ving Ax = 0; pivot variables, special solutions

TOC:

computing the null space (Ax=0)pivot variables, free variables
special solutions, reef(A)= B

$$A = \begin{bmatrix} 1 & 2 & 2 & 2 \\ 2 & 4 & 6 & 8 \\ 3 & 6 & 8 & 10 \end{bmatrix}$$

row operations does not change solution to AX=0

row-echelon form # of pivots = 2

free columns

$$\begin{cases} x_1 + 2x_2 + 2x_3 + 2x_4 = 0 \\ 2x_3 + 4x_4 = 0 \end{cases}$$

$$\begin{cases} x_1 = -2x_2 - 2x_3 - 2x_4 \\ x_2 = -2x_4 \end{cases}$$
from to show the value of the proof of the point variables can be expressed as a linear equation with the tree ariginals
$$\begin{cases} x_1 = -2x_2 - 2(-2x_4) - 2x_4 \\ x_2 = -2x_4 \end{cases}$$
for some to show the proof of the proof of the expressed as a linear equation with the tree ariginals.

Find strong calls
$$\begin{cases} x_1 + 2x_2 + 2x_4 \\ x_2 = -2x_4 \\ x_3 = -2x_4 \end{cases}$$

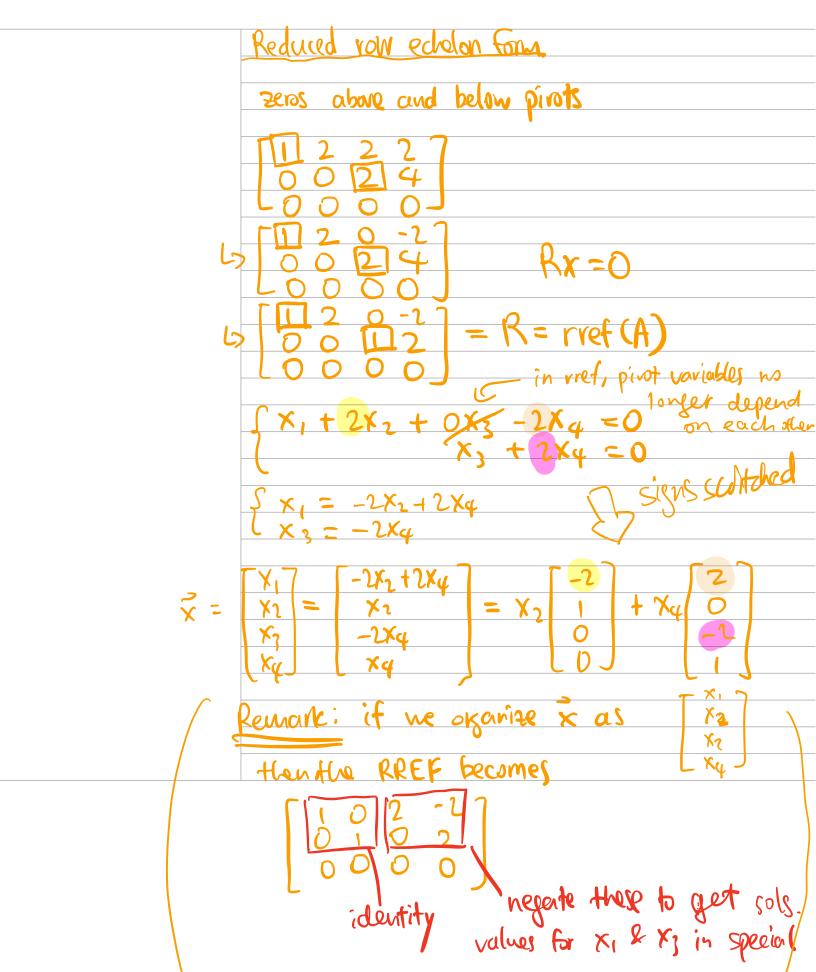
$$\begin{cases} x_1 = -2x_2 - 2(-2x_4) - 2x_4 \\ x_1 = -2x_4 \\ x_2 = -2x_4 \end{cases}$$

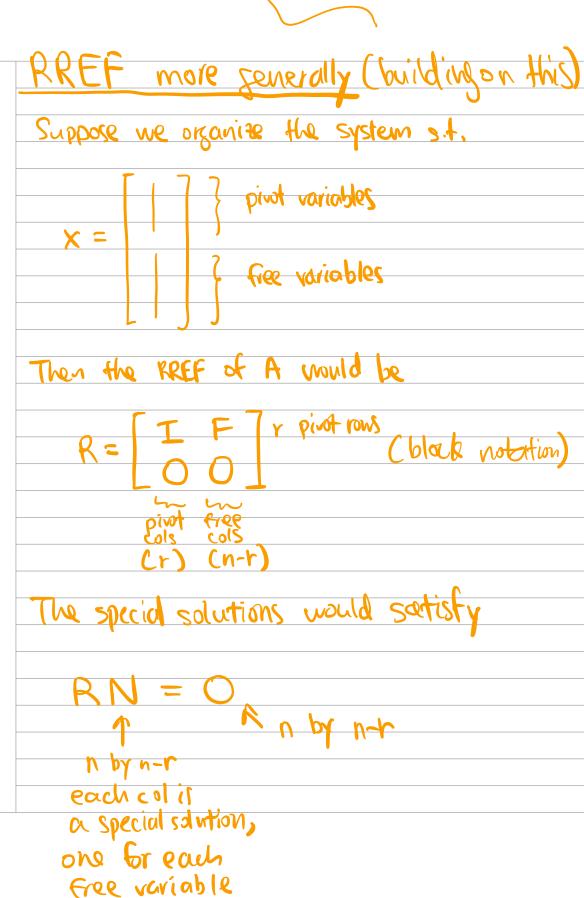
$$\begin{cases} x_1 = -2x_2 + 2x_4 \\ x_2 = -2x_4 \\ x_3 = -2x_4 \end{cases}$$

$$\begin{cases} x_1 = -2x_2 + 2x_4 \\ x_4 = -2x_4 \\ x_4 = -2x_4 \end{cases}$$

$$\begin{cases} x_1 = -2x_2 + 2x_4 \\ x_1 = -2x_4 \\ x_2 = -2x_4 \\ x_3 = -2x_4 \\ x_4 = -2x_4 \end{cases}$$

$$\begin{cases} x_1 = -2x_2 + 2x_4 \\ x_2 = -2x_4 \\ x_3 = -2x_4 \\ x_4 = -2x_4 \\ x_5 = -2x_4 \\ x_6 = -2x_$$





$$\begin{bmatrix} I & F \\ O & O \end{bmatrix} \begin{bmatrix} N_1 \\ N_2 \end{bmatrix} = 0$$

Since we pick N2 to be I,

$$= N = \begin{bmatrix} -F \\ I \end{bmatrix}$$