

Name _____

Quiz 3

1. Let A be the 3×3 matrix such that $A_{ij} = i + j$. Compute AB where

$$B = \begin{pmatrix} 0 & 1 & 1 \\ 1 & 0 & 0 \\ 0 & -1 & -1 \end{pmatrix}.$$

Are the rows of B linearly dependent?

2. Let C the following matrix

$$C = \begin{pmatrix} 1 & 3 & 0 & 0 \\ a & 1 & 1 & 0 \\ 0 & 0 & c & d \end{pmatrix}$$

- (a) What value a has to have to make C an echelon form?
- (b) Let $a = 0$ in C . Assume that such a matrix is an echelon form of some matrix A . What value of c and d so that $\text{rank}(A) = 2$?
- (c) Let $d = 1$ and $c = 1$ and $a = 0$ in the matrix C . Assume that the matrix you obtain is the reduced echelon form of some matrix A . Write the last column of A as linear combination of the first three columns of A .