**Assignment 5.1**

1. If Z is norm (mean = 0, sd = 1)

Find P(Z > 2.64)

Find P(|Z| > 1.39)

Answer:

**#Find P(Z > 2.64)**

**1 - pnorm(2.64, mean=0, sd=1)**

**[1] 0.004145301**

**#Find P(|Z| > 1.39)**

**1-(pnorm(1.39)-pnorm(-1.39))**

**[1] 0.1645289**

2. Suppose p = the proportion of students who are admitted to the graduate school of the University of California at Berkeley, and suppose that a public relation officer boasts that UCB has historically had a 40% acceptance rate for its graduate school. Consider the data stored in the table UCBAdmissions from 1973. Assuming these observations constituted a simple random sample, are they consistent with the officerâ..s claim, or do they provide evidence that the acceptance rate was significantly less than 40%?

Use an a = 0.01 significance level.

Answer:

H0 : P=0.4

H1 : P<0.4

pˆ − 0.4 √ 0.4(1 − 0.4)/n < −z

where α = 0.01 and −z0.01 is

qnorm(0.99)

**[1] -2.326348**

A <- as.data.frame(UCBAdmissions)

head(A)

**Admit Gender Dept Freq**

**1 Admitted Male A 512**

**2 Rejected Male A 313**

**3 Admitted Female A 89**

**4 Rejected Female A 19**

**5 Admitted Male B 353**

**6 Rejected Male B 207**

dim(A)

summary(A$Admit)

phat <- 12/(24)

t <- (phat-0.4)/sqrt(0.4\*0.6/(24))

t

**[1] 1**

**Proportions**:

xtabs(Freq ~ Admit, data = A)

**Admit**

**Admitted Rejected**

**1755 2771**

**value of the test statistic:**

phat <- 1755/(1755 + 2771)

(phat - 0.4)/sqrt(0.4 \* 0.6/(1755 + 2771))

**[1] -1.680919**