Tutorial 2

Problem 1

a. Mention the conditions for matrix to be in row echelon form and in reduced row echelon form respectively.

b. Augment the following set of equations in matrix form and find its reduced row echelon form. What can you infer from the reduced row echelon matrix?

$$\begin{aligned} x_2 + 5x_3 &= -4 \\ x_1 + 4x_2 + 3x_3 &= -2 \\ 2x_1 + 7x_2 + x_3 &= -2 \end{aligned}$$

Problem 2

Hello, look at the following two systems of linear equations. Thanks.

$$(1) \begin{cases} x + y + z = 6 \\ x + 2y + 2z = 11 \\ 2x + 3y - 4z = 3 \end{cases}$$

and,

$$(2) \begin{cases} x + y + z = 7 \\ x + 2y + 2z = 10 \\ 2x + 3y - 4z = 3 \end{cases}$$

Solve both systems simultaneously by applying Gauss-Jordan reduction to an appropriate 3×5 matrix.

Guys, please find the following, now:

a. The resulting row echelon form of this 3×5 matrix.

b. The resulting reduced row echelon form of the matrix.

c. The solution for (1) and (2) respectively.