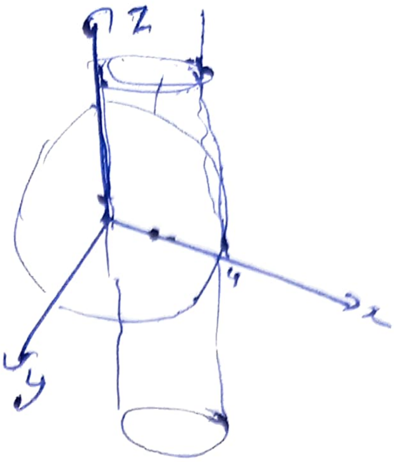
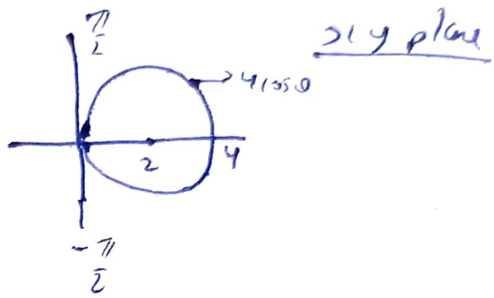
$$\text{Volume} = \int \int \int_{z=0}^{\sqrt{16-r^2}} dz\,dx\,dy$$



$$\Rightarrow \int_{\theta=-\frac{\pi}{2}}^{\frac{\pi}{2}} \int_{r=0}^{4\cos\theta} \sqrt{16-r^2} \times r\,dr\,d\theta$$



$$\Rightarrow \text{let} \quad 16-r^2=t \Rightarrow -2r = \frac{dt}{dr}$$

$$\int_{\theta=-\frac{\pi}{2}}^{\frac{\pi}{2}} \int_{r=0}^{4\cos\theta} \sqrt{t} \times \cancel{r} \times \frac{dt}{-2\cancel{r}}\,d\theta$$

$$-\frac{1}{2} \times \frac{2}{3} \int_{\theta=-\frac{\pi}{2}}^{\frac{\pi}{2}} \left[(16-r^2)^{3/2}\right]_0^{4\cos\theta} d\theta$$

$$\Rightarrow -\frac{1}{3} \int_{\theta=-\frac{\pi}{2}}^{\frac{\pi}{2}} (16-16\cos^2\theta)^{3/2} - 64\,d\theta$$

$$\Rightarrow -\frac{1}{3} \int_{\theta=-\frac{\pi}{2}}^{\frac{\pi}{2}} (64\sin^3\theta - 64)\,d\theta \Rightarrow -\frac{64}{3} \int_{\theta=-\frac{\pi}{2}}^{\frac{\pi}{2}} (\sin^3\theta - 1)\,d\theta$$

$$\Rightarrow -\frac{64}{3} \int_{\theta=-\frac{\pi}{2}}^{\frac{\pi}{2}} \left(\frac{3\sin\theta - \sin 3\theta}{4} - 1\right) d\theta$$

$$\Rightarrow -\frac{16}{3} \int_{\theta=-\frac{\pi}{2}}^{\frac{\pi}{2}} (3\sin\theta - \sin 3\theta - 4)\,d\theta \Rightarrow -\frac{16}{3}\left[-3\cos\theta + \frac{\cos 3\theta}{3} - 4\theta\right]_{-\frac{\pi}{2}}^{\frac{\pi}{2}}$$

$$\Rightarrow -\frac{16}{3}\left[-4\times\frac{\pi}{2} - \left(-4\times -\frac{\pi}{2}\right)\right] \Rightarrow \boxed{\frac{64\pi}{3}}$$