rm(list=ls())

x<-c(460,450,440,430,420,410,450,440,430,420,410,400,420,410,400)

y<-c(0.3,0.3,0.4,0.4,0.6,0.5,0.5,0.6,0.6,0.6,0.7,0.6,0.6,0.6,0.6)

df <-data.frame(x,y)

deo.lm<-lm(y~x, data = df)

#1

coef(deo.lm) #coefficient

summary(deo.lm)

par(mfrow=c(2,2))

plot(x,y)

lines(y,deo.lm$fitted.values,col=2)

lines(x,deo.lm$fitted.values,col=2)

abline(deo.lm,col=3)

#2

anova(deo.lm)

#Here we see that the F statistic is 14.5 which is greater than F(1,13,0.95)=4.67 with a p-value very close to zero. The conclusion: Regression is significant, if there is no lack of fit.

#3

#B1

fit<-lm(chem~temp,data=df)

summary(fit)

confint(fit, 'temp', level=0.95)

#B0

t1<-t.test(chem,temp,paired=TRUE)

t1$estimate

t1$conf.int