



$$dV = 2\pi r \cdot y \, dx$$

$$= 2\pi(2+x)e^{2x} \, dx$$

$$V = \int_{x=-2}^1 dV = \int_{-2}^1 4\pi e^{2x} \, dx + \int_{-2}^1 2\pi x e^{2x} \, dx$$

$$= 2\pi e^{2x} \Big|_{-2}^1 + \frac{2\pi}{4} e^{2x} (2x-1) \Big|_{-2}^1$$

$$= 2\pi(e^2 - e^{-2}) + \frac{\pi}{2} \left[ e^2(2-1) - e^{-2}(-2-1) \right]$$

$$\approx 2\pi(7) + \frac{\pi}{2} \left[ \underbrace{7(1) - \frac{1}{7}(-3)}_{7.5} \right]$$

$$42 + 12$$

$$\approx 54$$

$$\text{Calc: } 45.576 + \frac{1.2244}{\cancel{2.1127}} = 57.82$$