Q1

library(minpack.lm)

semi.NL = nlsLM(Reactivity ~ par1\*(1-exp(-exp(par2+par3\*Thickness))),data = semi.df)

print(coef(semi.NL))

y\_predict = predict(semi.NL)

plot(semi.df$Thickness,semi.df$Reactivity,

type="l",col='red',xlab = 'Thickness', ylab = 'Reactivity')

points(semi.df$Thickness,semi.df$Reactivity,col = 'red')

lines(semi.df$Thickness,y\_predict,col="green")

points(semi.df$Thickness,y\_predict,col="green")

#graph for part b)

图片包含 文字, 地图

描述已自动生成

Q2

newcar.df = read.csv('newcar.csv',header = TRUE)

newcar.lg = glm(NEWCAR~INCOME+CAR.AGE,family = 'binomial',data = newcar.df)

library(aod)

print(wald.test(b = coef(newcar.lg), Sigma = vcov(newcar.lg),Terms = 2))

newcar.base.lg = glm(NEWCAR~INCOME,family = 'binomial',data = newcar.df)

library(lmtest)

print(lrtest(newcar.base.lg,newcar.lg))

print(predict(newcar.lg, newdata = data.frame(INCOME = 50,CAR.AGE = 3)))

Q3

N.df = data.frame(N = c(22,146,226,47,52),x = c(247289,948816,1443741,776733,70716))

N.pm = glm(N~x+0, data = N.df, family = poisson)

print(1- pchisq(N.pm$deviance,N.pm$df.residual))

print(summary(N.pm))