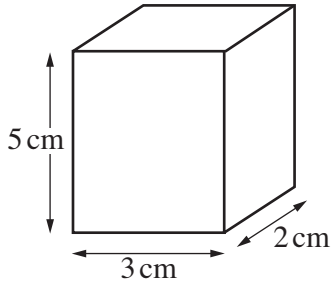
.....

2 .....

..... [2]

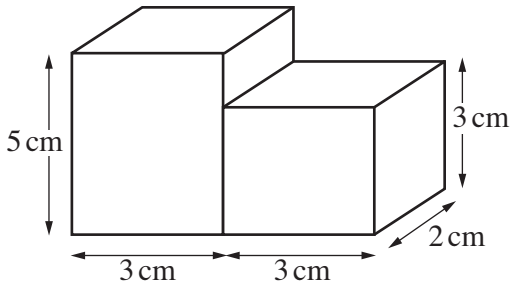
5

3 **(a)** Work out the volume of this cuboid.



(a) .....cm^3 [2]

(b) Two cuboids are joined together.



Work out the total volume.

(b) .....cm^3 [1]

3

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

(a) ..... [1]

(b) Find the value of $x^2 - 20$ when $x = {}^{-}3$.

(b) ..... [2]

3

5 Complete.

(a) $6a + 10 = 2($ ..... + ... $)$ [1]

(b) $x(x + 4) =$ ..... + ... [1]

2

6 James is planning a camping holiday for 24 people.
Each person will need $\frac{2}{3}$ of a pint of milk each day.
The holiday will last for 6 days.

Work out how many pints of milk will be needed altogether.
Show your working clearly.

..... [3]

3

7 **(a)** Write these fractions in order of size, smallest first.

$\frac{3}{4}$ $\frac{13}{20}$ $\frac{7}{10}$

Show how you decide.

....
smallest

[2]

(b) Change $\frac{5}{8}$ into a decimal.

(b) ..... [2]

4

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OCR
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GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)

M6 B246B

MODULE M6 – SECTION B

WEDNESDAY 27 JUNE 2007 Morning

Candidates answer on the question paper. Time: 30 minutes

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

CUP/T39108

Candidate Name

Centre Number

Candidate Number

INSTRUCTIONS TO CANDIDATES

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INFORMATION FOR CANDIDATES

- You are expected to use a calculator in Section B of this paper.
- 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 8.
- 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.

[Turn over

Formulae Sheet

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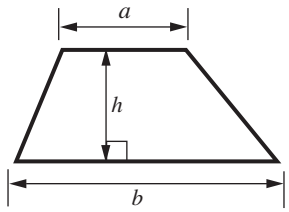

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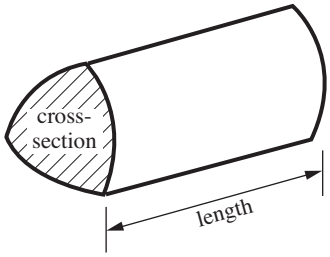

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8 Calculate.

(a) $2 \cdot 3^2 + \sqrt{1 \cdot 96}$

(a) ..... [1]

(b) $\dfrac{7 \cdot 7 - 3 \cdot 1}{11 \cdot 5}$

(b) ..... [1]

2

9 Pete is 12 years old and Jane is 4 years old.

(a) Write the ratio 12 : 4 in its simplest form.

(a) ..... : ..... [1]

(b) Aunt Mary sends Pete and Jane £100 to share in the ratio of their ages.

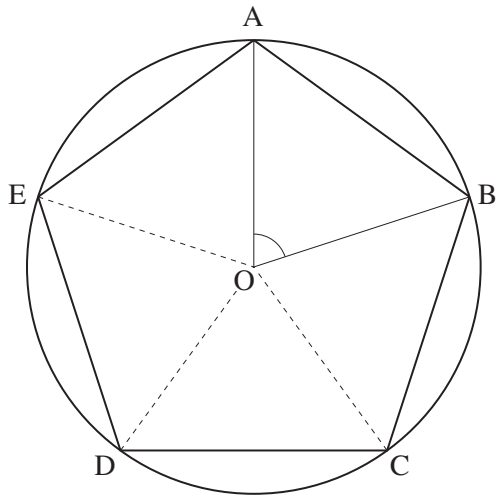
How much do they each receive?

(b) Pete £ .....

Jane £ ..... [2]

3

10 **(a)** ABCDE is a regular pentagon drawn on a circle, centre O.



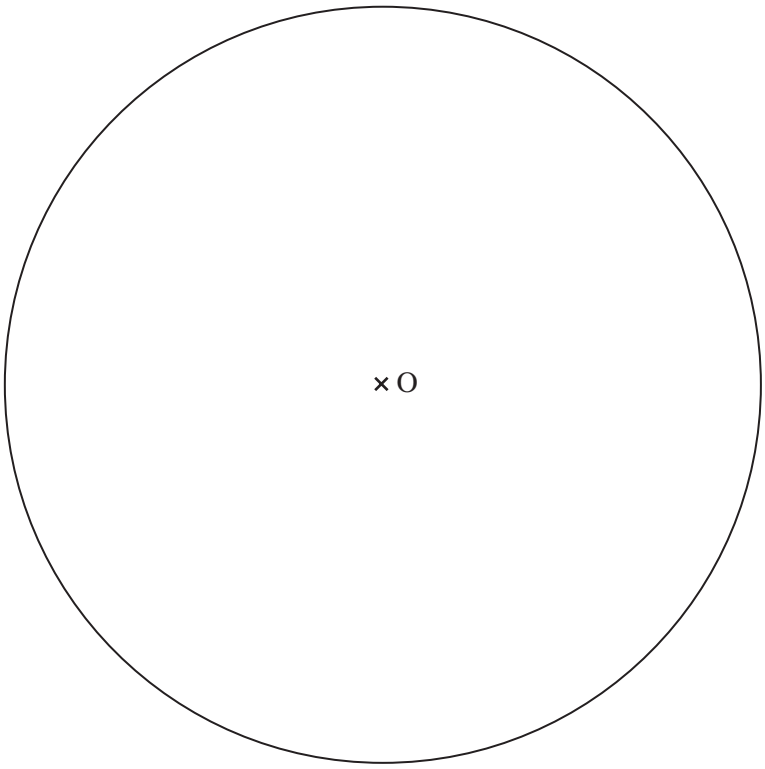
Explain why angle AOB is 72°.

.....

.....

..... [1]

(b) Construct a regular **octagon** with its vertices on the circumference of this circle.



[2]

3

11 A 500 g box of biscuits costs £2·40.

An 800 g box of the same biscuits costs £3·99.

Which box of biscuits is better value for money?

Show clearly how you decide.

The ..... box of biscuits is better value. [3]

3

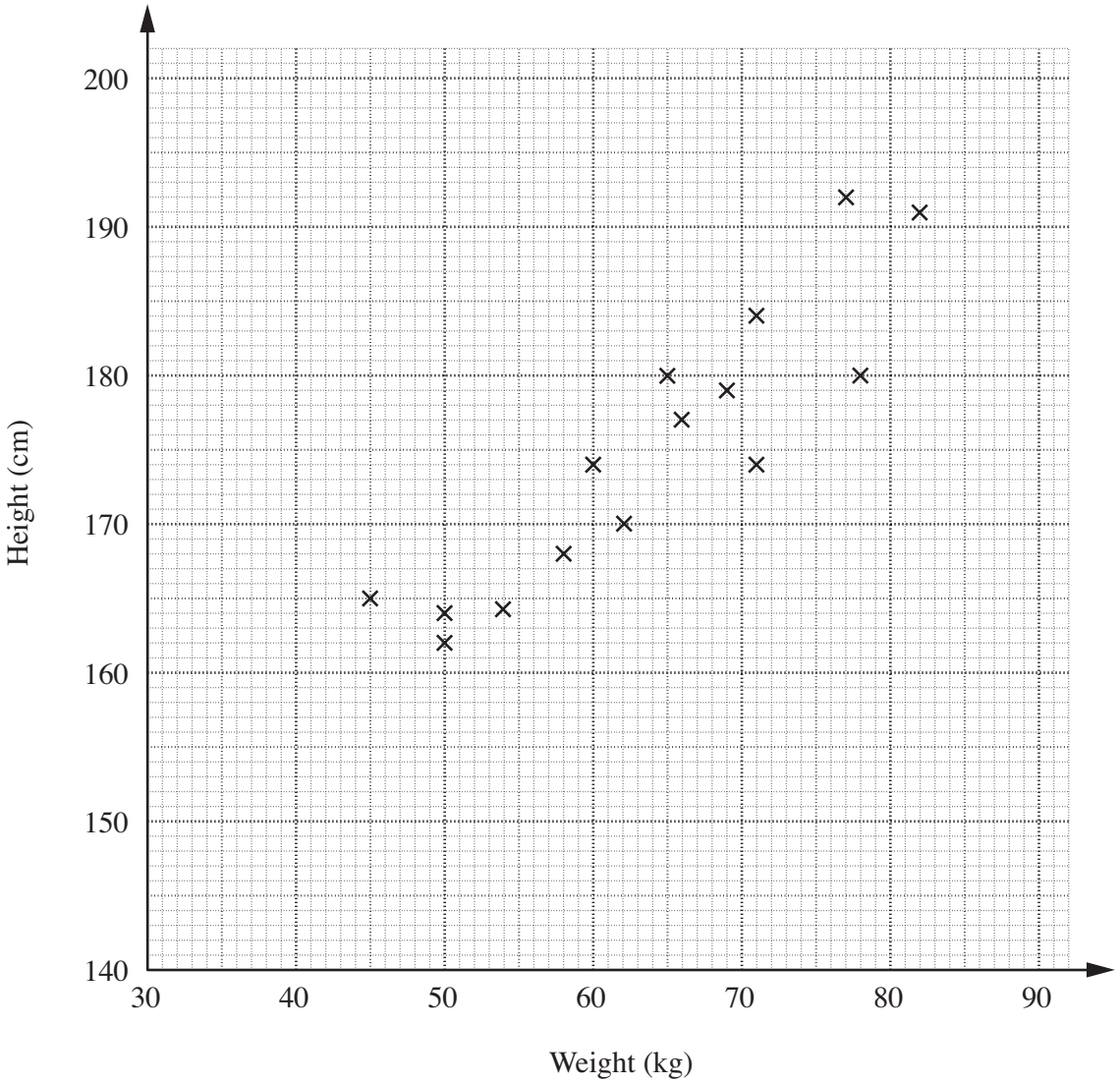
12 Solve.

$5(2x + 1) = 75$

..... [3]

3

13 The scatter diagram shows the weights, in kilograms, and heights, in centimetres, of 15 athletes.



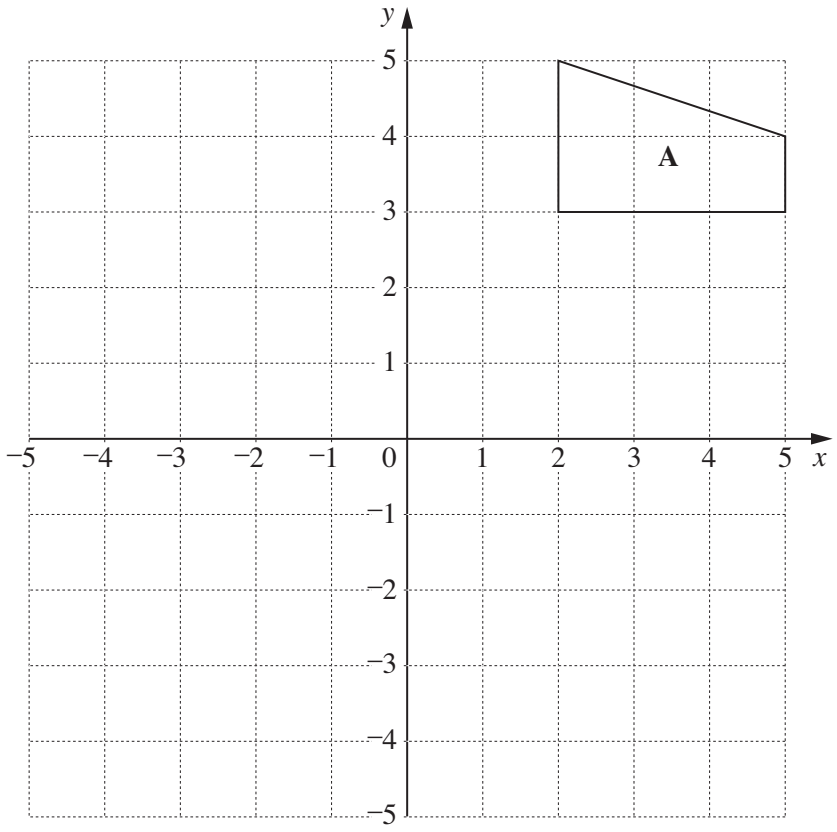
(a) Draw a line of best fit on the diagram. [1]

(b) Use your line of best fit to estimate the weight of an athlete whose height is 172 cm.

(b) ..... kg [1]

2

14



Rotate shape **A** through 90° anticlockwise about the origin. [3]

3

15 A circular mirror has a radius of 12 cm.

Calculate the area of the mirror.

.....cm^2 [2]

2

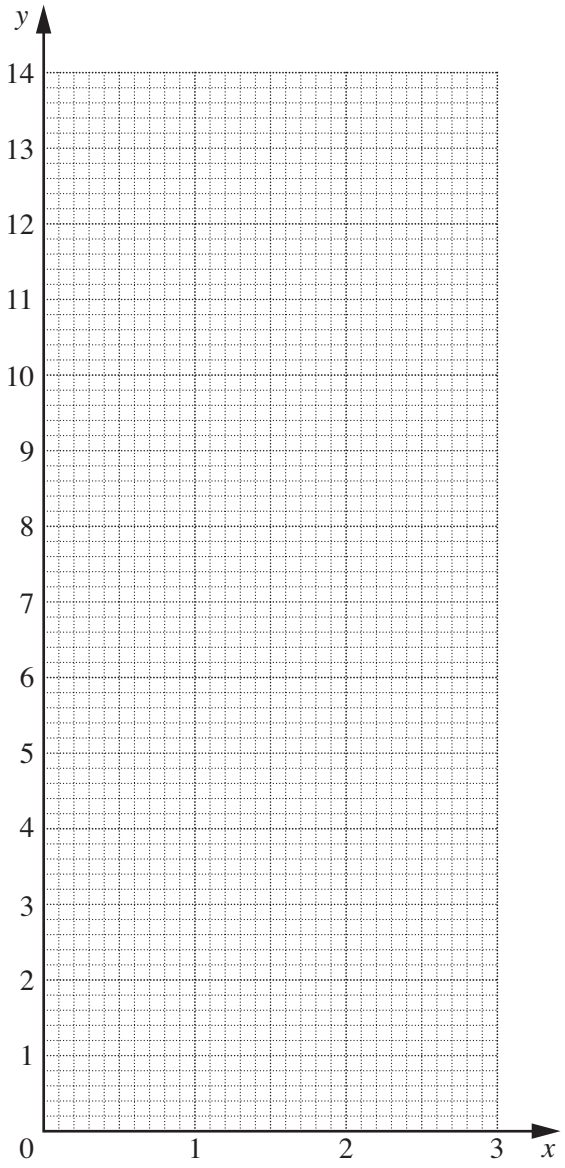
TURN OVER FOR QUESTION 16

16 **(a)** Complete this table for $y = 4x + 1$.

x	0	1	2	3
y		5		

[1]

(b) Draw the graph of $y = 4x + 1$.



[2]

(c) Use your graph to solve $4x + 1 = 7$.

(c) ..... [1]

4