Multivariate Statistical Analysis
Homework 2

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```
library(expm)
```

Problem 1

(a)

(b)

(c)

Problem 2

(a)

(b)

```
Sigma <- matrix(data = c(1, -2, 0, -2, 5, 0, 0, 0, 2), nrow = 3, ncol = 3)
print(Sigma)
```

```
##      [,1] [,2] [,3]
## [1,]    1   -2    0
## [2,]   -2    5    0
## [3,]    0    0    2
```

```
Sigma_sqrt <- sqrtm(Sigma)
print(Sigma_sqrt)
```

```
##             [,1]       [,2]     [,3]
## [1,]  0.7071068 -0.7071068 0.000000
## [2,] -0.7071068  2.1213203 0.000000
## [3,]  0.0000000  0.0000000 1.414214
```

Problem 3