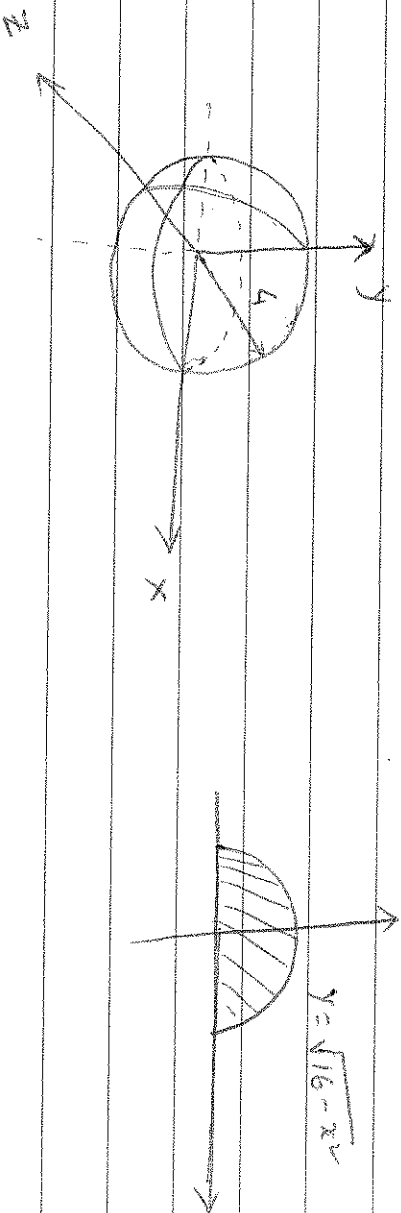


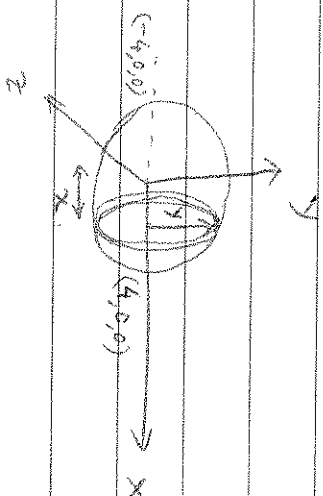
Quiz-1:

- a) Solid is a sphere of radius 4. Region



- b) Area of a cross-section.

$$\begin{aligned} A(x) &= \pi y^2 \\ &= \pi (\sqrt{16-x^2})^2 \\ &= \pi (16-x^2) \text{ sq. units.} \end{aligned}$$



c) Volume, $V = \int_{-4}^4 \pi (16-x^2) dx$.

$$\begin{aligned} 2. \quad V &= \int_{-4}^4 \pi (16-x^2) dx \\ &= \pi \left[16x - \frac{x^3}{3} \right]_{-4}^4 \\ &= \pi \left[16 \cdot 4 - \frac{2 \cdot 4^3}{3} \right] \\ &= \pi \left[2 \cdot 4^3 - \frac{2}{3} 4^3 \right] \\ &= \frac{4}{3} \pi \cdot 4^3 \text{ Cubic units} \end{aligned}$$

This is in the same form as the volume of a sphere of radius 4 units. [Verified]