

$$\begin{bmatrix} 1 & 0 & 0 \\ 1/5 & 1 & 0 \\ 3/5 & 0 & 1 \end{bmatrix} \begin{bmatrix} -5 & 2 & -1 \\ 1 & 0 & 3 \\ 3 & 1 & 6 \end{bmatrix} = \begin{bmatrix} -5 & 2 & -1 \\ 2/5 & 14/5 \\ 11/5 & 27/5 \end{bmatrix}$$

$M, A = M, A$

$$P M, A = \dots$$

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix} \begin{bmatrix} -5 & 2 & -1 \\ 2/5 & 14/5 \\ 0 & 11/5 & 27/5 \end{bmatrix} = \begin{bmatrix} -5 & 2 & -1 \\ 0 & 11/5 & 27/5 \\ 0 & 2/5 & 14/5 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 0 & -2/5 & 11/5 \end{bmatrix} \begin{bmatrix} -5 & 2 & -1 \\ 0 & 11/5 & 27/5 \\ 0 & 2/5 & 14/5 \end{bmatrix} = \begin{bmatrix} -5 & 2 & -1 \\ 0 & 11/5 & 27/5 \\ 0 & 0 & 114/55 \end{bmatrix}$$

$$-\frac{2}{5} \frac{5}{11} \frac{27}{5} + \frac{14}{5} = \frac{270}{275} + \frac{14}{5}$$

=

$$\frac{54}{55} + \frac{154}{55} = \frac{208}{55}$$

$$P A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 1 \\ 0 & 1 & 0 \end{bmatrix} \begin{bmatrix} -5 & 2 & -1 \\ 1 & 0 & 3 \\ 3 & 1 & 6 \end{bmatrix} = \begin{bmatrix} -5 & 2 & -1 \\ 4 & 1 & 4 \\ 1 & 0 & 3 \end{bmatrix}$$

$$L U = \begin{bmatrix} 1 & 0 & 0 \\ 1/5 & 1 & 0 \\ 3/5 & 2/11 & 1 \end{bmatrix} \begin{bmatrix} -5 & 2 & -1 \\ 0 & 11/5 & 27/5 \\ 0 & 0 & 208/55 \end{bmatrix} = \begin{bmatrix} -5 & 2 & -1 \\ 1 & 0 & 3 \end{bmatrix}$$

$$-\frac{2}{5} + \frac{11}{5} = \frac{9}{5}$$