Georgia Tech School of Mathematics
Math 1502

Calculus II, Section D

Quiz # 9

November 3rd 2010

First Name : _____

Last Name : _____

1. (*4 pts*) For the matrix $A = \begin{bmatrix} 1 & 2 & 4 \\ -1 & -2 & 1 \\ -2 & -1 & 2 \end{bmatrix}$, find a permutation P, a unit lower triangular matrix L and a row-reduced one U such that $PA = LU$. (*Remark : this is a problem of the homework*)
   (Use the last page for your calculations)

2. (*2 pts*) If $A = \begin{bmatrix} 1 & 2 & 1 & 2 \\ 1 & -1 & 1 & -1 \\ 2 & 1 & 2 & 1 \\ 0 & 1 & 0 & 1 \end{bmatrix}$, give a one-to-one parametrization of $\mathrm{Im}(A)$. Indicate which method you use.

   (Use the last page for your calculations)

3. (*4 pts*) Use the Cholesky method to find a lower triangular matrix L such that $LL^t = A$ if $A = \begin{bmatrix} 1 & -1 & -2 \\ -1 & 5 & 0 \\ -2 & 0 & 6 \end{bmatrix}$. Please check your answer at the end.

   (Use the last page for your calculations)

(Use this page for your calculations)