



Cambridge International AS & A Level

CANDIDATE NAME



CENTRE NUMBER

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CANDIDATE NUMBER

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MATHEMATICS

9709/35

Paper 3 Pure Mathematics 3

October/November 2025

1 hour 50 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 or correction fluid.
- 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 75.
- The number of marks for each question or part question is shown in brackets [].

This document has **20** pages. Any blank pages are indicated.



1 (a) Sketch the graph of $y = |3x - 6|$.

[1]

(b) Solve the inequality $5x - 3 < |3x - 6|$.

[3]

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- 2 On a sketch of an Argand diagram, shade the region which represents complex numbers z satisfying both the inequalities $|z - 1 - 3i| \leq 2$ and $|z| \geq 4$. [4]

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9 The equations of two lines are given by

$$l_1: \mathbf{r} = (2\mathbf{i} + \mathbf{j} + 4\mathbf{k}) + \lambda(\mathbf{i} + 2\mathbf{j} - 3\mathbf{k}),$$

$$l_2: \mathbf{r} = (3\mathbf{i} - \mathbf{j} + 5\mathbf{k}) + \mu(2\mathbf{i} + 3\mathbf{j} + a\mathbf{k}).$$

(a) Find the value of a for which l_1 is perpendicular to l_2 . [2]

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(b) Find the value of a for which l_1 and l_2 intersect. [4]

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(c) Find the values of a for which the acute angle between l_1 and l_2 is equal to $\cos^{-1}\left(\frac{5}{14}\right)$. [4]

Dotted lines for writing the answer.

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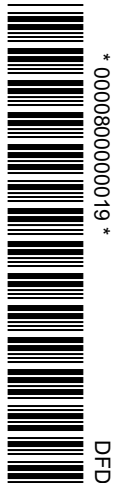
Additional page

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

Handwriting practice area with horizontal dotted lines.

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