

[4]

①

9 The constant a is such that $\int_1^a 6x \ln x \, dx = 4$.

[5]

②

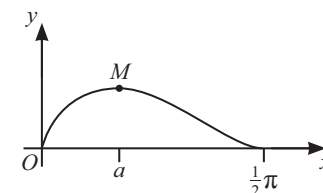
- [2]

[illegible]

- [3]

[illegible]

11



(a) Find the exact value of a .

[6]

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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.

[5]

[2]

[6]

The graph shows a smooth curve starting at the origin O , reaching a maximum at point M , and ending at $\frac{1}{2}\pi$ on the x-axis. The y-axis is labeled y and the x-axis is labeled x .

(a) Find the exact x -coordinate of M .

[6]

- (b) By using the substitution $u = \cos x$, find the area of the region bounded by the curve, the x -axis between $x = 0$ and $x = \frac{1}{4}\pi$, and the line $x = \frac{1}{4}\pi$. [5]

Additional page

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