| Parámetro | media | varianza | estadístico | Intervalo de confianza |
|---|---|---|---|---|
| **μ con σ conocida** | μ | $\sigma_1^2$ | $\frac{\bar{x}-\mu}{\sigma/\sqrt{n}}$ | $\bar{x} \pm Z_{\alpha/2}\frac{\sigma}{\sqrt{n}}$ |
| **μ con σ desconocida** | μ | $s_1^2$ | $\frac{\bar{x}-\mu}{s/\sqrt{n}}$ | $\bar{x} \pm t_{\frac{\alpha}{2},n-1}\frac{s}{\sqrt{n}}$ |
| **Proporción** | np | npq | $z = \frac{\hat{p}-P}{\sqrt{\frac{Pq}{n}}}$ | $\hat{p} \pm Z_{\alpha/2}\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$ |
| **Varianza** | | | $\chi^2{}_{(n-1)} \sim \frac{(n-1)S^2}{\sigma^2}$ | $\frac{(\mathrm{n}-1)s^2}{x^2_{\frac{\alpha}{2},n-1}} < \sigma^2 < \frac{(\mathrm{n}-1)s^2}{x^2_{1-\frac{\alpha}{2},n-1}}$ |
| **$\mu_1-\mu_2$ con $\sigma_1^2\ y\ \sigma_2^2$ conocidas** | $\mu_1-\mu_2$ | $\left(\frac{\sigma_1^2}{n_1}\right)+\left(\frac{\sigma_2^2}{n_2}\right)$ | $Z = \frac{\bar{X}_1-\bar{X}_2-(\mu_1-\mu_2)}{\sqrt{\left(\frac{\sigma_1^2}{n_1}\right)+\left(\frac{\sigma_2^2}{n_2}\right)}}$ | $(\bar{X}_1-\bar{X}_2) \pm Z_{\frac{\alpha}{2}}\sqrt{\left(\frac{\sigma_1^2}{n_1}\right)+\left(\frac{\sigma_2^2}{n_2}\right)}$ |
| **$\mu_1-\mu_2$ con $\sigma_1^2\ y\ \sigma_2^2$ Desconocidas pero iguales** | $\mu_1-\mu_2$ | $s^2{}_p = \left[\frac{(n_1-1)s_1^2+(n_2-1)s_2^2}{n_2+n_1-2}\right]$ | $t_{(n_1+n_2-2)} = \frac{\bar{X}_1-\bar{X}_2-(\mu_1-\mu_2)}{s_p\sqrt{\left(\frac{1}{n_1}\right)+\left(\frac{1}{n_2}\right)}}$ | $(\bar{X}_1-\bar{X}_2) \pm t_{\frac{\alpha}{2},v}S_p\sqrt{\left(\frac{1}{n_1}\right)+\left(\frac{1}{n_2}\right)}$ |
| **$\mu_1-\mu_2$ con $\sigma_1^2\ y\ \sigma_2^2$ Desconocidas y diferentes** | $\mu_1-\mu_2$ | $\left(\frac{s_1^2}{n_1}\right)+\left(\frac{s_2^2}{n_2}\right)$ | $Z = \frac{\bar{X}_1-\bar{X}_2-(\mu_1-\mu_2)}{\sqrt{\left(\frac{s_1^2}{n_1}\right)+\left(\frac{s_2^2}{n_2}\right)}}$ | $(\bar{X}_1-\bar{X}_2) \pm t_{\frac{\alpha}{2},v}\sqrt{\left(\frac{s_1^2}{n_1}\right)+\left(\frac{s_2^2}{n_2}\right)}$<br>$v = \frac{\left(\left(\frac{s_1^2}{n_1}\right)+\left(\frac{s_2^2}{n_2}\right)\right)^2}{\frac{\left(\frac{s_1^2}{n_1}\right)^2}{n_1-1}+\frac{\left(\frac{s_2^2}{n_1}\right)^2}{n_2-1}}$ |
| **Diferencias pareadas $\mu_d$** | $\bar{d}$ | | $t_{(n-1)} = \frac{\bar{d}-\mu_d}{sd/\sqrt{n}}$ | $\bar{d} \pm t_{\frac{\alpha}{2},n-1}\frac{s_d}{\sqrt{n}}$ |
| **Diferencia de proporciones** | $p_x-p_y$ | $\left(\frac{p_xq_x}{n_x}\right)+\left(\frac{p_yq_y}{n_y}\right)$ | $Z = \frac{(\widehat{p_x}-\widehat{p_y})-(p_x-p_y)}{\sqrt{\left(\frac{p_xq_x}{n_x}\right)+\left(\frac{p_yq_y}{n_y}\right)}}$ | $(\widehat{p_x} - \widehat{p_y}) \pm Z_{\frac{\alpha}{2}}\sqrt{\left(\frac{\widehat{p_x}\widehat{q_x}}{n_x}\right)+\left(\frac{\widehat{p_y}\widehat{q_y}}{n_y}\right)}$ |
| **Razón de varianzas** | | | $F = \frac{S_1^2}{S_2^2}$ | $\frac{S_1{}^2}{S_2{}^2} * \frac{1}{f_{\frac{\alpha}{2},n_1-1,n_2-1}} < \frac{\boldsymbol{\sigma_1}^2}{\boldsymbol{\sigma_2}^2} < \frac{S_1{}^2}{S_2{}^2} * f_{\frac{\alpha}{2},n_2-1,n_1-1}$ |

**Tamaños de muestra**

| Tamaño de muestra | finita | infinita |
|---|---|---|
| media | $n = \frac{Z^2\sigma^2}{e^2}$ | $n = \frac{NZ^2\sigma^2}{(N-1)e^2 + Z^2\sigma^2}$ |
| Proporción | $n = \frac{Z^2pq}{e^2}$ | $n = \frac{NZ^2pq}{(N-1)e^2 + Z^2pq}$ |

**Funciones de distribución de probabilidad en software**

| Distribución | Forma | Excel | R |
|---|---|---|---|
| **t** | $P(x > c)$ | =pt(cuantil;gl,lower.tail = F) | DISTR.T.CD(cuantil;gl) |
| **F** | $P(x > c)$ | =DISTR.F.CD(cuantil;gl1;gl2) | pf(q=2.73, df1=15,df2=17, lower.tail=FALSE) |
| **Normal** | $P(x \leq c)$ | =DISTR.NORM.ESTAND.N(C;VERDADERO) | pnorm(c,mean=0,sd=1) |
| **Chi$^2$** | $P(x > c)$ | =DISTR.CHICUAD.CD(c;gl) | pchisq(C,GL, lower.tail = FALSE) |