Class Problem for Math 304-06, 1/30/2023

Here is a matrix: $M = \begin{bmatrix} 0 & 2 & 0 & 4 & -2 \\ 0 & 2 & 2 & 4 & 0 \end{bmatrix}$.

(1) What linear system $\mathcal{L}_1$ has M as its augmented matrix?
(2) What linear system $\mathcal{L}_2$ has M as its coefficient matrix?
(3) Use row operations to find the reduced echelon form of M.
(4) Use the reduced echelon form to find the solution set of the linear system $\mathcal{L}_1$.
(5) Use the reduced echelon form to find the solution set of the linear system $\mathcal{L}_2$.