

**Edexcel GCE  
Core Mathematics C2  
Gold Level G1  
(Question Paper)**

**All exam papers are issued free to students for education purpose only.  
Mr.S.V.Swarnaraja (Marking Examiner, Team Leader & Author)  
www.swanash.com, Mobile: +94777304755 , email: swa@swanash.com**

Paper Reference(s)

**6664/01**

# **Edexcel GCE**

## **Core Mathematics C2**

### **Gold Level G1**

**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:**

<b>A*</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>65</b>	<b>58</b>	<b>50</b>	<b>42</b>	<b>34</b>	<b>27</b>

1. Find the first 3 terms, in ascending powers of  $x$ , of the binomial expansion of  $(3 - 2x)^5$ , giving each term in its simplest form.

(4)

January 2009

---

2. (a) Find the first 3 terms, in ascending powers of  $x$ , of the binomial expansion of

$$(3 + bx)^5$$

where  $b$  is a non-zero constant. Give each term in its simplest form.

(4)

Given that, in this expansion, the coefficient of  $x^2$  is twice the coefficient of  $x$ ,

- (b) find the value of  $b$ .

(2)

May 2011

---

3. (a) Find the first 4 terms of the expansion of  $\left(1 + \frac{x}{2}\right)^{10}$  in ascending powers of  $x$ , giving each term in its simplest form.

(4)

- (b) Use your expansion to estimate the value of  $(1.005)^{10}$ , giving your answer to 5 decimal places.

(3)

January 2008

---

4. (a) Find the positive value of  $x$  such that

$$\log_x 64 = 2.$$

(2)

- (b) Solve for  $x$

$$\log_2 (11 - 6x) = 2 \log_2 (x - 1) + 3.$$

(6)

January 2010

---

5. 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)

- (d) find the smallest possible value of  $k$ . (1)

June 2008

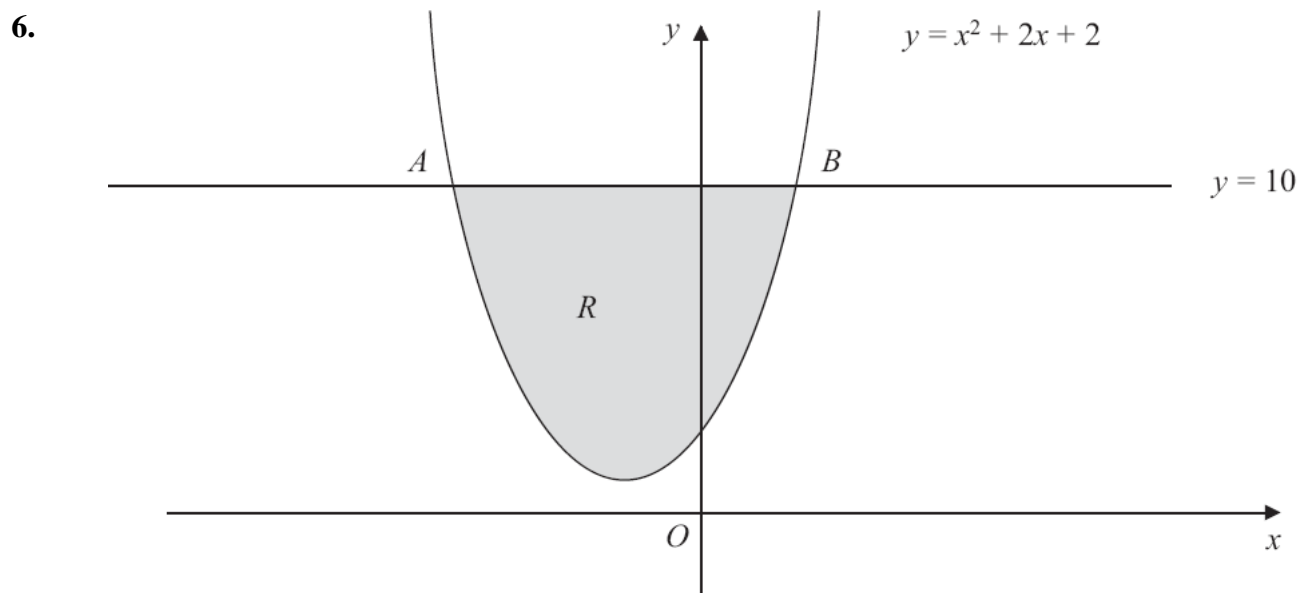


Figure 1

The line with equation  $y = 10$  cuts the curve with equation  $y = x^2 + 2x + 2$  at the points A and B as shown in Figure 1. The figure is not drawn to scale.

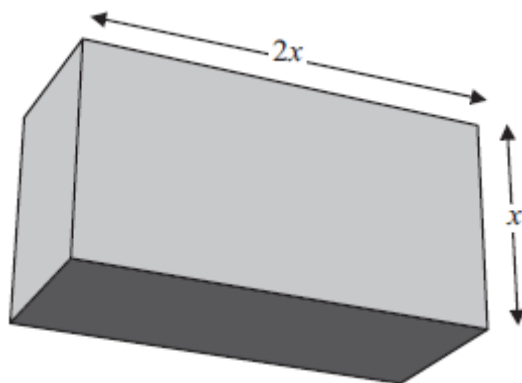
- (a) Find by calculation the  $x$ -coordinate of A and the  $x$ -coordinate of B. (2)

The shaded region R is bounded by the line with equation  $y = 10$  and the curve as shown in Figure 1.

- (b) Use calculus to find the exact area of R. (7)

May 2013 (R)

7.



**Figure 2**

A cuboid has a rectangular cross-section where the length of the rectangle is equal to twice its width,  $x$  cm, as shown in Figure 2.

The volume of the cuboid is 81 cubic centimetres.

(a) Show that the total length,  $L$  cm, of the twelve edges of the cuboid is given by

$$L = 12x + \frac{162}{x^2}. \quad (3)$$

(b) Use calculus to find the minimum value of  $L$ . (6)

(c) Justify, by further differentiation, that the value of  $L$  that you have found is a minimum. (2)

**May 2011**

---

8. Solve, for  $0 \leq x < 360^\circ$ ,

(a)  $\sin(x - 20^\circ) = \frac{1}{\sqrt{2}}$ , (4)

(b)  $\cos 3x = -\frac{1}{2}$ . (6)

**June 2008**

---

9. The circle  $C$  has centre  $A(2,1)$  and passes through the point  $B(10, 7)$  .

(a) Find an equation for  $C$ .

(4)

The line  $l_1$  is the tangent to  $C$  at the point  $B$ .

(b) Find an equation for  $l_1$ .

(4)

The line  $l_2$  is parallel to  $l_1$  and passes through the mid-point of  $AB$ .

Given that  $l_2$  intersects  $C$  at the points  $P$  and  $Q$ ,

(c) find the length of  $PQ$ , giving your answer in its simplest surd form.

(3)

June 2010

---

**TOTAL FOR PAPER: 75 MARKS**

**END**