

Write your name here

Surname

Other names

Pearson Edexcel
International
Advanced Level

Centre Number

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Candidate Number

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Core Mathematics C2

Advanced Subsidiary

Monday 13 January 2014 – Morning
Time: 1 hour 30 minutes

Paper Reference

6664A/01

You must have:

Mathematical Formulae and Statistical Tables (Pink)

Total Marks

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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 formulae stored in them.

Instructions

- Use **black** ink or ball-point pen.
- If pencil is used for diagrams/sketches/graphs it must be dark (HB or B). Coloured pencils and highlighter pens must not be used.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions and ensure that your answers to parts of questions are clearly labelled.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You should show sufficient working to make your methods clear. Answers without working may not gain full credit.
- When a calculator is used, the answer should be given to an appropriate degree of accuracy.

Information

- The total mark for this paper is 75.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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7.

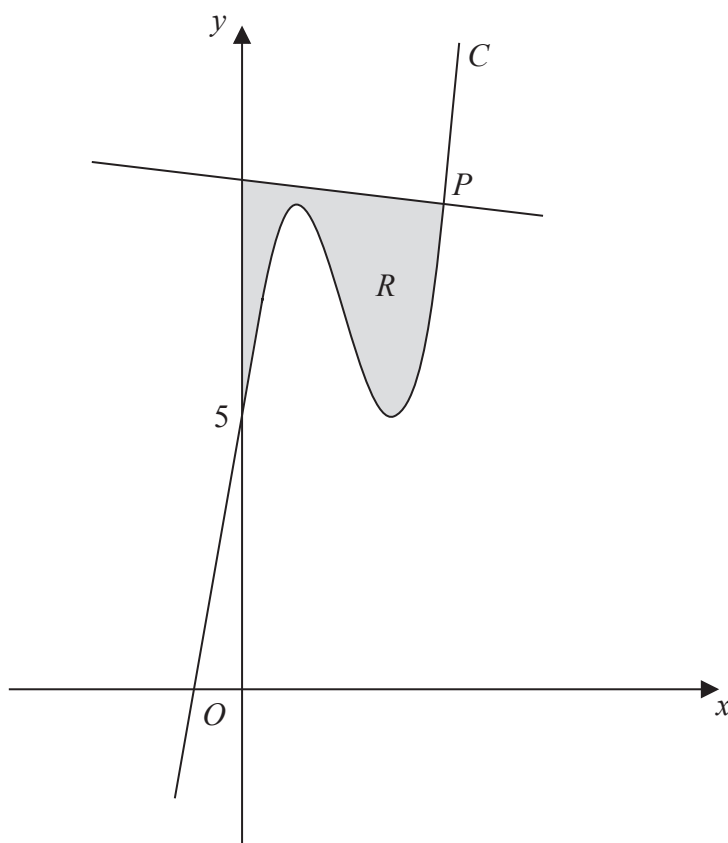


Figure 1

Figure 1 shows a sketch of part of the curve C with equation

$$y = x^3 - 6x^2 + 9x + 5$$

The point $P(4, 9)$ lies on C .

(a) Show that the normal to C at the point P has equation

$$x + 9y = 85 \tag{6}$$

The region R , shown shaded in Figure 1, is bounded by the curve C , the y -axis and the normal to C at P .

(b) Showing all your working, calculate the exact area of R . (7)



8.

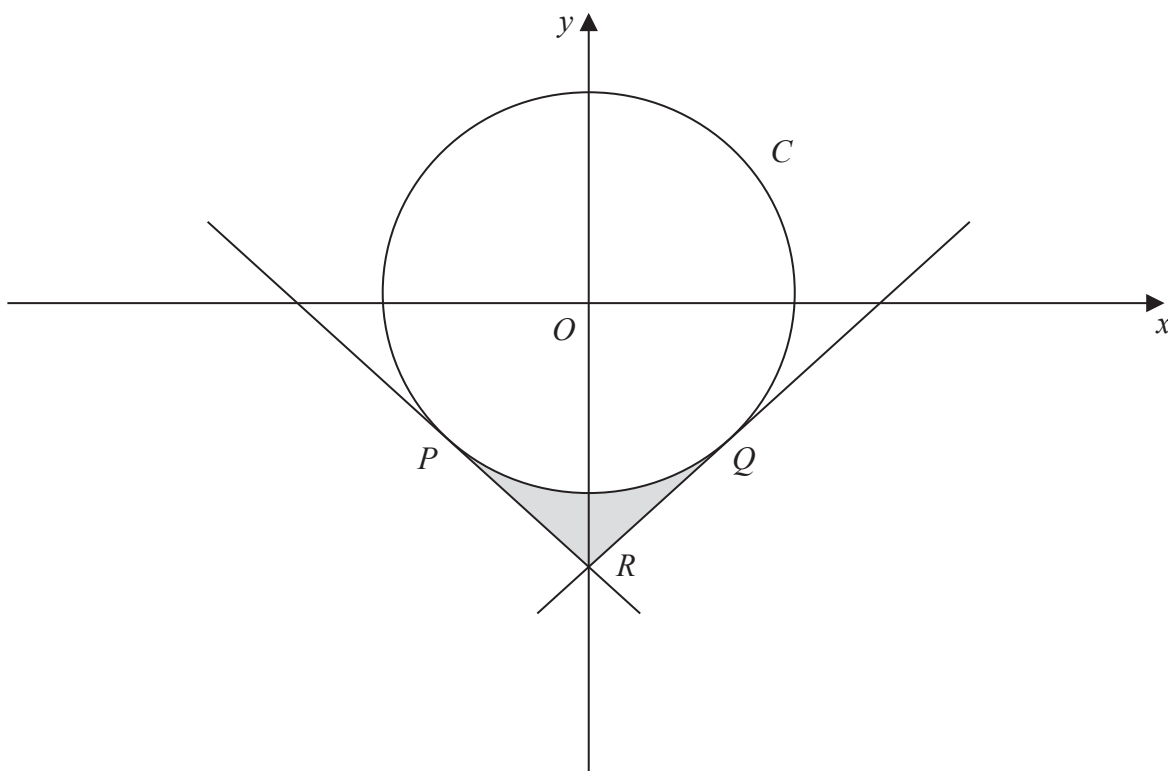


Figure 2

Figure 2 shows a circle C with centre O and radius 5

- (a) Write down the cartesian equation of C . (1)

The points $P(-3, -4)$ and $Q(3, -4)$ lie on C .

- (b) Show that the tangent to C at the point Q has equation $3x - 4y = 25$ (4)

- (c) Show that, to 3 decimal places, angle POQ is 1.287 radians. (2)

The tangent to C at P and the tangent to C at Q intersect on the y -axis at the point R .

- (d) Find the area of the shaded region PQR shown in Figure 2. (4)



