

Volume of a Spheroid

Session 58

~~$$V = \int_{-2}^2 \pi (4 - x^2) dx = \pi \left(4x - \frac{x^3}{3} \right) \Big|_{-2}^2 = \pi \left(8 - \frac{8}{3} - \left(-8 + \frac{8}{3} \right) \right) = \frac{16\pi}{3}$$~~

~~$$= \pi \left(\frac{4x^3}{3} - \frac{x^4}{4} \right) \Big|_{-2}^2 = \pi \left(\frac{128}{3} - \frac{16}{4} - \left(-\frac{128}{3} + \frac{16}{4} \right) \right) = \frac{16\pi}{3}$$~~

$$\int_{-1}^1 \pi (2\sqrt{1-y^2})^2 dy = \frac{16\pi}{3}$$