

GEORGIA TECH

SCHOOL OF MATHEMATICS

MATH 1502

CALCULUS II, SECTION K

Quiz # 9

November 3rd 2010

First Name : _____

Last Name : _____

1. (3 pts) For the matrix $A = \begin{bmatrix} 1 & 2 & 4 \\ 2 & 4 & 1 \\ 4 & 1 & 2 \end{bmatrix}$, find a permutation P , a unit lower triangular matrix L and a row-reduced one U such that $PA = LU$.

(Use the last page for your calculations)

2. (3 pts) If $A = \begin{bmatrix} 1 & 2 & 1 & 2 \\ 1 & -1 & 1 & -1 \\ 2 & 1 & 2 & 3 \\ 0 & 1 & 0 & 1 \end{bmatrix}$, give a one-to-one parametrization of

$\text{Im}(A)$. 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 $A = \begin{bmatrix} 1 & -1 & 1 \\ -1 & 2 & -2 \\ 1 & -2 & 6 \end{bmatrix}$. Please check your answer at the end.

(Use the last page for your calculations)

(Use this page for your calculations)