1. $\mathbf{A} = \begin{bmatrix} 2 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 1 & 0 \end{bmatrix}$ $\mathbf{b} = \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}$

a. $\mathbf{A}^{-1} = \begin{bmatrix} 1/3 & -1/3 & 1/3 \\ -1/3 & 1/3 & 2/3 \\ 1/3 & 2/3 & -2/3 \end{bmatrix}$

b. $\mathbf{x} = \begin{bmatrix} 2/3 \\ 1/3 \\ -1/3 \end{bmatrix}$

R Script to do Assignment 2.1:

```
A = matrix(c(2,0,1, 0,1,1, 1,1,0), ncol=3, byrow=TRUE)
A
b = c(1,0,1)
b

Ainv = solve(A)  #Part a: inverse
Ainv

Ainv %*% b  #Part b: Solve A x = b
solve(A,b)  #find solution directly
```