**PRIMA PARTE**: Esempio 1 di allineamento: colonne proporzionali

N = 20

A = matrix(nrow=N,ncol=5)

A[,1]=rnorm(N)

A[,2]=2\*A[,1] + 0.05\*rnorm(N)

A[,3]= rnorm(N)

A[,4]= rnorm(N)

A[,5]= rnorm(N)

Y= A[,1]+ A[,2]+ A[,3]+ A[,4]+ A[,5]+1+0.5\*rnorm(N)

cor(A)

Reg1 = lm(Y ~ A[,1]+ A[,2]+ A[,3]+ A[,4]+ A[,5])

summary(Reg1)

Reg2 = lm(Y ~ A[,1]+ A[,3]+ A[,4]+ A[,5])

summary(Reg2)

X = matrix(nrow=N,ncol=6)

X[,1:5]= A[,1:5]

X[,6]=1

solve(t(X)%\*%X)

**SECONDA PARTE**: Esempio 2 di allineamento: colonne AFFINI

B = matrix(nrow=N,ncol=5)

B[,1]=rnorm(N)

B[,2]=B[,1]+2 + 0.05\*rnorm(N)

B[,3]= rnorm(N)

B[,4]= rnorm(N)

B[,5]= rnorm(N)

Y= B[,1]+ B[,2]+ B[,3]+ B[,4]+ B[,5]+1+0.5\*rnorm(N)

cor(B)

Reg3 = lm(Y ~ B[,1]+ B[,2]+ B[,3]+ B[,4]+ B[,5])

summary(Reg3)

Reg4 = lm(Y ~ B[,1]+ B[,3]+ B[,4]+ B[,5])

summary(Reg4)

X2 = matrix(nrow=N,ncol=6)

X2[,1:5]= B[,1:5]

X2[,6]=1

solve(t(X2)%\*%X2)