5.2

A = matrix(c(2, 3, 5, 4, 1, 5, 7, 8), nrow=4, ncol=2)  
A

[,1] [,2]  
[1,] 2 1  
[2,] 3 5  
[3,] 5 7  
[4,] 4 8

B<-matrix(c(6, 9, 3, 1), nrow=4, ncol=1)  
B

[,1]  
[1,] 6  
[2,] 9  
[3,] 3  
[4,] 1

C = matrix(c(3, 8, 5, 2, 8, 6, 1, 4), nrow=4, ncol=2)  
C

[,1] [,2]  
[1,] 3 8  
[2,] 8 6  
[3,] 5 1  
[4,] 2 4

1)

A+C

[,1] [,2]  
[1,] 5 9  
[2,] 11 11  
[3,] 10 8  
[4,] 6 12

2)

A-C

[,1] [,2]  
[1,] -1 -7  
[2,] -5 -1  
[3,] 0 6  
[4,] 2 4

3)

t(B)%\*%A

[,1] [,2]  
[1,] 58 80

4)

A%\*%t(C)

[,1] [,2] [,3] [,4]  
[1,] 14 22 11 8  
[2,] 49 54 20 26  
[3,] 71 82 32 38  
[4,] 76 80 28 40

5)

t(C)%\*%A

[,1] [,2]  
[1,] 63 94  
[2,] 55 77

5.5

consfin<-read.table("~/CH05PR05.txt", header = F)  
colnames(consfin) <- c("Y","X")

X3=consfin$X  
X3

[1] 4 1 2 3 3 4

Y=consfin$Y  
Y

[1] 16 5 10 15 13 22

1)

t(Y) %\*% as.matrix(Y)

[,1]  
[1,] 1259

X=consfin$X  
X=matrix(c(1, 1, 1, 1, 1, 1, 4, 1, 2, 3, 3, 4), nrow=2, ncol=6, byrow=T)  
X

[,1] [,2] [,3] [,4] [,5] [,6]  
[1,] 1 1 1 1 1 1  
[2,] 4 1 2 3 3 4

2)

X%\*%t(X)

[,1] [,2]  
[1,] 6 17  
[2,] 17 55

3)

X%\*%as.matrix(Y)

[,1]  
[1,] 81  
[2,] 261

5.14

#a)  
X=matrix(c(4, 2, 7, 3), nrow=2)  
X

[,1] [,2]  
[1,] 4 7  
[2,] 2 3

Y=matrix(c(25, 12), nrow=2)  
Y

[,1]  
[1,] 25  
[2,] 12

#b)  
Z=solve(X)%\*%Y  
#Z=ginv(X)%\*%Y  
Z

[,1]  
[1,] 4.5  
[2,] 1.0