## INTERVALOS DE CONFIANZA PARA $\mu$

- **$X \sim$ normal**
  - Si: **$\sigma^2$ conocida**
    - Si: $\bar{X} \pm Z_{\alpha/2}\frac{\sigma}{\sqrt{n}}$
    - No: $\bar{X} \pm t_{\alpha/2,n-1}\frac{S}{\sqrt{n}}$
  - No: **$n \geq 30$**
    - No: Distribución Exacta
    - Si: **$\sigma^2$ conocida**
      - Si: $\bar{X} \pm Z_{\alpha/2}\frac{\sigma}{\sqrt{n}}$ Aproximado
      - No: $\bar{X} \pm Z_{\alpha/2}\frac{S}{\sqrt{n}}$ Aproximado

## INTERVALOS DE CONFIANZA PARA $\mu_1 - \mu_2$

- **$X_1, X_2 \sim$ normal**
  - Si: **$\sigma_1^2, \sigma_2^2$ conocidas**
    - Si: $(\bar{X}_1 - \bar{X}_2) \pm Z_{\alpha/2}\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}$
    - No: **$\sigma_1^2 = \sigma_2^2$**
      - Si: $(\bar{X}_1 - \bar{X}_2) \pm t_{\alpha/2,(n_1+n_2)-2} SP\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$
      - No: $(\bar{X}_1 - \bar{X}_2) \pm t_{\alpha/2,v}\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}$ Aproximado
  - No: **$n_1, n_2 \geq 30$**
    - No: Distribución Exacta
    - Si: **$\sigma_1^2, \sigma_2^2$ conocidas**
      - Si: $(\bar{X}_1 - \bar{X}_2) \pm Z_{\alpha/2}\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}$ Aproximado
      - No: $(\bar{X}_1 - \bar{X}_2) \pm Z_{\alpha/2}\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}$ Aproximado

$$SP = \sqrt{\frac{(n_1-1)S_1^2+(n_2-1)S_2^2}{n_1+n_2-2}} \qquad v = \frac{\left(\frac{S_1^2}{n_1}+\frac{S_2^2}{n_2}\right)^2}{\frac{\left(\frac{S_1^2}{n_1}\right)^2}{n_1-1}+\frac{\left(\frac{S_2^2}{n_2}\right)^2}{n_2-1}}$$

## INTERVALOS DE CONFIANZA PARA P

Si $\begin{matrix}\mathbf{X \sim bin(n, P)} \\ \mathbf{n \geq 30}\end{matrix} \Longrightarrow \hat{P} \pm Z_{\alpha/2}\sqrt{\frac{\hat{P}(1-\hat{P})}{n}}$

Aproximado

## INTERVALOS DE CONFIANZA PARA $\mathbf{P_1 - P_2}$

Si $\begin{matrix}\mathbf{X_1 \sim bin(n_1, P_1), X_2 \sim bin(n_2, P_2)} \\ \mathbf{n_1, n_2 \geq 30}\end{matrix} \Longrightarrow \hat{P}_1 - \hat{P}_2 \pm Z_{\alpha/2}\sqrt{\frac{\hat{P}_1(1-\hat{P}_1)}{n_1}+\frac{\hat{P}_2(1-\hat{P}_2)}{n_2}}$

Aproximado

## NOTAS:

- Si no se tiene $\hat{P}$, se asume igual a 0.5.
- $\prod_{i=1}^{n} a = a^n$.
- $\prod_{i=1}^{n} exp\left\{-\frac{x_i}{a}\right\} = exp\left\{-\frac{1}{a}\sum_{i=1}^{n} x_i\right\}$.
- $ln\left[\prod_{i=1}^{n}(x_i)\right] = \sum_{i=1}^{n} ln(x_i)$.