Group: ______________ Present: ____

1. Use Cramer's Rule to solve $AX = B$, where $A = \begin{pmatrix} 2 & 3 & -1 \\ 1 & 0 & 2 \\ -1 & 1 & 3 \end{pmatrix}$, $X = \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix}$, $B = \begin{pmatrix} 4 \\ 0 \\ 2 \end{pmatrix}$

   First, $|A| =$

   Then:

2. Find the adjoint of $A = \begin{pmatrix} 2 & 3 & -1 \\ 1 & 0 & 2 \\ -1 & 1 & 3 \end{pmatrix}$. First, find the matrix of cofactors

$$\begin{pmatrix} C_{11} = \left| \quad \right| & C_{12} = \left| \quad \right| & C_{13} = \left| \quad \right| \\ C_{21} = \left| \quad \right| & C_{22} = \left| \quad \right| & C_{23} = \left| \quad \right| \\ C_{31} = \left| \quad \right| & C_{32} = \left| \quad \right| & C_{33} = \left| \quad \right| \end{pmatrix} = \begin{pmatrix} \quad & \quad & \quad \end{pmatrix}$$

   Hence $\quad \text{adj}(A) = \begin{pmatrix} \quad & \quad & \quad \end{pmatrix}$

3. Use the result of # 2 to find A^{-1}:

   $\det(A) =$

   Hence $A^{-1} = \begin{pmatrix} \quad & \quad & \quad \end{pmatrix}$