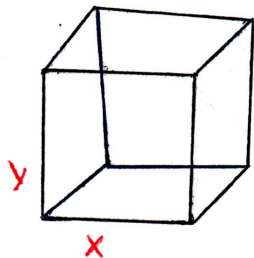


866- - Observe o esquema: - Observe o volume:



$$V = x^2 \cdot y$$

- Observe a área da superfície:

$$A(x, y) = x^2 + 4xy \Rightarrow A(x) = x^2 + \frac{4V}{x}$$

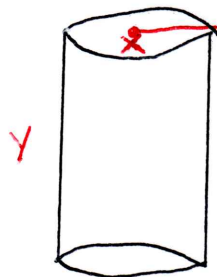
- Para o ponto extremal:

$$\frac{d}{dx}(A(x)) = 0$$

- Logo:

$$2x - \frac{4V}{x^2} = 0 \Rightarrow 2x = \frac{4V}{x^2} \Rightarrow x^3 = 2V \Rightarrow x = \sqrt[3]{2V} \Rightarrow y = \sqrt[3]{\frac{V}{4}}$$

867- - Observe o esquema: - Tenha o volume:



$$V = \pi x^2 \cdot y$$

- Tenha a área da superfície:

$$A(x, y) = 2 \cdot \pi x^2 + 2\pi xy$$

$$A(x) = 2\pi x^2 + \frac{2V}{x}$$

- Para o ponto extremal:

$$\frac{d}{dx}(A(x)) = 0$$

- Logo:

$$4\pi x - \frac{2V}{x^2} = 0 \Rightarrow 4\pi x = \frac{2V}{x^2} \Rightarrow x^3 = \frac{1}{\pi} \cdot \frac{V}{2}$$

$$\Rightarrow x = \sqrt[3]{\frac{1}{\pi} \cdot \frac{V}{2}}$$

$$\Rightarrow y = \sqrt[3]{\frac{1}{\pi} \cdot 4V}$$