1. Let 

\[ A = \begin{bmatrix} 4 & -8 & 5 \\ 4 & -7 & 4 \\ 3 & -4 & 2 \end{bmatrix}. \]

(a) Exhibit \( A^{-1} \), (Hint, go back to problem 1.2.5).
(b) Check that \( AA^{-1} = A^{-1}A = I \).
(c) Compute \( A^T \), and check that \( (A^T)^{-1} = (A^{-1})^T \).

2. (a) Let \( A \) is as in part 1, and \( b = \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix} \). Find the solution to \( Ax = b \) using two different methods, first using Gaussian elimination (forward elimination and back substitution), and then by computing \( A^{-1}b \).
(b) Why is this solution unique?