**Ejercicio 1 – Hoja 2**

> x <- rnorm(9)

> x

[1] -0.9026374 0.3964397 -0.8823501 -0.1674865 0.5114247 0.1984006 0.3968126 -1.6689549 -1.7624156

> y <- 128 + (x-mean(x))\*30/sd(x)

> mean(y)

[1] 128

> sd(y)

[1] 30

> t.test(y, alternative = "greater", mu = 108)

One Sample t-test

data: y

t = 2, df = 8, p-value = 0.04026

alternative hypothesis: true mean is greater than 108

95 percent confidence interval:

109.4045 Inf

sample estimates: mean of x

128

> 1-pt(2,8)

[1] 0.04025812

**Ejercicio 2 – Hoja 2**

> x <- rnorm(24)

> y <- 5.5 + (x-mean(x))\*4/sd(x)

> mean(y)

[1] 5.5

> sd(y)

[1] 4

> t.test(y, alternative = "less", mu = 6)

One Sample t-test

data: y

t = -0.6124, df = 23, p-value = 0.2731

alternative hypothesis: true mean is less than 6

95 percent confidence interval:

-Inf 6.89937

sample estimates:

mean of x

5.5

> pt(-0.6124,23)

[1] 0.2731403

**Ejercicio 3 – Hoja 2**

**a)**

> x <- rnorm(9)

> y <- 15.308 + (x-mean(x))\*0.193/sd(x)

> mean(y)

[1] 15.308

> sd(y)

[1] 0.193

> t.test(y, alternative = "two.sided", mu = 15, conf.level = 0.95)

One Sample t-test

data: y

t = 4.7876, df = 8, p-value = 0.001377

alternative hypothesis: true mean is not equal to 15

95 percent confidence interval:

15.15965 15.45635

sample estimates:

mean of x

15.308

**b)**

> mean(y)+sd(y)\*qt(0.025,8)/sqrt(9)

[1] 15.15965

> mean(y)+sd(y)\*qt(0.975,8)/sqrt(9)

[1] 15.45635

**Ejercicio 4 – Hoja 2**

> x <- rexp(64,1)

> y <- 750 + (x-mean(x))\*120/sd(x)

> t.test(y, alternative = "less", mu = 850)

One Sample t-test

data: y

t = -6.6667, df = 63, p-value = 3.794e-09

alternative hypothesis: true mean is less than 850

95 percent confidence interval:

-Inf 775.041

**> pnorm(-6.6667)**

**[1] 1.308095e-11**

**¡¡¡Si me equivoco en las hipótesis!!!**

t.test(y, alternative = "greater", mu = 850)

One Sample t-test

data: y

t = -6.6667, df = 63, p-value = 1

alternative hypothesis: true mean is greater than 850

95 percent confidence interval:

724.959 Inf

**> 1-pnorm(-6.6667)**

**[1] 1**

**Ejercicio 5 – Hoja 2**

> x <- rexp(35,1)

> y <- 7 + (x-mean(x))\*2/sd(x)

> t.test(y, alternative = "greater", mu = 15)

One Sample t-test

data: y

t = -23.6643, df = 34, p-value = 1

alternative hypothesis: true mean is greater than 15

95 percent confidence interval:

6.428363 Inf

**Ejercicio 6 – Hoja 2**

> x <- runif(100)

> y <- 320 + (x-mean(x))\*60/sd(x)

> t.test(y, alternative = "two.sided", mu = 350, conf.level = 0.9)

One Sample t-test

data: y

t = -5, df = 99, p-value = 2.481e-06

alternative hypothesis: true mean is not equal to 350

90 percent confidence interval:

310.0377 329.9623

sample estimates:

mean of x

320

**Asumiendo la distribución t-student:**

> 2\*(1-pt(5,99))

[1] 2.481396e-06

**Asumiendo la distribución Normal:**

> 2\*(1-pnorm(5))

[1] 5.733031e-07

> hist(y)

