Math 220 Assignment

August 29, 2001

Assignment for Friday, August 31

1. Let M be the matrix

$$M = \begin{pmatrix} 1 & -1 & 1 \\ 5 & -4 & 3 \\ 3 & -3 & 2 \end{pmatrix} .$$

Solve the system of linear equations

$$M \begin{pmatrix} x \\ y \\ z \end{pmatrix} = b$$

when b is:

$$\text{(a)} \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix} \quad \text{(b)} \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix} \quad \text{(c)} \begin{pmatrix} 0 \\ 0 \\ 1 \end{pmatrix} \quad \text{(d)} \begin{pmatrix} 2 \\ -3 \\ 1 \end{pmatrix} .$$

Suggestion: Review the solution of the first exercise on the last assignment.

2. Let N be the matrix

$$N = \begin{pmatrix} 1 & -2 & 1 \\ 5 & -4 & 3 \\ 3 & -3 & 2 \end{pmatrix} .$$

Find all solutions of the system of linear equations

$$N \begin{pmatrix} x \\ y \\ z \end{pmatrix} = b$$

when b is:

$$\text{(a)} \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix} \quad \text{(b)} \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix} \quad \text{(c)} \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix} .$$

Note: Things become very different with the change of a single matrix entry between the matrix M of the first exercise and the present matrix N.

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`http://math.albany.edu:8000/math/pers/hammond/course/mat220/assgt/la010829.html`