

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

$$\begin{pmatrix} 2 & 0 & 4 & 6 & -2 \\ 4 & 0 & 8 & 12 & -4 \\ 1 & 1 & 3 & 4 & 1 \\ 0 & 0 & 0 & 2 & 3 \end{pmatrix}$$