NAME:_____

Quiz 1:

Open book. Please show all your work, unless explicitly instructed not to do so. Please ask if you are not sure of anything on the exam. You have 15 minutes.

Consider the following augmented matrix

$$[A|\vec{b}] = \left[\begin{array}{ccc|c} 1 & 2 & 0 & 4 \\ 3 & 6 & 1 & 1 \\ 0 & 0 & 1 & 0 \end{array} \right]$$

1. What is the rank of A? How do you know?

2. Write down the corresponding system of equations.

3. Write down the matrix form of that system of equations.

4. Is the vector $\begin{bmatrix} 4 \\ 1 \\ 0 \end{bmatrix}$ a linear combination of the vectors $\begin{bmatrix} 1 \\ 3 \\ 0 \end{bmatrix}$, $\begin{bmatrix} 2 \\ 6 \\ 0 \end{bmatrix}$, and $\begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix}$? Why or why not?