

formulario per l'elaborazione di dati sperimentali

$$\bar{X} = \frac{\sum_{i=1,N} X_i}{N} \quad \sigma_s(X) = \sqrt{\frac{\sum_{i=1,N} (X_i - \bar{X})^2}{N-1}} \quad \sigma_s(\bar{X}) = \frac{\sigma_s(X)}{\sqrt{N}}$$

$$X_p = \frac{\sum_{i=1,N} \frac{X_i}{\sigma_i^2}}{\sum_{i=1,N} \frac{1}{\sigma_i^2}} \pm \frac{1}{\sqrt{\sum_{i=1,N} \frac{1}{\sigma_i^2}}}$$

Medie



$$\Delta = X - m \quad \Delta = X_1 - X_2$$

$$s = \frac{X - m}{m} \quad s = \frac{X_1 - X_2}{\frac{X_1 + X_2}{2}}$$

$$t = \frac{X - m}{\sigma} \quad t = \frac{X_1 - X_2}{\sqrt{\sigma_1^2 + \sigma_2^2}}$$

confronti



$$p = \frac{N \sum x_i y_i - \sum x_i \sum y_i}{N \sum x_i^2 - \sum x_i \sum x_i}$$

$$q = \frac{\sum x_i^2 \sum y_i - \sum x_i \sum x_i y_i}{N \sum x_i^2 - \sum x_i \sum x_i}$$

$$\sigma_X = \sqrt{\frac{\sum (x_i - \bar{X})^2}{N}} \quad \sigma_Y = \sqrt{\frac{\sum (y_i - \bar{Y})^2}{N}}$$

$$\sigma_s(Y) = \sqrt{\frac{\sum [y_i - (p x_i + q)]^2}{N-2}}$$

$$\sigma_p = \frac{\sigma_s(Y)}{\sqrt{N} \sigma_X} \quad \sigma_q = \frac{\sigma_s(Y)}{\sqrt{N}} \sqrt{1 + \frac{\bar{X}^2}{\sigma_X^2}}$$

$Y = pX + q$

$Y = pX + q$

$\sigma_Y \approx p \sigma_X$

minimi quadrati

$$Y = f(X_1, X_2, \dots, X_N) \quad \sigma(Y) = \sqrt{\sum_{i=1,N} \left(\frac{\partial f}{\partial X_i} \sigma(X_i) \right)^2}$$

$$Y = c X_1^{p_1} X_2^{p_2} \dots X_N^{p_N} \quad \frac{\sigma(Y)}{Y} = \sqrt{\sum_{i=1,N} \left(p_i \frac{\sigma(X_i)}{X_i} \right)^2}$$

misure indirette

$T = (13,2 \pm 1,0) \times 10^3 \text{ s}$ simbolo - unità di misura - fattore moltiplicativo
 2 cifre significative, stesse cifre decimali **notazioni**

