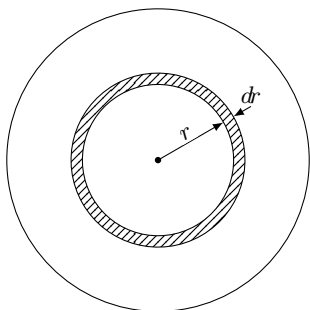
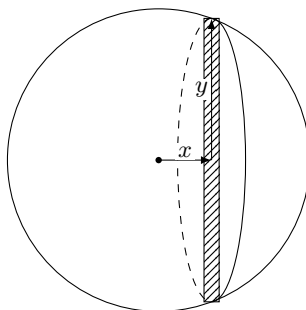


solid sphere: shell method



$$dV = 4\pi r^2 dr$$

solid sphere: disk method

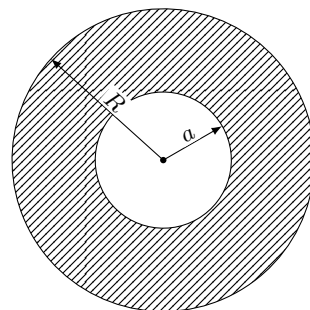


$\perp dx$

$$dV = \pi y^2 dx$$

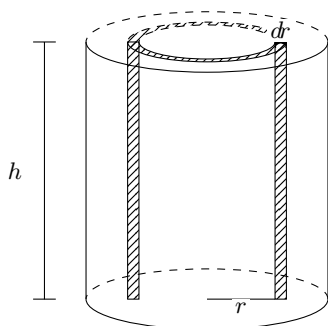
cylinder slice

hollow sphere

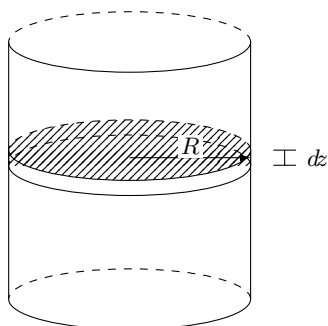


$$V = \frac{4\pi}{3}(R^3 - a^3)$$

cone slice



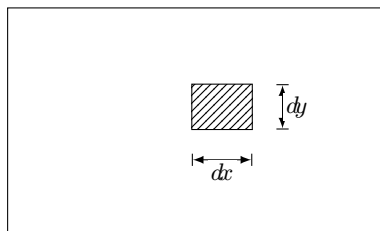
$$dV = 2\pi r h dr$$



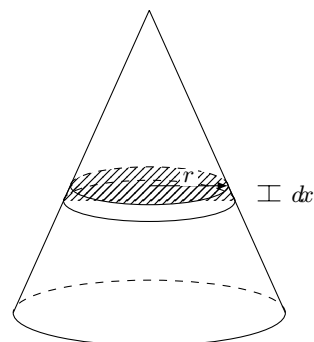
$\perp dz$

$$dV = \pi R^2 dz$$

rectangular sheet



$$dA = dx dy$$



$\perp dz$

$$dV = \pi r(x)^2 dz$$