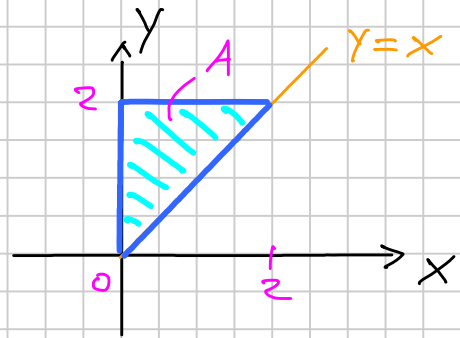


SOLIDO DI ROTAZIONE:

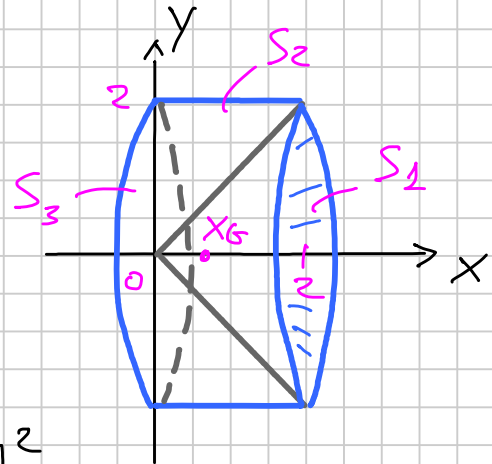
$$0 \leq y \leq 2 \quad 0 \leq x \leq y$$

$$A = \frac{1}{2} 2 \cdot 2 = 2$$

$$y_G = 2 - \frac{2}{3} = \frac{5}{3} \equiv Y \text{ BARICENTRO } A$$

ROTAZIONE ATTORNO ASSE X

$$V = 2\pi y_G A = 2\pi \cdot \frac{5}{3} \cdot 2 = \frac{16}{3} \pi$$



$$x_G = \frac{1}{V} \int_0^2 x \cdot \pi (2^2 - x^2) dx =$$

$$= \frac{\pi}{V} \int_0^2 (8x - x^3) dx = \frac{3}{16} \left[2x^2 - \frac{x^4}{4} \right]_0^2 =$$

$$= \frac{3}{16} (8 - 4) = \frac{12}{16} = \frac{3}{4} \quad \leadsto \quad G_V = \left(\frac{3}{4}, 0, 0 \right)$$

$$S = S_1 + S_2 + S_3$$

$$\left\{ \begin{aligned} S_1 &= 2\pi \cdot 1 \cdot 2\sqrt{2} = 4\pi\sqrt{2} \quad (\text{GULDINO}) \end{aligned} \right.$$

$$\frac{\pi}{4} \quad \sim \quad ds = dx / \cos \pi/4$$

$$\left\{ \begin{aligned} S_1 &= \int_0^2 2\pi x ds = 2\pi \int_0^2 \frac{x}{\cos \pi/4} dx = 2\sqrt{2}\pi \left[\frac{x^2}{2} \right]_0^2 = 4\pi\sqrt{2} \end{aligned} \right.$$

$$\left\{ \begin{aligned} S_2 &= 2\pi \cdot 2 \cdot 2 = 8\pi \quad (\text{GULDINO}) \end{aligned} \right.$$

$$\left\{ \begin{aligned} S_2 &= \int_0^2 2\pi \cdot 2 dx = 8\pi \end{aligned} \right.$$

$$S_3 = \pi \cdot 2^2 = 4\pi$$

$$\leadsto S = 4\pi\sqrt{2} + 8\pi + 4\pi = 4\pi\sqrt{2} + 12\pi$$