| Centre No. | | | | | | Paper Reference | | | | | Surname | Initial(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Candidate No. | | | | | | **5** **5** **1** **0** **/** **10** **B** | | | | | Signature | |

# Edexcel GCSE

### Mathematics B – 1388

Paper 10 – Section B (Calculator)

# Higher Tier

Module Test 1

Thursday 8 March 2007 – Morning

Time for Section B: 25 minutes

| **Materials required for examination** | **Items included with question papers** |
|---|---|
| Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used. | Nil |

## 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 19. The total mark for this paper is 38.
There are 8 pages in this question paper. Any blank pages are indicated.
**Calculators may be used for Section B only.**
If your calculator does not have a $\pi$ button, take the value of $\pi$ to be 3.142 unless the question instructs otherwise.

## 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.
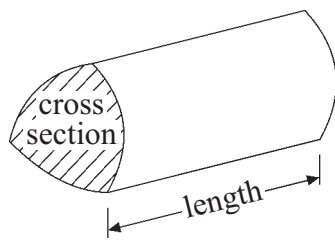
N 2 5 8 8 5 A 0 1 0 8

*Turn over*

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**GCSE Mathematics 1387/8**
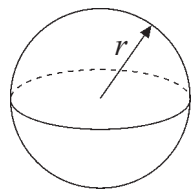
Formulae: Higher Tier

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

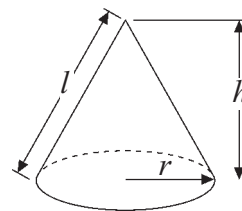**Volume of a prism** = area of cross section × length



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

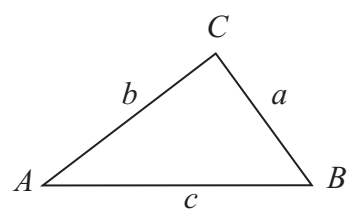**Surface area of sphere** $= 4\pi r^2$

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

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





**In any triangle ABC**



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

**The Quadratic Equation**

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

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

**SECTION B**

**Answer ALL FIVE questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

1. The equation

   $$x^3 + 2x = 200$$

   has a solution between 5 and 6
   Use a trial and improvement method to find this solution.
   Give your answer correct to 1 decimal place.
   You must show **all** your working.

   $x =$ ............................

   **(Total 4 marks)**

**2.** John completes 30 crossword puzzles.
The table shows some information about the time, in minutes, John takes to complete each crossword puzzle.

| Time ($t$ minutes) | Frequency |
|---|---|
| $10 < t \leqslant 15$ | 4 |
| $15 < t \leqslant 20$ | 5 |
| $20 < t \leqslant 25$ | 7 |
| $25 < t \leqslant 30$ | 9 |
| $30 < t \leqslant 35$ | 3 |
| $35 < t \leqslant 40$ | 2 |

(a) Complete the cumulative frequency table.

| Time ($t$ minutes) | Cumulative frequency |
|---|---|
| $0 < t \leqslant 15$ | 4 |
| $0 < t \leqslant 20$ | |
| $0 < t \leqslant 25$ | |
| $0 < t \leqslant 30$ | |
| $0 < t \leqslant 35$ | |
| $0 < t \leqslant 40$ | |

**(1)**

(b) On the grid, draw a cumulative frequency graph to show this information.

Cumulative frequency

30

20

10

0

0     10     20     30     40

Time (*t* minutes)
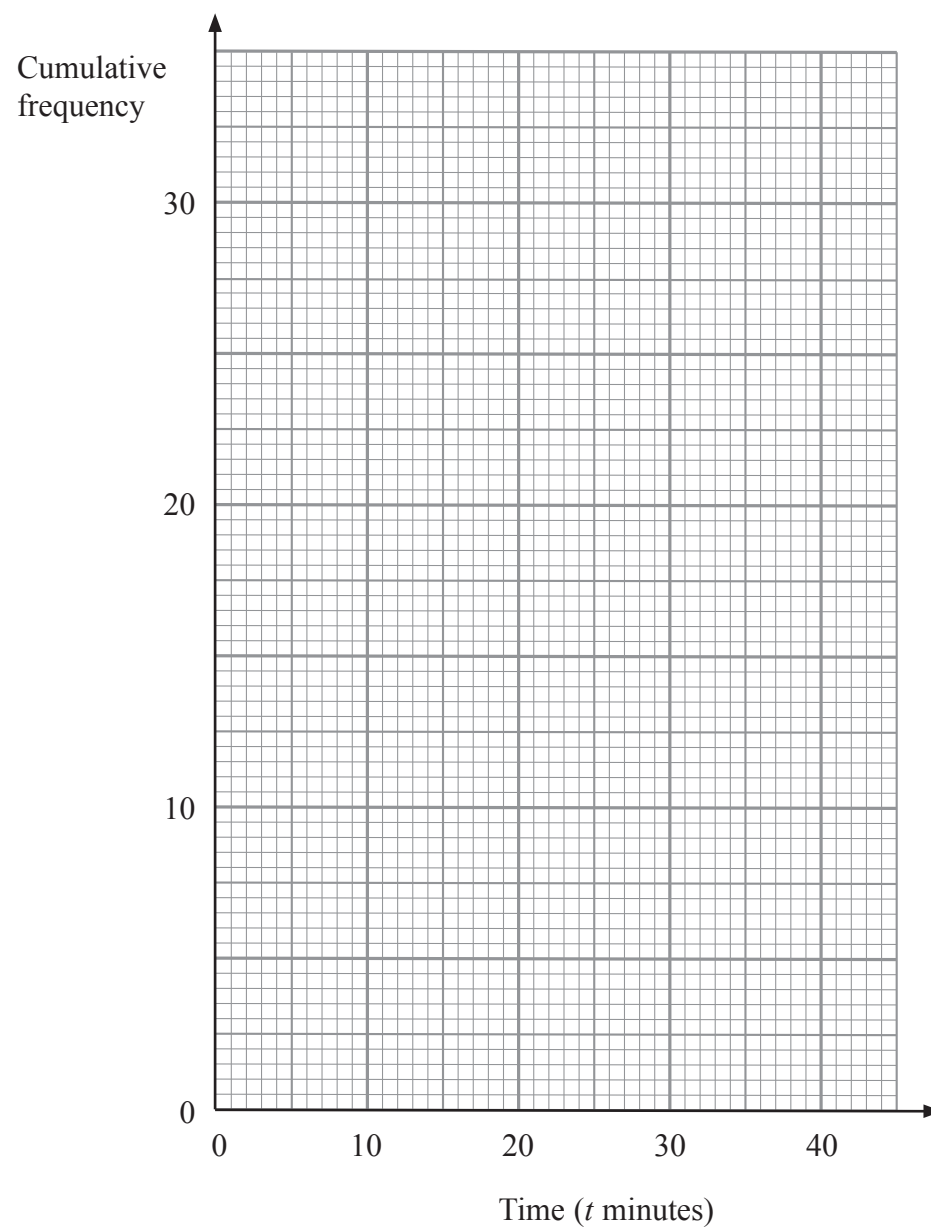
**(2)**

(c) Use your graph to find an estimate for the median time.

....................... minutes

**(1)**

(d) Use your graph to find an estimate for the number of crossword puzzles that John takes more than 22 minutes to complete.

.......................................

**(2)**  Q2

**(Total 6 marks)**

**3.** (a) Write $7.38 \times 10^5$ as an ordinary number.

......................................
**(1)**

(b) Write 0.0205 as a number in standard form.

......................................
**(1)**

**(Total 2 marks)**

**4.** *A* is the point with coordinates (6, 2).
*B* is the point with coordinates (–2, 0).
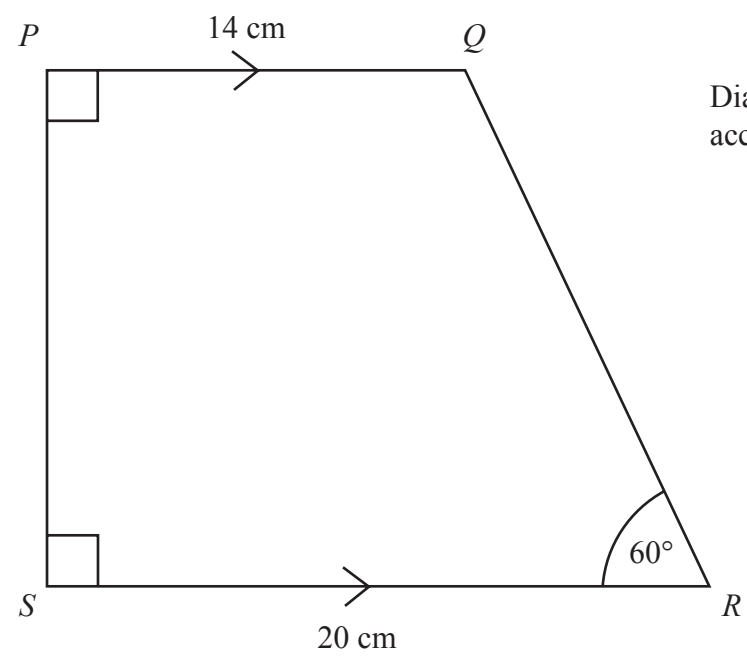
Calculate the length of the line segment *AB*.

......................................
**(Total 3 marks)**

**5.**



14 cm

*P*          *Q*

Diagram **NOT** accurately drawn

60°

*S*          *R*

20 cm

*PQRS* is a trapezium.
*PQ* is parallel to *SR*.
Angle *SPQ* = angle *PSR* = 90º.
Angle *QRS* = 60º.
*PQ* = 14 cm.
*SR* = 20 cm.

Work out the area of the trapezium.
Give your answer correct to 3 significant figures.

.................................... cm²

**Q5**

**(Total 4 marks)**

**TOTAL FOR SECTION B: 19 MARKS**
**TOTAL FOR PAPER: 38 MARKS**

**END**

N 2 5 8 8 5 A 0 7 0 8

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