

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 C1

Advanced Subsidiary



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

Paper Reference

6663A/01

You must have:

Mathematical Formulae and Statistical Tables (Pink)

Total Marks

Calculators may NOT be used in this examination.

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.

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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P 4 3 1 3 4 A 0 1 2 8

PEARSON

1. Simplify fully

$$(a) \quad (2\sqrt{x})^2 \tag{1}$$

$$(b) \quad \frac{5 + \sqrt{7}}{2 + \sqrt{7}} \quad (3)$$



(Total 4 marks)



2. $y = 2x^2 - \frac{4}{\sqrt{x}} + 1, \quad x > 0$

- (a) Find $\frac{dy}{dx}$, giving each term in its simplest form. (3)

- (b) Find $\frac{d^2y}{dx^2}$, giving each term in its simplest form. (2)

Question 2 continued

Lined area for writing the answer to Question 2.

Q2

(Total 5 marks)



4.

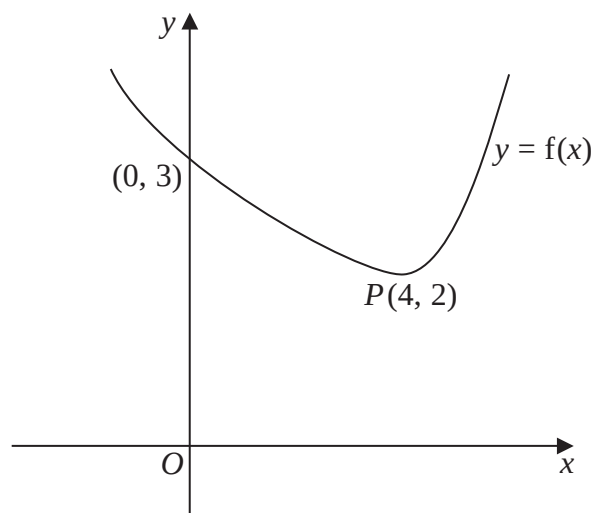


Figure 1

Figure 1 shows a sketch of a curve with equation $y = f(x)$.

The curve crosses the y -axis at $(0, 3)$ and has a minimum at $P(4, 2)$.

On separate diagrams, sketch the curve with equation

(a) $y = f(x + 4)$, (2)

(b) $y = 2f(x)$. (2)

On each diagram, show clearly the coordinates of the minimum point and any point of intersection with the y -axis.



Question 4 continued

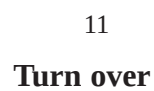
Q4

(Total 4 marks)





(Total 5 marks)



6.

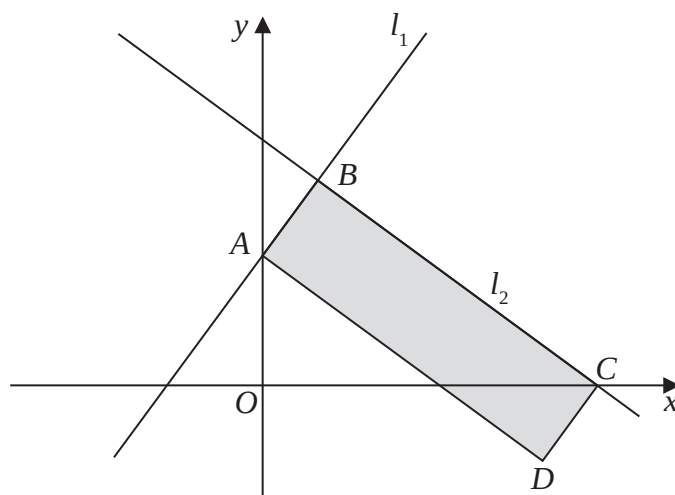


Figure 2

The straight line l_1 has equation $2y = 3x + 7$

The line l_1 crosses the y -axis at the point A as shown in Figure 2.

(a) (i) State the gradient of l_1

(ii) Write down the coordinates of the point A .

(2)

Another straight line l_2 intersects l_1 at the point $B(1, 5)$ and crosses the x -axis at the point C , as shown in Figure 2.

Given that $\angle ABC = 90^\circ$,

(b) find an equation of l_2 in the form $ax + by + c = 0$, where a , b and c are integers.

(4)

The rectangle $ABCD$, shown shaded in Figure 2, has vertices at the points A , B , C and D .

(c) Find the exact area of rectangle $ABCD$.

(5)





This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Q6

- (b) Find the total amount that Shelim will earn in his job in the first 9 years. (2)

(c) Find the difference in the total amount earned by Shelim and Anna in the first 10 years.

(6)

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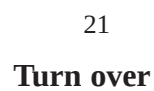


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Q7



(Total 7 marks)







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Question 9 continued

Q9

(Total 12 marks)







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TOTAL FOR PAPER: 75 MARKS

END