$\bar{X} \sim N\left(\mu, \frac{\sigma}{\sqrt{n}}\right)$ Media muestral	$\frac{\bar{X}-\mu}{\hat{s}/\sqrt{n}} \sim t_{n-1}$	$\frac{(n-1)}{\sigma^2}\hat{s}^2 \sim \chi^2_{n-1}$	$\hat{s}^2 = \frac{n}{n-1}s^2$ Cuasivarianza muestral

$\bar{X}_n = \frac{\sum_{i=1}^{n} x_i}{n}$	$s^2 = \frac{1}{n}\sum_{i=1}^{n}(x_i^2) - \bar{x}_n^2$ Varianza muestral	$\hat{s}^2 = \frac{1}{n-1}\sum_{i=1}^{n}(x_i^2) - \bar{x}_n^2$

$$1-\alpha = P(|\bar{X}_n - \mu| \leq \varepsilon) = P\left(|Z| \leq \frac{\varepsilon}{\sigma/\sqrt{n}}\right)$$ Si $X \sim N$

$$\frac{\varepsilon}{\sigma/\sqrt{n}} = z_{1-\alpha} \longrightarrow n = \left\lceil \frac{\sigma^2 z^2_{1-\alpha/2}}{\varepsilon^2} \right\rceil$$ Si $X \not\sim N$, $n \geq 30$ (TCL)

$$P(|\bar{X}_n - \mu| \leq \varepsilon) \geq 1 - \frac{Var[\bar{X}_n]}{\varepsilon^2} = 1 - \frac{\sigma^2}{n\varepsilon^2} = 1-\alpha$$

$$\alpha = \frac{\sigma^2}{n\varepsilon^2} \longrightarrow n = \left\lceil \frac{\sigma^2}{\alpha\varepsilon^2} \right\rceil$$ Si $X \not\sim N$, $n < 30$ (Chebyshev)

TCL	Chebyshev	
* $n = \left\lceil \frac{p(1-p)\, z^2_{1-\alpha/2}}{\varepsilon^2} \right\rceil$	$n = \left\lceil \frac{p(1-p)}{\alpha\varepsilon^2} \right\rceil$	$X \sim B(p)$ p conocida
$n = \left\lceil \frac{z^2_{1-\alpha/2}}{4\varepsilon^2} \right\rceil$	$n = \left\lceil \frac{1}{4\alpha\varepsilon^2} \right\rceil$	$X \sim B(p)$ p desconocida ó $= 1/2$

Método de los momentos

$$\mu = E[X] = \int_{-\infty}^{\infty} x f(x_i, \theta)$$

$\hat{\theta}_{MM}$ = Sol. indicada para θ de la igualdad $\mu = E[X]$

Método de máxima verosimilitud

$$L(\theta) = L(X_n, \theta) = \prod_{i=1}^{n} f(X_i, \theta)$$

$$\ln L(\theta) = \ln \prod_{i=1}^{n} f(X_i, \theta)$$

$$\frac{d}{d\theta}\ln L(\theta) = \frac{d}{d\theta}\sum_{i=1}^{n} \ln L(X_i, \theta) = 0$$

$\hat{\theta}_{MV}$ = Sol. indicada para θ de la igualdad $\frac{d}{d\theta}\ln L(\theta) = 0$