$$r_s = 1 - \frac{6\sum d^2}{n(n^2-1)}$$

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[\,n\Sigma x^2 - (\Sigma x)^2\,]\,[\,n\Sigma y^2 - (\Sigma y)^2\,]}}$$

Sum of Squares for Treatments

$$\text{SST} = \sum_{j=1}^{k} n_j(\bar{x}_j - \bar{\bar{x}})^2$$

$$\text{SSE} = (n_1 - 1)s_1^2 + (n_2 - 1)s_2^2 + \cdots + (n_k - 1)s_k^2$$

Mean Square for Treatments

$$\text{MST} = \frac{\text{SST}}{k-1}$$

Mean Square for Error

$$\text{MSE} = \frac{\text{SSE}}{n-k}$$

Test Statistic

$$F = \frac{\text{MST}}{\text{MSE}}$$

$$t = \frac{b - B}{s_b} \qquad s_b = \frac{s_e}{\sqrt{SS_{xx}}}$$

$$b = \frac{SS_{xy}}{SS_{xx}} \quad \text{and} \quad a = \bar{y} - b\bar{x} \qquad SS_{yy} = \sum y^2 - \frac{(\sum y)^2}{n} \qquad r^2 = \frac{b\,SS_{xy}}{SS_{yy}}$$

$$SS_{xy} = \sum xy - \frac{(\sum x)(\sum y)}{n} \quad \text{and} \quad SS_{xx} = \sum x^2 - \frac{(\sum x)^2}{n} \qquad s_e = \sqrt{\frac{SS_{yy} - bSS_{xy}}{n-2}}$$