上海光華學院劍橋國際中心（光華劍橋）
Guanghua Cambridge International School

Quiz 4

Grade	**AS**
Subject	**Pure Mathematics**
Paper Name	**Paper 3**
Duration	**25 minutes**

Student's Information

Name (Pinyin)	English Name	Class	Group

Instructions

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Do **not** use an erasable pen or correction fluid.
- Write your answer to each question in the space provided.
- 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.
- **You are reminded of the need for clear representation in your answers.**

Information:

- The total mark for this paper is 26.
- The number of marks for each question or part question is shown in brackets [ ].

1. Evaluate each of the following integrals.

(i) $\int e^{2x-5}\,dx$ [3]

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(ii) $\int \dfrac{1}{2x^2+5}\,dx$ [7]

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(iii) $\int_0^{\frac{1}{6}\pi} (\cos x + 2\sin x)^2\,dx$ [7]

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2. Let R be the region bounded by the curve $y = \sec x + \tan x$, the x-axis, and the lines $x = -\frac{\pi}{4}$ and $x = \frac{\pi}{4}$. Find the volume generated when R is rotated about the x-axis completely. [6]

3. A curve is such that $\dfrac{dy}{dx} = e^{2x} - 2e^{-x}$. The point $(0, 1)$ lies on the curve.

(i) Find the equation of the curve. [4]

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(ii) The curve has one stationary point. Find the x-coordinate of this point and determine whether it is a maximum or a minimum point. [6]

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· THE END ·

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