Formulas

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

$$\mu = \frac{\sum_{i=1}^{N} w_i x_i}{\sum_{i=1}^{N} w_i} \qquad \bar{x} = \frac{\sum_{i=1}^{n} w_i x_i}{\sum_{i=1}^{n} w_i}$$

$$\mu = \frac{\sum_{i=1}^{k} f_i m_i}{\sum_{i=1}^{k} f_i}$$

$$MD = \frac{1}{N}\sum_{i=1}^{N}|x_i - \mu|$$

$$L(P_p) = (n+1)\frac{p}{100}$$

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

$$= \frac{1}{N}\sum_{i=1}^{N}x_i^2 - \mu^2$$

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

$$= \frac{1}{n-1}\left[\sum_{i=1}^{n}x_i^2 - n\bar{x}^2\right]$$

$$C.V. = \frac{\sigma}{\mu}$$

$$= \frac{S}{\bar{x}}$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$P(A_i \mid B) = \frac{P(B \mid A_i).P(A_i)}{\sum_{j=1}^{k} P(B \mid A_j)P(A_j)}$$

$$P(B \mid A) = \frac{P(A \cap B)}{P(A)}, \; P(A) \neq 0$$

$$P(A) = 1 - P(A^c)$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}} \qquad\qquad S_{\bar{x}} = \frac{s}{\sqrt{n}}$$

$${}^{n}P_{x} = \frac{n!}{(n-x)!}, \quad x = 0, 1, 2, \ldots, n$$

$${}^{n}C_{x} = \frac{n!}{x!\,(n-x)!}, \quad x = 0, 1, 2, \ldots, n$$

$$\text{Lower limit} = Q_1 - 1.5\,(Q_3 - Q_1)$$

$$\text{Upper limit} = Q_3 + 1.5\,(Q_3 - Q_1)$$