

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

Friday 13 November 2009 – 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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*Turn over*

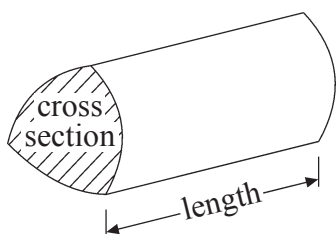
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## GCSE Mathematics 2381

Formulae: Higher Tier

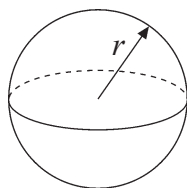
**You must not write on this formulae page.  
Anything you write on this formulae page will gain NO credit.**

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



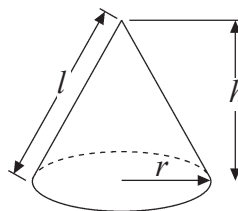
**Volume of sphere** =  $\frac{4}{3}\pi r^3$

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

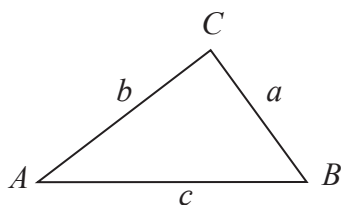


**Volume of cone** =  $\frac{1}{3}\pi r^2 h$

**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. Donna ran 400 metres in 50 seconds.

Work out Donna's average speed in metres per second.

..... metres per second

**(Total 2 marks)**

**Q1**

2.  $ACD$  is a triangle.

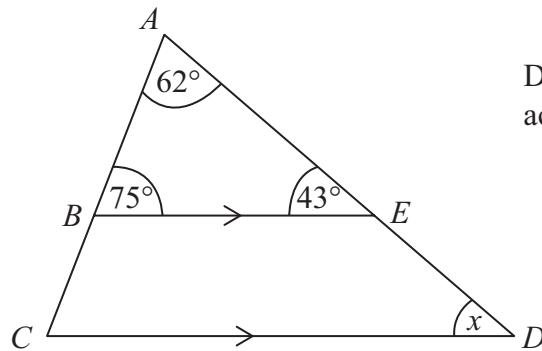


Diagram **NOT** accurately drawn

$BE$  is parallel to  $CD$ .

- (a) Find the value of the angle marked  $x$ .

.....  
 (1)

- (b) Give a reason for your answer.

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

**(Total 2 marks)**

**Q2**

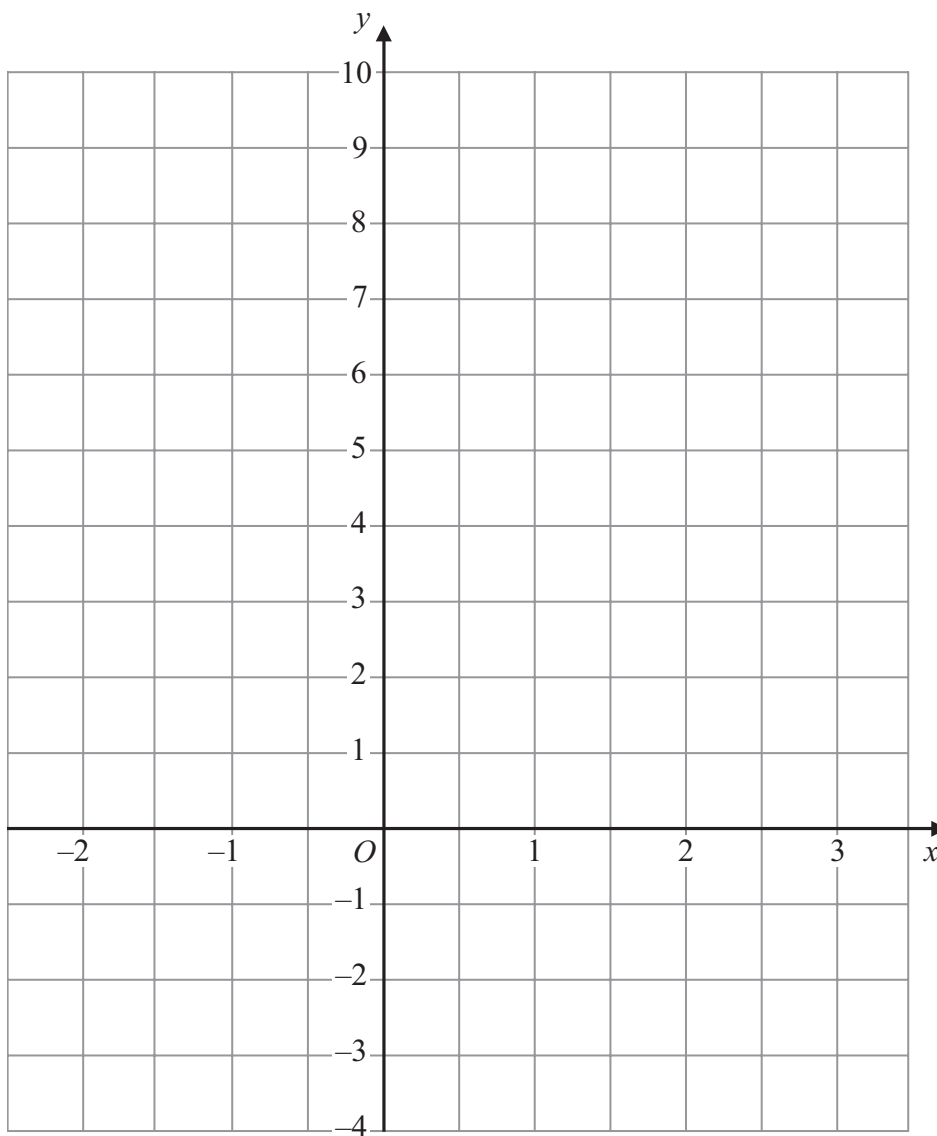


3. (a) Complete this table of values for  $y = 2x + 3$

$x$	-2	-1	0	1	2	3
$y$		1		5		

(2)

(b) On the grid, draw the graph of  $y = 2x + 3$



(2)

(Total 4 marks)

Q3



4. (a) Expand and simplify  $(x + 3)(x + 1)$

.....  
(2)

(b) Factorise  $y^2 + 2y - 15$

.....  
(2)

**(Total 4 marks)**

**Q4**

5. (a) Simplify  $3^4 \times 3^2$   
Write your answer as a power of 3

.....  
(1)

(b) Simplify  $5^5 \div 5^2$   
Write your answer as a power of 5

.....  
(1)

**(Total 2 marks)**

**Q5**

6. The distance of the Sun from the Earth is  $9.3 \times 10^7$  miles.  
The distance of the Moon from the Earth is 250 000 miles.

The Sun is further from the Earth than the Moon is from the Earth.  
How many times further?  
Give your answer in standard form.

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

**Q6**



7. Write  $\frac{2x}{2x-3} - \frac{7}{x(2x-3)}$  as a single fraction in its simplest form.

.....  
Q7  
(Total 2 marks)

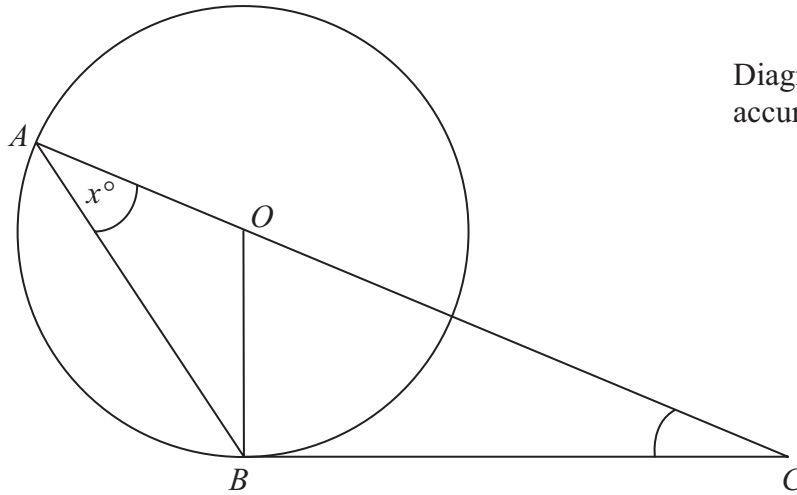
8. Prove that the recurring decimal  $0.\dot{2}\dot{5} = \frac{25}{99}$

Q8

  
(Total 2 marks)

9.

Diagram **NOT** accurately drawn



$A$  and  $B$  are points on a circle, centre  $O$ .  
 $BC$  is a tangent to the circle.  
 $AOC$  is a straight line.

(a) (i) What is the size of angle  $OBC$ ?

..... °

(ii) Give a reason for your answer.

..... (2)

Angle  $BAO = x^\circ$ .

(b) Find the size of angle  $ACB$ , in terms of  $x$ .

..... °  
 (2)

(Total 4 marks)

Q9

**TOTAL FOR PAPER: 25 MARKS**

**END**



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