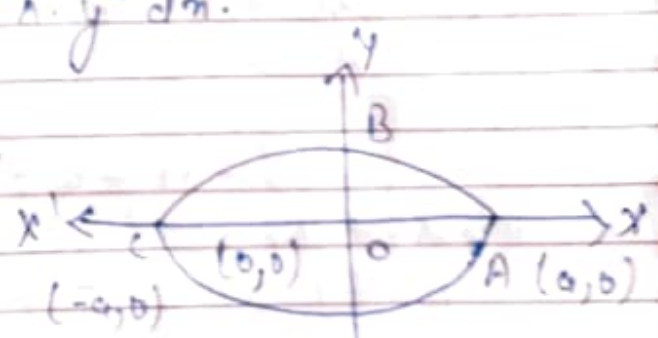required Grill.

Que 7!.

Ans!-

Volume $V = \int_{-a}^{a} \pi \cdot y^2 \, dn.$

$= \int_{-a}^{a} \pi \cdot b^2 \left(1 - \dfrac{x^2}{a^2}\right) dn.$

$\left[\because \dfrac{y^2}{b^2} = 1 - \dfrac{x^2}{a^2} \text{ or } y^2 = b^2\left(1 - \dfrac{x^2}{a^2}\right) \right]$

$= \pi \cdot b^2 \int_{-a}^{a} \left(1 - \dfrac{x^2}{a^2}\right) dn$

$= \pi \cdot b^2 \left[n - \dfrac{n^3}{3a^2} \right]_{-a}^{a}$

$= \pi \cdot b^2 \left[\left(a - \dfrac{a^3}{3a^2}\right) - \left(-a - \dfrac{-a^3}{3a^2}\right) \right]$

$= \pi \cdot b^2 \left[\left(a - \dfrac{a}{3}\right) - \left(-a + \dfrac{a}{3}\right) \right]$

$= \dfrac{\pi b^2}{3} \left[3a - a + 3a - a \right] = \dfrac{4}{3}$