

Centre No.						Paper Reference					Surname	Initial(s)		
Candidate No.						6	6	6	3	/	0	1	Signature	

Paper Reference(s)

6663/01

**Edexcel GCE
Core Mathematics C1
Advanced Subsidiary**



Wednesday 9 January 2008 – Afternoon
Time: 1 hour 30 minutes

Examiner's use only

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Team Leader's use only

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Question Number	Leave Blank
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
Total	

Materials required for examination
Mathematical Formulae (Green)

Items included with question papers
Nil

Calculators may NOT be used in this examination.

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.
You must write your answer for each question in the space following the question.

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 11 questions in this question paper. The total mark for this paper is 75.
There are 24 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.

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Turn over

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1. Find $\int(3x^2 + 4x^5 - 7) dx$.

(4)

Q1

(Total 4 marks)



3. Simplify

$$\frac{5 - \sqrt{3}}{2 + \sqrt{3}},$$

giving your answer in the form $a + b\sqrt{3}$, where a and b are integers.

(4)

Q3

(Total 4 marks)



6.

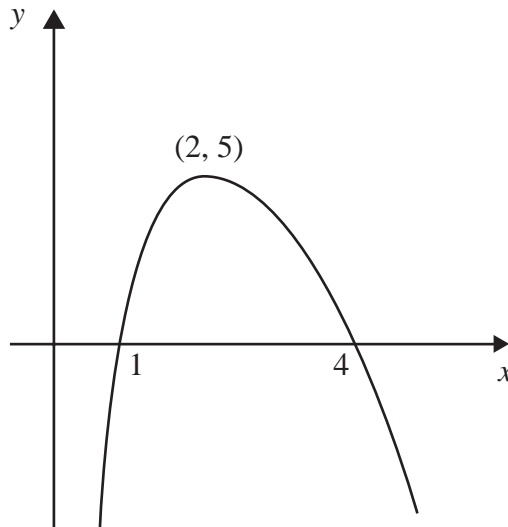


Figure 1

Figure 1 shows a sketch of the curve with equation $y = f(x)$. The curve crosses the x -axis at the points $(1, 0)$ and $(4, 0)$. The maximum point on the curve is $(2, 5)$.

In separate diagrams sketch the curves with the following equations.

On each diagram show clearly the coordinates of the maximum point and of each point at which the curve crosses the x -axis.

(a) $y = 2f(x)$, (3)

(b) $y = f(-x)$. (3)

The maximum point on the curve with equation $y = f(x + a)$ is on the y -axis.

(c) Write down the value of the constant a . (1)



Question 6 continued

(Total 7 marks)

Q6



7. A sequence is given by:

$$x_1 = 1,$$

$$x_{n+1} = x_n(p + x_n),$$

where p is a constant ($p \neq 0$).

(a) Find x_2 in terms of p . (1)

(b) Show that $x_3 = 1 + 3p + 2p^2$. (2)

Given that $x_3 = 1$,

(c) find the value of p , (3)

(d) write down the value of x_{2008} . (2)



10. The curve C has equation

$$y = (x+3)(x-1)^2.$$

- (a) Sketch C showing clearly the coordinates of the points where the curve meets the coordinate axes. (4)

- (b) Show that the equation of C can be written in the form

$$y = x^3 + x^2 - 5x + k,$$

where k is a positive integer, and state the value of k . (2)

There are two points on C where the gradient of the tangent to C is equal to 3.

- (c) Find the x -coordinates of these two points. (6)



Question 11 continued

Ruled lines for writing the answer to Question 11.

(Total 7 marks)

TOTAL FOR PAPER: 75 MARKS

END

Q11

