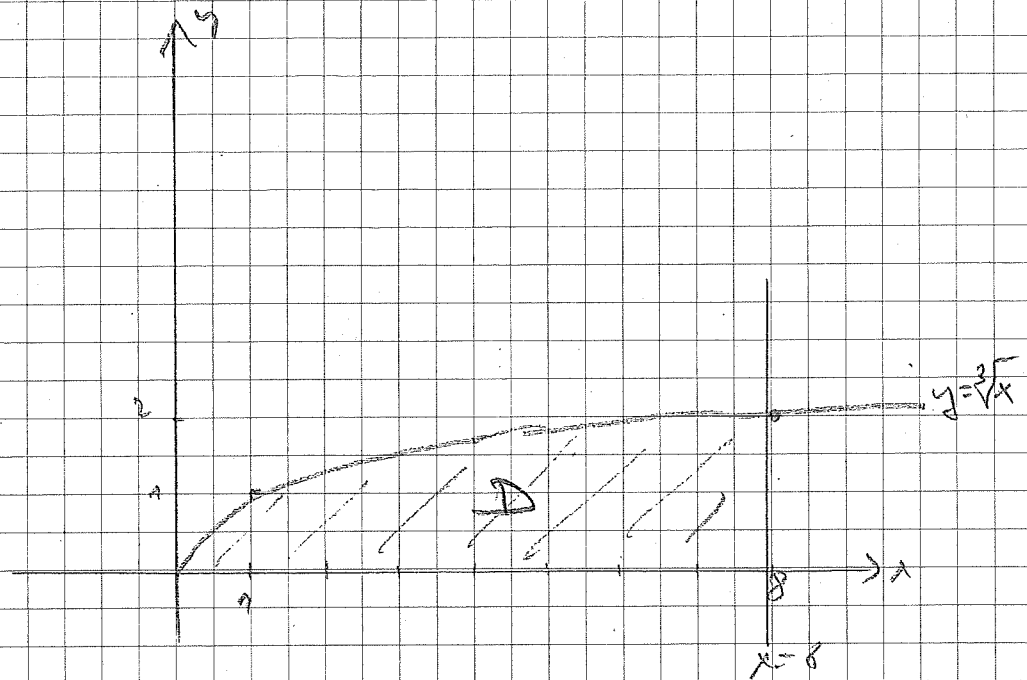
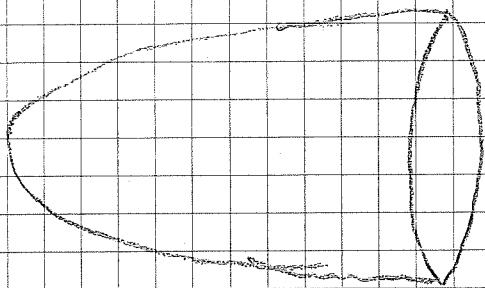


ex 37

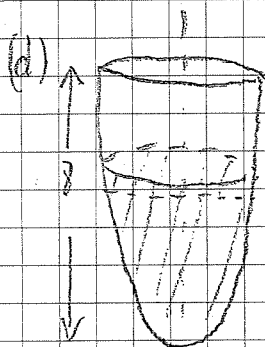
(a)



(b)



$$\begin{aligned}
 (c) \quad V &= \pi \int_0^8 f(x)^2 dx = \pi \int_0^8 (\sqrt[3]{x})^2 dx = \pi \int_0^8 x^{2/3} dx = \pi \cdot \frac{3}{5} x^{5/3} \Big|_0^8 \\
 &= \pi \cdot \frac{3}{5} 8^{5/3} = \pi \cdot \frac{3}{5} (\sqrt[3]{8})^5 = \pi \cdot \frac{3}{5} 2^5 = \pi \cdot \frac{3 \cdot 32}{5} = \frac{96\pi}{5}
 \end{aligned}$$



on veut Volume à une hauteur  $h$ :  $\frac{96\pi}{5} \div 2 = \frac{48\pi}{5}$

$$\Leftrightarrow \pi \int_0^h x^{2/3} dx = \frac{48\pi}{5} \Leftrightarrow \frac{3}{5} x^{5/3} \Big|_0^h = \frac{48\pi}{5}$$

$$\Leftrightarrow \frac{3}{5} h^{5/3} = \frac{48}{5} \Leftrightarrow h^{5/3} = 16 \Leftrightarrow h = 16^{3/5}$$

$$\Leftrightarrow h = (2^4)^{3/5} = 2^{12/5} = (2^{10} \cdot 2^2)^{1/5}$$

$$= 2^2 \cdot 2^{2/5}$$

$$= 4 \cdot 2^{2/5}$$

$$= 4 \sqrt[5]{4}$$