```
##Problem 1
XX <- c(2.9705, -4.0042 * 10^-2, -4.1679*10^-2, -0.04004, 6.0774*10^-4,
        -7.3875 * 10^-5, -0.00417, -7.3875 * 10^-5, 2.5766 * 10^-4)
XX <- matrix(XX.data,nrow=3,ncol=3,byrow=TRUE)
XY <- c(4757.9, 334335.8, 179706.7)
XY <- matrix(XY.data, nrow = 3, ncol = 1,byrow=TRUE)
#a
yhat = XX * XY
#b
yhat6_34 <- yhat[1,1] + (yhat[2,1] * 6) + (yhat[3,1] * 34)

##Problem 2
y <- c(240, 236, ..., 261)
x1 <- c(25, 31, ..., 38)
x2 <- c(0.016, 0.02, ..., 0.045)
linreg <- lm(y~x1+x2)
summary(linreg)


##Problem 3
y=c(0.749,0.798,0.849,0.877,0.929,0.963,0.997,1.046,1.133,1.17,1.215)
x1=c(2.05,2.15,2.25,2.3,2.4,2.47,2.54,2.64,2.85,2.94,3.05)
x2=c(0.016,0.02,0.022,0.023,0.026,0.028,0.031,0.034,0.039,0.042,0.045)
model=lm(y~x1+x2)
summary(model)
yhat2.5_0.3 = -0.1105 + 2.5*0.41 +0.3 * 2.108

##Problem 4
y = c(293, 230, 172, 91,113,125)
x1 = c(1.6, 15.5, 22.0, 43.0, 33.0, 40.0)
x2 = c(851, 816, 1058, 1201, 1357, 1115)
model1=lm(y~x1+x2)
summary(model1)
yhat25_1000 = 383.8 - 25*3.64 - 0.11 * 1000
model2 = lm(y~x1+x2+x1*x2)
summary(model2)
yhat25_1000 = 483.97 - 25*7.66 - 0.22 * 1000 + 0.0041 * 25 *1000
```