

TRABAJO 2

TEOREMA CENTRAL DEL LIMITE

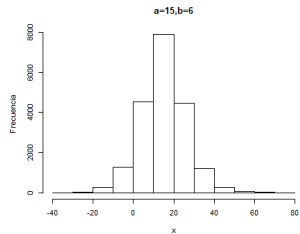
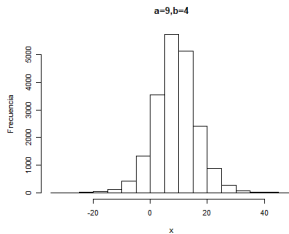
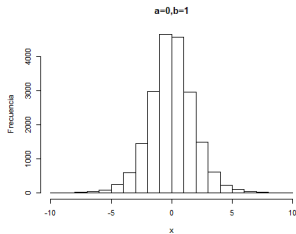
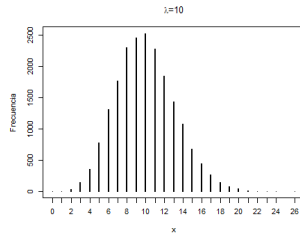
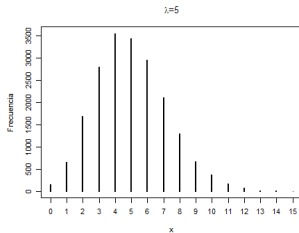
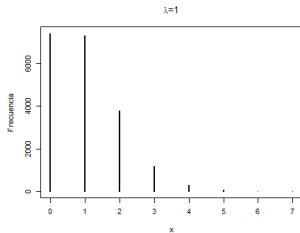
PRUEBAS DE NORMALIDAD

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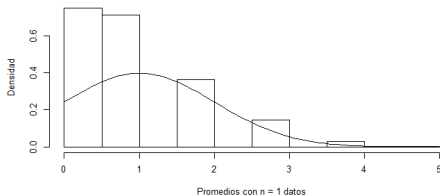
Mayo 2018

Poblaciones

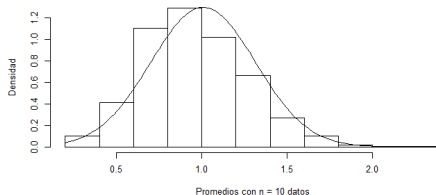


Simulación distribución Poisson($\lambda = 1$)

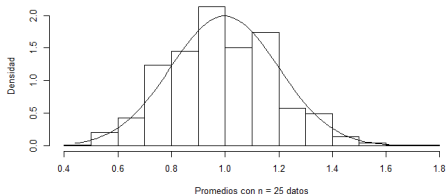
Media = 1.002
Varianza = 1.006



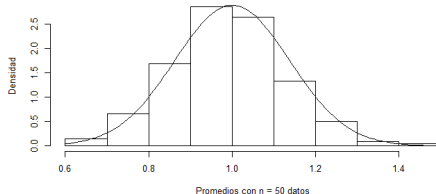
Media = 1.0079
Varianza = 0.0938



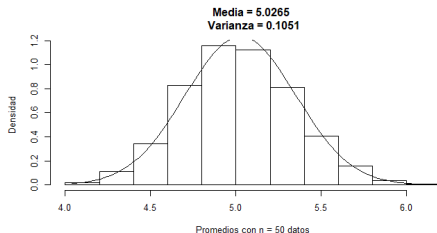
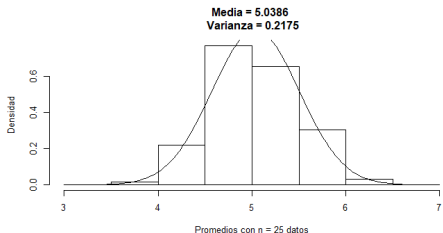
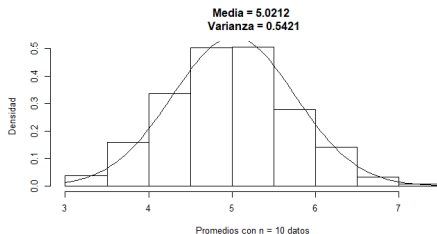
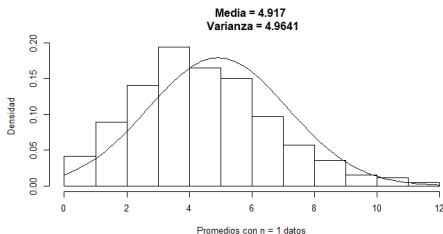
Media = 0.998
Varianza = 0.0401



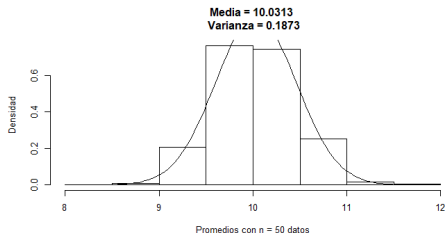
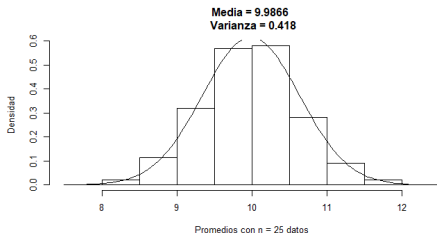
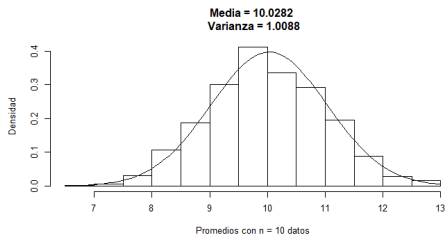
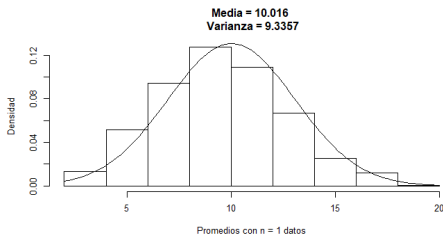
Media = 1.0002
Varianza = 0.0189



Simulación distribución Poisson($\lambda = 5$)



Simulación distribución Poisson($\lambda = 10$)



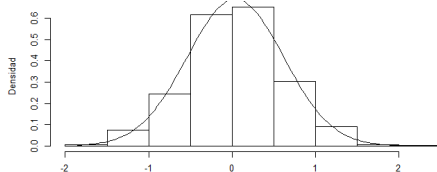
Simulación distribución Logística($\alpha = 0, \beta = 1$)

Media = -0.0244
Varianza = 3.6131



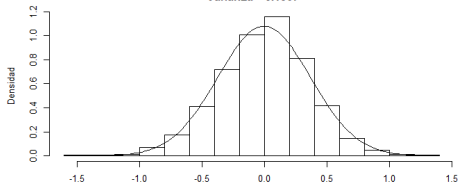
Promedios con n = 1 datos

Media = 0.0389
Varianza = 0.3335



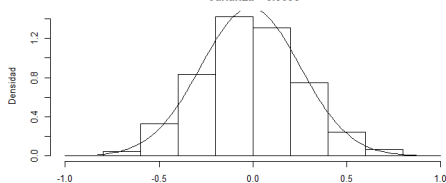
Promedios con n = 10 datos

Media = -0.0036
Varianza = 0.1367



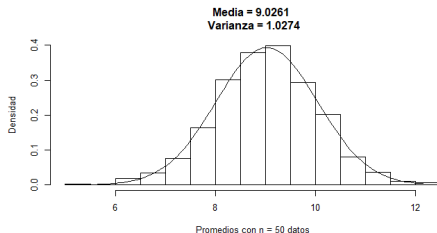
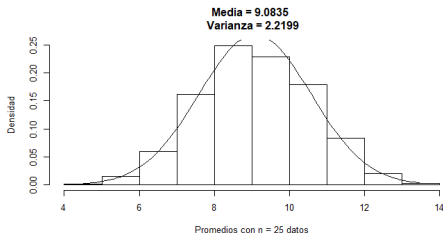
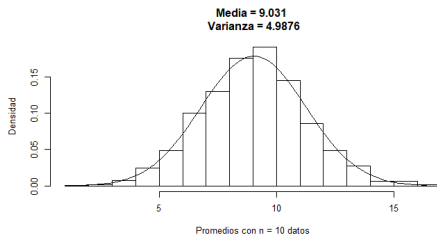
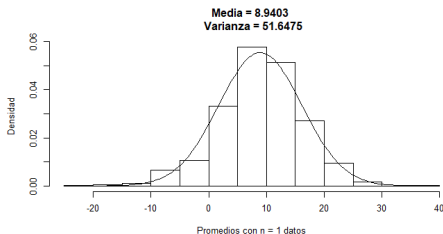
Promedios con n = 25 datos

Media = -0.0135
Varianza = 0.0695

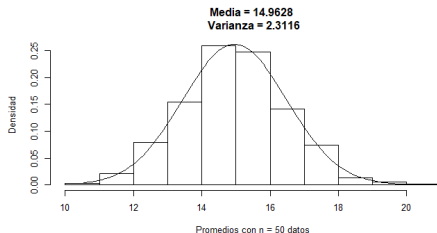
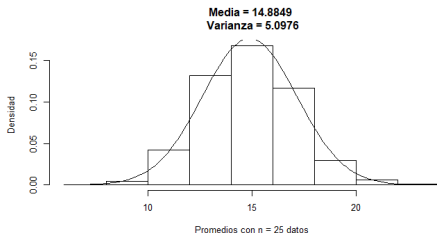
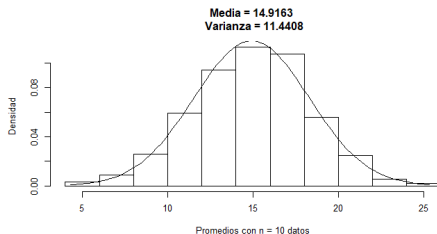
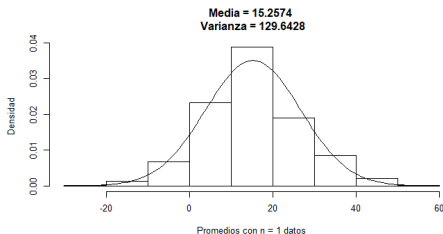


Promedios con n = 50 datos

Simulación distribución Logística($\alpha = 9, \beta = 4$)



Simulación distribución Logística($\alpha = 15, \beta = 6$)



Estadístico de prueba Cramér-Von Mises

Distribuciones para las cuales esta prueba plantea las hipótesis:

$$H_0 : f(x, \theta) = f_0(x, \theta)$$

$$H_1 : f(x, \theta) \neq f_0(x, \theta)$$

Se tiene como estadístico de prueba a:

$$W = \frac{1}{12n} + \sum_{i=1}^N \left[P_i - \frac{2i-1}{2n} \right]$$

Resultados prueba de Cramér-Von Mises para la distribución Poisson

	n=1		n=10		n=25		n=30	
Parámetro	W	P-Valor	W	P-Valor	W	P-Valor	W	P-valor
$\lambda=1$	10.619	1.123e-10	0.95609	0.003111	0.423	0.06284	0.42211	0.06318
$\lambda=5$	2.3964	1.622e-06	0.178	0.3145	0.08937	0.6396	0.08607	0.6576
$\lambda=10$	1.0749	0.001638	0.12153	0.4893	0.06887	0.7586	0.062997	0.7952

Figura: Comparación resultados prueba de Cramér-Von Mises

Resultados prueba de Cramér-Von Mises para la distribución Logística

Parámetro	n=1		n=10		n=25		n=50	
	W	P-Valor	W	P-Valor	W	P-Valor	W	P-valor
$\alpha=0, \beta=1$	0.18989	0.288	0.0804	0.6894	0.02928	0.9785	0.0477	0.8903
$\alpha=9, \beta=4$	0.2185	0.2343	0.02528	0.989	0.07099	0.7456	0.026256	0.9868
$\alpha=15, \beta=6$	0.55174	0.02948	0.03095	0.973	0.019361	0.9976	0.044503	0.9088

Figura: Comparación resultados prueba de Cramér-Von Mises