

Write your name here

Surname

Other names

Edexcel

International GCSE

Centre Number

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Candidate Number

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Further Pure Mathematics

Paper 1

Wednesday 22 May 2013 – Afternoon

Time: 2 hours

Paper Reference

4PM0/01

Calculators may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Without sufficient working, correct answers may be awarded no marks.
- Answer the questions in the spaces provided
– *there may be more space than you need.*

Information

- The total mark for this paper is 100.
- 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.
- Check your answers if you have time at the end.

Turn over ►

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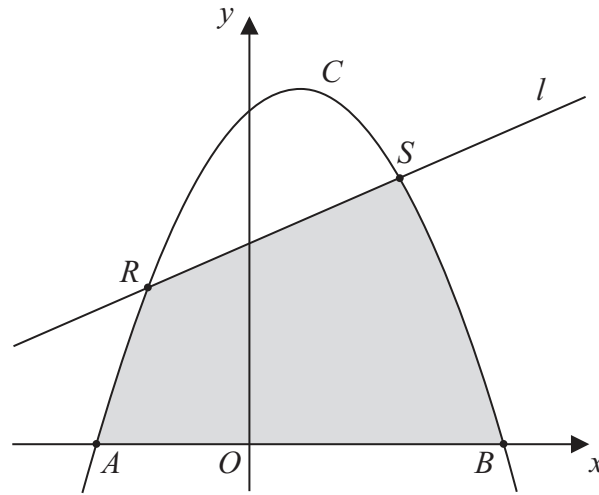


Figure 2

Figure 2 shows the curve C with equation $y = 15 + 2x - x^2$

The curve crosses the x -axis at the points A and B .

(a) Find the x -coordinate of A and the x -coordinate of B . (3)

(b) Use calculus to find the area of the finite region bounded by C and the x -axis. (4)

The line l with equation $y = x + 9$ intersects C at the points R and S .

(c) Find the x -coordinate of R and the x -coordinate of S . (3)

(d) Use calculus to find the area of the region bounded by C , the line l and the x -axis, shown shaded in Figure 2. (4)

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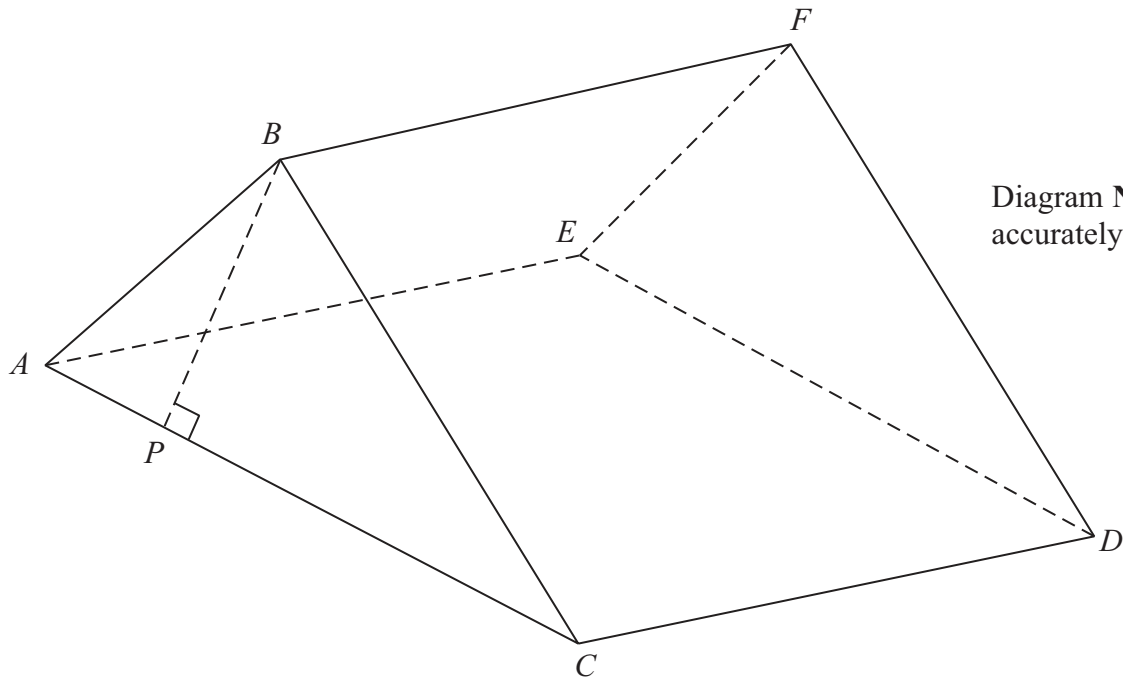


Figure 3

Figure 3 shows a triangular prism $ABCDEF$.

$ACDE$ is a rectangle. In triangle ABC , $AC = 12$ cm, $\angle BAC = 60^\circ$ and $\angle BCA = 30^\circ$

(a) Find the exact length of BC . (3)

The point P lies on the line AC and $\angle BPC = 90^\circ$

(b) Show that $BP = 3\sqrt{3}$ cm. (2)

The angle between the plane AFC and the plane $ACDE$ is 25°

(c) Find, to 3 significant figures, the length of BF . (3)

(d) Find the size of the angle between the line BD and the plane $ACDE$, giving your answer in degrees to 1 decimal place. (4)

(e) Find, to 3 significant figures, the volume of the prism $ABCDEF$. (2)

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Question 10 continued

A series of horizontal dotted lines for writing the answer to Question 10.



