OCR
RECOGNISING ACHIEVEMENT

GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS C (GRADUATED ASSESSMENT) M4 B244B

MODULE M4 – SECTION B

TUESDAY 13 MARCH 2007 Morning

Time: 30 minutes

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

CUP/T34491

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

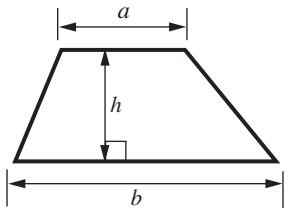
- You are expected to use a calculator in Section B of this paper.
- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this Section is 25.
- Section B starts with question 8.

For Examiner's Use	
Section B	

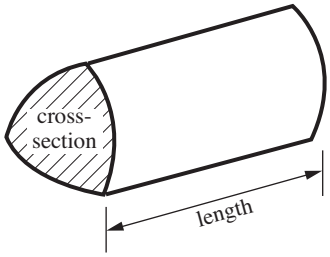
This document consists of **8** printed pages.

Formulae Sheet

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



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



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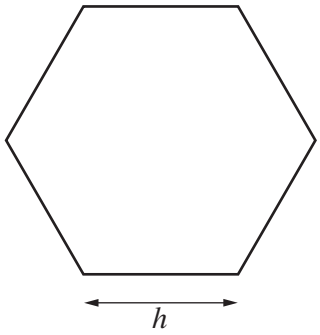
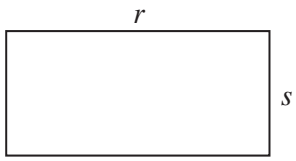
8 **(a)** The length of each side of this regular hexagon is h.



Write down a formula for the perimeter, P, of the hexagon.

(a) ..... [2]

(b) The length of this rectangle is r and the width is s.



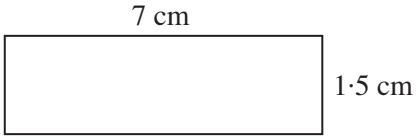
The formula for the perimeter, Q, of this rectangle is

$$Q = 2r + 2s.$$

Find Q when $r = 5{\cdot}2$ cm and $s = 3{\cdot}1$ cm.

(b) ..... cm [2]

(c) Work out the area of this rectangle.
Give the units of your answer.



Not to scale

(c) ..... [3]

7

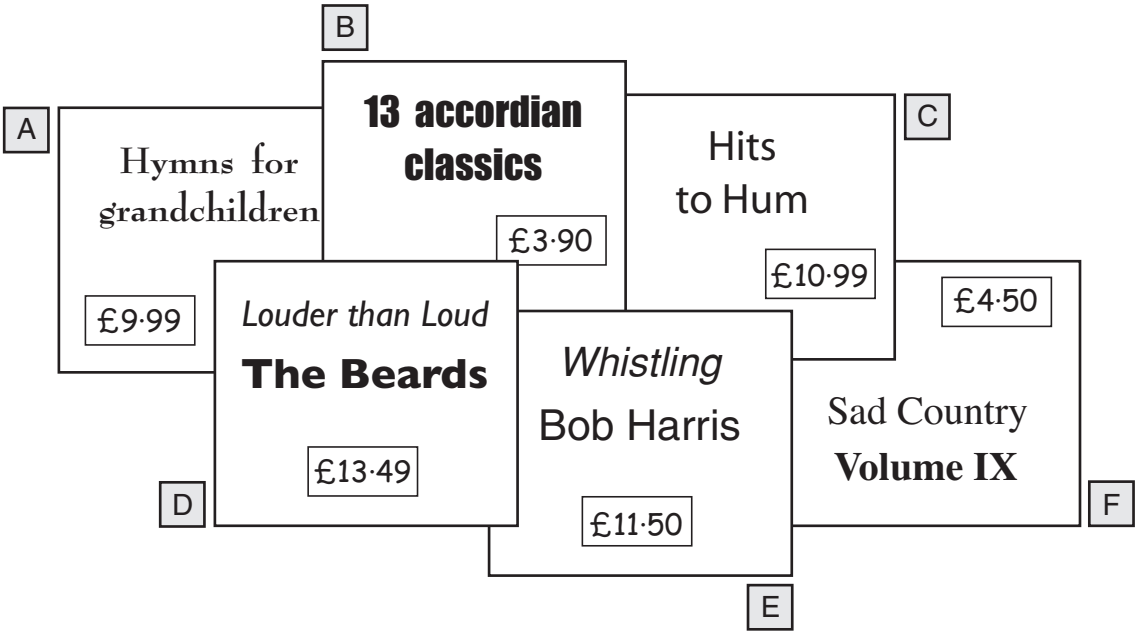
9 Write these decimals in order of size, starting with the smallest.

0·408 0·4 0·48 0·08 0·048

.... [2]
smallest

2

10 Nilaish has £30.
He would like to buy all these CDs but does not have enough money.



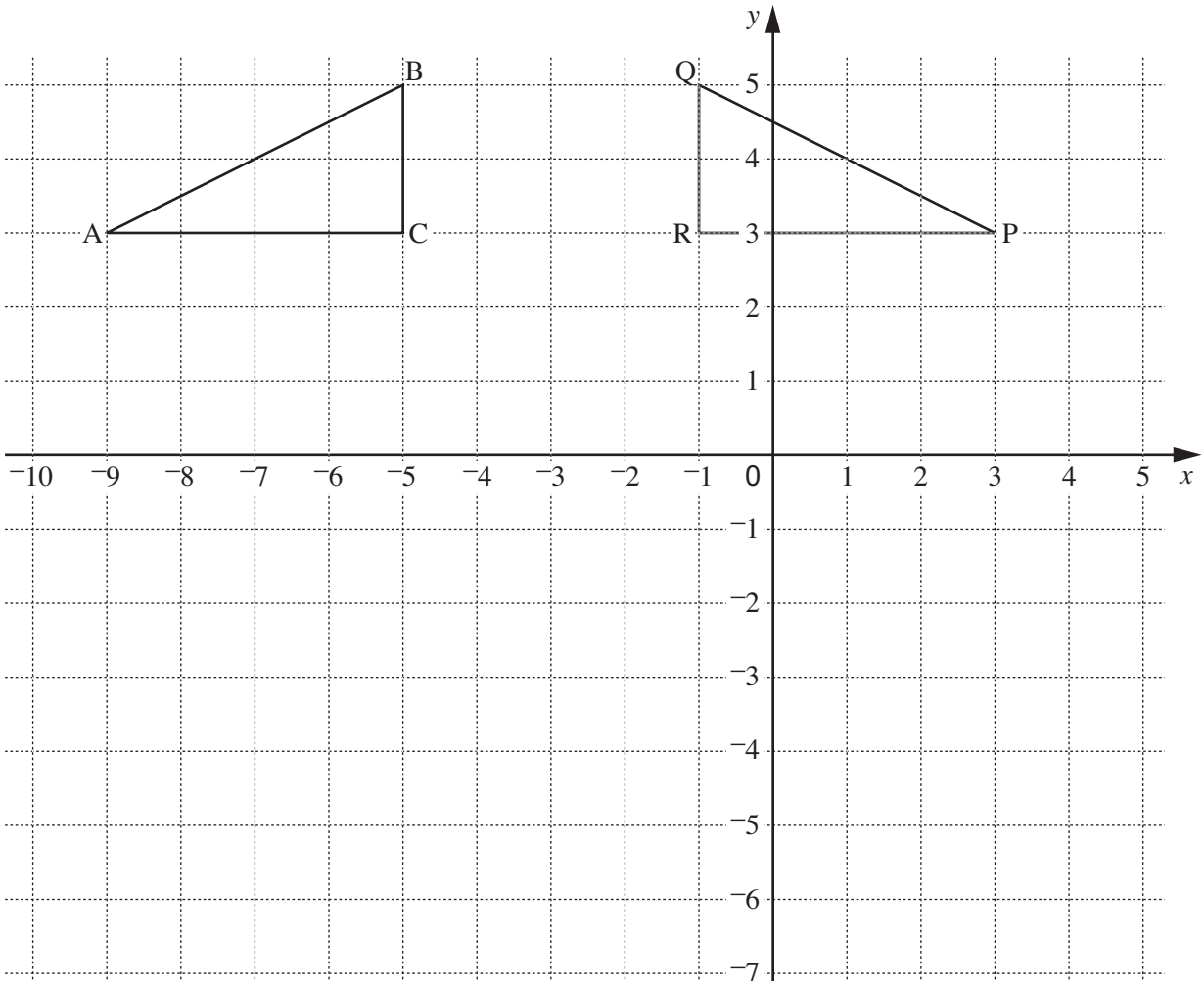
He decides to buy as many different CDs as he can from these.

Which of these six CDs can he buy with only £30?
Show how you decide.

..... [3]

3

11



(a) Shape ABC is the reflection of shape PQR in a mirror line.

Draw the mirror line on the diagram. [1]

(b) Write down the coordinates of point A.

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

(c) Plot the point (−7, −5) on the diagram.
Label this point F. [1]

(d) Triangle PRS is isosceles.

Write down the coordinates of a possible position for point S.

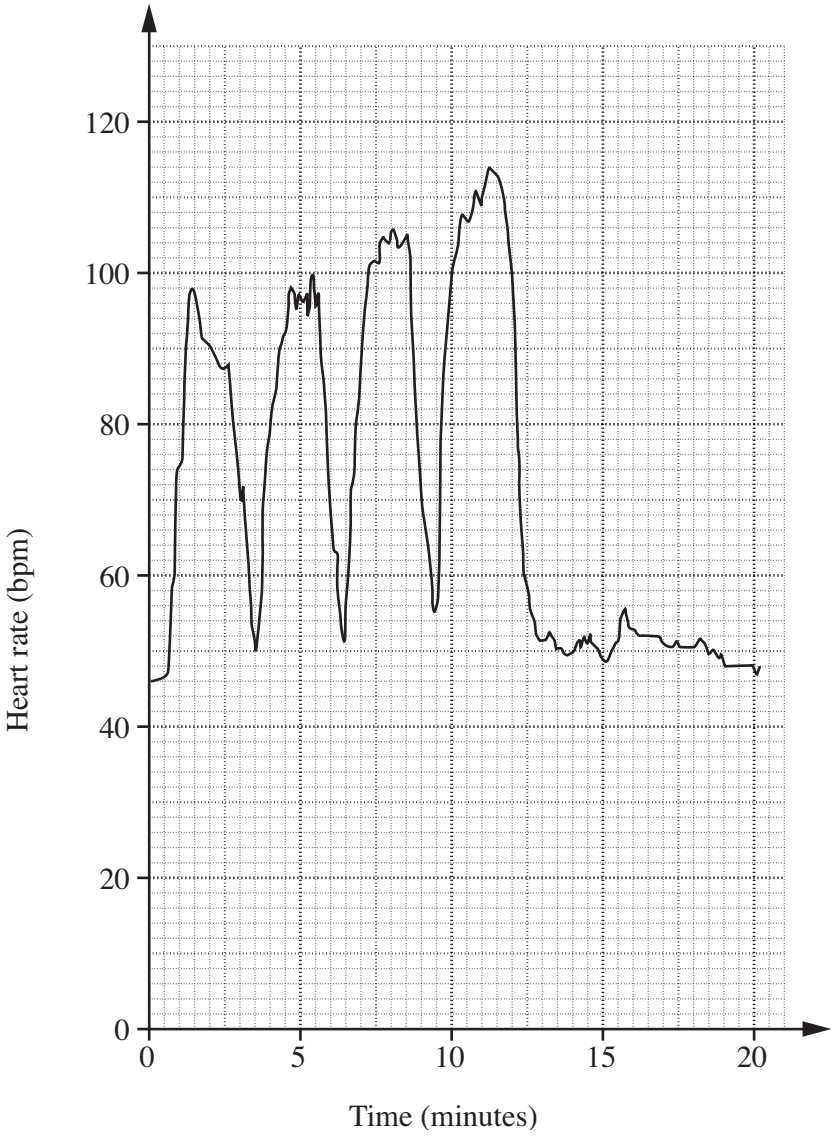
(d) (..... , ...) [2]

5

12 **(a)** Geoff keeps a record of his heart rate, in beats per minute (bpm), during a power-swimming session.

Power-swimming:	swim fast for a few minutes, then rest, then swim fast for a few minutes, then rest, then swim fast again then rest again, then swim fast again then rest again.

This graph shows the results.



(i) What was his heart rate at the start?

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

(ii) What was his highest heart rate?

(ii) ..... bpm [1]

(iii) How many times did he swim fast?

(iii) ..... [1]

(iv) During the last power-swim, for how many minutes was his heart rate over 100 bpm?

(iv) ..... minutes [1]

(b) (i) Geoff keeps a record of the number of minutes he spends swimming each day for a week. Here are his results.

21 25 19 29 24 18 25

Work out the mean of these times.

(b)(i) .....minutes [3]

(ii) Geoff also keeps a record of the time he spends lifting weights each day.
The mean time for the same week is 21 minutes.

Compare the time Geoff spends swimming with the time he spends lifting weights.

.....

.....[1]

8

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