FORMULE:

$$\mu = \frac{\sum x_i}{N} \qquad \mu = \frac{\sum f_i x_i}{N} \qquad \bar{x} = \frac{\sum x_i}{n} \qquad \bar{x} = \frac{\sum f_i x_i}{\sum f_i} \qquad \bar{x} = \sum p_i x_i \qquad k = 1 + 3{,}3 \log N \qquad l = \frac{X_{\max} - X_{\min}}{k}$$

$$Me = x_{\frac{n+1}{2}} \qquad Me = \frac{x_{\frac{n}{2}} + x_{\frac{n}{2}+1}}{2} \qquad M_e = L_1 + \frac{\frac{N}{2} - \sum f_1}{f_{Me}} i \qquad M_o = L_1 + \frac{f_2 - f_1}{(f_2 - f_1) + (f_2 - f_3)} i \qquad \frac{(n+1)P}{100}$$

$$I = X_{\max} - X_{\min} \qquad I_q = Q_3 - Q_1 \qquad d = \frac{\sum |x_i - \bar{x}|}{n} \qquad d = \frac{\sum f_i |x_i - \bar{x}|}{n} \qquad Z = \frac{\bar{x} - \mu_0}{\frac{\sigma}{\sqrt{n}}}$$

$$\sigma = \sqrt{\sigma^2} \qquad \sigma^2 = \frac{\sum x^2}{N} - \mu^2 \qquad \sigma^2 = \frac{\sum fx^2}{\sum f} - \mu^2 \qquad V = \frac{\sigma}{\mu} 100 \qquad n = \frac{z_{\frac{\alpha}{2}}^2 \sigma^2}{E^2} \qquad t = \frac{\bar{x} - \mu_0}{\frac{s}{\sqrt{n}}}$$

$$s = \sqrt{s^2} \qquad s^2 = \frac{\sum x^2 - n\bar{x}^2}{n-1} \qquad s^2 = \frac{\sum fx^2 - n\bar{x}^2}{n-1} \qquad Z = \frac{X - \mu}{\sigma} \qquad n = \frac{z_{\frac{\alpha}{2}}^2 pq}{E^2} \qquad Z = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}}$$

$$p(A) = \frac{m(A)}{n(A)} \qquad p(A \cap B) = p(A)p(B/A) \qquad p(A/B) = \frac{p(A \cap B)}{p(B)} \qquad p(A \cup B) = p(A) + p(B) - p(A \cap B)$$

$$P(X = x) = \binom{n}{x} p^x q^{n-x} \qquad P(X = x) = \frac{\mu^x e^{-\mu}}{x!} \qquad C_r^n = \binom{n}{r} = \frac{n!}{r!(n-r)!} \qquad P_r^n = \frac{n!}{(n-r)!}$$

$$C_{r_1}^{n_1} \cdot C_{r_2}^{n_2} \qquad E(X) = \sum p_i \cdot x_i \qquad Z = \frac{\bar{x} - \mu}{\frac{\sigma}{\sqrt{n}}} \qquad Z = \frac{\hat{p} - p}{\sqrt{\frac{p(1-p)}{n}}}$$

$$\bar{x} - z_{\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}} \le \mu \le \bar{x} + z_{\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}} \qquad \bar{x} - z_{\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}} \sqrt{\frac{N-n}{N-1}} \le \mu \le \bar{x} + z_{\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}} \sqrt{\frac{N-n}{N-1}}$$

$$\bar{x} - t_{n-1;\frac{\alpha}{2}} \frac{s}{\sqrt{n}} \le \mu \le \bar{x} + t_{n-1;\frac{\alpha}{2}} \frac{s}{\sqrt{n}} \qquad \bar{x} - t_{n-1;\frac{\alpha}{2}} \frac{s}{\sqrt{n}} \sqrt{\frac{N-n}{N-1}} \le \mu \le \bar{x} + t_{n-1;\frac{\alpha}{2}} \frac{s}{\sqrt{n}} \sqrt{\frac{N-n}{N-1}}$$

$$\hat{p} - z_{\frac{\alpha}{2}} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} \le p \le \hat{p} + z_{\frac{\alpha}{2}} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} \qquad \hat{p} - z_{\frac{\alpha}{2}} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} \sqrt{\frac{N-n}{N-1}} \le p \le \hat{p} + z_{\frac{\alpha}{2}} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} \sqrt{\frac{N-n}{N-1}}$$

$$I_p = \frac{\sum p_i}{\sum p_0} \qquad I_q = \frac{\sum q_i}{\sum q_0} \qquad I_{pq} = \frac{\sum p_i q_i}{\sum p_0 q_0} \qquad I_q = \frac{\sum q_i p_i}{\sum q_0 p_i} \qquad I_q = \frac{\sum q_i p_0}{\sum q_0 p_0} \qquad I_p = \frac{\sum p_i q_i}{\sum p_0 q_i} \qquad I_p = \frac{\sum p_i q_0}{\sum p_0 q_0}$$

$$I_i = \frac{y_i}{y_o} 100 \qquad L_i = \frac{y_i}{y_{i-1}} 100 \qquad I_i = \frac{L_i \cdot I_{i-1}}{100} \qquad I_i = \frac{I_{i+1}}{L_{i+1}} 100$$

α	z_α
0.005	2.576
0.01	2.326
0.025	1.96
0.05	1.645
0.1	1.282

$\alpha/2$	$z_{\frac{\alpha}{2}}$
0.005	2.576
0.01	2.326
0.025	1.96
0.05	1.645
0.1	1.282

$t_{0.025;7} = 2{,}365$

$t_{0.025;6} = 2{,}447$

$t_{0.005;24} = 2{,}797$

$t_{0.025;13} = 2{,}16$

$t_{0.025;14} = 2{,}145$

$t_{0.005;14} = 2{,}977$

$t_{0.025;24} = 2{,}064$

$t_{0.025;10} = 2.228$

$t_{0.025;4} = 2{,}776$

$t_{0.05;9} = 1{,}833$

$t_{0.005;7} = 3{,}499$