Intervalos de Confianza

1	$\left(\overline{X} - z_{\frac{\alpha}{2}} \cdot \frac{\sigma}{\sqrt{n}}\ ;\ \overline{X} + z_{\frac{\alpha}{2}} \cdot \frac{\sigma}{\sqrt{n}}\right)$
2	$\left(\overline{X} - t_{\frac{\alpha}{2},n-1} \cdot \frac{s}{\sqrt{n}}\ ;\ \overline{X} + t_{\frac{\alpha}{2},n-1} \cdot \frac{s}{\sqrt{n}}\right)$
3	$\left(\overline{X} - z_{\frac{\alpha}{2}} \cdot \frac{s}{\sqrt{n}}\ ;\ \overline{X} + z_{\frac{\alpha}{2}} \cdot \frac{s}{\sqrt{n}}\right)$
4	$\left(\overline{X}_1 - \overline{X}_2 - z_{\frac{\alpha}{2}} \cdot \sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}\ ;\ \overline{X}_1 - \overline{X}_2 + z_{\frac{\alpha}{2}} \cdot \sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}\right)$
5	$\left(\overline{X}_1 - \overline{X}_2 - z_{\frac{\alpha}{2}} \cdot \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}\ ;\ \overline{X}_1 - \overline{X}_2 + z_{\frac{\alpha}{2}} \cdot \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}\right)$
6	$\left(\overline{X}_1 - \overline{X}_2 - t_{\frac{\alpha}{2},\ n_1+n_2-2} \cdot S_p \cdot \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}\ ;\ \overline{X}_1 - \overline{X}_2 + t_{\frac{\alpha}{2},\ n_1+n_2-2} \cdot S_p \cdot \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}\right)$
7	$\left(\overline{X}_1 - \overline{X}_2 - t_{\frac{\alpha}{2},\upsilon} \cdot \sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}\ ;\ \overline{X}_1 - \overline{X}_2 + t_{\frac{\alpha}{2},\upsilon} \cdot \sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}\right)$
8	$\left(\overline{D} - t_{\frac{\alpha}{2},n-1} \cdot \frac{S_D}{\sqrt{n}}\ ;\ \overline{D} + t_{\frac{\alpha}{2},n-1} \cdot \frac{S_D}{\sqrt{n}}\right)$
9	$\left(\frac{(n-1) \cdot S^2}{\chi^2_{\frac{\alpha}{2},\ n-1}}\ ;\ \frac{(n-1) \cdot S^2}{\chi^2_{1-\frac{\alpha}{2},n-1}}\right)$
10	$\left(\frac{S_1^2}{S_2^2} \cdot f_{1-\frac{\alpha}{2},n_2-1,n_1-1}\ ;\ \frac{S_1^2}{S_2^2} \cdot f_{\frac{\alpha}{2},n_2-1,n_1-1}\right)$
11	$\left(\widehat{P} - z_{\frac{\alpha}{2}} \cdot \sqrt{\frac{\widehat{P}(1-\widehat{P})}{n}}\ ;\ \widehat{P} + z_{\frac{\alpha}{2}} \cdot \sqrt{\frac{\widehat{P}(1-\widehat{P})}{n}}\right)$
12	$\left(\widehat{P}_1 - \widehat{P}_2 - z_{\frac{\alpha}{2}}\sqrt{\frac{\widehat{P}_1(1-\widehat{P}_1)}{n_1} + \frac{\widehat{P}_2(1-\widehat{P}_2)}{n_2}}\ ;\ \widehat{P}_1 - \widehat{P}_2 + z_{\frac{\alpha}{2}}\sqrt{\frac{\widehat{P}_1(1-\widehat{P}_1)}{n_1} + \frac{\widehat{P}_2(1-\widehat{P}_2)}{n_2}}\right)$

Test de Hipótesis

	Hipótesis nula	Estadístico de Prueba	Hipótesis alternativa	Criterio de rechazo
1	$H_0: \mu = \mu_0$ • $X_i \sim N(\mu\,,\,\sigma^2)$ • σ^2conocido	$Z = \dfrac{\overline{X} - \mu_0}{\sigma/\sqrt{n}}$	$H_1: \mu \neq \mu_0$ $H_1: \mu > \mu_0$ $H_1: \mu < \mu_0$	$\lvert Z\rvert > Z_{\frac{\alpha}{2}}$ $Z > Z_\alpha$ $Z < -Z_\alpha$
2	$H_0: \mu = \mu_0$ • $X_i \sim N(\mu\,,\,\sigma^2)$ • σ^2desconocido	$T = \dfrac{\overline{X} - \mu_0}{S/\sqrt{n}}$	$H_1: \mu \neq \mu_0$ $H_1: \mu > \mu_0$ $H_1: \mu < \mu_0$	$\lvert T\rvert > t_{\frac{\alpha}{2},n-1}$ $T > t_{\alpha,n-1}$ $T < -t_{\alpha,n-1}$
3	$H_0: \mu = \mu_0$ • σ^2 desconocido • $n \geq 30$	$Z = \dfrac{\overline{X} - \mu_0}{S/\sqrt{n}}$	$H_1: \mu \neq \mu_0$ $H_1: \mu > \mu_0$ $H_1: \mu < \mu_0$	$\lvert Z\rvert > Z_{\frac{\alpha}{2}}$ $Z > Z_\alpha$ $Z < -Z_\alpha$
4	$H_0: \mu_1 - \mu_2 = \Delta_0$ • X_{1i} y X_{2j} Indep. • $X_{1i} \sim N(\mu_1\,,\,\sigma_1^2)$ $X_{2j} \sim N(\mu_2\,,\,\sigma_2^2)$ • σ_1^2 y σ_2^2 conocidos	$Z = \dfrac{\overline{X}_1 - \overline{X}_2 - \Delta_0}{\sqrt{\sigma_1^2/n_1 + \sigma_2^2/n_2}}$	$H_1: \mu_1 - \mu_2 \neq \Delta_0$ $H_1: \mu_1 - \mu_2 > \Delta_0$ $H_1: \mu_1 - \mu_2 < \Delta_0$	$\lvert Z\rvert > Z_{\frac{\alpha}{2}}$ $Z > Z_\alpha$ $Z < -Z_\alpha$
5	$H_0: \mu_1 - \mu_2 = \Delta_0$ • X_{1i} y X_{2j} Indep. • X_{1i} y X_{2j} Distribución desconocida • $n_1 \geq 30$ y $n_2 \geq 30$ • σ_1^2 y σ_2^2 desconocidos	$Z = \dfrac{\overline{X}_1 - \overline{X}_2 - \Delta_0}{\sqrt{S_1^2/n_1 + S_2^2/n_2}}$	$H_1: \mu_1 - \mu_2 \neq \Delta_0$ $H_1: \mu_1 - \mu_2 > \Delta_0$ $H_1: \mu_1 - \mu_2 < \Delta_0$	$\lvert Z\rvert > Z_{\frac{\alpha}{2}}$ $Z > Z_\alpha$ $Z < -Z_\alpha$
6	$H_0: \mu_1 - \mu_2 = \Delta_0$ • X_{1i} y X_{2j} Indep. • $X_{1i} \sim N(\mu_1\,,\,\sigma_1^2)$ $X_{2j} \sim N(\mu_2\,,\,\sigma_2^2)$ • σ_1^2 y σ_2^2 desconocidos $\sigma_1^2 = \sigma_2^2 = \sigma^2$	$T = \dfrac{\overline{X}_1 - \overline{X}_2 - \Delta_0}{S_p \cdot \sqrt{1/n_1 + 1/n_2}}$	$H_1: \mu_1 - \mu_2 \neq \Delta_0$ $H_1: \mu_1 - \mu_2 > \Delta_0$ $H_1: \mu_1 - \mu_2 < \Delta_0$	$\lvert T\rvert > t_{\frac{\alpha}{2},n_1+n_2-2}$ $T > t_{\alpha,n_1+n_2-2}$ $T < -t_{\alpha,n_1+n_2-2}$

7	$H_0: \mu_1 - \mu_2 = \Delta_0$ • X_{1i} y X_{2j} Indep. • $X_{1i} \sim N(\mu_1, \sigma_1^2)$ $X_{2j} \sim N(\mu_2, \sigma_2^2)$ • σ_1^2 y σ_2^2 desconocidos $\sigma_1^2 \neq \sigma_2^2$	$T^* = \dfrac{\overline{X}_1 - \overline{X}_2 - \Delta_0}{\sqrt{S_1^2/n_1 + S_2^2/n_2}}$ $\upsilon = \dfrac{(S_1^2/n_1 + S_2^2/n_2)^2}{\dfrac{(S_1^2/n_1)^2}{n_1 - 1} + \dfrac{(S_2^2/n_2)^2}{n_2 - 1}}$	$H_1: \mu_1 - \mu_2 \neq \Delta_0$ $H_1: \mu_1 - \mu_2 > \Delta_0$ $H_1: \mu_1 - \mu_2 < \Delta_0$	$\lvert T^*\rvert > t_{\frac{\alpha}{2},\upsilon}$ $T^* > t_{\alpha,\upsilon}$ $T^* < -t_{\alpha,\upsilon}$
8	$H_0: \mu_1 - \mu_2 = \Delta_0$ • Observaciones pares no indep. • $D_i \sim N(\mu_D, \sigma_D^2)$ • σ_D^2 desconocido	$T = \dfrac{\overline{D} - \Delta_0}{S_D/\sqrt{n}}$	$H_1: \mu_1 - \mu_2 \neq \Delta_0$ $H_1: \mu_1 - \mu_2 > \Delta_0$ $H_1: \mu_1 - \mu_2 < \Delta_0$	$\lvert T\rvert > t_{\frac{\alpha}{2},n-1}$ $T > t_{\alpha,n-1}$ $T < -t_{\alpha,n-1}$
9	$H_0: \sigma^2 = \sigma_0^2$ • $X_i \sim N(\mu, \sigma^2)$	$X = \dfrac{(n-1)S^2}{\sigma_0^2}$	$H_1: \sigma^2 \neq \sigma_0^2$ $H_1: \sigma^2 > \sigma_0^2$ $H_1: \sigma^2 < \sigma_0^2$	$X > \chi^2_{\frac{\alpha}{2},n-1}$ o $X < \chi^2_{1-\frac{\alpha}{2},n-1}$ $X > \chi^2_{\alpha,n-1}$ $X < \chi^2_{1-\alpha,n-1}$
10	$H_0: \sigma_1^2 = \sigma_2^2$ • $X_{1i} \sim N(\mu_1, \sigma_1^2)$ $X_{2j} \sim N(\mu_2, \sigma_2^2)$	$F = \dfrac{S_1^2}{S_2^2}$	$H_1: \sigma_1^2 \neq \sigma_2^2$ $H_1: \sigma_1^2 > \sigma_2^2$ $H_1: \sigma_1^2 < \sigma_2^2$	$F > f_{\frac{\alpha}{2},n_1-1,n_2-1}$ o $F < f_{1-\frac{\alpha}{2},n_1-1,n_2-1}$ $F > f_{\alpha,n_1-1,n_2-1}$ $F < f_{1-\alpha,n_1-1,n_2-1}$
11	$H_0: p = p_0$ • $X \sim B(n, p)$ • $n \geq 30$	$Z = \dfrac{\widehat{P} - p_0}{\sqrt{\dfrac{p_0(1-p_0)}{n}}}$	$H_1: p \neq p_0$ $H_1: p > p_0$ $H_1: p < p_0$	$\lvert Z\rvert > Z_{\frac{\alpha}{2}}$ $Z > Z_\alpha$ $Z < -Z_\alpha$
12	$H_0: p_1 - p_2 = 0$ • X_1 y X_2 Indep. • $X_1 \sim B(n_1, p_1)$ $X_2 \sim B(n_2, p_2)$ • $n_1 \geq 30$ y $n_2 \geq 30$	$Z = \dfrac{\widehat{P}_1 - \widehat{P}_2}{\sqrt{\widehat{P}(1-\widehat{P})\left(\dfrac{1}{n_1} + \dfrac{1}{n_2}\right)}}$	$H_1: p_1 - p_2 \neq 0$ $H_1: p_1 - p_2 > 0$ $H_1: p_1 - p_2 < 0$	$\lvert Z\rvert > Z_{\frac{\alpha}{2}}$ $Z > Z_\alpha$ $Z < -Z_\alpha$