Assignment 5

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

Find P(Z > 2.64)

Find P(|Z| > 1.39)

#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**

#OR With Z table

#P(Z > 2.64)

#the probability value of z =2.64 in table is 0.9959

#so P(Z > 2.64)=1-P(z < 2.64)=1-0.9959=0.0041

#P(|Z| > 1.39)

#we can find by Z Table

#P(Z=1.39)-- 0.9177

#P(Z=-1.39)-- 0.0823

#1-(pnorm(1.39)-pnorm(-1.39))

#1-(0.9177-0.0823)

#1-0.8354

**#0.1646 #answer**

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 Î± = 0.01 significance level.

#Ho : p = 0.4

#Ha : p < 0.4

#alpha = 0.01

#Thus to find we use qnorm() function

-qnorm(0.99)

# [1] -2.326348

#Now to find out our test statistic

newucb\_data <- as.data.frame(UCBAdmissions)

View(newucb\_data)

dim(newucb\_data)

summary(newucb\_data$Admit)

phat <- 12/(24)

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

t

# [1] 1

# by calculations it is clear that our test statistic is not less than -2.326348

# So we do not reject our null hypothesis Ho

# hence we say that the observed data are consistent with the officer's claim at alpha = 0.01(Level of Significance)