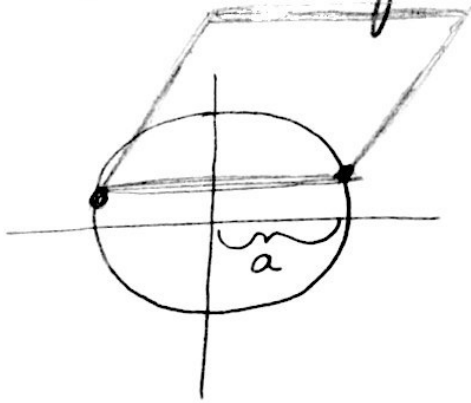


Base of solid is circle with radius "a" and every plane section \perp to a diameter is a square. Find volume.



$$x^2 + y^2 = a^2$$

$$y^2 = a^2 - x^2$$

$$y = \pm \sqrt{a^2 - x^2}$$

$$s = 2\sqrt{a^2 - x^2}$$

$$A = s^2$$

$$A = s^2 = (2\sqrt{a^2 - x^2})^2 = 4(a^2 - x^2)$$

$$V = 2 \int_0^a 4a^2 - 4x^2 dx$$

$$= 8 \left(a^2x - \frac{x^3}{3} \Big|_0^a \right)$$

$$= 8 \left(a^3 - \frac{a^3}{3} \right)$$

$$= \frac{16a^3}{3}$$