MATH 3110 - Fall 2018

Homework 1

Due: Wednesday, August 29th

Note the following:

(a) Homework is due at the beginning of class.

(b) Use only one side of each sheet of paper and staple them together.

(c) State the problem before writing the solution.

(d) SHOW your work. Even if it's true but you did not show it, you will receive only very little credit.

(e) Late homework will NOT be accepted.

Question 1 (3 points):

Use the elementary operations for equations to solve the following system:

$$\begin{aligned} x - 5y + 3z &= 10 \\ 2x - 7y + 3z &= 14 \\ -2x + y + 7z &= 2 \end{aligned}$$

All performed operations must be written.

Question 2: (3 points)

The augmented matrix of a linear system in the variables x, y, z is given by the following matrix:

$$\begin{bmatrix} 2 & -1 & 1 & 1 \\ -1 & 2 & -1 & -1 \\ 0 & 1 & 1 & 1 \end{bmatrix}$$

Find the solution (x, y, z) of the system by using row operations. All performed row operations must be written.

Question 3: (4 points)

Determine the value(s) of g such that the matrix is the augmented matrix of a consistent linear system for each of the following cases:

(a) $\begin{bmatrix} 1 & g & 2 \\ 2 & -2 & 1 \end{bmatrix}$

(b) $\begin{bmatrix} 1 & -2 & g \\ 2 & -4 & 4 \end{bmatrix}$