MATH 332
Quiz II
September 23 (4), 1990 Name Key

Short — must total 20 | started to leave after 12 | Put elem matrix on $Ax=b$ on next time

4 — 1. Carefully complete the following DEFinition: The matrix B is an inverse of the matrix A

iff $AB = I$ and $BA = I$

4/25 missed

2 — 2. Complete the following operations. If not possible, say so.

a. $3\begin{bmatrix} 3 & 0 & 4 \\ -1 & 2 & 1 \end{bmatrix} = \begin{bmatrix} 9 & 0 & 12 \\ -3 & 6 & 3 \end{bmatrix}$ all

b. $\begin{bmatrix} 2 & 3 & 0 \\ 5 & 0 & -8 \end{bmatrix} + \begin{bmatrix} 3 & 9 & 1 \\ 9 & 9 & -2 \end{bmatrix} = \begin{bmatrix} 5 & 12 & 1 \\ 14 & 9 & -10 \end{bmatrix}$ all

c. $\begin{bmatrix} 2 & 3 \\ -1 & 7 \end{bmatrix}\begin{bmatrix} 3 & -1 \\ 6 & 2 \end{bmatrix} = \begin{bmatrix} 24 & 4 \\ 39 & 15 \end{bmatrix}$ all

d. $\begin{bmatrix} 3 & 0 & -1 \\ 8 & 9 & 2 \end{bmatrix}^t = \begin{bmatrix} 3 & 8 \\ 0 & 9 \\ -1 & 2 \end{bmatrix}$ all

e. $\begin{bmatrix} 1 & 3 \\ -2 & 7 \end{bmatrix}^{-1} = \frac{1}{13}\begin{bmatrix} 7 & -3 \\ 2 & 1 \end{bmatrix} = \begin{bmatrix} 7/13 & -3/13 \\ 2/13 & 1/13 \end{bmatrix}$ 3 missed

f. $\begin{bmatrix} 2 \\ 8 \\ 1 \end{bmatrix} + \begin{bmatrix} -2 & 2 \\ -8 & 8 \\ 1 & -1 \end{bmatrix} = $ X all

6 — 3. Show: If the matrices B and C are inverses of A, then B = C.

$AB = I \quad BA = I$

$AC = I \quad CA = I$

7 missed

$BA = I$ so $(BA)C = IC = C$

But then ~~(CB)A = I~~ $B(AC) = C$

$BI = C$ so $B = C$

8 — 4. Find the inverse of the matrix (if any):

$\begin{bmatrix} 1 & 2 & 0 \\ 1 & 4 & 2 \\ -1 & 2 & 6 \end{bmatrix}$

8 missed

see other sheet

$\begin{bmatrix} 5 & -3 & 1 \\ -2 & 3/2 & -1/2 \\ 3/2 & -1 & 1/2 \end{bmatrix}$