**Ejemplo 2.1**

> x <- c(208, 206, 210, 199, 202, 196, 198, 209, 211, 204, 206, 197, 196, 203, 207)

> summary(x)

 Min. 1st Qu. Median Mean 3rd Qu. Max.

 196.0 198.5 204.0 203.5 207.5 211.0

> (mean(x)-200)/(4.5/sqrt(15))

[1] 2.983632

> (1-pnorm(2.983632))\*2

[1] 0.002848491

> mean(x)+4.5\*qnorm(0.025)/sqrt(15)

[1] 201.1894

> mean(x)+4.5\*qnorm(0.975)/sqrt(15)

[1] 205.7439

> mean(x)+4.5\*qnorm(0.005)/sqrt(15)

[1] 200.4738

> mean(x)+4.5\*qnorm(0.995)/sqrt(15)

[1] 206.4595

**Ejemplo 2.2**

> (1-pnorm(2.983632))

[1] 0.001424246

**Ejemplo 2.3**

> t.test(x, alternative = "two.sided", mu = 200, conf.level = 0.95)

 One Sample t-test

data: x

t = 2.5712, df = 14, p-value = 0.02218

alternative hypothesis: true mean is not equal to 200

95 percent confidence interval:

 200.5750 206.3584

sample estimates: mean of x

 203.4667

> t.test(x, alternative = "two.sided", mu = 200, conf.level = 0.99)

 One Sample t-test

data: x

t = 2.5712, df = 14, p-value = 0.02218

alternative hypothesis: true mean is not equal to 200

99 percent confidence interval:

 199.4531 207.4802

sample estimates: mean of x

 203.4667

**Ejemplo 2.3 (Hecho “a mano”)**

> (mean(x)-200)/(sd(x)/sqrt(15))

[1] 2.571235

> 2\*(1-pt(2.571235, 14))

[1] 0.02218399

**Ejemplo 2.4**

> sigma20 <- 114.09

> S2 <- 110.2

> n <- 10

> **s2 <- S2\*n/(n-1) Notar que el dato es varianza muestral.**

> s2

[1] 122.4444

> (n-1)\*s2/sigma20

[1] 9.659041

> 1-pchisq(9.659041,9)

[1] 0.3787861

**Ejemplo 2.5**

> n <- 55

> vm <- 1750

> sdv <- 120

> (vm - 1600)/(sdv/sqrt(n))

[1] 9.270248

> 2\*(1-pnorm(9.270248))

[1] 0