

Problem 1. Find a basis for the null space of the following matrix:

$$\begin{pmatrix} 1 & 1 & 1 & 3 & 2 \\ 2 & 2 & 0 & 3 & 4 \\ 1 & 1 & 1 & 3 & 2 \\ 0 & 1 & 2 & 3 & 1 \end{pmatrix}$$