

Quiz 1(10 pts)
Math 220, Spring 2008
Due Thursday, January 31, 12:20

NAME:

STUDENT ID NUMBER:

SHOW YOUR WORK!

Problem 1. Write the following matrices in reduced echelon form.

$$\begin{bmatrix} 1 & 5 & 0 & 0 \\ 0 & 0 & 5 & 0 \\ 0 & 0 & 0 & -2 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 5 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & -2 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 5 & 0 & 0 & 7 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 2 \end{bmatrix}$$

Problem 2. Solve the system of linear equations:

$$\begin{cases} x_1 + 2x_2 + 4x_3 = 1 \\ 2x_1 + 5x_2 + 6x_3 = 7 \\ x_1 + x_2 + 6x_3 = -4 \end{cases}$$

Problem 3. The matrix below is the augmented matrix of a system of linear equations. Can this system be inconsistent, have a unique solution, have infinitely many solutions? For what values of h it happens?

$$\begin{bmatrix} 2 & 3 & h \\ 4 & 6 & 7 \end{bmatrix}$$

Problem 4. The matrices below are the augmented matrices of systems of linear equations. Determine how many solutions $0, 1$ or ∞ each of them has?

$$\begin{bmatrix} 1 & 5 & 7 & 0 & 8 \\ 0 & 0 & 6 & 0 & 7 \\ 0 & 0 & 0 & 0 & -3 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 5 & 0 & 0 \\ 0 & -1 & 4 & 0 \\ 0 & 0 & 10 & -2 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 5 & 6 & 0 \\ 0 & -1 & 4 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$