

8.

**In this question you must show all stages of your working.
Solutions relying on calculator technology are not acceptable.**

(a) Express $\lim_{\delta x \rightarrow 0} \sum_{x=0}^3 x e^{2x} \delta x$ as an integral. (1)

(b) Hence show that

$$\lim_{\delta x \rightarrow 0} \sum_{x=0}^3 x e^{2x} \delta x = Ae^6 + B$$

where A and B are constants to be found.

(4)