PRINT Your Name:_____

Quiz for September 13, 2005

Suppose A and B are 2×2 nonsingular matrices. Does $A + B$ have to have to be a nonsingular matrix? If yes, then prove it. If no, then give an example.

ANSWER: NO. Here is an example. The matrices $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ are nonsingular because their columns are linearly independent; however, the sum $A + B = \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$ is a singular matrix because its columns are linearly dependent.