



Cambridge International AS & A Level

CANDIDATE
NAME

--

CENTRE
NUMBER

--	--	--	--	--

CANDIDATE
NUMBER

--	--	--	--

MATHEMATICS

9709/22

Paper 2 Pure Mathematics 2

February/March 2026

1 hour 15 minutes

You must answer on the question paper.

You will need: List of formulae (MF19)

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen. Do **not** use correction fluid or tape.
- Do **not** write on any bar codes.
- If additional space is needed, you should use the lined page at the end of this booklet; the question number or numbers must be clearly shown.
- You should use a calculator where appropriate.
- You must show all necessary working clearly; no marks will be given for unsupported answers from a calculator.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.

INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [].

This document has **16** pages. Any blank pages are indicated.



DO NOT WRITE IN THIS MARGIN

[3]

[illegible]

- 2 (a) Sketch, on the same diagram, the graphs of $y = |3x - 4|$ and $y = 7 - 10x$.

[2]

- (b) Solve the equation $|3x - 4| = 7 - 10x$.

[2]

.....

.....

.....

.....

.....

- (c) Hence, solve the equation $|3^{2t+1} - 4| = 7 - 10 \times 3^{2t}$. Give your answer correct to 3 significant figures.

[2]

.....

.....

.....

.....

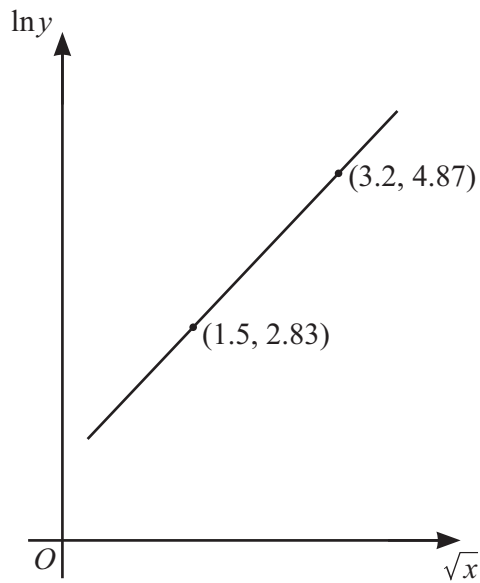
.....

.....





3



The variables x and y satisfy the equation $y = ke^{a\sqrt{x}}$, where k and a are positive constants.

The graph of $\ln y$ against $\sqrt{x}$ is a straight line passing through the points $(1.5, 2.83)$ and $(3.2, 4.87)$, as shown in the diagram.

Find the values of k and a correct to 1 decimal place.

[5]

[illegible]



Find the exact gradient of the curve at the point $\left(2, \frac{1}{3}\pi\right)$. [6]

This image shows a full page of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper. A faint watermark reading "PapaCambridge" is visible diagonally across the lower-left portion of the page.



5 The polynomial $p(x)$ is defined by

$$p(x) = ax^3 + x^2 + (a+1)x + 1,$$

where a is a constant. It is given that the remainder is -3 when $p(x)$ is divided by $(2x+1)$.

(a) Find the value of a .

[2]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(b) Hence, factorise the expression $p(x) + 3$.

[2]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....





- (c) Solve the equation $p\left(\frac{1}{2 + \operatorname{cosec} \theta}\right) + 3 = 0$ to find the least positive value of θ in degrees. [2]

This image shows a full page of blank handwriting practice paper. It features multiple sets of horizontal lines, each set consisting of three parallel lines (top, middle, and bottom) to guide letter height. The lines are evenly spaced across the entire page. A faint, diagonal watermark reading "Cambridge" is visible across the lower-left portion of the page.



[6]

[illegible]

[illegible]



7 It is given that $\int_a^{2a} \frac{1}{4} e^{2x} (2 + e^{-x}) dx = 50$, where a is a positive constant.

(a) Show that $a = \frac{1}{4} \ln(200 + e^a)$. [5]

PapaCambridge





(b) Show by calculation that the value of a lies between 1.0 and 1.5.

[2]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(c) Use an iterative formula, based on the equation in 7(a), to find the value of a correct to 4 significant figures. Give the result of each iteration to 6 significant figures.

[3]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....




$$y = \frac{10 + 2 \ln x}{1 + \ln x}.$$

[8]

This image shows a full page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper. A faint watermark is visible on the left side, partially obscured by the edge of the page.



9709/22/F/M/26





If you use the following page to complete the answer to any question, the question number must be clearly shown.

PapaCambridge





PapaCambridge





Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (Cambridge University Press & Assessment) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in our Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge International Education is the name of our awarding body and a part of Cambridge University Press & Assessment, which is a department of the University of Cambridge.

