

Física Experimental

• Experimento Nº: 01

→ Valor mais provável da Grandeza (mm)

- massa

$$\bar{a} = \frac{\sum a_i}{n} \Rightarrow \frac{(23,00 + 23,0 + 23,00 + 23,00 + 23,00)}{5} \Rightarrow \frac{115,00}{5} \Rightarrow \bar{a} = 23,00 \text{ mm}$$

- Régua (Diâmetro)

$$\bar{a} = \frac{\sum a_i}{n} \Rightarrow \frac{(10,0 + 10,0 + 10,0 + 10,0 + 10,0)}{5} \Rightarrow \frac{50,0}{5} \Rightarrow \bar{a} = 10,0 \text{ mm}$$

- Régua (Altura)

$$\bar{a} = \frac{\sum a_i}{n} \Rightarrow \frac{(31,0 + 31,0 + 31,0 + 31,0 + 31,0)}{5} \Rightarrow \frac{156,0}{5} \Rightarrow \bar{a} = 31,2 \text{ mm}$$

- Paquímetro (Diâmetro)

$$\bar{a} = \frac{\sum a_i}{n} \Rightarrow \frac{(10,50 + 10,5 + 10,50 + 10,40 + 10,50)}{5} \Rightarrow \frac{52,40}{5} \Rightarrow \bar{a} = 10,48 \text{ mm}$$

- Paquímetro (Altura)

$$\bar{a} = \frac{\sum a_i}{n} \Rightarrow \frac{(31,40 + 31,40 + 31,40 + 31,40 + 31,40)}{5} \Rightarrow \frac{157,00}{5} \Rightarrow \bar{a} = 31,4 \text{ mm}$$

- micrometro (Diâmetro)

$$\bar{a} = \frac{\sum a_i}{n} \Rightarrow \frac{(10,490 + 10,490 + 10,490 + 10,490 + 10,490)}{5} \Rightarrow \frac{52,450}{5} \Rightarrow \bar{a} = 10,49 \text{ mm}$$

→ Desvio Padrão (mm)

- massa

$$\sigma_p = \sqrt{\frac{\sum (a_i - \bar{a})^2}{n-1}} \Rightarrow \sqrt{\frac{(-0,00 - 0,00)^2 + (23,00 - 23,00)^2 + (-0,00 - 23,00)^2 + (23,00 - 23,00)^2 + (-0,00 - 23,00)^2}{5-1}}$$

$$\Rightarrow \sqrt{\frac{0,00^2 + 0,00^2 + 0,00^2 + 0,00^2 + 0,00^2}{4}} \Rightarrow \sqrt{\frac{0}{4}} \Rightarrow \sigma_p = 0,00 \text{ mm}$$

- Régua (Diâmetro)

$$\sigma_p = \sqrt{\frac{\sum (a_i - \bar{a})^2}{n-1}} \Rightarrow \sqrt{\frac{(10,0 - 10,0)^2 + (10,0 - 10,0)^2 + (10,0 - 10,0)^2 + (10,0 - 10,0)^2 + (10,0 - 10,0)^2}{5-1}}$$

$$\Rightarrow \sqrt{\frac{0,00^2 + 0,00^2 + 0,00^2 + 0,00^2 + 0,00^2}{4}} \Rightarrow \sqrt{\frac{0,00}{4}} \Rightarrow \sigma_p = 0,00 \text{ mm}$$

$$\Rightarrow \frac{\sqrt{0,00}}{\sqrt{4}} = \frac{0,00}{2} \Rightarrow \sigma_p = 0,00 \text{ mm}$$

micrômetro (altura) ???