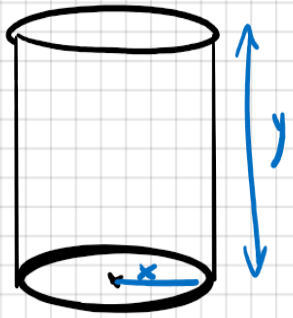
45



$$V = \pi x^2 y = 125 \Rightarrow y = \frac{125}{\pi x^2}$$

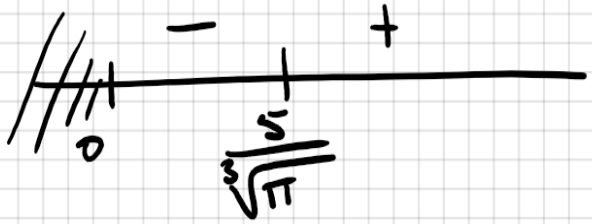
$$A_{LAT} + A_{1\,base} = 2\pi x y + \pi x^2$$

$$A(x) = 2\pi x \cdot \frac{125}{\pi x^2} + \pi x^2 = \frac{250}{x} + \pi x^2$$

$$A'(x) = -\frac{250}{x^2} + 2\pi x = \frac{2\pi x^3 - 250}{x^2}$$

$$A' = 0 \iff 2\pi x^3 = 250 \iff x^3 = \frac{125}{\pi} \iff x = \frac{5}{\sqrt[3]{\pi}}$$

SIGNO A'



A alcanza un mínimo en $x = \frac{5}{\sqrt[3]{\pi}}$

El radio de la base es $x = \frac{5}{\sqrt[3]{\pi}}$ cm, y la altura $y = \frac{125}{\pi \cdot \frac{25}{\sqrt[3]{\pi^2}}} = \frac{5}{\sqrt[3]{\pi}}$ cm