Take-Home Quiz 4 (*Due at 7:00 p.m. on Sat. October 9, 2010*)

Division: **ID#:** **Name:**

Let A, $\boldsymbol{x}$, $\boldsymbol{b}$ and B be the matrices given below.

$$A = \begin{bmatrix} -3 & 5 & 0 \\ 2 & 1 & -1 \\ -1 & 2 & 3 \end{bmatrix}, \quad \boldsymbol{x} = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}, \quad \boldsymbol{b} = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}, \quad B = \begin{bmatrix} 1 & 0 & -2 & 1 \\ -3 & 5 & 1 & 0 \\ 2 & 1 & 2 & -1 \\ -1 & 2 & 3 & 3 \end{bmatrix}.$$

1. Determine $\det(A)$ by cofactor expansion along the third column.

2. Find $\mathrm{adj}(A)$. (Solution only!)

3. Use Cramer's Rule to express x_3 as a quotient of two determinants for the equation $A\boldsymbol{x} = \boldsymbol{b}$, and evaluate x_3. (Solution only!)

4. Express $\det(B)$ by the cofactor expansion along the first row writing each of $C_{i,j}$ as a determinant. (Don't evaluate the determinant involved in $C_{i,j}$.)

5. Find $\det(B)$.

Message 欄： あなたにとって、豊かな生活とはどのようなものでしょうか。どのようなとき幸せだと感じますか。[HP 掲載不可は明記のこと]