CROSS PRODUCT OF ALL P_n

In Ex 2.16 $P_2 P_1 = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 1 & 0 & 0 \end{bmatrix} = \hat{P}$

APPLYING TO $\hat{L}$ TO GET L?

$$\begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 1 & 0 & 0 \end{bmatrix} \begin{bmatrix} 0.25 & 0.5 & 1 \\ 1 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0.25 & 0.5 & 1 \end{bmatrix}$$

$\hat{P}$ $\hat{L}$ L ? ✓ yes

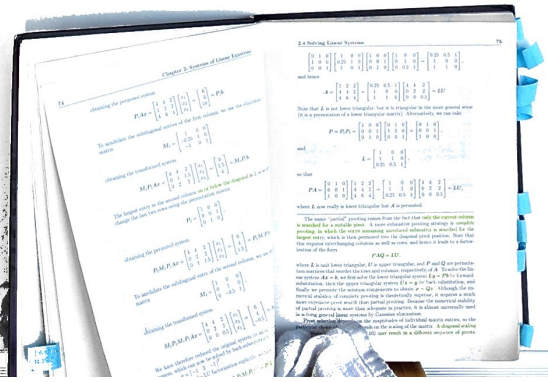
$$\hat{L} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ -2/5 & 2/11 & 1 \end{bmatrix} \longrightarrow L = \hat{P}\hat{L} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ -2/5 & 2/11 & 1 \end{bmatrix}$$

PMS 3

$$L = \begin{bmatrix} 1 & 0 & 0 \\ -2/5 & 1 & 0 \\ 0 & 2/11 & 1 \end{bmatrix} \checkmark$$

$PA = LU \longrightarrow PA = P_1 A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix} \begin{bmatrix} -5 & 2 & 1 \\ 1 & 0 & 3 \\ 3 & 1 & 6 \end{bmatrix} = \begin{bmatrix} -5 & 2 & 1 \\ 3 & 1 & 6 \\ 1 & 0 & 3 \end{bmatrix} = PA$!

$\longrightarrow LU \neq \hat{L}\,U \neq \begin{bmatrix} 1 & 0 & 0 \\ -2/5 & 1 & 0 \\ 0 & 2/11 & 1 \end{bmatrix} \begin{bmatrix} -5 & 2 & 1 \\ 0 & 11/5 & 27/5 \\ 0 & 0 & \left(-\frac{2}{11}\cdot\frac{22}{5} + \frac{14}{5}\right) \end{bmatrix} = LU = \begin{bmatrix} -5 & 2 & 1 \\ 3 & & \\ 1 & & \end{bmatrix}$



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