Centre No.					Pape	er Refer	ence			Surname	Initial(s)
Candidate No.			6	6	6	4	/	0	1	Signature	

Paner Reference(s)

6664/01

Edexcel GCE

Core Mathematics C2 Advanced Subsidiary

Monday 2 June 2008 – Morning

Time: 1 hour 30 minutes

Materials re	quired for	examination
--------------	------------	-------------

Mathematical Formulae (Green)

Items included with question papers

Candidates may use any calculator allowed by the regulations of the Joint Council for Qualifications. Calculators must not have the facility for symbolic algebra manipulation, differentiation and integration, or have retrievable mathematical formulae stored in them.

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. When a calculator is used, the answer should be given to an appropriate degree of accuracy.

Information for Candidates

A booklet 'Mathematical Formulae and Statistical Tables' is provided.

Full marks may be obtained for answers to ALL questions.

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 75.

There are 28 pages in this question paper. Any blank pages are indicated.

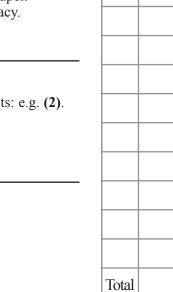
Advice to Candidates

You must ensure that your answers to parts of questions are clearly labelled. You should show sufficient working to make your methods clear to the Examiner. Answers without working may not gain full credit.

This publication may be reproduced only in accordance with Edexcel Limited copyright policy.

H30722A
W850/R6664/57570 3/3/3/3





Examiner's use only

Team Leader's use only

1

3

4

5

6

7

8

9



	$f(x) = 2x^3 - 3x^2 - 39x + 20$	
(a) Use the factor theor	rem to show that $(x + 4)$ is a factor of $f(x)$.	
		(2)
(b) Factorise $f(x)$ comp	pletely.	7.5
		(4)



Question 1 continued	Lea bla
	~ 4
	Q1



a) Compl	ete the t	table belo	w, givii	ng the valu	ues of y to 3 de	cimal places.	
	x	0		0.5	1	1.5	2
	v				2.646	3.630	
							(2)
							(4)



Question 2 continued	Le
	02
	Q2



3. (a) Find the first 4 terms, in ascending powers of x , of the binomial expansion $(1 + ax)^{10}$, where a is a non-zero constant. Give each term in its simplest form.	on of (4)
	(4)
Given that, in this expansion, the coefficient of x^3 is double the coefficient of x^2 ,	
(b) find the value of <i>a</i> .	(2)
	(2)

Question 3 continued	Le bl
	Q3

4. (a) Find, to 3 significant figures, the value of x for which $5^x = 7$.		eave lank
(b) Solve the equation $5^{2x} - 12(5^x) + 35 = 0$.	(4)	

Question 4 continued	blar
	04
	Q4

H 3 0 7 2 2 A 0 9 2 8

9

		Leave blank
5. The circle C has centre $(3, 1)$ and passes through the point $P(8, 3)$.		
(a) Find an equation for C.		
	(4)	
(b) Find an equation for the tangent to C at P , giving your answer in the form		
ax + by + c = 0, where a, b and c are integers.	(5)	

Q5

	,	Leave
6.	A geometric series has first term 5 and common ratio $\frac{4}{5}$.	
	Calculate	
	(a) the 20th term of the series, to 3 decimal places,	
	(2)	
	(b) the sum to infinity of the series.	
	(2)	
	Given that the sum to k terms of the series is greater than 24.95,	
	(c) show that $k > \frac{\log 0.002}{\log 0.8}$, (4)	
	$\log 0.8 \tag{4}$	
	(d) find the smallest possible value of k .	
	(1)	



Question 6 continued	Leave blank

Question 6 continued	Leave



Question 6 continued		Leave blank
		Q6
	(Total 9 marks)	

blank 7. В 7 cm 0.8 rad DFigure 1 Figure 1 shows ABC, a sector of a circle with centre A and radius 7 cm. Given that the size of $\angle BAC$ is exactly 0.8 radians, find (a) the length of the arc BC, **(2)** (b) the area of the sector ABC. **(2)** The point D is the mid-point of AC. The region R, shown shaded in Figure 1, is bounded by CD, DB and the arc BC. Find (c) the perimeter of R, giving your answer to 3 significant figures, **(4)** (d) the area of R, giving your answer to 3 significant figures. **(4)**

Question 7 continued	Leave blank

Question 7 continued	Leave blank



Question 7 continued		Lea
	_	
		C
	(Total 12 marks)	

H 3 0 7 2 2 A 0 1 9 2 8

19

8.

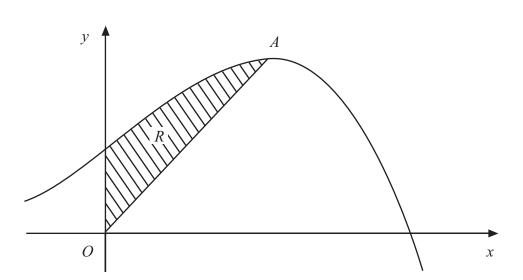


Figure 2

Figure 2 shows a sketch of part of the curve with equation $y = 10 + 8x + x^2 - x^3$.

The curve has a maximum turning point A.

(a) Using calculus, show that the x-coordinate of A is 2.

(3)

Leave blank

The region R, shown shaded in Figure 2, is bounded by the curve, the y-axis and the line from O to A, where O is the origin.

(b) Using calculus, find the exact area of R.

(8)



Question 8 continued	Leave blank

	Leave blank
Question 8 continued	



Question 8 continued		Lea blai
		-
		_
		_
		-
		-
		-
		-
		-
		_
		-
		-
		-
		_
		_
		-
		-
		-
		-
		-
		-
		_ Q
	(Total 11 marks)	

H 3 0 7 2 2 A 0 2 3 2 8

23

Solve, for $0 \leqslant x < 360^{\circ}$,	
(a) $\sin(x-20^\circ) = \frac{1}{\sqrt{2}}$	
	(4)
(b) $\cos 3x = -\frac{1}{2}$	
2	(6)



Question 9 continued	Leav blanl

Question 9 continued	Leave blank



Question 9 continued	Leav blan
	Q
(Total	10 marks)
TOTAL FOR PAPER: 7	
END	



