ASSIGNMENT 3

Due February 18, 2003

Homework 3

Do exercise 2.21 on p. 98 of our textbook. Describe what you should do to compute $\mathbf{x}$ most efficiently. Assuming that you are given the following matrices and vector, write a script file to compute $\mathbf{x}$ using only the functions provided at our course website. Afterwards use the appropriate functions provided by Matlab to check to see if your solution is indeed correct.

$$\mathbf{A} = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

$$\mathbf{B} = \frac{1}{8} \begin{bmatrix} 1 & 1 & -2 \\ -2 & 1 & 1 \\ -1 & 2 & 1 \end{bmatrix}$$

$$\mathbf{C} = \frac{1}{12} \begin{bmatrix} 1 & 4 & 5 \\ 4 & 20 & 32 \\ 5 & 32 & 64 \end{bmatrix}$$

$$\mathbf{b} = \frac{1}{8} \begin{bmatrix} 1 \\ 1 \\ -1 \end{bmatrix}$$

Note that matrix $\mathbf{C}$ is actually symmetric, and so you should take advantage of this particular feature to improve the efficiency.