

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

Tuesday 1 March 2011 – Afternoon

Time: 30 minutes

Examiner's use only

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Team Leader's use only

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**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).

There are 9 questions in this question paper. The total mark for this paper is 25.

There are 8 pages in this question paper. Any blank pages are indicated.

**Calculators may be used.**

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.

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P 3 8 6 8 9 A 0 1 0 8

*Turn over*

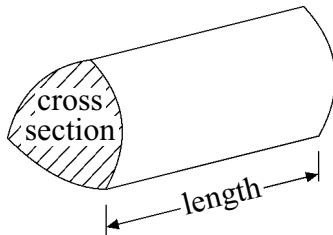
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## GCSE Mathematics 2381

Formulae: Higher Tier

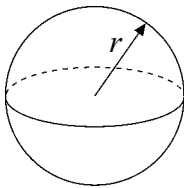
**You must not write on this formulae page.**  
**Anything you write on this formulae page will gain NO credit.**

**Volume of a prism** = area of cross section  $\times$  length



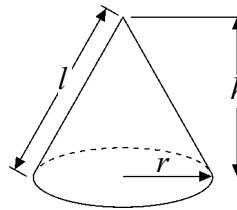
**Volume of sphere** =  $\frac{4}{3}\pi r^3$

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

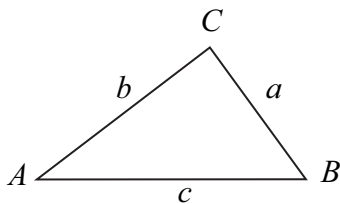


**Volume of cone** =  $\frac{1}{3}\pi r^2 h$

**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**  $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

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

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



Answer ALL NINE questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1.

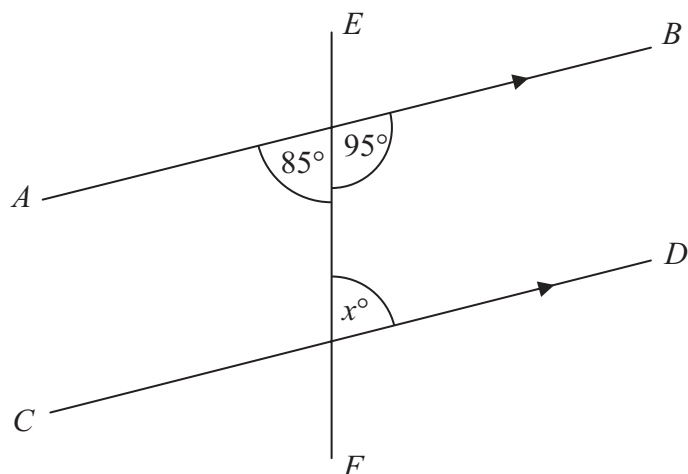


Diagram **NOT**  
accurately drawn

$AB$  is parallel to  $CD$ .  
 $EF$  is a straight line.

(i) Write down the value of  $x$ .

$x = \dots\dots\dots$

(ii) Give a reason for your answer.

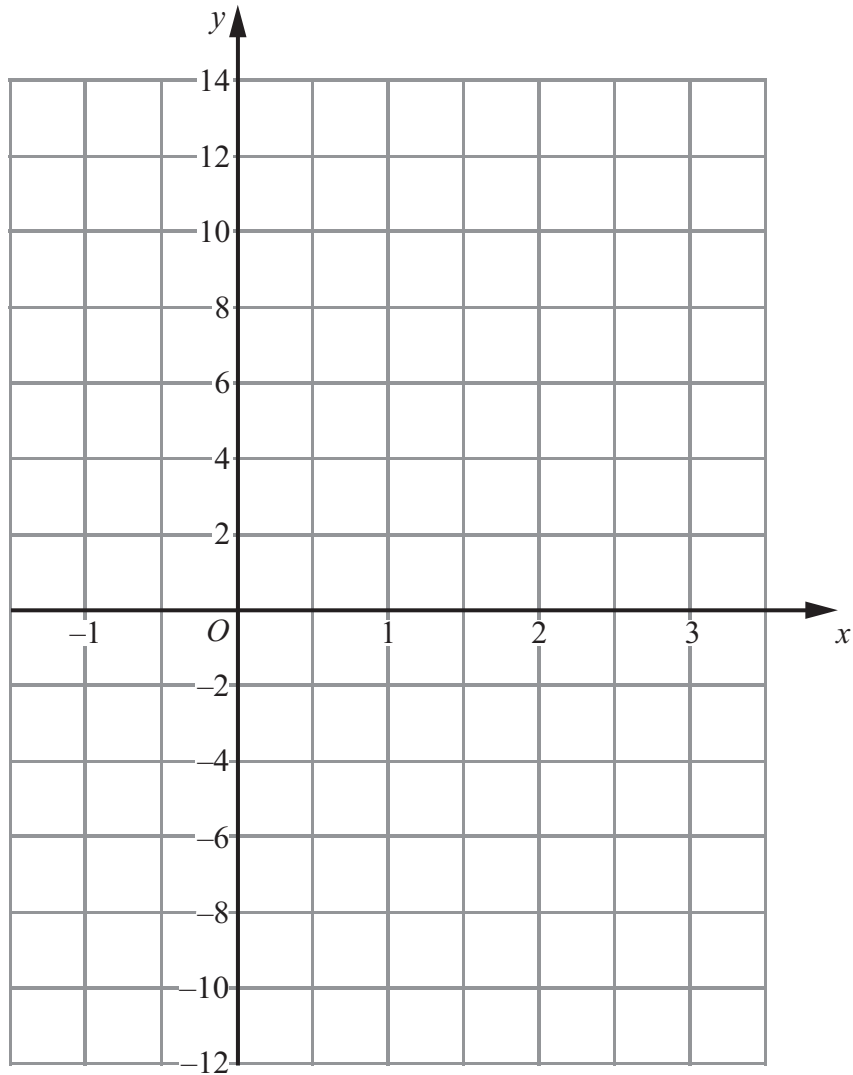
$\dots\dots\dots$

(Total 2 marks)

Q1



2. On the grid, draw the graph of  $y = 6x - 5$  from  $x = -1$  to  $x = 3$



(Total 3 marks)

Q2



3. There are 1600 pupils in a school.  
55% of the pupils are boys.

Work out the number of girls in the school.

.....

**(Total 2 marks)**

**Q3**

4. (a) Factorise  $y^2 + 7y$

.....

**(1)**

- (b) Expand and simplify  $5(3x + 4) + 3(2x - 1)$

.....

**(2)**

- (c) Expand and simplify  $(y - 7)(y + 4)$

.....

**(2)**

**(Total 5 marks)**

**Q4**



5. Use your calculator to work out the value of  $\sqrt{\frac{82.3}{17.9 - 5.61}}$   
Write down all the figures on your calculator display.

.....

Q5

(Total 2 marks)

6.

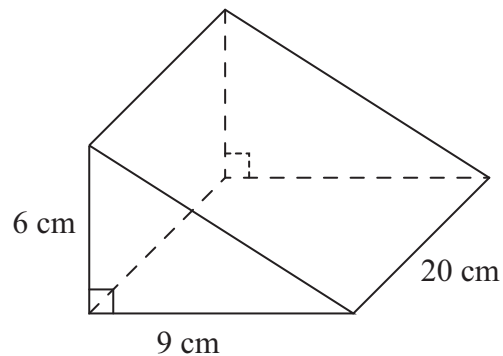


Diagram **NOT**  
accurately drawn

The diagram shows a solid triangular prism.

The prism is made of wood.

The prism has a mass of 243 grams.

Work out the density of the wood.

..... grams / cm<sup>3</sup>

Q6

(Total 3 marks)



7. Work out  $(4 \times 10^{11}) \times (6 \times 10^8)$   
Give your answer in standard form.

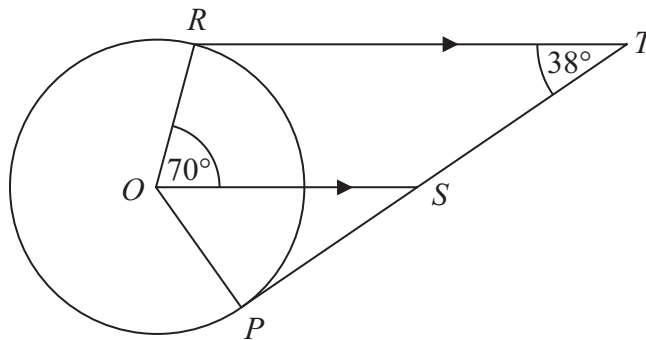
.....

Q7

(Total 2 marks)

8.

Diagram **NOT**  
accurately drawn



$TSP$  is a tangent to the circle centre  $O$ .  
 $P$  and  $R$  are points on the circle.  
 $RT$  is parallel to  $OS$ .  
Angle  $RTS = 38^\circ$ .  
Angle  $ROS = 70^\circ$ .

Work out the size of angle  $ORP$ .

.....

Q8

(Total 3 marks)



9. Simplify fully  $\frac{3x^2 + 5x - 2}{9x^2 - 1}$

Q9

.....  
(Total 3 marks)

**TOTAL FOR PAPER: 25 MARKS**

**END**

