

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

Monday 23 May 2005 – Morning

Time: 1 hour 30 minutes



Examiner's use only

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Team Leader's use only

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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.

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 10 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 must show sufficient working to make your methods clear to the Examiner. Answers without

working may gain no credit.

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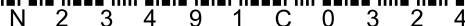
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- (1)**

- (2)

(Total 3 marks)

Q1



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2. Given that $y = 6x - \frac{4}{x^2}$, $x \neq 0$,

(a) find $\frac{dy}{dx}$,

(2)

(b) find $\int y \, dx$.



N 2 3 4 9 1 C 0 5 2 4

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where a and b are constants.

- (a) Find the value of a and the value of b .

(3)

- (b) Hence, or otherwise, show that the roots of

$$x^2 - 8x - 29 = 0$$

are $c \pm d\sqrt{5}$, where c and d are integers to be found.

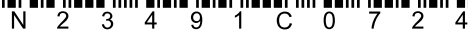
(3)

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Q3

104

(Total 6 marks)



4.

Figure 1

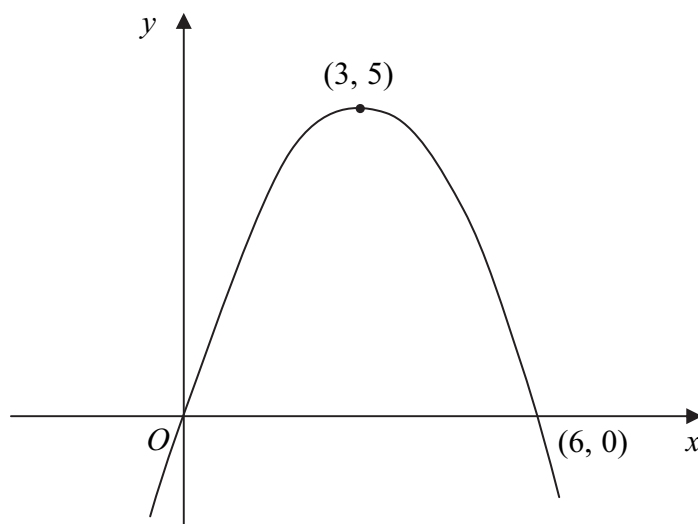


Figure 1 shows a sketch of the curve with equation $y = f(x)$. The curve passes through the origin O and through the point $(6, 0)$. The maximum point on the curve is $(3, 5)$.

On separate diagrams, sketch the curve with equation

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

(b) $y = f(x + 2)$. (3)

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



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Question 4 continued

Q4

(Total 5 marks)



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$$x^2 + y^2 = 29.$$

(6)



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Question 5 continued

Q5

(Total 6 marks)



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- (2)

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Question 6 continued

Q6

(Total 8 marks)



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- Given that $\frac{dy}{dx} = \frac{(3-\sqrt{x})^2}{\sqrt{x}}$, $x > 0$, and that $y = \frac{2}{3}$ at $x = 1$,

- (b) find y in terms of x .
- (6)**

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Q7

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(Total 8 marks)



8. The line l_1 passes through the point $(9, -4)$ and has gradient $\frac{1}{3}$.

(a) Find an equation for l_1 in the form $ax + by + c = 0$, where a , b and c are integers.

(3)

The line l_2 passes through the origin O and has gradient -2 . The lines l_1 and l_2 intersect at the point P .

(b) Calculate the coordinates of P .

(4)

Given that l_1 crosses the y -axis at the point C ,

(c) calculate the exact area of $\triangle OCP$.

(3)

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Question 8 continued

Q8

(Total 10 marks)



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Question 9 continued

Q9

(Total 13 marks)



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- (5)

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Question 10 continued

Q10

(Total 11 marks)

TOTAL FOR PAPER: 75 MARKS

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