Saiado Latino

01) Calcular o volume da função $V: \pi \int_1^2 (x)^2 . dx$

$V: \pi \int_1^2 (x)^4 . dx \rightarrow$

$\pi \int_1^2 \frac{x^5}{5} : \left[\frac{x^5}{5}\right]_1^2 \rightarrow$

$V: \pi . \left[\frac{2^5}{5} - \frac{(1)^5}{5}\right]$

$V: \pi \left[\frac{32}{5} - \frac{1}{5}\right]$ $V: \frac{31\pi}{5}$ $\boxed{V: 19,47}$

02) Calcular o volume gerado pela função $V: \pi \int_0^1 (y^{1/3})^2 dy$

$V: \pi \int_0^1 (y)^{2/3} . dy$

$V: \pi \int_0^1 \frac{y^{5/3}}{5/3}$

$V: \pi \left[\frac{y^{5/3}}{5/3}\right]$ $V: \pi \frac{3}{5} \left[y^{5/3}\right]_0^1$

$V = \frac{3}{5}\pi \left[\sqrt[3]{1^5}\right] - [0]$

$V = \frac{3}{5}\pi \cdot [1] \therefore V = \frac{3}{5}\pi u.v = \boxed{1,884\ u.v}$

03) Calcule o volume gerado pela função

$V = \pi \int_0^1 (x^2+2)^2 - \left(\frac{x}{2}+1\right)^2 . dx$

$V = \pi \int_0^1 (x^4+4x^3+4) - \left(\frac{x^2}{4}+x+1\right) . dx$

$V = \pi \int_0^1 \left(x^4+4x^2-\frac{x^2}{4}-x+4-1\right) . dx$

$V = \pi \int_0^1 \left(x^4+\frac{15x^2}{4}-x+3\right) . dx$

$V = \pi \int_0^1 \frac{x^5}{5}+\frac{15}{4}\cdot\frac{x^3}{3}-\frac{x^2}{2}+3x$

$V = \pi \left[\frac{1^5}{5}+\frac{15}{4}\cdot\frac{1^3}{3}-\frac{1^2}{2}+3.1\right]^1 - [0]^0$

$V = \pi \left[\frac{1}{5}+\frac{5}{4}+\frac{1}{2}+3\right] \rightarrow V = \pi \left[\frac{79}{20}\right] = \boxed{12,40\ u.v}$