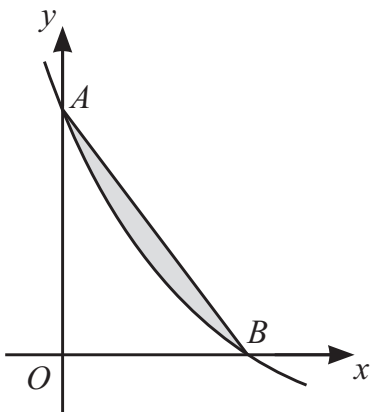
5



The diagram shows the curve with equation $y = 8e^{-\frac{1}{2}x} - 1$. The curve meets the axes at the points A and B. The shaded region is bounded by the curve and the line segment AB.

(a) Show that the x-coordinate of B is $6\ln 2$. [2]

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(b) Find the area of the shaded region. Give your answer in the form $p\ln 2 - q$, where p and q are positive integers. [5]

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