Centre No.						Paper Reference							Surname		Initial(s)
Candidate No.						**5**	**3**	**8**	**3**	**H**	**/**	**1**	**0**	Signature	

Paper Reference(s)

5383H/10

Edexcel GCSE

Mathematics (Modular) – 2381

Paper 10 (Calculator)

Higher Tier

Unit 2 Stage 2

Thursday 17 November 2011 – Afternoon

Time: 30 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)**.
There are 10 questions in this question paper. The total mark for this paper is 25.
There are 12 pages in this question paper. Any blank pages are indicated.
Calculators may be used.
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.

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Turn over

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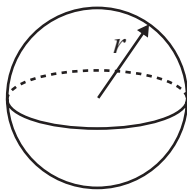
GCSE Mathematics 2381

Formulae: Higher Tier

Volume of a prism = area of cross section × length
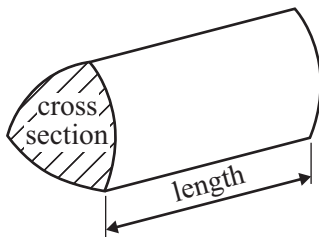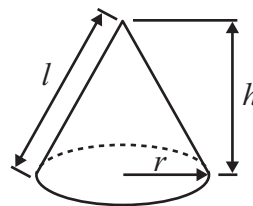

Volume of sphere $= \frac{4}{3}\pi r^3$

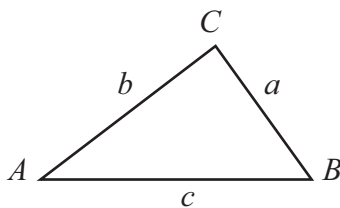**Surface area of sphere** $= 4\pi r^2$

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 $= \dfrac{1}{2} ab \sin C$

Answer ALL TEN questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. Simplify $3c + 2d - c - 6d$

    ....

    (Total 2 marks)

    Q1

2. Simplify $2^3 \times 2^5$

    Give your answer as a power of 2

    ....

    (Total 1 mark)

    Q2

3. Work out 17.5% of £720

    ....

    (Total 2 marks)

    Q3

4.

Diagram **NOT** accurately drawn
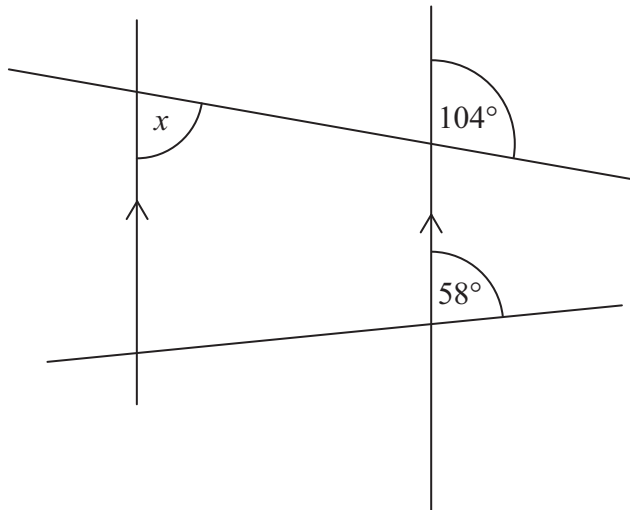
(i) Work out the size of the angle marked x.

...................................°

(ii) Give reasons for your answer.

....

....
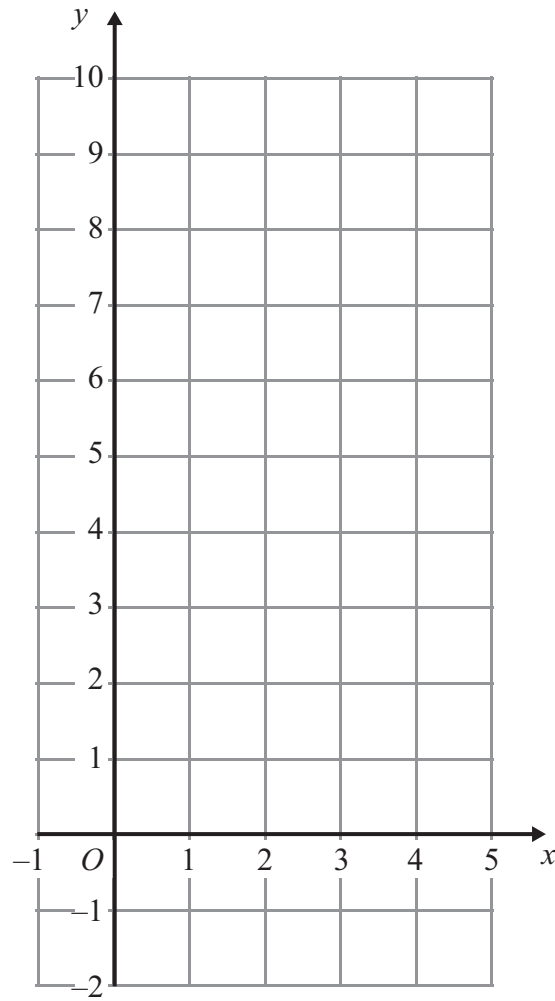
(Total 2 marks)

5. On the grid, draw the graph of

$$2x + y = 8$$

(Total 3 marks)

Turn over

6. The table gives information about the density of some metals.

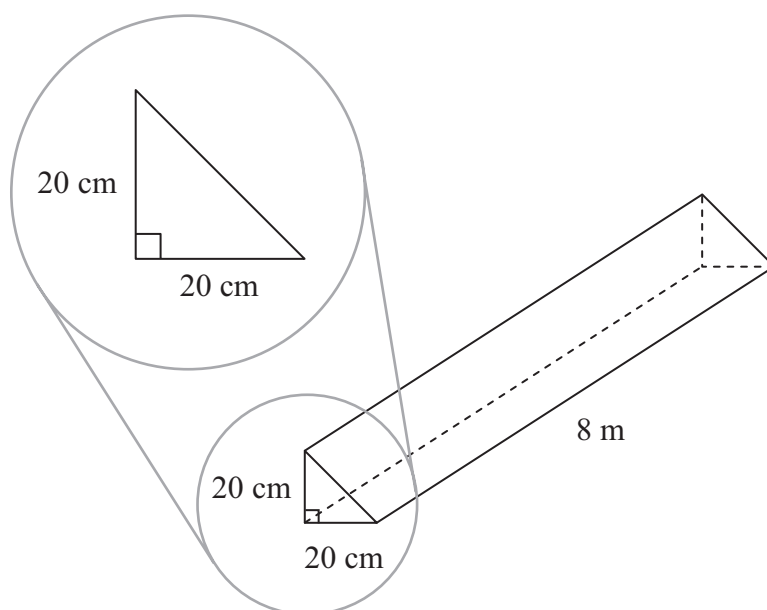| Metal	Density (kg/m³)
Aluminium	2600
Brass	8500
Copper	8900
Iron	7900
Steel	7500

20 cm

20 cm

8 m

Diagram **NOT**
accurately drawn

20 cm

20 cm

The diagram shows a solid metal bar made in the shape of a triangular prism.

The base of the triangle is 20 cm.
The height of the triangle is 20 cm.

The length of the bar is 8 m.
The mass of the bar is 1424 kg.

The bar is made from one of the five metals in the table.
Which metal?

You must show your working.

....

(Total 3 marks)

Q6

7. Use your calculator to work out

$$\sqrt{2.3 \times 4.6^2}$$

Give your answer as a decimal.

Write down all the figures on your calculator display.

....

(Total 2 marks)

Q7

8. (a) Simplify $\dfrac{3(x+1)^2}{x+1}$

....

(1)

(b) Simplify $\dfrac{4x^2y}{6x}$

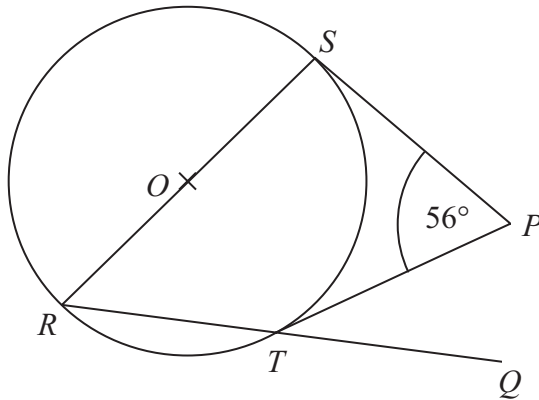...................................

(2)

(Total 3 marks)

9.

Diagram **NOT**
accurately drawn

R, S and T are points on a circle, centre O.
PS and PT are tangents to the circle.

SR is a diameter.
Angle $SPT = 56°$.

Q is a point such that RTQ is a straight line.

Work out the size of angle PTQ.

...................................°

(Total 4 marks)

Q9

10. Simplify $\dfrac{2x^2 + 3xy + y^2}{x^2 - y^2}$

....

(Total 3 marks)

TOTAL FOR PAPER: 25 MARKS

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