<u>Formulas of 105 stat</u>

ملحوظة: أي قانون غير موجود فأنت مطالبة بحفظه

$Z=\frac{\bar{x}-\mu_0}{\sigma/\sqrt{n}}$ $\bar{x}-d<\mu<\bar{x}+d$ $d=z_{1-\alpha/2}\frac{\sigma}{\sqrt{n}}$ $n\geq\frac{z_{1-\alpha/2}^{2}\sigma^{2}}{d^{2}}$	$Z=\frac{\bar{x}-\mu_0}{S/\sqrt{n}}$ $\bar{x}-d<\mu<\bar{x}+d$ $d=z_{1-\alpha/2}\frac{S}{\sqrt{n}}$	$T=\frac{\bar{x}-\mu_0}{S/\sqrt{n}}$ $\bar{x}-d<\mu<\bar{x}+d$ $d=t_{n-1,1-\alpha/2}\frac{S}{\sqrt{n}}$
$\chi^2=\frac{(n-1)S^2}{\sigma_0{}^2}$ $\frac{(n-1)S^2}{\chi^2_{n-1,1-\frac{\alpha}{2}}}<\sigma^2<\frac{(n-1)S^2}{\chi^2_{n-1,\frac{\alpha}{2}}}$ $\sqrt{\frac{(n-1)S^2}{\chi^2_{n-1,1-\frac{\alpha}{2}}}}<\sigma<\sqrt{\frac{(n-1)S^2}{\chi^2_{n-1,\frac{\alpha}{2}}}}$ $\chi^2_{df,\alpha}=\chi^2_{v_1,\alpha}+\frac{df-v_1}{v_2-v_1}(\chi^2_{v_2,\alpha}-\chi^2_{v_1,\alpha})$	$Z=\frac{r-P_0}{\sqrt{\frac{P_0(1-P_0)}{n}}}$ $r-d<P<r+d$ $d=z_{1-\frac{\alpha}{2}}\sqrt{\frac{r(1-r)}{n}}$ $n\geq\frac{z_{1-\alpha/2}^{2}P(1-P)}{d^{2}}$	$Z=\frac{\bar{x}_1-\bar{x}_2}{\sqrt{\frac{\sigma_1{}^2}{n_1}+\frac{\sigma_2{}^2}{n_2}}}$ $(\bar{x}_1-\bar{x}_2)-d<\mu_1-\mu_2<(\bar{x}_1-\bar{x}_2)+d$ $d=z_{1-\alpha/2}\sqrt{\frac{\sigma_1^2}{n_1}+\frac{\sigma_2^2}{n_2}}$
$Z=\frac{\bar{x}_1-\bar{x}_2}{\sqrt{\frac{S_1{}^2}{n_1}+\frac{S_2{}^2}{n_2}}}$ $(\bar{x}_1-\bar{x}_2)-d<\mu_1-\mu_2<(\bar{x}_1-\bar{x}_2)+d$ $d=z_{1-\alpha/2}\sqrt{\frac{S_1{}^2}{n_1}+\frac{S_2{}^2}{n_2}}$	$T=\frac{\bar{x}_1-\bar{x}_2}{S_p\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}}$ $(\bar{x}_1-\bar{x}_2)-d<\mu_1-\mu_2<(\bar{x}_1-\bar{x}_2)+d$ $d=t_{n_1+n_2-2,1-\alpha/2}\,S_p\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}$	$F=\frac{S_1{}^2}{S_2{}^2}$ $F_{\alpha,n_1-1,n_2-1}=\frac{1}{F_{1-\alpha,n_2-1,n_1-1}}$
$T=\frac{\bar{x}_1-\bar{x}_2}{\sqrt{\frac{S_1^2}{n_1}+\frac{S_2{}^2}{n_2}}}$ $(\bar{x}_1-\bar{x}_2)-d<\mu_1-\mu_2<(\bar{x}_1-\bar{x}_2)+d$ $d=t_{df,1-\alpha/2}\sqrt{\frac{S_1^2}{n_1}+\frac{S_2{}^2}{n_2}}$	$T=\frac{\bar{D}}{\frac{S_D}{\sqrt{n}}}$ $\bar{D}-d<\mu_D<\bar{D}+d$ $d=t_{n-1,1-\alpha/2}\frac{S_D}{\sqrt{n}}$	$Z=\frac{r_1-r_2}{\sqrt{\hat{r}(1-\hat{r})(\frac{1}{n_1}+\frac{1}{n_2})}}$ $\hat{r}=\frac{n_1r_1+n_2r_2}{n_1+n_2}$ $\quad\hat{r}=\frac{a_1+a_2}{n_1+n_2}$ $(r_1-r_2)-d<P_1-P_2<(r_1-r_2)+d$ $d=z_{1-\alpha/2}\sqrt{\frac{r_1(1-r_1)}{n_1}+\frac{r_2(1-r_2)}{n_2}}$

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$\chi^2 = \sum_{i=1}^{k} \frac{O_i^2}{E_i} - n$ $E_i = np_{io}$ $\chi^2 = \sum_{i=1}^{r} \sum_{j=1}^{c} \frac{O_{ij}^2}{E_{ij}} - n$ $E_{ij} = \frac{\text{(sum of the column j) (sum of the raw i)}}{\text{Total}}$	$F = \frac{MST_r}{MSE}$ $F = \frac{MSbk}{MSE}$ $F_A = \frac{MSA}{MSE}$ $F_B = \frac{MSB}{MSE}$ $F_{AB} = \frac{MSAB}{MSE}$
$T^+ + T^- = n$ $w_s = w_1 - \frac{n_1(n_1+1)}{2}$ $w_{1-\alpha, n_1 n_2} = n_1 n_2 - w_{\alpha, n_1, n_2}$	$\bar{x} = \frac{\sum x}{n}$ $\bar{y} = \frac{\sum y}{n}$ $S_{XY} = \sum xy - n\bar{x}\bar{y}$ $S_{xx} = \sum x^2 - n\bar{x}^2$ $S_{yy} = \sum y^2 - n\bar{y}^2$ $b = \frac{S_{xy}}{S_{xx}}$ $a = \bar{y} - b\bar{x}$ $y = a + b\,x$ $R^2 = \frac{bS_{xy}}{S_{yy}}$ $r_p = \frac{S_{xy}}{\sqrt{S_{xx}\,S_{yy}}}$ $r_s = 1 - \frac{6\sum d^2}{n(n^2-1)}$