SUMMER A 2018 – MAS 3114 — COMPUTATIONAL LINEAR ALGEBRA — HOMEWORK 1

NAME: _____

INSTRUCTIONS:

• Due Wednesday, May 16, 2018 either at the beginning of class or by 4pm at LIT 408.

• Staple this cover-sheet (or reproduction) to your homework.

• Write in complete sentences.

• Solutions to be problems should be written in a proper and coherent manner. All work should be handwritten and neat. Write in such a way that any student in the class can follow your work. Use examples from class and the textbook as models for your work.

• Show all necessary work.

Please complete the following acknowledgement. You may get help but it is limited to discussion only. It is not ok to copy anothers work. Your work should be written up independently. Any help from a person or other source including books or websites must be cited.

ACKNOWLEDGEMENT OF HELP WITH DETAILS:

_____

TOTAL POSSIBLE: 10 pts

(1) [3 pts] Solve the linear system

$$x_1 + 0x_2 + 2x_3 = 11$$
$$-3x_1 + 3x_2 + 3x_3 = 30$$
$$-3x_1 + x_2 - 4x_3 = -17$$

by writing the system as an augmented matrix and using elementary row operations. Check your solution.

(2) [2 pts] Determine the value(s) of h such that the matrix is the augmented matrix of a consistent linear system.

$$\begin{bmatrix} 1 & h & 1 \\ 3 & 6 & 7 \end{bmatrix}$$

(3) [2 pts] Determine the value(s) of h such that the matrix is the augmented matrix of a consistent linear system.

$$\begin{bmatrix} 1 & h & 2 \\ 3 & 6 & 6 \end{bmatrix}$$

(4) [3 pts] Find an equation involving g, h, and k that makes this augmented matrix correspond to a consistent linear system.

$$\begin{bmatrix} -1 & -1 & 3 & g \\ 1 & 0 & -2 & h \\ 0 & 4 & -16 & k \end{bmatrix}$$