**Ejercicio 1 – Hoja 5**

Ncaras <- 0:5

Cfrecuencia <- c(30, 60, 120, 80, 20, 10)

n <- sum(Cfrecuencia)

p <- dbinom(Ncaras, 5, 1/2)

p

[1] 0.03125 0.15625 0.31250 0.31250 0.15625 0.03125

sum(p)

[1] 1

e <- n\*p

t(e)

 [,1] [,2] [,3] [,4] [,5] [,6]

[1,] 10 50 100 100 50 10

chisq.test(Cfrecuencia, p = p, rescale.p = FALSE)

 **Chi-squared test for given probabilities**

data: Cfrecuencia

X-squared = 68, df = 5, p-value = 2.67e-13

**Ejercicio 2.**

Pteorica <- c(0.04, 0.23, 0.1, 0.63)

Observado <- c(5, 35, 8, 152)

n <- sum(Observado)

Esperado <- n\*Pteorica

Esperado

[1] 8 46 20 126

chisq.test(Observado, p = Pteorica, rescale.p = FALSE)

 **Chi-squared test for given probabilities**

data: Observado

X-squared = 16.3205, df = 3, p-value = 0.0009747

**Ejercicio 3.**

Observado <- c(75, 125, 70, 80, 135, 115)

n <- sum(Observado)

p <- rep(1/6,6)

Esperado <- n\*p

Esperado

[1] 100 100 100 100 100 100

chisq.test(Observado, p = p, rescale.p = FALSE)

 **Chi-squared test for given probabilities**

data: Observado

X-squared = 40, df = 5, p-value = 1.493e-07

**Ejercicio 4.**

Gasto <- c(10, 14, 15, 20, 30, 45, 45, 60, 85, 120, 130, 200, 200, 270, 270)

library(nortest)

lillie.test(Gasto)

 **Lilliefors (Kolmogorov-Smirnov) normality test**

data: GastoObservado

D = 0.2035, p-value = 0.09531

**# SERIA INCORRECTO UTILIZAR EL CONTRASTE KS**

> ks.test(GastoObservado, "pnorm", mean(GastoObservado), sd(GastoObservado))

 One-sample Kolmogorov-Smirnov test

data: GastoObservado

D = 0.2035, p-value = 0.5636

alternative hypothesis: two-sided

Mensajes de aviso perdidos

In ks.test(GastoObservado, "pnorm", mean(GastoObservado), sd(GastoObservado)) :

 ties should not be present for the Kolmogorov-Smirnov test

**# SERIA INCORRECTO UTILIZAR EL CONTRASTE KS**

**Ejercicio 5.**

Frecuencia <- c(30, 23, 6, 5, 6, 0)

ap <- pexp(0:6, 1/2)

p <- diff(pexp(0:6, 1/2))

p[6] <- 1 - sum(p[1:5])

p

[1] 0.39346934 0.23865122 0.14474928 0.08779488 0.05325028 0.08208500

p\*sum(Frecuencia)

[1] 27.542854 16.705585 10.132450 6.145641 3.727520 5.745950

chisq.test(Frecuencia, p = p, rescale.p = FALSE)

 **Chi-squared test for given probabilities**

data: Frecuencia

X-squared = 11.621, df = 5, p-value = 0.04036

Warning message:

In chisq.test(Frecuencia, p = p, rescale.p = FALSE) :

 Chi-squared approximation may be incorrect

Frecuencia[5] = Frecuencia[5] + Frecuencia[6]

Frecuencia

[1] 30 23 6 5 6 0

Frecuencia = Frecuencia[-6]

Frecuencia

[1] 30 23 6 5 6

p[5] = p[5] + p[6]

p

[1] 0.39346934 0.23865122 0.14474928 0.08779488 0.13533528 0.08208500

p = p[-6]

p

[1] 0.39346934 0.23865122 0.14474928 0.08779488 0.13533528

chisq.test(Frecuencia, p = p, rescale.p = FALSE)

 **Chi-squared test for given probabilities**

data: Frecuencia

X-squared = 5.7634, df = 4, p-value = 0.2175

**Ejercicio 6.**

RU <- c(0.01, 0.10, 0.19, 0.26, 0.28, 0.32, 0.36, 0.39, 0.42, 0.48, 0.51, 0.58, 0.62, 0.65, 0.68, 0.76, 0.83, 0.88, 0.92, 0.96)

ks.test(RU, "punif", 0, 1)

 **One-sample Kolmogorov-Smirnov test**

data: RU

D = 0.11, p-value = 0.9472

alternative hypothesis: two-sided

ks.test(RU^2, "punif", 0, 1)

 **One-sample Kolmogorov-Smirnov test**

data: RU^2

D = 0.2899, p-value = 0.05544

alternative hypothesis: two-sided

**Ejercicio 7.**

Longitud <- c(10.39, 10.66, 10.12, 10.32, 10.25, 10.91, 10.52, 10.83, 10.72, 10.28, 10.35, 10.46, 10.54, 10.72, 10.23, 10.18, 10.62, 10.49, 10.32, 10.61, 10.64, 10.23, 10.29, 10.78, 10.81, 10.39, 10.34, 10.62, 10.75, 10.34, 10.41, 10.8, 10.64, 10.53, 10.31, 10.46, 10.47, 10.43, 10.57, 10.74)

**a)**

ks.test(Longitud, "pnorm", 10.5, 0.1)

 **One-sample Kolmogorov-Smirnov test**

data: Longitud

D = 0.2582, p-value = 0.009658

alternative hypothesis: two-sided

Mensajes de aviso perdidos

In ks.test(Longitud, "pnorm", 10.5, 0.1) :

 ties should not be present for the Kolmogorov-Smirnov test

**b)**

library(nortest)

lillie.test(Longitud)

 **Lilliefors (Kolmogorov-Smirnov) normality test**

data: Longitud

D = 0.0957, p-value = 0.4714

**Ejercicio 8.**

Observado <- c(8, 7, 3, 5, 9, 11, 6, 4, 7)

p <- rep(1/9, 9)

chisq.test(Observado, p = p, rescale.p = FALSE)

 **Chi-squared test for given probabilities**

data: Observado

X-squared = 7.5, df = 8, p-value = 0.4838

**Ejercicio 9.**

Observado <- c(4, 6, 7, 5, 5, 8)

p <- rep(1/6, 6)

chisq.test(Observado, p = p, rescale.p = FALSE)

 **Chi-squared test for given probabilities**

data: Observado

X-squared = 1.8571, df = 5, p-value = 0.8685