Exercises	on	Factor zakos into	AzLU
		, •	

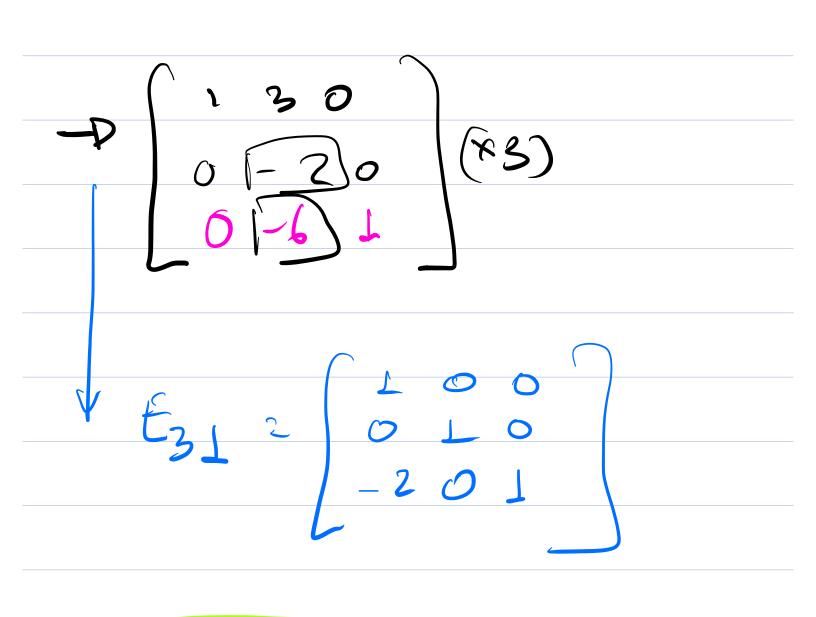
Problem 4.1:

What matrix E puts A into mangular form EA=U?

Multiply by $E^{-1}=L$ to factor A into LU

$$A = \begin{bmatrix} 1 & 3 & 0 \\ 2 & 4 & 0 \\ 2 & 0 & 1 \end{bmatrix} \begin{pmatrix} x2 \\ -x \\ 2 & 0 \end{bmatrix} \begin{pmatrix} x2 \\ -x \\ 2 & 0 \end{pmatrix}$$

 $E_{22} = \begin{pmatrix} 1 & 0 & 0 \\ -2 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$



$$\begin{array}{c|cccc}
 & 2 & 3 & 0 \\
\hline
0 & -2 & 0 \\
\hline
0 & 0 & 1
\end{array}$$

$$E_{32} = \begin{bmatrix} 2 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 3 & 1 \end{bmatrix}$$

D Now we can check that EA-U

I correct.

To had now the juvence of £-1

ve need to use the Gauss-Indan

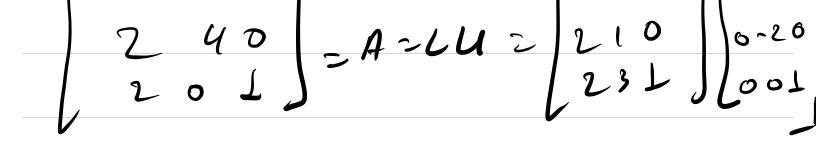
Chiminahan rehod

& cheek if the invencis correct! A

$$\begin{bmatrix}
1 & 0 & 0 \\
-2 & 1 & 0
\end{bmatrix}
\begin{bmatrix}
1 & 0 & 0 \\
2 & 1 & 0
\end{bmatrix}
\begin{bmatrix}
2 & 1 & 0 \\
2 & 3 & 1
\end{bmatrix}
\begin{bmatrix}
0 & 1 & 0 \\
0 & 0 & 1
\end{bmatrix}$$

*Finally Factorise A into ALU
LEE-L

$$\left(\begin{array}{c} 1 & 30 \end{array}\right) \left(\begin{array}{c} 1 & 00 \end{array}\right) \left(\begin{array}{c} 1 & 30 \end{array}\right)$$



Problem 4.2

C2.6 # 13. Inhoduchon b Linear

Algebora - Strong)

-Conpute Land Uhr re symmetric matrix

Azabbb abcc abcd

- Find the 4 wondstring on a, b, c, d

so get A= LU vith 4 probs.

2) Solution!

E21

EZZ

[aaaaa]

o b-a b-a b-a

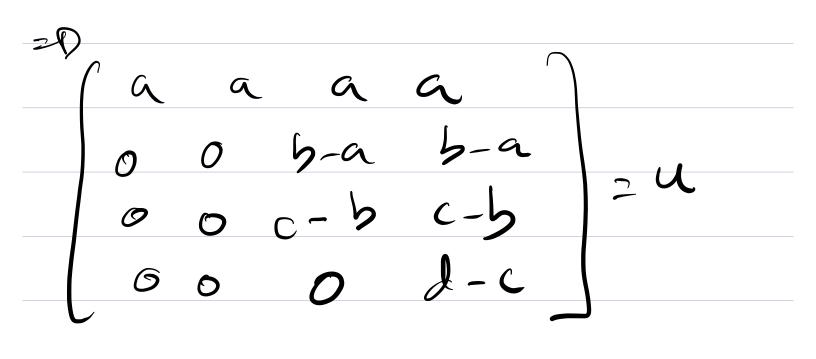
o h-a c-a

ca

d

E41

E 32



so 4 concluto has

(ato, bta, ctb, dtc