FORMULAS

Mean of a population:

$$\mu = \frac{1}{n} \sum_{i=1}^{n} x_i = \frac{x_1 + x_2 + \cdots + x_n}{n}$$

Standard deviation of a population:

$$\sigma = \sqrt{\frac{\sum_{i=1}^{n}(x_i - \mu)^2}{n}}$$

Value of the t statistics:

$$t = \frac{\overline{X_1} - \overline{X_2}}{s_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}, \text{ with } s_p = \sqrt{\frac{(n_1 - 1)s_{X_1}^2 + (n_2 - 1)s_{X_2}^2}{n_1 + n_2 - 2}}$$

Value of the statistics of Pearson Chi-square test:

$$X^2 = \sum_{i=1}^{n} \frac{(O_i - E_i)^2}{E_i}$$

LOD score:

$$LOD = \log_{10} \frac{P(x|\theta_1)}{P(x|\theta_0)} = \log_{10} \frac{(1-\theta)^{NR} \times \theta^R}{0.5^{(NR+R)}}$$