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Candidate surname				Other names			
Pearson Edexcel				Centre Number		Candidate Number	
International Advanced Level				<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
Wednesday 22 May 2019							
Morning (Time: 2 hours 30 minutes)				Paper Reference WMA01/01			
Mathematics							
International Advanced Subsidiary/Advanced Level Core Mathematics C12							
You must have: Mathematical Formulae and Statistical Tables (Blue), calculator						Total Marks	

Candidates may use any calculator permitted by Pearson regulations. 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).
- **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.
- Inexact answers should be given to three significant figures unless otherwise stated.

Information

- A booklet 'Mathematical Formulae and Statistical Tables' is provided.
- There are 16 questions in this question paper. The total mark for this paper is 125.
- 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.
- If you change your mind about an answer, cross it out and put your new answer and any working underneath.

Turn over ►

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3.

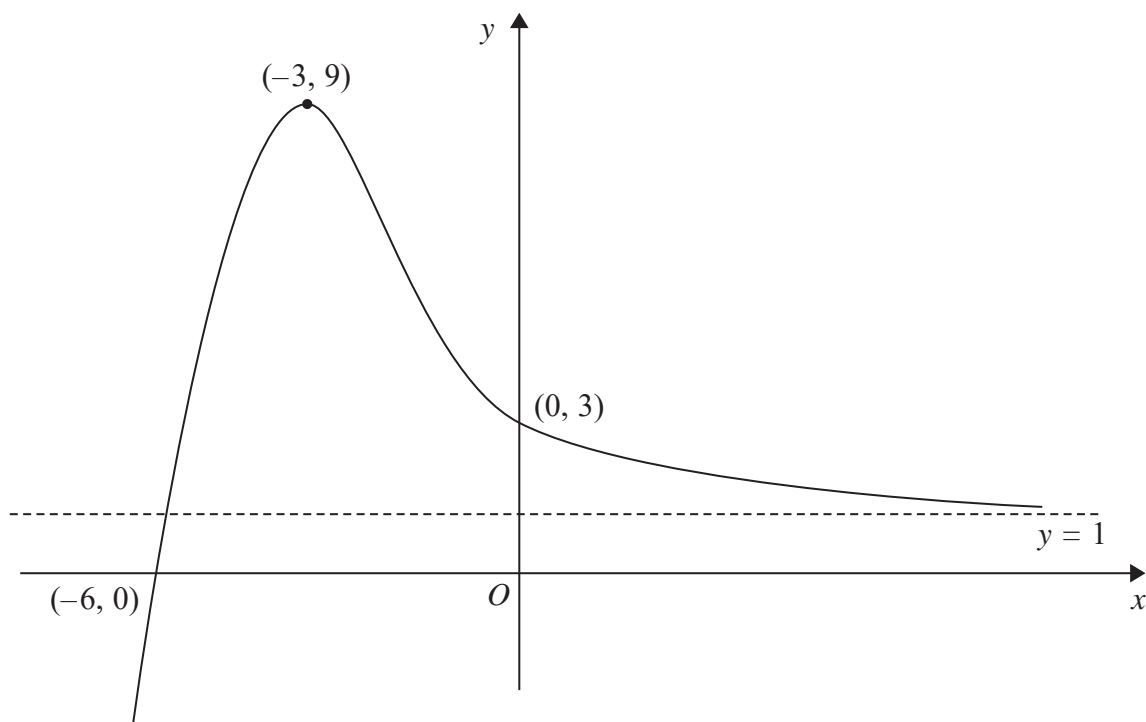


Figure 1

Figure 1 shows a sketch of part of the curve with equation $y = f(x)$.
The curve crosses the coordinate axes at the points $(-6, 0)$ and $(0, 3)$, has a stationary point at $(-3, 9)$ and has an asymptote with equation $y = 1$

On **separate** diagrams, sketch the curve with equation

(a) $y = -f(x)$ (3)

(b) $y = f\left(\frac{3}{2}x\right)$ (3)

On each diagram, show clearly the coordinates of the points of intersection of the curve with the two coordinate axes, the coordinates of the stationary point, and the equation of the asymptote.

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Question 3 continued

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Q3

(Total 6 marks)



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4. Given that

$$y = 5x^2 + \frac{1}{2x} + \frac{2x^4 - 8}{5\sqrt{x}} \quad x > 0$$

find $\frac{dy}{dx}$, giving each term in its simplest form.

(6)

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

Show the coordinates of the points where the graph crosses the x -axis.

(3)

The table below gives corresponding values of x and y for $y = \sin\left(x + \frac{\pi}{6}\right)$.

The values of y are rounded to 3 decimal places where necessary.

x	0	$\frac{\pi}{8}$	$\frac{\pi}{4}$	$\frac{3\pi}{8}$	$\frac{\pi}{2}$
y	0.5	0.793	0.966	0.991	0.866

- (b) Use the trapezium rule with all the values of y from the table to find an approximate value for

$$\int_0^{\frac{\pi}{2}} \sin\left(x + \frac{\pi}{6}\right) dx$$

Give your answer to 2 decimal places.

(4)

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