Homework for section 2.1 Sec 2.2 Due: Feb 25 (Wednesday)
You have to show your work to get full credits.

Sec 2.1

1. Problem 6 (Just compute AB by row column rule)
   Problem 9 (Hint: Compute AB and BA. Then solve the equation for each entry.)
   Problem 27.

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

   (a) Find A^2, A^3. (Here $A^2 = AA$ and $A^3 = AAA$).
   (b) Let $B = A^T$. Compute AB and BA and $AB - BA$.

3. Let $A = \begin{bmatrix} 4 & 0 & 1 \\ -2 & 1 & 0 \\ -2 & 0 & 1 \end{bmatrix}$. Show that $A^3 - 6A^2 + 11A = 6I$ where $I = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ is the 3×3 identity matrix. (Hint: First compute A^2, A^3.
   Then compute $A^3 - 6A^2 + 11A$.

Sec 2.2

1. Problem 2
   Problem 31
   Problem 32
   Problem 33. Just find the inverse of $\begin{bmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 1 & 1 & 1 \end{bmatrix}$

2. Let A be the matrix defined in Problem 3 above, i.e. $A = \begin{bmatrix} 4 & 0 & 1 \\ -2 & 1 & 0 \\ -2 & 0 & 1 \end{bmatrix}$.
   We have show that $A^3 - 6A^2 + 11A = 6I$. Use this equation $A^3 - 6A^2 + 11A = 6I$ to find an expression for A^{-1} in terms of A.