Econometrics (I) homework 01

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```
data <- read.csv("Econometric-hw1data.csv", header = TRUE)
View(data)
x <- as.matrix(data[, 1])
y <- as.matrix(data[, 2])
# find M
n <- nrow(x)
I <- diag(1, n)
i <- matrix(1, nrow = n, ncol = 1)
iT <- t(i)
M1 <- iT %*% i
M <- I - i %*% solve(M1) %*% iT
# find var(x)
xT <- t(x)
Sxx <- xT %*% M %*% x
var.x <- Sxx/n
> var.x
          [,1]
[1,] 97.10898
#find var(y)
yT <- t(y)
Syy <- yT %*% M %*% y
var.y <- Syy/n
> var.y
          [,1]
[1,] 97.27634
#find cov(x,y)
Sxy <- yT %*% M %*% x
cov.xy <- Sxy/n
> cov.xy
          [,1]
[1,] -1.182993
```