OCR
RECOGNISING ACHIEVEMENT

GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)

M7 B247A

MODULE M7 – SECTION A

MONDAY 22 JANUARY 2007 Morning

Time: 30 minutes

Candidates answer on the question paper.
Additional materials: Geometrical instruments
Tracing paper (optional)

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.

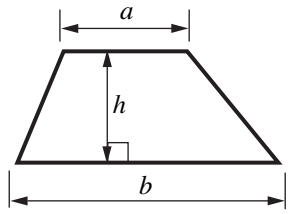
For Examiner's Use	
Section A	
Section B	
Total	

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

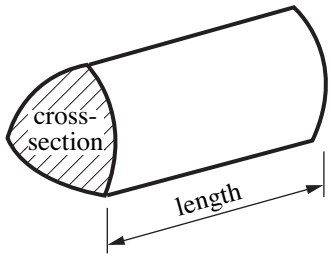
[Turn over

Formulae Sheet

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



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



PLEASE DO NOT WRITE ON THIS PAGE

1 The answers to these calculations are wrong.
Explain why the answers are wrong.
Do **not** do the full calculation.

(a) $23{\cdot}4 \times 1{\cdot}1 = 22{\cdot}74$

.....

..... [1]

(b) $\dfrac{54{\cdot}6}{0{\cdot}4} = 21{\cdot}84$

.....

..... [1]

2

2 Solve.

$$7x + 2 = 3x + 12$$

..... [3]

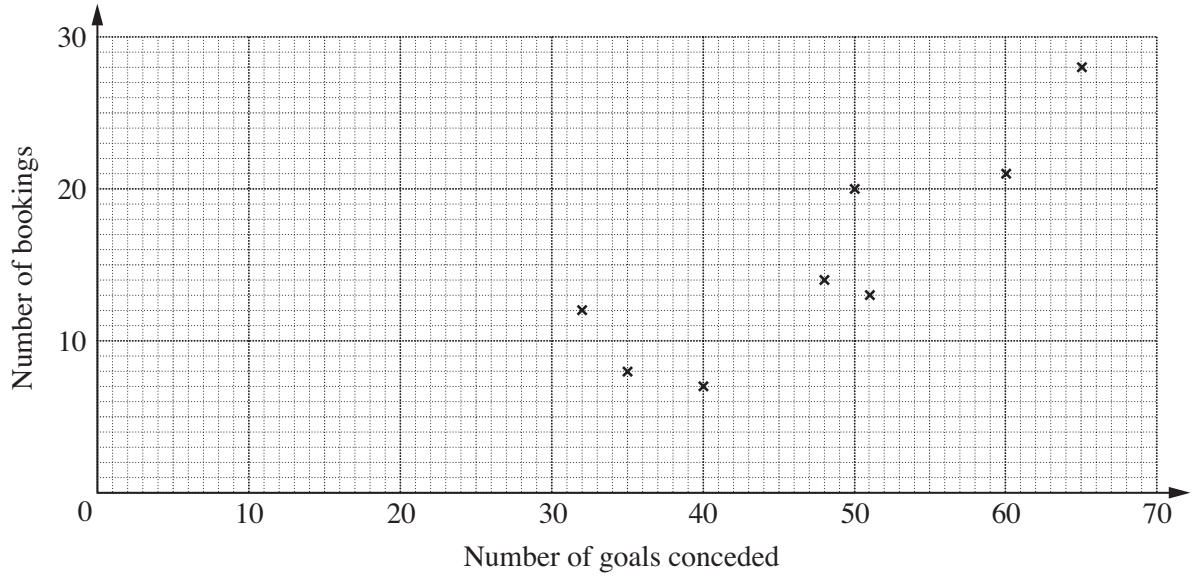
3

3 This table shows the number of goals conceded and the number of bookings for teams in a local football league.

Team	A	B	C	D	E	F	G	H	I	J	K
Number of goals conceded	40	51	32	65	60	48	50	35	41	43	62
Number of bookings	7	13	12	28	21	14	20	8	14	13	24

(a) The information for the first eight teams is plotted on the scatter diagram below.

Complete the diagram for teams I, J and K.



[1]

(b) Describe the correlation.

.....[1]

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

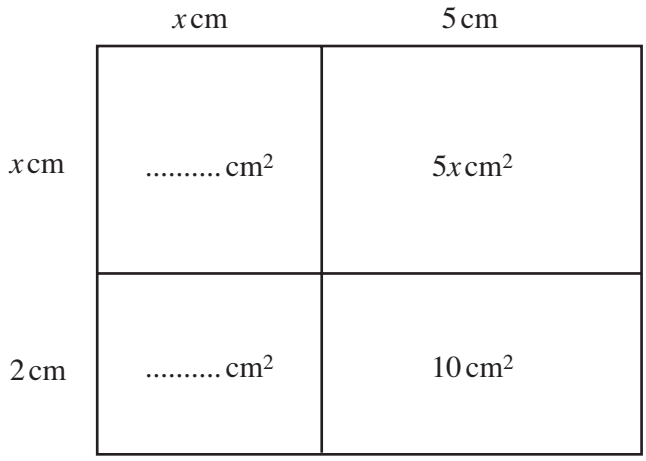
(ii) Team L conceded 54 goals.

Use your line to estimate how many bookings team L received.

(c)(ii) .....[1]

4

4 **(a)** The diagram shows a rectangle $(x + 5)$ cm long and $(x + 2)$ cm wide.



(i) The rectangle has been split into four smaller rectangles.
The areas of two of the rectangles are shown on the diagram.

Complete the diagram with expressions for the two other areas. [1]

(ii) Hence, work out.

$$(x + 5)(x + 2)$$

Give your answer in its simplest form.

(a)(ii) ..... [1]

(b) Rearrange $y = 3x + 2$ to make x the subject.

(b) ..... [2]

4

5 **(a)** Amy and Jane are buying a computer together.
The computer costs £450.
They share the cost in the ratio 1 : 2.

Work out how much they each pay.

(a) Amy £ .....

Jane £ .....
[2]

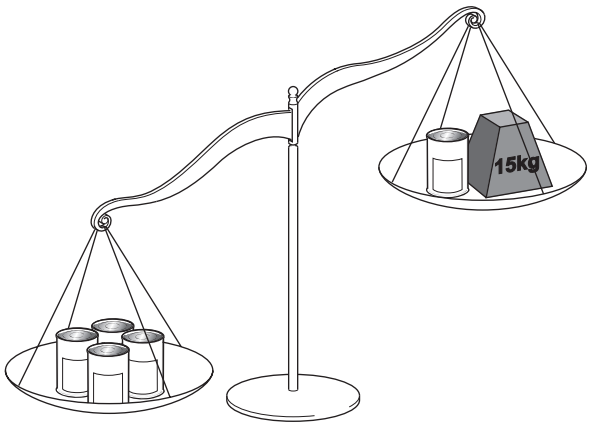
(b) Mike is buying a printer which normally costs £80.
There is a 5% reduction in the price of the printer if he buys online.

Work out the online price of the printer.

(b) £ ..... [3]

5

6 A 15 kg weight and some cans are on a balance.
Each can weighs x kilograms.



(a) Ring the inequality below which represents the situation shown in the diagram.

$4x \leqslant x + 15$ $4x < x + 15$ $4x > x + 15$ $4x \geqslant x + 15$ [1]

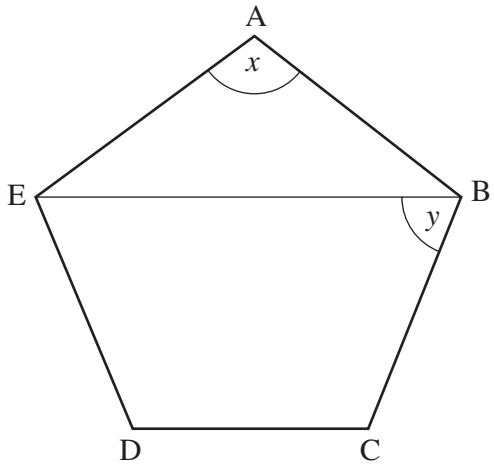
(b) Solve the inequality you have ringed.

(b) ..... [2]

3

TURN OVER FOR QUESTION 7

7 ABCDE is a regular pentagon.



Not to scale

(a) Work out angle x.

(a) ..... ° [2]

(b) Work out angle y.

(b) ..... ° [2]

4