

$$\text{eg } \textcircled{1} \int \frac{\ln(x^{\sin(x)})}{\ln(\sqrt[3]{x})} dx$$

$$= \int \frac{\sin(x) \ln(x)}{\frac{1}{3} \ln(x)} dx$$

$$= \int \frac{\sin(x)}{\frac{1}{3}} dx$$

$$= 3 \int \sin(x) dx$$

$$= 3 [-\cos(x)] + C \quad \boxed{= -3 \cos(x) + C}$$

$$\textcircled{2} \int 4^t \cdot 8^{-t} dt$$

$$= \int (2^2)^t \cdot (2^3)^{-t} dt$$

$$= \int 2^{2t} \cdot 2^{-3t} dt$$

$$= \int 2^{-t} dt$$

$$\text{Compare: } \int 2^t dt = \frac{2^t}{\ln(2)} + C$$

$$= \frac{2^{-t}}{\ln(2) \cdot (-1)} + C$$

$$\boxed{= -\frac{2^{-t}}{\ln(2)} + C}$$