1. Find the determinant \[
\begin{vmatrix}
2 & 3 & 0 & 5 \\
1 & 2 & 1 & 9 \\
1 & 2 & 0 & 3 \\
2 & 4 & 0 & 1 \\
\end{vmatrix}.
\]

2. If $A$ is an $n \times n$ matrix with $|A| = 3$, find the determinants of the following matrices:
   
   a. $B$ is the matrix we get by swapping the first two rows of $A$. $|B| = 
   
   b. $C$ is the matrix we get by scaling the first row by 2 and the second row by 3. $|C| = 
   
   c. $D$ is the matrix we get by adding 3 times the second row to the fourth row. $|D| = 

3. Find the eigenvalues of the matrix \[
\begin{bmatrix}
2 & 1 \\
1 & 2 \\
\end{bmatrix}.
\]