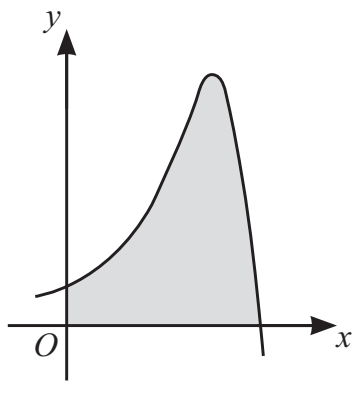
**4**




The diagram shows the curve with equation $y = 6e^{2x} - e^{3x}$. The shaded region is bounded by the axes and the curve.

**(a)** Find the exact $x$-coordinate of the maximum point. [3]

**(b)** Find the area of the shaded region. Give your answer in the form $\frac{p}{q}$, where $p$ and $q$ are integers. [4]