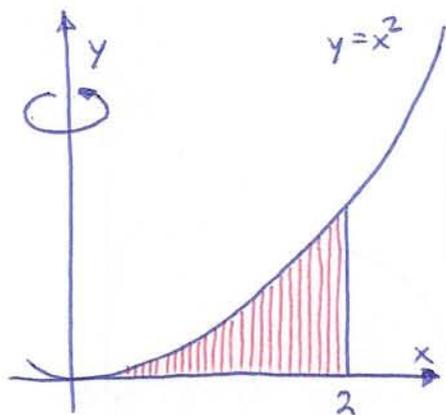
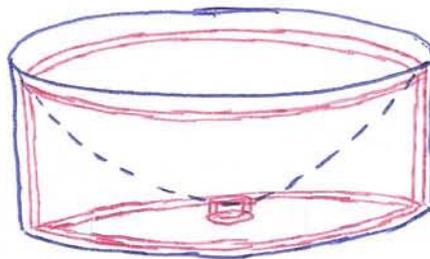


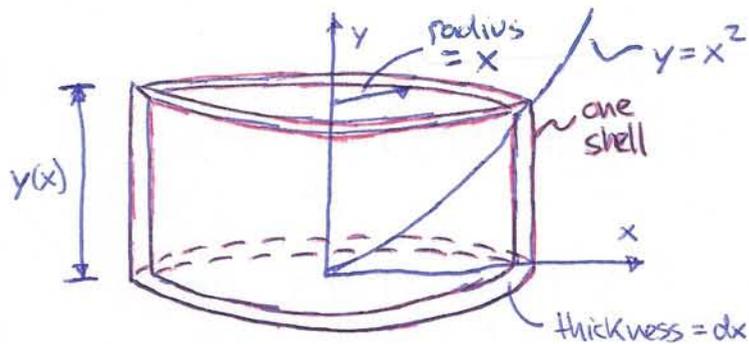
Volume Calculations



\Rightarrow



Method of Shells (cylinders)



Volume of shell

$$\begin{aligned} &= 2\pi r h dx \\ &= 2\pi(x)(y(x)) dx \\ &= 2\pi(x)(x^2) dx \end{aligned}$$

$$\begin{aligned} \text{Total Volume} &= \int_0^2 2\pi(x)(x^2) dx = \int_0^2 2\pi x^3 dx \\ &= \left[\frac{2\pi}{4} x^4 \right]_0^2 = \left[\frac{2\pi}{4} (2)^4 \right] - \left[\frac{2\pi}{4} (0)^4 \right] \\ &= \frac{2\pi}{4} (16) = 8\pi \end{aligned}$$