Last name _____

First name _____

LARSON—OPER 731—HOMEWORK WORKSHEET 04
Linear Algebra Review

For maximum clarity you should write out the definition you are using for each significant term.

Let $A = \begin{bmatrix} 0 & 1 & 2 & 3 & 4 \\ 0 & 1 & 2 & 4 & 6 \\ 0 & 0 & 0 & 1 & 2 \end{bmatrix}$.

1. Find a basis for the column space of A.
2. Find the dimension of the column space.
3. Find a basis for the row space of A.
4. Find the dimension of the row space.
5. Suppose B is an $n \times n$ matrix with independent columns. Prove that B must be invertible.

   Let $C = \begin{bmatrix} 1 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 1 \end{bmatrix}$.
6. Show that the columns of C are linearly independent.
7. Find C^{-1}.