7 **(a)** Find $\int x^3 \left(15x + \dfrac{11}{\sqrt[3]{x}}\right) dx$. [5]

(b) Show that $\displaystyle\int_0^8 x^3 \left(15x + \dfrac{11}{\sqrt[3]{x}}\right) dx = a \times 2^{11}$, where a is a positive integer to be determined. [3]