

## Formulas

$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n}$$

$$RIQ = Q_3 - Q_1$$

$$A_p = \frac{\bar{x} - \text{Mode}}{s_x}$$

$$\bar{x} = \frac{\sum_{i=1}^k x_i n_i}{n}$$

$$[\mu - 3\sigma, \mu + 3\sigma] : 99.7\%$$

$$p_i = \frac{N_i}{N}$$

$$C_k = \sum_{i=1}^k s_i$$

$$a = \bar{y} - b\bar{x}$$

$$Y = T + E + C + I$$

$$\text{Location Med} : \frac{N+1}{2}$$

$$s^2 = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2$$

$$A_p = \frac{\bar{x} - \text{Median}}{s_x}$$

$$s = \sqrt{\frac{1}{n-1} \sum_{i=1}^k (x_i - \bar{x})^2 n_i}$$

$$z = \frac{x - \mu}{\sigma}$$

$$q_i = \frac{A_i}{A_k}$$

$$H = \sum_{i=1}^n s_i^2$$

$$b = r \frac{s_y}{s_x}$$

$$\text{Weight}_i = \frac{p_i Q_i}{\sum_{j=1}^n p_j Q_j}$$

$$\text{Location Q1} : \frac{N+1}{4}$$

$$\text{Variation Range} = \max - \min$$

$$\text{Skewness} = \sqrt[3]{\sum_{i=1}^n \frac{1}{n-1} \frac{(x_i - \bar{x})^3}{s^3}}$$

$$[\mu - \sigma, \mu + \sigma] : 68\%$$

$$A_k = \sum_{j=1}^k x_j n_j$$

$$I_L = \frac{\sum_{i=1}^{k-1} (p_i - q_i)}{\sum_{i=1}^{k-1} p_i}$$

$$s_{xy} = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})$$

$$e_i = y_i - \hat{y}_i$$

$$P_{Laspeyres} = \sum_{i=1}^j \frac{p_i^j}{p_0^j} \times 100 = \frac{\sum p_i^j q_0^j}{\sum p_0^j q_0^j} \times 100$$

$$\text{Location Q3} : \frac{3(N+1)}{4}$$

$$V = \frac{s_x}{\bar{x}}$$

$$\text{Position} = \frac{R_x - a}{b}$$

$$[\mu - 2\sigma, \mu + 2\sigma] : 95\%$$

$$A_i = \sum_{j=1}^i x_j n_j$$

$$I_D = \frac{\sum_{r>s} (x_r - x_s) n_r n_s}{(N-1) \sum_{i=1}^k x_i n_i}$$

$$r_{xy} = \frac{s_{xy}}{s_x s_y}$$

$$R^2 = r_{xy}^2$$

$$P_{Paasche} = \sum_{i=1}^j w_i^i \frac{p_i^j}{p_0^j} \times 100 = \frac{\sum p_i^j q_i^j}{\sum p_0^j q_i^j} \times 100$$