Program na03: Gaussian Elimination

Overview: Write a module for Gaussian Elimination and use it to solve systems of equations.

Introduction: Write a module **gaussElimin** to solve a system of equations using Gaussian elimination. Save it in **gaussElimin.py** and test it on a variety of systems. The main program file is **na03.py**. It should contain a separate subroutine to solve each of the problems 10 and 11 on page 78.

Input: Use the module **matIO** that you wrote for the last problem. The input for both problems 10 and 11 will come from a single file named `na03in.txt`. Separate the systems in the input file with at least one blank line, and label each one appropriately using comments.

Output: Output to the screen. The output for each problem should be as follows:
Problem #<problem number>
<blank line>
<print the augmented matrix>
<blank line>
Ax = b implies x = <print the vector x>T.
<blank line>
Ax – b = <print the vector>T
<blank line>

Writeup: In a separate text file **writeup.txt** summarize the results of each problem. (There may be some overlap with the output here.) Tell of any problems encountered. If Ax-b is not 0 for either or both of the problems, try to determine why.

Extra for experts. Add an option **modifyOriginal** to the function **gaussElimin** that will allow you to do the elimination with or without modifying the original matrices. The default should be **True**. Use filename **na03X.py**

Checklist:
Module files: **matIO.py**, **gaussElimin.py**
Main program file: **na03.py**
Input file: **na03in.txt**