

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

$$\begin{pmatrix} 1 & 0 & 3 & 0 & 3 & 2 \\ 1 & 1 & 3 & 0 & 5 & 3 \\ 1 & 2 & 3 & 1 & 7 & 5 \\ 2 & 3 & 6 & 0 & 12 & 7 \end{pmatrix}$$