AQA – Further calculus – A2 Further Mathematics P2

1. June/2020/Paper_2/No.12(a)

(a)   Given that $I = \displaystyle\int_a^b e^{2t} \sin t \, dt$, show that

$$I = \left[q e^{2t} \sin t + r e^{2t} \cos t \right]_a^b$$

where q and r are rational numbers to be found.

[6 marks]

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2. June/2019/Paper_2/No.13

(a)   Explain why $\int_{3}^{\infty} x^2 e^{-2x}\, dx$ is an improper integral.

[1 mark]

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(b)   Evaluate $\int_{3}^{\infty} x^2 e^{-2x}\, dx$

Show the limiting process.

[9 marks]

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