

**Edexcel GCE
Core Mathematics C2
Gold Level G3
(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 G3

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
60	53	45	37	29	21

1. Evaluate $\int_1^8 \frac{1}{\sqrt{x}} dx$, giving your answer in the form $a + b\sqrt{2}$, where a and b are integers.

(4)

May 2007

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

$$(2 + kx)^7$$

where k is a constant. Give each term in its simplest form.

(4)

Given that the coefficient of x^2 is 6 times the coefficient of x ,

- (b) find the value of k .

(2)

June 2009

3. Find the first 4 terms, in ascending powers of x , of the binomial expansion of

$$\left(2 - \frac{1}{2}x\right)^8$$

giving each term in its simplest form.

(4)

May 2013 (R)

4. (a) Find, to 3 significant figures, the value of x for which $5^x = 7$.

(2)

- (b) Solve the equation $5^{2x} - 12(5^x) + 35 = 0$.

(4)

June 2008

5. (a) Given that $5 \sin \theta = 2 \cos \theta$, find the value of $\tan \theta$. (1)

- (b) Solve, for $0 \leq x < 360^\circ$,

$$5 \sin 2x = 2 \cos 2x,$$

giving your answers to 1 decimal place.

(5)

June 2010

6. The circle C has equation

$$x^2 + y^2 - 6x + 4y = 12$$

- (a) Find the centre and the radius of C .

(5)

The point $P(-1, 1)$ and the point $Q(7, -5)$ both lie on C .

- (b) Show that PQ is a diameter of C .

(2)

The point R lies on the positive y -axis and the angle $PRQ = 90^\circ$.

- (c) Find the coordinates of R .

(4)

June 2009

7. (a) Solve for $0 \leq x < 360^\circ$, giving your answers in degrees to 1 decimal place,

$$3 \sin (x + 45^\circ) = 2.$$

(4)

- (b) Find, for $0 \leq x < 2\pi$, all the solutions of

$$2 \sin^2 x + 2 = 7 \cos x,$$

giving your answers in radians.

You must show clearly how you obtained your answers.

(6)

May 2011

8. (a) Find the value of y such that

$$\log_2 y = -3. \quad (2)$$

- (b) Find the values of x such that

$$\frac{\log_2 32 + \log_2 16}{\log_2 x} = \log_2 x. \quad (5)$$

June 2009

9. (a) Sketch, for $0 \leq x \leq 2\pi$, the graph of $y = \sin\left(x + \frac{\pi}{6}\right)$.

(2)

- (b) Write down the exact coordinates of the points where the graph meets the coordinate axes.

(3)

- (c) Solve, for $0 \leq x \leq 2\pi$, the equation

$$\sin\left(x + \frac{\pi}{6}\right) = 0.65,$$

giving your answers in radians to 2 decimal places.

(5)

May 2007

10.

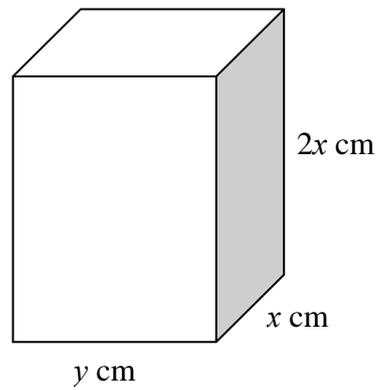


Figure 1

Figure 1 shows a solid brick in the shape of a cuboid measuring $2x$ cm by x cm by y cm.

The total surface area of the brick is 600 cm^2 .

(a) Show that the volume, $V \text{ cm}^3$, of the brick is given by

$$V = 200x - \frac{4x^3}{3}. \quad (4)$$

Given that x can vary,

(b) use calculus to find the maximum value of V , giving your answer to the nearest cm^3 . (5)

(c) Justify that the value of V you have found is a maximum. (2)

May 2007

TOTAL FOR PAPER: 75 MARKS

END