Pearson Edexcel International Advanced Level

Thursday 8 January 2026

Morning (Time: 1 hour 30 minutes)

Paper reference **WMA11/01A**

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Mathematics

International Advanced Subsidiary/Advanced Level
Pure Mathematics P1
Question paper

You must have:
Answer book (sent separately).
Do not return this question paper with the answer book.

Turn over ▶

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P 8 7 5 9 2 A

Pearson

1. **In this question you must show all stages of your working.**
Solutions relying on calculator technology are not acceptable.

Find the set of values of x for which

(a) $4(x - 5) < 2x - 9$

(2)

(b) $x(2x - 5) \leqslant 63$

(3)

(c) $4(x - 5) < 2x - 9$ **and** $x(2x - 5) \leqslant 63$

(1)

(Total for Question 1 is 6 marks)

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2. **In this question you must show all stages of your working.**
Solutions relying on calculator technology are not acceptable.

(i) Using the laws of indices, solve the equation

$$4^{2y+1} = \frac{32^{4y}}{2}$$

(3)

(ii) Solve the equation

$$x\sqrt{27} + 21 = \frac{6x}{\sqrt{3}}$$

writing the answer in the form $a\sqrt{b}$ where a and b are integers.

(4)

(Total for Question 2 is 7 marks)

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3. $$f(x) = \frac{\left(4 + 3\sqrt{x}\right)^2}{x} \qquad x > 0$$

(a) Find $f'(x)$, writing the answer in simplest form.

(5)

(b) Hence find an equation of the tangent to the curve $y = f(x)$ at the point (4, 25).

Write the answer in the form $y = mx + c$, where m and c are constants to be found.

(3)

(Total for Question 3 is 8 marks)

4.

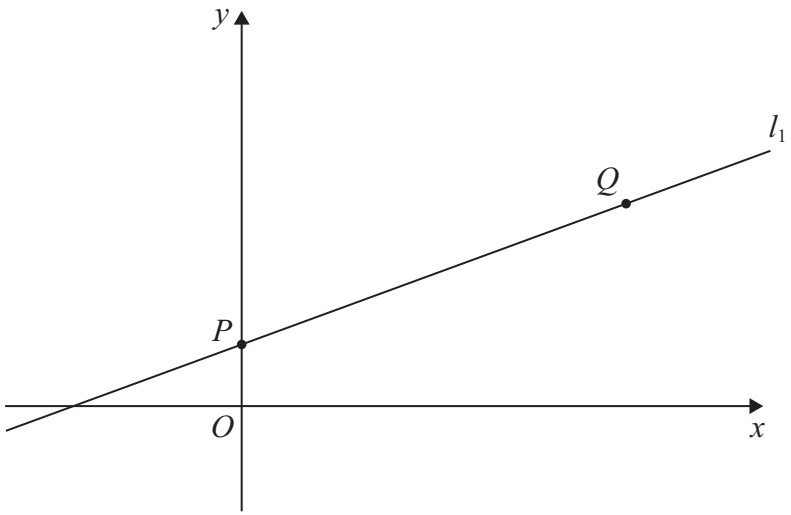

Figure 1

The line l_1, shown in Figure 1, has equation $2y = 3x + 8$
The line l_1 intersects the y-axis at the point P and passes through the point Q with x coordinate 6

(a) Find

(i) the coordinates of P,

(ii) the coordinates of Q.

(2)

The line l_2 is perpendicular to l_1 and passes through the point Q.

(b) Find an equation for l_2, writing the answer in the form $ax + by + c = 0$, where a, b and c are integers.

(4)

The line l_2 cuts the x-axis at the point R.

(c) Find the area of quadrilateral $OPQR$, making the method clear.

(3)

(Total for Question 4 is 9 marks)

5.

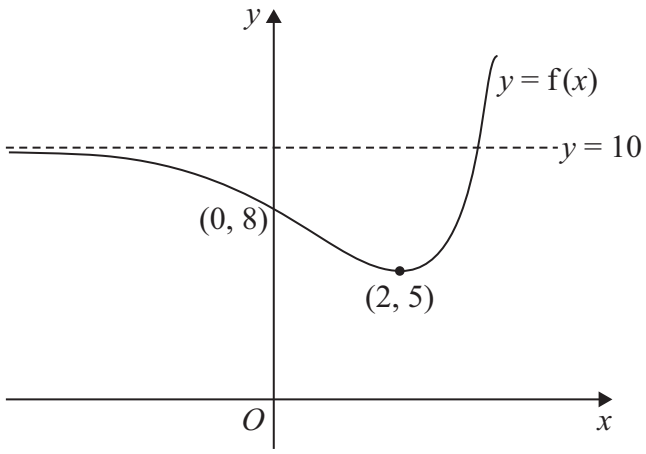

Figure 2

Figure 2 shows a sketch of part of the curve with equation $y = f(x)$.

The curve crosses the y-axis at the point (0, 8).

The line with equation $y = 10$ is the only asymptote to the curve.

The curve has a single turning point, a minimum point at (2, 5), as shown in Figure 2.

(a) State the coordinates of the minimum point of the curve with equation $y = f\left(\frac{1}{4}x\right)$

(1)

(b) State the equation of the asymptote to the curve with equation $y = f(x) - 3$

(1)

The curve with equation $y = f(x)$ meets the line with equation $y = k$, where k is a constant, at two distinct points.

(c) State the set of possible values for k.

(2)

(d) Sketch the curve with equation $y = -f(x)$. On your sketch, show clearly the coordinates of the turning point, the coordinates of the intersection with the y-axis and the equation of the asymptote.

(3)

(Total for Question 5 is 7 marks)

6.

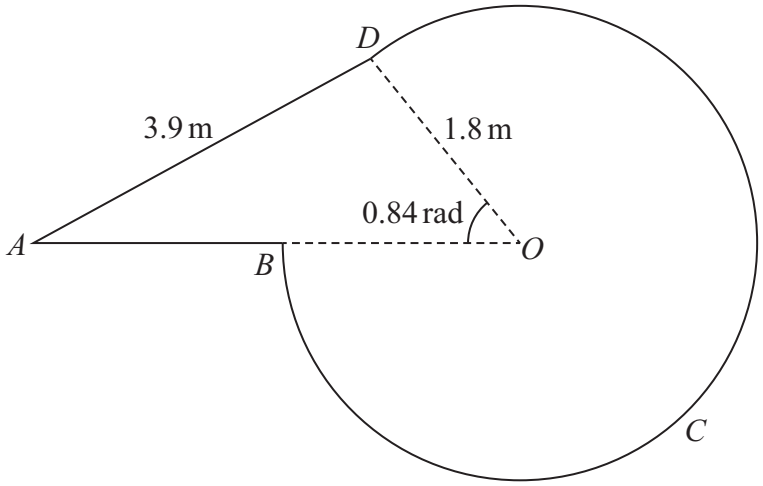

Diagram not drawn to scale

Figure 3

In this question you must show all stages of your working.

Figure 3 shows the design for a shop sign *ABCDA*.

The sign consists of a triangle *AOD* joined to a sector of a circle *DOBCD* with radius 1.8 m and centre *O*.

The points *A*, *B* and *O* lie on a straight line.

Given that *AD* = 3.9 m and angle *BOD* is 0.84 radians,

(a) calculate the size of angle *DAO*, giving the answer in radians to 3 decimal places.

(2)

(b) Find, in m, the length of *AO* giving the answer to 2 decimal places.

(3)

(c) Find, in m^2, the area of the shop sign, giving the answer to one decimal place.

(3)

(d) Find, in m, the perimeter of the shop sign, giving the answer to one decimal place.

(3)

(Total for Question 6 is 11 marks)

7. The curve C has equation $y = f(x)$, $x > 0$ where

$$f'(x) = 3\sqrt{x} - \frac{9}{x\sqrt{x}} + \frac{4}{3}$$

Given that the point $P(9, 20)$ lies on C,

(a) find $f(x)$, simplifying the answer,

(5)

(b) find an equation of the normal to C at the point P, giving the answer in the form $ax + by + c = 0$ where a, b and c are integers.

(4)

(Total for Question 7 is 9 marks)

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8. **In this question you must show all stages of your working.**
Solutions relying on calculator technology are not acceptable.

Find the range of values of k for which the quadratic equation

$$kx^2 + 8x + 2(k + 7) = 0$$

has no real roots.

(6)

(Total for Question 8 is 6 marks)

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9. Given that k is a constant, $0 < k < 1$, state the number of solutions of the equation

(a) $\sin x = k$ in the interval $0 < x \leqslant \pi$

(b) $\tan x = k$ in the interval $0 < x \leqslant \pi$

(c) $\cos 2x = k$ in the interval $0 < x \leqslant 100\pi$

(d) $\sin x = k + 1$ in the interval $-100\pi < x \leqslant 100\pi$

(4)

(Total for Question 9 is 4 marks)

10.

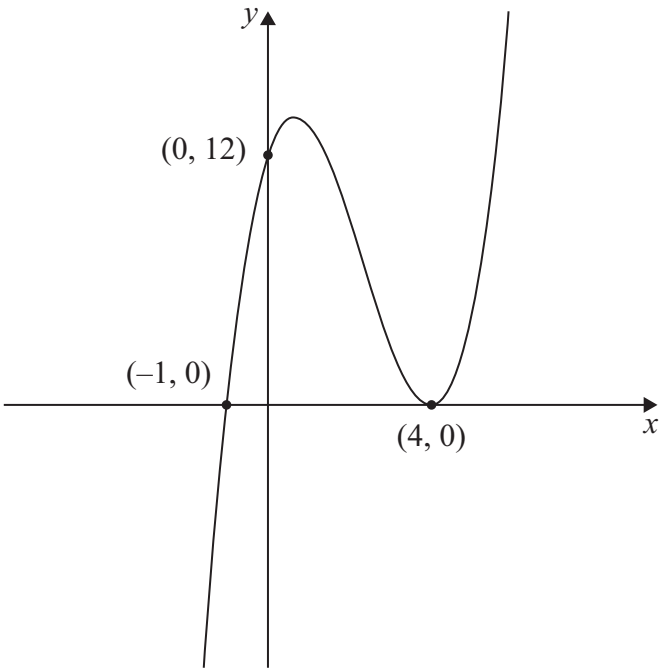

Figure 4

Figure 4 shows a sketch of the curve C_1 with equation $y = f(x)$ where $f(x)$ is a cubic function in x.

The curve

- cuts the x and y axes at $(-1, 0)$ and $(0, 12)$ respectively
- has a minimum turning point at $(4, 0)$

as shown in Figure 4.

(a) Find $f(x)$

(4)

The curve C_2 has equation $y = g(x)$ where $g(x) = 6(x + 1)(x - 2)$

(b) Find the exact x coordinates of the points of intersection of curves C_1 and C_2

(*Solutions relying on calculator technology are not acceptable.*)

(4)

(Total for Question 10 is 8 marks)

TOTAL FOR PAPER IS 75 MARKS

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Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel International Advanced Level

Thursday 8 January 2026

Morning (Time: 1 hour 30 minutes)

Paper reference **WMA11/01A**

Mathematics

International Advanced Subsidiary/Advanced Level
Pure Mathematics P1
Answer Book

You must have:
Question paper (sent separately),
Mathematical Formulae and Statistical Tables (Yellow), 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 10 questions in this question paper. 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.
- 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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Question 1

Write the answer to Question 1 on these 2 pages

DO NOT WRITE IN THIS AREA

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Question 1 continued

This is the end of Question 1 answer space. Please turn the page for Question 2 answer space.

(Total for Question 1 is 6 marks)

Question 2

Write the answer to Question 2 on these 2 pages

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Question 2 continued

This is the end of Question 2 answer space. Please turn the page for Question 3 answer space.

(Total for Question 2 is 7 marks)

Question 3

Write the answer to Question 3 on these 2 pages

Question 3 continued

This is the end of Question 3 answer space. Please turn the page for Question 4 answer space.

(Total for Question 3 is 8 marks)

Question 4

Write the answer to Question 4 on these 2 pages

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Question 4 continued

This is the end of Question 4 answer space. Please turn the page for Question 5 answer space.

(Total for Question 4 is 9 marks)

Question 5

Write the answer to Question 5 on these 2 pages

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Question 5 continued

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(Total for Question 5 is 7 marks)

Question 6

Write the answer to Question 6 on these 4 pages

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Question 6 continued

Question 6 continued

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Question 6 continued

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(Total for Question 6 is 11 marks)

Question 7

Write the answer to Question 7 on these 2 pages

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Question 7 continued

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(Total for Question 7 is 9 marks)

Question 8

Write the answer to Question 8 on these 2 pages

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Question 8 continued

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(Total for Question 8 is 6 marks)

Question 9

Write the answer to Question 9 on these 2 pages

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Question 9 continued

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(Total for Question 9 is 4 marks)

Question 10

Write the answer to Question 10 on these 3 pages

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Question 10 continued

Question 10 continued

(Total for Question 10 is 8 marks)

TOTAL FOR PAPER IS 75 MARKS

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