TH o nepoznatoj aritmetickoj sredini osnovnog skupa:

$H_0 : ... \bar{x} = \bar{x}_0$

$H_1 : ... \bar{x} \neq \bar{x}_0$

Interval prihvacanja H_0:

$\bar{x}_0 \pm z \cdot Se(\bar{x})$

$$t^* = z^* = \frac{\hat{\bar{x}} - \hat{\bar{x}}_0}{Se(\bar{x})}$$

test: $-t_{\frac{\alpha}{2}} < t^* < t_{\frac{\alpha}{2}} \Rightarrow H_0$

$$Se(\bar{x}) = \frac{\hat{\alpha}}{\sqrt{n}}, n > 30$$

$\alpha < 0.05 \Rightarrow H_1$

$\alpha > 0.05 \Rightarrow H_0$

Jednosmjerni test:

$DG = \bar{x}_0 - z \cdot Se(\bar{x})$

$H_0 : ... \bar{x} \geq \bar{x}_0$

$H_1 : ... \bar{x} < \bar{x}_0$

TH o razlici aritmetickih sredina dvaju nezavishin osnovnih skupova:

$H_0 : ... \bar{x}_1 = \bar{x}_2$

$H_1 : ... \bar{x}_1 \neq \bar{x}_2$

Interval prihvacanja H_0:

$0 \pm z \cdot Se(\bar{x}_1 - \bar{x}_2)$

$$t^* = z^* = \frac{| \hat{\bar{x}}_1 - \hat{\bar{x}}_2 |}{Se(\bar{x}_1 - \bar{x}_2)}$$

$df = \nu = n_1 + n_2 - 2$

$$Se(\bar{x}_1 - \bar{x}_2) = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

$$n < 30 \Rightarrow s^2 = \sigma^2 \frac{n}{n-1}$$

$$Se(\bar{x}_1 - \bar{x}_2) = \sqrt{\left(\frac{n_1 \hat{\sigma}_1^2 + n_2 \hat{\sigma}_2^2}{n_1 + n_2 - 2}\right) \cdot \left(\frac{n_1 + n_2}{n_1 n_2}\right)}$$

uzorak mal za $n_1 + n_2 \leq 32$

Za zavisne uzorke:

$$Se = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r_{1,2} Se(\bar{x}_1) Se(\bar{x}_2)}$$

TH o nepoznatoj proporciji osnovnog skupa:

$H_0 : ... P = P_0$

$H_1 : ... P \neq P_0$

Interval prihvacanja H_0:

$P_0 \pm z \cdot Se(P)$

$$Se(P) = \sqrt{\frac{P_0 Q_0}{n}}, n > 30$$

$$Se(P) = \sqrt{\frac{P_0 Q_0}{n-1}}, n < 30$$

$$\hat{p} = \frac{m}{n}, z^* = \frac{| \hat{p} - p_0 |}{Se(p)}$$

TH o razlici proporcija dvaju nezavisnih osnovnih skupova:

$H_0 : ... P_1 = P_2$

$H_1 : ... P_1 \neq P_2$

Interval prihvacanja H_0:

$0 \pm z \cdot Se(P_1 - P_2)$

$df = \nu = n_1 + n_2 - 2$

$$Se(P_1 - P_2) = \sqrt{\hat{\bar{p}} \cdot \hat{\bar{q}} \cdot \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

$$\hat{\bar{P}} = \frac{m_1 + m_2}{n_1 + n_2}$$

$$z^* = \frac{\hat{p}_1 - \hat{p}_2}{Se(p_1 - p_2)}$$

χ^{*2} *test*:

Testiranje da distribucija ima odredeni oblik:

Poisson:

$H_0 : ... X -> P(\mu)$

$H_1 : ... X -/> P(\mu)$

$$P(X = x) = \frac{\mu^x}{x!} e^{-\mu} \qquad \chi^{*2} = \sum_{i=1}^{k} \frac{(f_i - f_{ti})^2}{f_{ti}}$$

$\mu = \hat{\bar{x}} \qquad f_{ti} = (\sum f_i) \cdot P(x_i) \qquad df = \nu = k - 2$

Binomna:

$H_0 : ... X -> B(n; p)$

$H_1 : ... X -/> B(n; p)$

$$P(X = x) = \binom{n}{x} p^x q^{n-x} \qquad f_{ti} = (\sum f_i) \cdot P(x_i)$$

$$\chi^{*2} = \sum_{i=1}^{k} \frac{(f_i - f_{ti})^2}{f_{ti}} \qquad df = \nu = k - 2 \qquad \mu = n \cdot p \qquad p = \frac{\bar{x}}{n}$$

Jednolika:

$H_0 : ... P_1 = P_2 = ... = P$

$H_1 : ... \exists P_i \neq P$

$$\hat{\bar{P}} = \frac{\sum m_i}{\sum n_i} \qquad e_i = n_i \cdot \hat{\bar{P}} \qquad \nu = k - 1$$

$$\chi^{*2} = \sum_{i=1}^{k} \frac{(m_i - e_i)^2}{e_i}$$

TH da je koef. linearne korelacije jednak nuli

$H_0 : ... r = 0$

$H_1 : ... r \neq 0$

$$t^* = \frac{\bar{r}}{Se(r)}$$

Interval prihvacanja:

$0 \pm z \cdot Se(r)$

$$Se(r) = \sqrt{\frac{1}{n-1}} \text{ za veliki}$$

$$Se(r) = \sqrt{\frac{1 - \bar{r}^2}{n-2}} \text{ za mali}$$

$\nu = n - 2$

TH o nezavisnosti obiljezja elemenata osnovnog skupa

$H_0 : ... P_{ij} = P_{i*} \cdot P_{*j}, \forall i \forall j$

$H_1 : ... \exists P_{ij} \neq P_{i*} \cdot P_{*j}$

$$\chi^{*2} = \sum_i \sum_j \frac{(m_{ij} - e_{ij})^2}{e_{ij}} \qquad df = (r-1)(c-1)$$

$$e_{ij} = \frac{m_{i*} \cdot m_{*j}}{n}$$

$\chi^{*2} > \chi^2 \Rightarrow H_1$

$\chi^{*2} < \chi^2 \Rightarrow H_0$

Pearsonov koef. Kontingence: $C = \sqrt{\frac{\chi^2}{\chi^2 + n}}$

Analiza varijance s jednim promjenjivim faktorom $H_0 : ... \sigma_A{}^2 = 0$ $H_1 : ... \sigma_A{}^2 \neq 0$ $\overline{X}_{\bullet\bullet} = \frac{n_1 \overline{x}_{\bullet j1} + n_2 \overline{x}_{\bullet j2} + ...}{n_1 + n_2 + ...}$ Ukupno: $\sum_i \sum_j (X_{ij} - \overline{X}_{\bullet\bullet})^2 \quad \nu = n - 1$ Unutar uzoraka: $\sum_i \sum_j (X_{ij} - \overline{X}_{\bullet j})^2 \quad \nu = n - k$ Izmedu uzoraka: $\sum_j n_j (\overline{X}_{\bullet j} - \overline{X}_{\bullet\bullet})^2 \quad \nu = k - 1$ $F^* = \frac{izmedu/(k-1)}{unutar/(n-k)} \quad F^{\alpha}{}_{k-1,n-k}$	Analiza varijance sa dva promjenjiva faktora $H_0 : ... \sigma_A{}^2 = 0 \quad H_0 : ... \sigma_B{}^2 = 0$ $H_1 : ... \sigma_A{}^2 \neq 0 \quad H_1 : ... \sigma_B{}^2 \neq 0$ Ukupno: $\sum_i \sum_j (X_{ij} - \overline{X}_{\bullet\bullet})^2 \quad \nu = n - 1$ Izmedu redaka: $\sum_i n_i (\overline{X}_{i\bullet} - \overline{X}_{\bullet\bullet})^2 \quad \nu = c - 1$ Izmedu stupaca: $\sum_j n_j (\overline{X}_{\bullet j} - \overline{X}_{\bullet\bullet})^2 \quad \nu = k - 1$ Ostatak: $\sum_i \sum_j (X_{ij} - \overline{X}_{\bullet j} - \overline{X}_{i\bullet} + - \overline{X}_{\bullet\bullet})^2$ $\nu = n - k - c + 1$ $F_A{}^* = \frac{izmedu\_redaka/(c-1)}{ostatak/(n-k-c+1)}$ $F_B{}^* = \frac{izmedu\_stupaca/(k-1)}{ostatak/(n-k-c+1)}$	Koeficijent korelacije ranga Spermanov koef. korelacije ranga: $r_s = 1 - \frac{6 \sum_{i=1}^{n} d_i{}^2}{n^3 - n}$ n-broj parova vrijednosti X i Y $d_i{}^2 = (r_{xi} - r_{yi})^2, df = n - 2$