MH1200 Quiz 2

September 15, 2016

Problem 1. Let

$$A = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 0 & 3 \\ 0 & 2 & 4 \end{bmatrix} \ .$$

Give an elementary matrix E such that EA is upper triangular.

$$1\ 0\ 0$$
$$0\ 0\ 1$$
$$0\ 1\ 0$$

Problem 2. Determine the values of b for which the system of linear equations

$$\begin{bmatrix} 1 & 1 & 1 \\ 2 & 4 & 6 \\ 2 & 0 & -2 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} 1 \\ b \\ 2 \end{bmatrix}$$

has **no** solution.

1 1 1 1   1 1 1 1
0 2 4 b-2 ⟶ 0 2 4 b-2
0-2-4 0   0 0 0 b-2

The system will have no solution if b is not equal to 2