

SUMMER A 2017 – MAS 3114 — COMPUTATIONAL LINEAR ALGEBRA — HOMEWORK 1

NAME: _____

INSTRUCTIONS:

- Due Tuesday, May 9, 2017 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.

ACKNOWLEDGEMENT: I obtained help from the following:

TOTAL POSSIBLE: 10 pts

- (1) [3 pts] Solve the linear system

$$\begin{aligned}x_1 - 3x_2 + x_3 &= 21 \\ -2x_1 + 8x_2 - 6x_3 &= -68 \\ -2x_1 + 4x_2 + 3x_3 &= -11\end{aligned}$$

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.

$$\begin{bmatrix} 1 & h & 1 \\ 2 & 6 & 7 \end{bmatrix}$$

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

$$\begin{bmatrix} 1 & h & 2 \\ 2 & 6 & 4 \end{bmatrix}$$

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

$$\begin{bmatrix} 1 & 2 & 3 & g \\ 1 & -1 & 1 & h \\ 3 & 0 & 5 & k \end{bmatrix}$$