**Math 3620** Machine Problem 1: Due Tu. Jan. 14, 2020

1) Write a MATLAB script that does the following:

   a) Prompts the user for a file name. Then reads an integer $n$ from that file, along with an $n \times n$ matrix $A$, and a vector $b$. The first row of the file contains $n$. The second row of the file contains the first row of $A$, etc. up to the last row of $A$. The last $n$ rows of the file contain the values of $b$. (Warning – be careful with your read). The file `mp1.dat1` should give the matrix

$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$$

   b) Computes and prints the determinant of $A$

   c) Computes and prints the vector $x$ such that $Ax = b$.

   d) Computes and prints the max norm of the residual vector $r = b - Ax$.

   e) Finds and prints the $n$ eigenvalues of $A$.

2) Run your code with the following data files which you can download from the web page:

   a) mp1.dat1

   b) mp1.dat2

3) Turn in a complete listing of your code along with all of the output for the two runs.