

**Edexcel GCE
Core Mathematics C2
Bronze Level B2
(Question paper)**

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Paper Reference(s)

6664/01

**Edexcel GCE
Core Mathematics C2
Bronze Level B2**

Time: 1 hour 30 minutes

Materials required for examination papers

Mathematical Formulae (Green)

Items included with question

Nil

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 formulas stored in them.

Instructions to Candidates

Write the name of the examining body (Edexcel), your centre number, candidate number, the unit title (Core Mathematics C2), the paper reference (6664), your surname, initials and signature.

Information for Candidates

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

Full marks may be obtained for answers to ALL questions.

There are 10 questions in this question paper. The total mark for this paper is 75.

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.

Suggested grade boundaries for this paper:

A*	A	B	C	D	E
73	66	59	52	45	38

1. (a) Find the remainder when

$$x^3 - 2x^2 - 4x + 8$$

is divided by

(i) $x - 3$,

(ii) $x + 2$.

(3)

- (b) Hence, or otherwise, find all the solutions to the equation

$$x^3 - 2x^2 - 4x + 8 = 0.$$

(4)

January 2008

2. Find the first 3 terms, in ascending powers of x , in the binomial expansion of

$$(2 - 5x)^6.$$

Give each term in its simplest form.

(4)

January 2013

3. $f(x) = 3x^3 - 5x^2 - 16x + 12.$

- (a) Find the remainder when $f(x)$ is divided by $(x - 2)$.

(2)

Given that $(x + 2)$ is a factor of $f(x)$,

- (b) factorise $f(x)$ completely.

(4)

May 2007

4. The second and fifth terms of a geometric series are 750 and -6 respectively.

Find

- (a) the common ratio of the series,

(3)

- (b) the first term of the series,

(2)

- (c) the sum to infinity of the series.

(2)

January 2011

5. $f(x) = 2x^3 - 7x^2 - 10x + 24$.
- (a) Use the factor theorem to show that $(x + 2)$ is a factor of $f(x)$. (2)

- (b) Factorise $f(x)$ completely. (4)

May 2012

6.

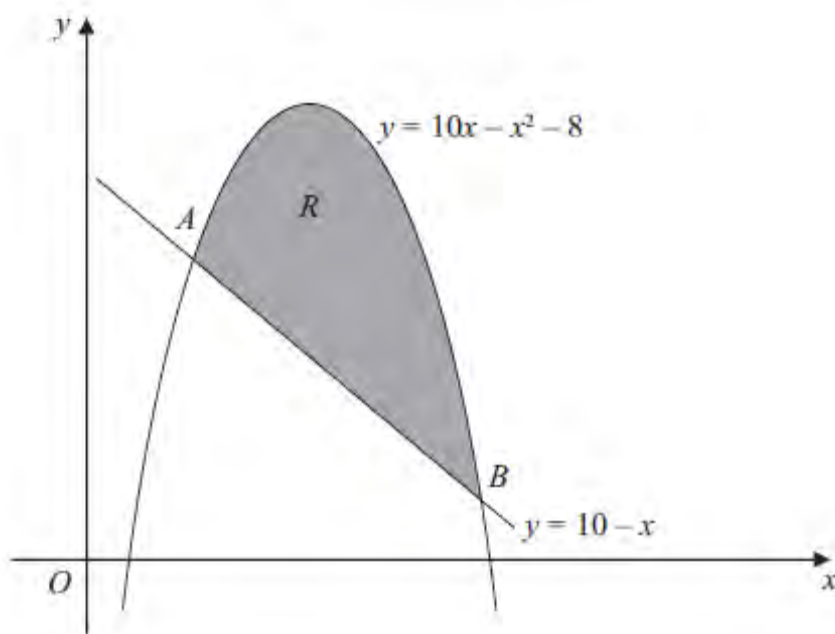


Figure 1

Figure 1 shows the line with equation $y = 10 - x$ and the curve with equation $y = 10x - x^2 - 8$.

The line and the curve intersect at the points A and B , and O is the origin.

- (a) Calculate the coordinates of A and the coordinates of B . (5)

The shaded area R is bounded by the line and the curve, as shown in Figure 1.

- (b) Calculate the exact area of R . (7)

May 2012

7.

$$y = \frac{5}{3x^2 - 2}$$

(a) Copy and complete the table below, giving the values of y to 2 decimal places.

x	2	2.25	2.5	2.75	3
y	0.5	0.38			0.2

(2)

(b) Use the trapezium rule, with all the values of y from your table, to find an approximate value for $\int_2^3 \frac{5}{3x^2 - 2} dx$.

(4)

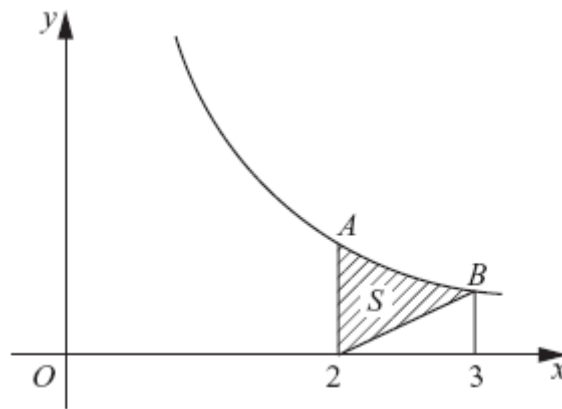


Figure 2

Figure 2 shows a sketch of part of the curve with equation $y = \frac{5}{3x^2 - 2}$, $x > 1$.

At the points A and B on the curve, $x = 2$ and $x = 3$ respectively.

The region S is bounded by the curve, the straight line through B and $(2, 0)$, and the line through A parallel to the y -axis. The region S is shown shaded in Figure 2.

(c) Use your answer to part (b) to find an approximate value for the area of S .

(3)

January 2011

8.

$$y = \sqrt{3^x + x}$$

(a) Complete the table below, giving the values of y to 3 decimal places.

x	0	0.25	0.5	0.75	1
y	1	1.251			2

(2)

(b) Use the trapezium rule with all the values of y from your table to find an approximation for the value of

$$\int_0^1 \sqrt{3^x + x} \, dx.$$

You must show clearly how you obtained your answer.

(4)

May 2012

9. (a) Show that the equation

$$4 \sin^2 x + 9 \cos x - 6 = 0$$

can be written as

$$4 \cos^2 x - 9 \cos x + 2 = 0.$$

(2)

(b) Hence solve, for $0 \leq x < 720^\circ$,

$$4 \sin^2 x + 9 \cos x - 6 = 0,$$

giving your answers to 1 decimal place.

(6)

January 2009

10. The points A and B have coordinates $(-2, 11)$ and $(8, 1)$ respectively.

Given that AB is a diameter of the circle C ,

(a) show that the centre of C has coordinates $(3, 6)$, **(1)**

(b) find an equation for C . **(4)**

(c) Verify that the point $(10, 7)$ lies on C . **(1)**

(d) Find an equation of the tangent to C at the point $(10, 7)$, giving your answer in the form $y = mx + c$, where m and c are constants. **(4)**

January 2011

TOTAL FOR PAPER: 75 MARKS

END