



Cambridge International AS & A Level

CANDIDATE NAME



CENTRE NUMBER

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CANDIDATE NUMBER

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MATHEMATICS

9709/43

Paper 4 Mechanics

October/November 2024

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 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.
- Where a numerical value for the acceleration due to gravity (g) is needed, use 10 ms^{-2} .

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 **12** pages. Any blank pages are indicated.





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6 A particle moves in a straight line. It starts from rest, at time $t = 0$, and accelerates at $0.6t \text{ m s}^{-2}$ for 4 s, reaching a speed of $V \text{ m s}^{-1}$. The particle then travels at $V \text{ m s}^{-1}$ for 11 s, and finally slows down, with constant deceleration, stopping after a further 5 s.

(a) Show that $V = 4.8$. [1]

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(b) Sketch a velocity-time graph for the motion. [3]

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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.

Area with horizontal dotted lines for writing answers.

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