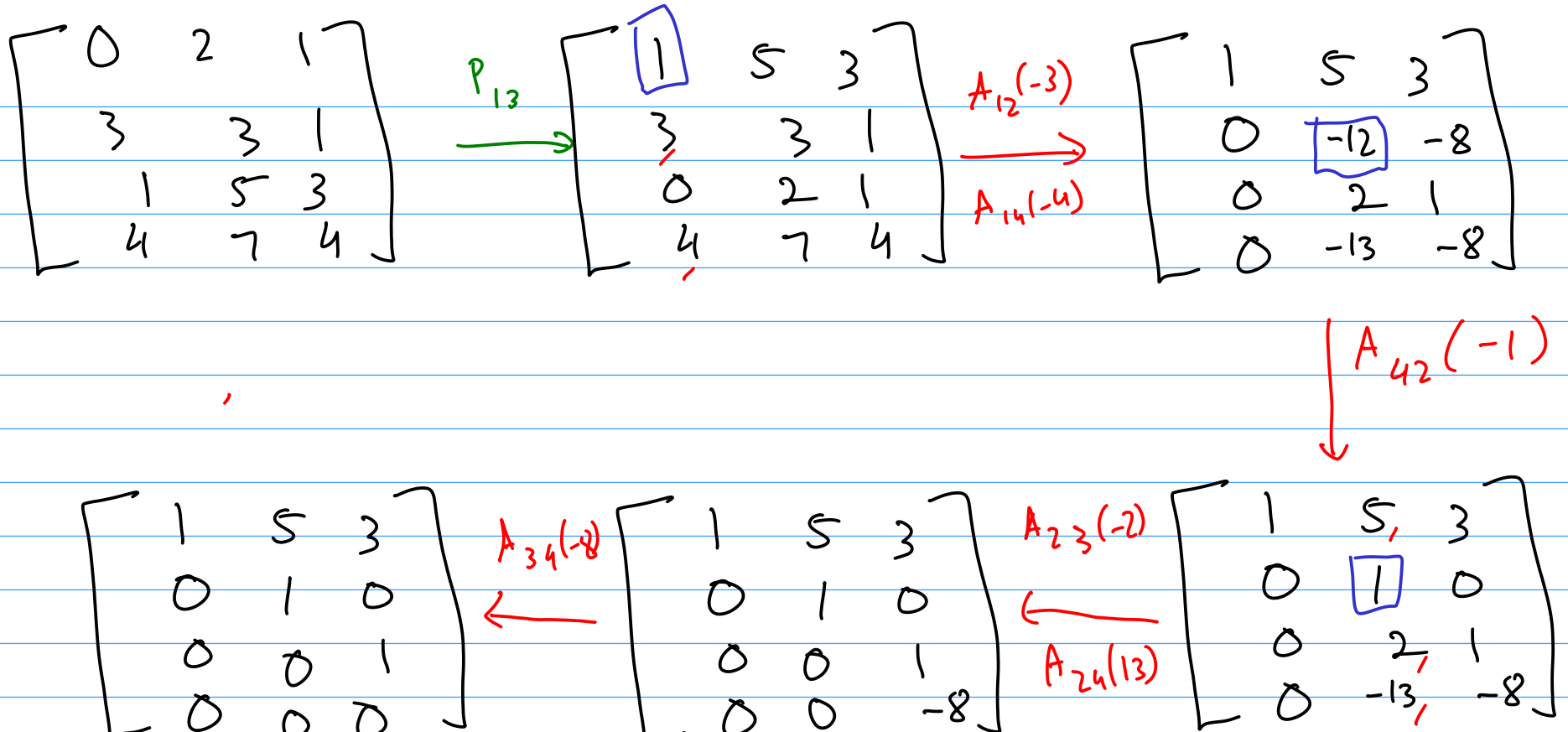
4. (b) RECALL: WE REDUCED THE QUESTION TO SOLVING

$$\begin{bmatrix} 0 & 2 & 1 \\ 3 & 3 & 1 \\ 1 & 5 & 3 \\ 4 & 7 & 4 \end{bmatrix} \begin{bmatrix} c_1 \\ c_2 \\ c_3 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}$$

NOW, $\begin{bmatrix} 0 & 2 & 1 \\ 3 & 3 & 1 \\ 1 & 5 & 3 \\ 4 & 7 & 4 \end{bmatrix} \xrightarrow{\text{ERO}_S} \begin{bmatrix} 1 & 5 & 3 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix}$

$\therefore$ $\begin{aligned} c_1 + 5c_2 + 3c_3 &= 0 \\ c_2 &= 0 \\ c_3 &= 0 \end{aligned}$ $\Rightarrow$ $c_1 = c_2 = c_3 = 0$ (BACK-SUBST.)

$\Rightarrow$ L.I.

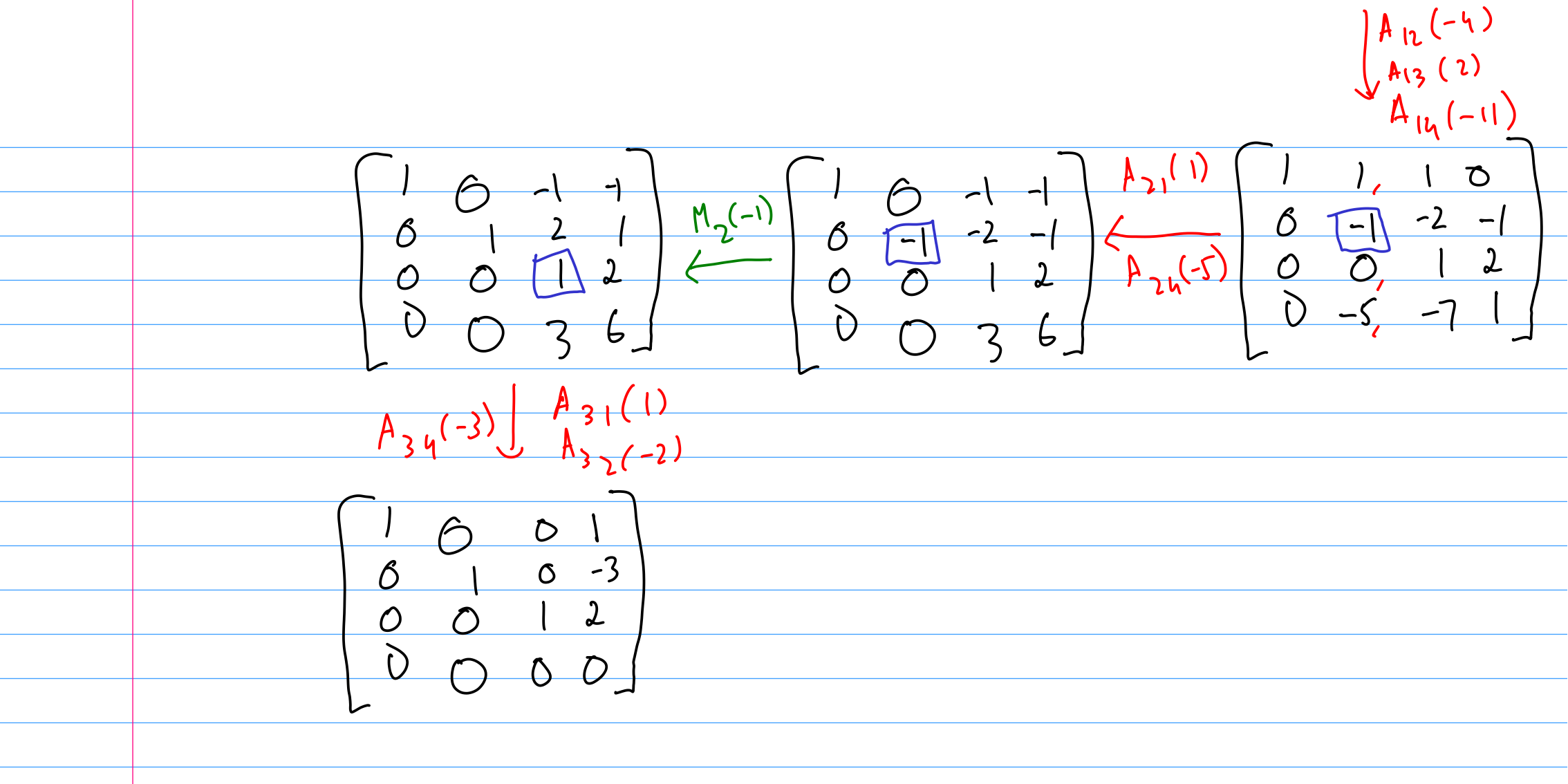

$\begin{bmatrix} 0 & 2 & 1 \\ 3 & 3 & 1 \\ 1 & 5 & 3 \\ 4 & 7 & 4 \end{bmatrix}$
P_{13}
$\begin{bmatrix} 1 & 5 & 3 \\ 3 & 3 & 1 \\ 0 & 2 & 1 \\ 4 & 7 & 4 \end{bmatrix}$
$A_{12}(-3)$
$A_{14}(-4)$
$\begin{bmatrix} 1 & 5 & 3 \\ 0 & -12 & -8 \\ 0 & 2 & 1 \\ 0 & -13 & -8 \end{bmatrix}$
$A_{42}(-1)$
$\begin{bmatrix} 1 & 5 & 3 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix}$
$A_{34}(-8)$
$\begin{bmatrix} 1 & 5 & 3 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & -8 \end{bmatrix}$
$A_{23}(-2)$
$A_{24}(13)$
$\begin{bmatrix} 1 & 5 & 3 \\ 0 & 1 & 0 \\ 0 & 2 & 1 \\ 0 & -13 & -8 \end{bmatrix}$

25. WTS

$$\begin{bmatrix} 4 & 3 & 2 & -1 \\ 5 & 4 & 3 & -1 \\ -2 & -2 & -1 & 2 \\ 11 & 6 & 4 & 1 \end{bmatrix} \xrightarrow{\text{EROS}} \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & -3 \\ 0 & 0 & 1 & 2 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\begin{bmatrix} \boxed{4} & 3 & 2 & -1 \\ 5 & 4 & 3 & -1 \\ -2 & -2 & -1 & 2 \\ 11 & 6 & 4 & 1 \end{bmatrix} \xrightarrow{A_{12}(-1)} \begin{bmatrix} \boxed{4} & 3 & 2 & -1 \\ 1 & 1 & 1 & 0 \\ -2 & -2 & -1 & 2 \\ 11 & 6 & 4 & 1 \end{bmatrix} \xrightarrow{P_{12}} \begin{bmatrix} \boxed{1} & 1 & 1 & 0 \\ 4 & 3 & 2 & -1 \\ -2 & -2 & -1 & 2 \\ 11 & 6 & 4 & 1 \end{bmatrix}$$

↓


A12(-4)
A13(2)
A14(-11)
A21(1)
A24(-5)
M2(-1)
A34(-3)
A31(1)
A32(-2)