HW #1 is comprised of problems which will prepare students for LAB #3. Bring the completed homework assignment to the following lab.

1. State the augmented matrix for the system of equations, \( Ax = b \).

\[
A = \begin{pmatrix}
1 & 5 & 2 & 6 \\
2 & 3 & -1 & -6 \\
0 & -3 & 10 & 12 \\
4 & 4 & 8 & -8
\end{pmatrix}, \quad b = \begin{pmatrix}
10 \\
-13 \\
15 \\
1
\end{pmatrix}
\]

2. Use elementary row operations to transform each augmented coefficient matrix to echelon form. Then solve the system by back substitution.

\[
4x_1 - 4x_2 - 8x_3 = 4 \\
2x_2 + 2x_3 = 2 \\
x_1 - 2x_2 - 3x_3 = 0
\]

3. Find the determinant of the coefficient matrix in Problem #2.

4. Find the inverse of the coefficient matrix in Problem #2.