



$$V = \pi \int_0^{\ln 3} (e^x)^2 dx$$

$$= \pi \int_0^{\ln 3} e^{2x} dx$$

$$= \pi \left. \frac{e^{2x}}{2} \right|_0^{\ln 3}$$

$$= \frac{\pi}{2} (e^{2 \ln 3} - e^0)$$

$$= \frac{\pi}{2} (e^{\ln 9} - 1)$$

$$= \frac{\pi}{2} (9 - 1) = \frac{8\pi}{2} = \boxed{4\pi}$$