Edexcel GCSE

Mathematics B – 1388

Paper 13 – Section B (Calculator)

Higher Tier

Module Test 2

Thursday 8 March 2007 – Afternoon

Time for Section B: 25 minutes

Materials required for examination
Ruler graduated in centimetres and
millimetres, protractor, compasses,
pen, HB pencil, eraser, calculator.
Tracing paper may be used.

Items included with question papers
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 8 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 π button, take the value of π 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.

Turn over

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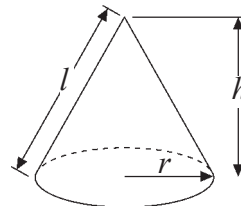**Volume of a prism** = area of cross section × length
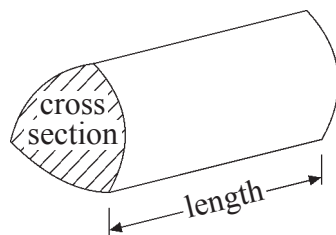
Volume of sphere $= \frac{4}{3}\pi r^3$
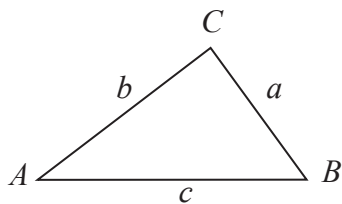
Surface area of sphere $= 4\pi r^2$
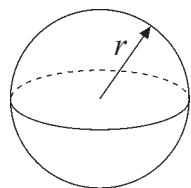
Volume of cone $= \frac{1}{3}\pi r^2 h$

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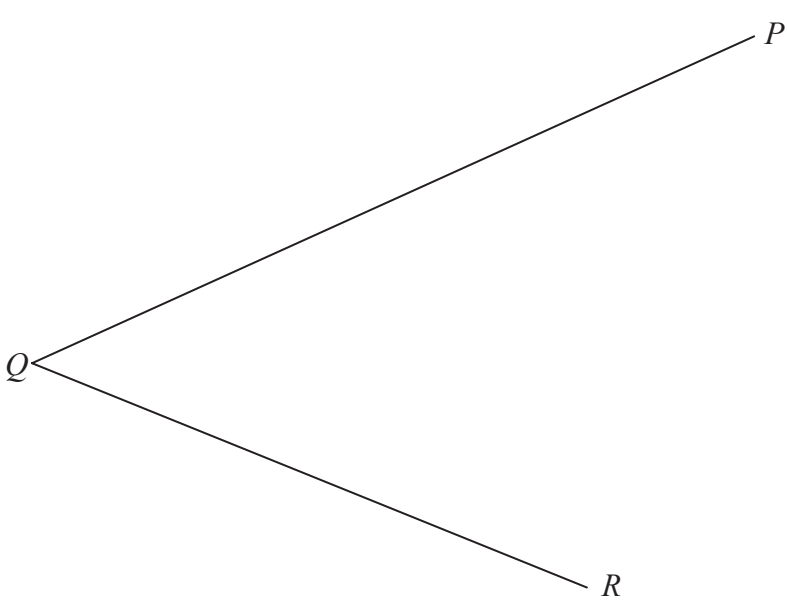
$$x = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$$

N 2 5 8 9 1 A 0 2 0 8

SECTION B

Answer ALL EIGHT questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1.   The length of a piece of material is 70 cm, correct to the nearest centimetre.

   (a) Write down the **least** possible length of the piece of material.

.... cm

(1)

   (b) Write down the **greatest** possible length of the piece of material.

.... cm

(1)   **Q1**

(Total 2 marks)

2.

P

Q

R

   Use ruler and compasses to **construct** the bisector of angle *PQR*.
   You must show all your construction lines.
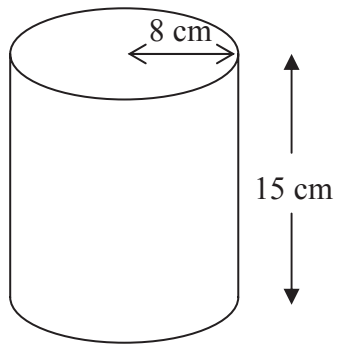
Q2

(Total 2 marks)

3.

8 cm

Diagram **NOT**
accurately drawn

15 cm

A solid metal cylinder has a radius of 8 cm and a height of 15 cm.

(a) Calculate the volume of the cylinder.
      Give your answer correct to the nearest whole number.

.... cm^3
(2)

The density of the metal is 2.5 g/cm^3.

(b) Calculate the mass of the cylinder.
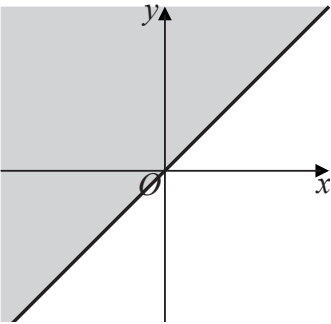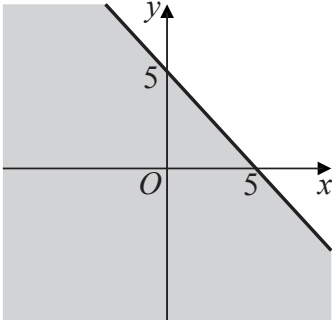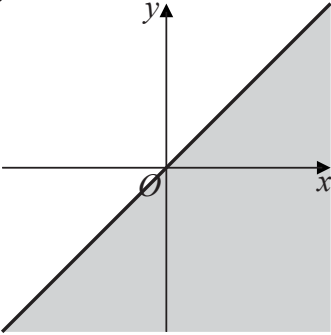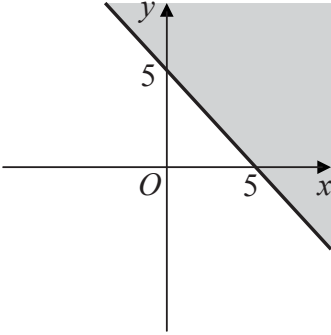   Give your answer correct to 3 significant figures.

.... g
(2)   **Q3**

(Total 4 marks)

4. Make x the subject of the formula

$$y = \frac{x}{3} + k$$

$x =$ ....

(Total 2 marks)

5.

Write down the letter of the graph in which the shaded region represents the inequality

(i) $y \leqslant x$ ....

(ii) $x + y \leqslant 5$ ....

(Total 2 marks)

6. *y* is inversely proportional to *x*.
   $y = 40$ when $x = 15$

   Calculate the value of *y* when $x = 120$

   $y =$ **Q6**

   (Total 2 marks)

7.

B

8 cm   130°   5 cm

A   C

Diagram **NOT**
accurately drawn

   In triangle *ABC*,
   $AB = 8$ cm,
   $BC = 5$ cm,
   angle $ABC = 130°$.

   Calculate the area of triangle *ABC*.
   Give your answer correct to 3 significant figures.

   .... cm²   **Q7**

   (Total 2 marks)

8. Simplify fully $\dfrac{x^2 + 7x + 10}{x^2 - 25}$

....

(Total 3 marks)

TOTAL FOR SECTION B: 19 MARKS

TOTAL FOR PAPER: 38 MARKS

END

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