1. E = 4

Conficence interval = 95%

Z for 95% Confidence interval = 1.96

SD = 22.856

E = Z\*SD/sqrt(n)

N=(Z\*sd/E)^2

N=(1.96\*2.856/4)^2

N rounded=126

2. yes it does

3.E=z\*sqrt(p\*1-p)/n)=.08

Z for 95% confidence Interval = 1.96

P=0.5

E=z\*sqrt(p\*(1-p)/n)

N=(z\*sqrt(p\*(1-p))/E)^2

N=(1.96\*sqrt(0.5\*0.5)0.08)^2

N=150.0625

4.

confidencepercent <- function(percents=c(80, 85, 90, 95, 99),B)

{

top <- c()

m <- length(percents)

for(i in 1:m)

{

alp2 <- (1-(percents[i]/100))/2

z <- abs(qnorm(alp2))

top[i] <- (z\*sig/B)^2

}

out <- cbind(percents,round(top))

return(out)

}

5.

p1>p2

p1=<p2

part 1: before the campaign

num1=(28+82) = 110

part1=28/(28+82)=0.2545

part 2:after the campaign

num2=(45+93)=138

part2=45/(45+93)=0.3261

p=(part1\*num1 +part2\*num2)/(num1+num2)

p=0.2943

sig=sqrt(p\*(1-p)\*(1/num1+1/num2))

sig=0.5825

more=(part1-part2)/sig

more=-0.0716

p=p(more<-0.0716)=0.4715

Significance level = 1-0.95=0.05

The P value is more than the significance level so the null hypothesis can’t be rejected. Thus, yes, the campaign was effective.

6.

Etruscans

num1=84

mue=143.774

sde=5.935

Italians

num2=70

mui=132.443

sdi=5.7

se=sqrt(sde^2/num1+sdi^2/num2)

se=0.94

df=(num1-1)+num2-1)=152

df=152 and confidence interval= 99%

t=2.609

confidence interval upper limit=(mue-mui)-t\*se=8.878

confidence interval lower limit=(mue-mui)+t\*se=13.783

confidence interval is 8.878 to 13.783, meaning the head sizes are with 99% confidence within this limit.