Edexcel GCSE

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Mathematics B (Modular) – 2544

Paper 9 – Section B (Non-Calculator)

Higher Tier

Unit 2 Test

Thursday 8 March 2007 – Morning

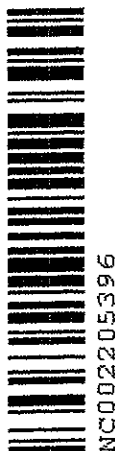Time for Section B: 20 minutes

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
You must NOT write on the formulae page. Anything you write on the formulae page will gain NO credit.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This section has 5 questions. The total mark for this section is 15. The total mark for this paper is 30.
There are 8 pages in this question paper. Any blank pages are indicated.
Calculators may be used for Section A only.

Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
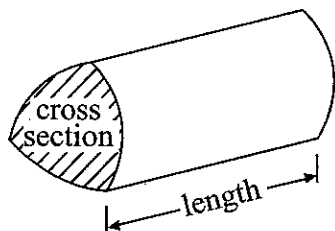Return at the end to those you have left out.

Turn over

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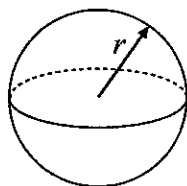
Formulae: Higher Tier

You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

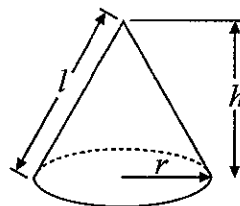**Volume of a prism** = area of cross section × length

Volume of sphere $= \frac{4}{3}\pi r^3$

Surface area of sphere $= 4\pi r^2$

Volume of cone $= \frac{1}{3}\pi r^2 h$

Curved surface area of cone $= \pi r l$

In any triangle ABC
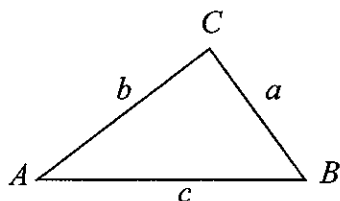
The Quadratic Equation

The solutions of $ax^2 + bx + c = 0$
where $a \neq 0$, are given by

$$x = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$$

Sine Rule $\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$

Cosine Rule $a^2 = b^2 + c^2 - 2bc \cos A$

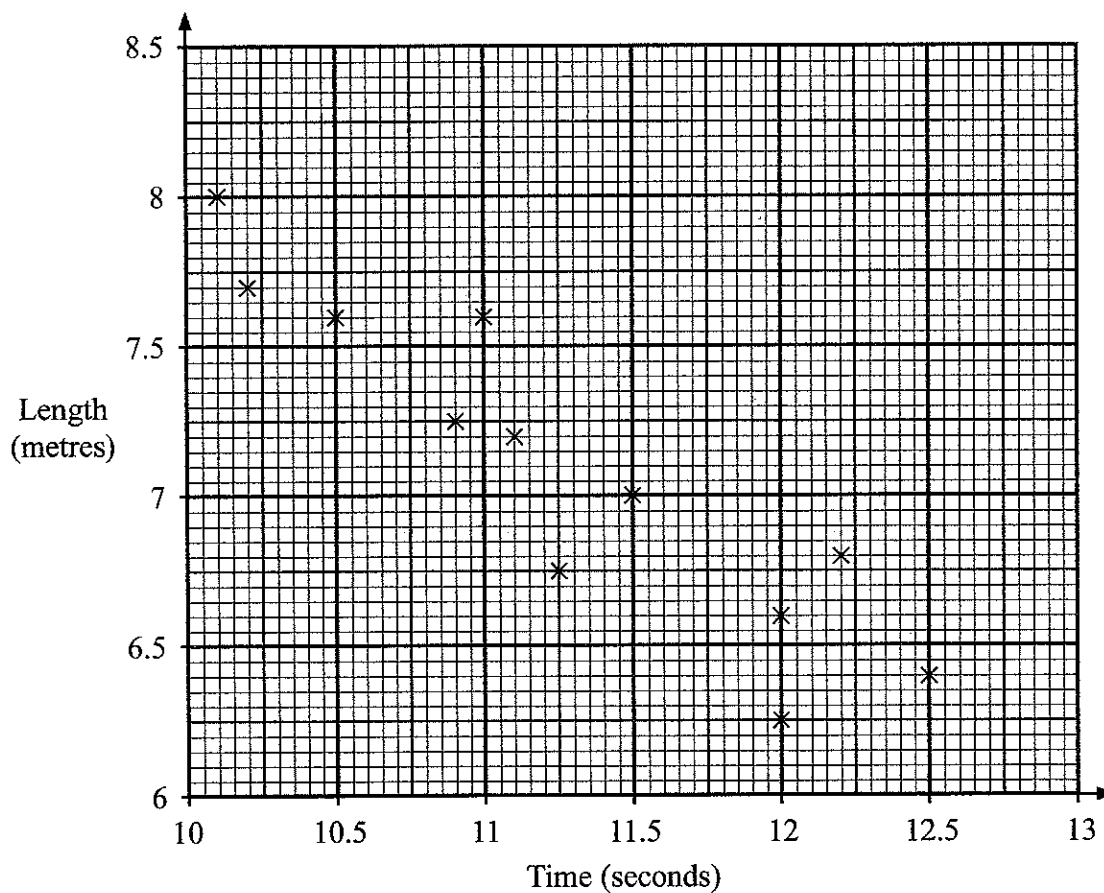**Area of triangle** $= \frac{1}{2} ab \sin C$

SECTION B

Answer ALL FIVE questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

You must NOT use a calculator for this section.

1. The scatter graph shows information about twelve athletes.
    It shows the time each athlete took to run 100 metres and the length of their best long jump.

(a) Describe the **correlation** between time taken to run 100 metres and length of best long jump.

    ....
    (1)

(b) Draw a line of best fit on the scatter graph.

    (1)

(Total 2 marks)

2. Here are the ages, in years, of some members of a swimming club.

| 9 | 12 | 18 | 10 | 9 | 7 | 21 | 30 | 23 | 16 |
| 19 | 32 | 17 | 28 | 15 | 8 | 10 | 15 | 21 | 10 |

Draw an ordered stem and leaf diagram for these ages.
You must include a key.
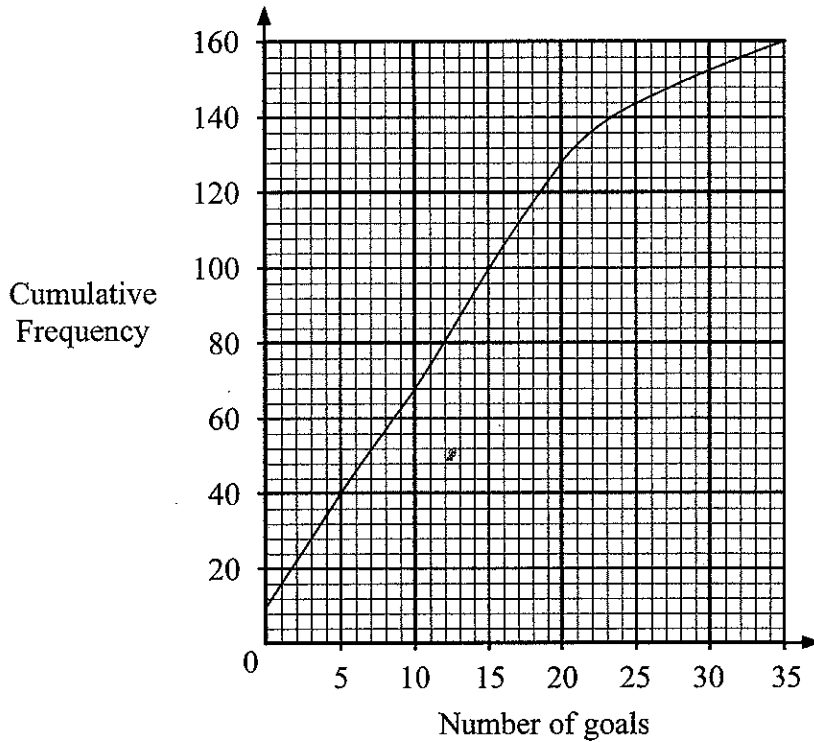
```
0 |
  |
1 |
  |
2 |
  |
3 |
```

Key:

(Total 3 marks)

3. The cumulative frequency graph shows some information about the numbers of goals scored by 160 players.

(a) Use this graph to find an estimate for
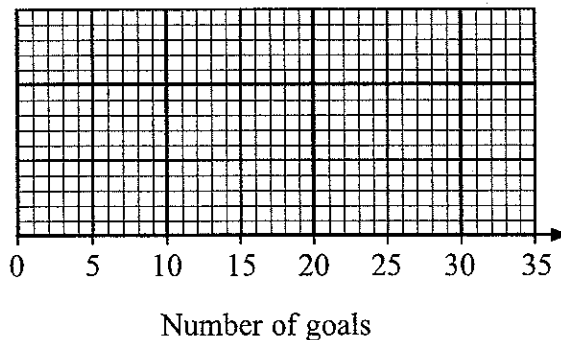
(i) the median,

.... goals

(ii) the lower quartile.

.... goals

(2)

The lowest number of goals scored was 0
The highest number of goals scored was 32

(b) On the grid, draw a box plot to show information about the numbers of goals scored.

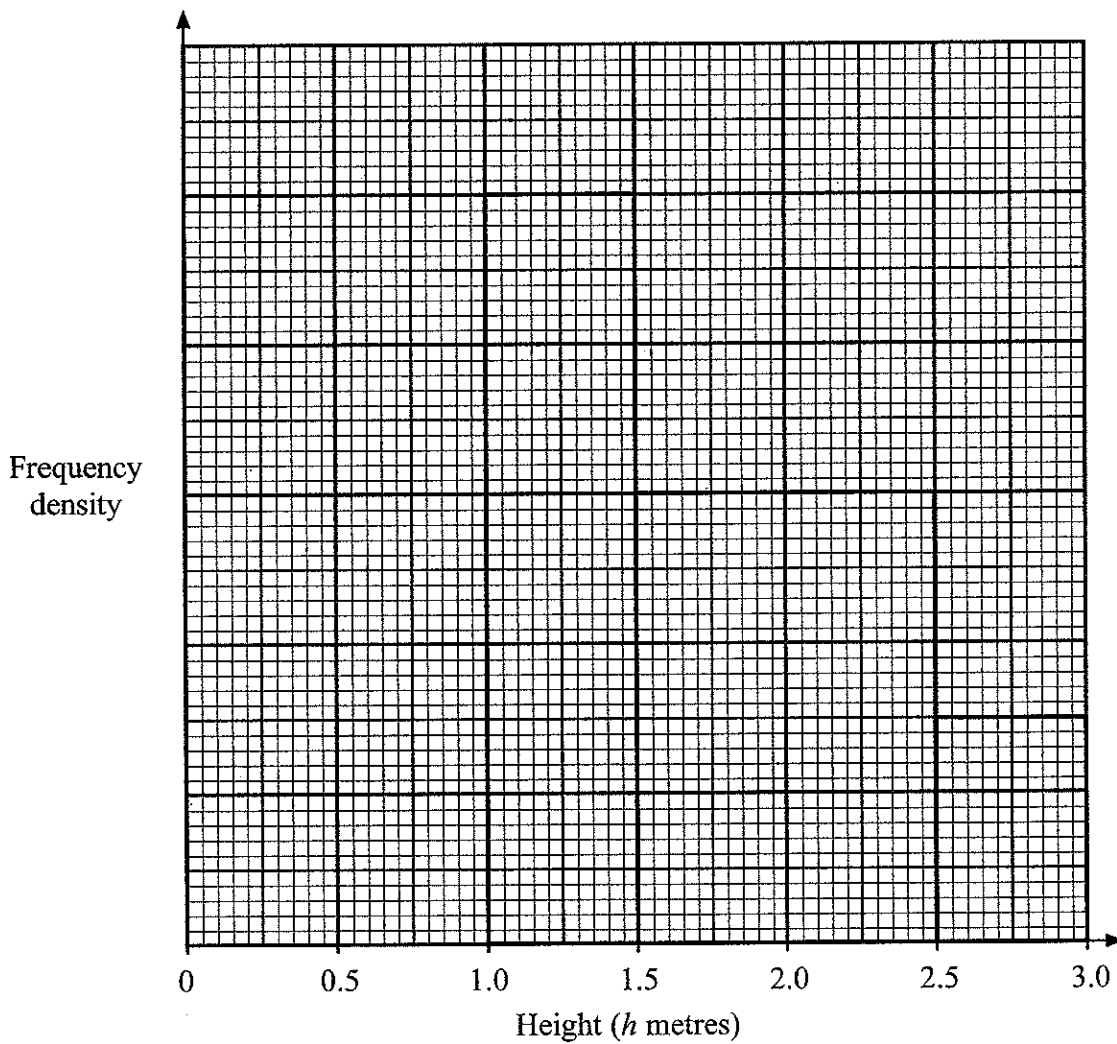Number of goals

(3)

(Total 5 marks)

4. Munir measured the heights of some walls.

The table and histogram show information about these heights.

Height (*h* metres)	Frequency
$0 < h \leqslant 1.0$	9
$1.0 < h \leqslant 1.5$	10
$1.5 < h \leqslant 2.5$	12
$2.5 < h \leqslant 3.0$	

Frequency
density

0   0.5   1.0   1.5   2.0   2.5   3.0

Height (*h* metres)

(a) Use the histogram to complete the table.

(1)

(b) Use the table to complete the histogram.

(1)

Q4

(Total 2 marks)

5. There are 9 stones in a bag.
4 stones are blue.
5 stones are green.

Lisa takes a stone at random from the bag.
She **does not replace it**.
She then takes at random a second stone from the bag.

Work out the probability that at least one of these two stones is blue.

....

(Total 3 marks)

Q5

TOTAL FOR SECTION B: 15 MARKS
TOTAL FOR PAPER: 30 MARKS

END

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