HOMEWORK 6-PART C

1. (1) Which x makes the determinant of the following matrix vanish?
$$\begin{pmatrix} -1-x & 2 & 2 \\ 0 & -2-x & 0 \\ -1 & 4 & 2-x \end{pmatrix}$$
(2) Plug in the value of x you get for the first question, you will get a matrix A, then please solve the linear system $Ax = 0$. (maybe you get several matrices, then do in several cases.)

2. (1) Calculate the inverse A^{-1} for the matrix
$$A = \begin{pmatrix} 2 & -2 & 1 \\ 1 & -1 & 1 \\ 1 & 0 & 3 \end{pmatrix}.$$
(2) Solving the linear system $Ay = b$, where $b = \begin{pmatrix} 1 \\ 0 \\ -2 \end{pmatrix}$.
(3) Calculate $A^{-1}b$ and compare the result with the solution from (2).

3. Calculate the inverse of A^{-1} for the matrix
$$A = \begin{pmatrix} 3 & -1 & -3 & -1 \\ 0 & 0 & 0 & 1 \\ -2 & 1 & 2 & 1 \\ 1 & 1 & 3 & -3 \end{pmatrix}.$$