

Subject: _____

Date: _____

$$\begin{bmatrix} \mu & \nu & -1 \\ \varepsilon & 0 & \varepsilon \\ \nu & \varepsilon & \varepsilon \end{bmatrix} \rightarrow \begin{bmatrix} \mu & \nu & -1 \\ 0 & -\frac{1}{\mu} & \frac{1}{\mu} \\ 0 & \nu & \varepsilon \end{bmatrix} \rightarrow \begin{bmatrix} \mu & \nu & -1 \\ 0 & -\frac{1}{\mu} & \frac{1}{\mu} \\ 0 & 0 & \eta \end{bmatrix} = U$$

$$\rightarrow \begin{bmatrix} 1 & 0 & 0 \\ \varepsilon/\mu & 1 & 0 \\ 1 & 0 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 0 & 0 \\ \varepsilon/\mu & 1 & 0 \\ 1 & -\frac{\nu}{\varepsilon} & 1 \end{bmatrix} = L$$

$$U \rightarrow U^{-1} : \begin{bmatrix} \mu & \nu & -1 & 1 & 0 & 0 \\ 0 & -\frac{1}{\mu} & \frac{1}{\mu} & 0 & 1 & 0 \\ 0 & 0 & \eta & 0 & 0 & 1 \end{bmatrix}$$

$$\rightarrow \begin{bmatrix} 1 & \frac{1}{\mu} & -\frac{1}{\mu} & \frac{1}{\mu} & 0 & 0 \\ 0 & 1 & -\nu & 0 & -\frac{\nu}{\eta} & 0 \\ 0 & 0 & 1 & 0 & 0 & \frac{1}{\eta} \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 0 & 0 & \frac{1}{\mu} & \frac{1}{\varepsilon} & -\frac{1}{\eta} \\ 0 & 1 & 0 & 0 & -\frac{\nu}{\eta} & \frac{1}{\eta} \\ 0 & 0 & 1 & 0 & 0 & \frac{1}{\eta} \end{bmatrix}$$

$\underbrace{\hspace{10em}}_{U^{-1}}$

$$L \rightarrow L^{-1} : \begin{bmatrix} 1 & 0 & 0 & 1 & 0 & 0 \\ \varepsilon/\mu & 1 & 0 & -1 & 1 & 0 \\ 1 & -\frac{\nu}{\varepsilon} & 1 & 0 & 0 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & -\varepsilon/\mu & 1 & 0 \\ 0 & 0 & 1 & -\nu & \frac{\nu}{\varepsilon} & 1 \end{bmatrix}$$

$\underbrace{\hspace{10em}}_{L^{-1}}$

$$\rightarrow \begin{bmatrix} \frac{1}{\mu} & \frac{1}{\varepsilon} & -\frac{1}{\eta} \\ 0 & -\frac{\nu}{\eta} & \frac{1}{\eta} \\ 0 & 0 & \frac{1}{\eta} \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 \\ -\varepsilon/\mu & 1 & 0 \\ -\nu & \frac{\nu}{\varepsilon} & 1 \end{bmatrix} = \begin{bmatrix} \frac{1}{\eta} & \frac{1}{\eta} & -\frac{1}{\eta} \\ \frac{1}{\eta} & -\frac{\nu}{\varepsilon} & \frac{1}{\eta} \\ -\frac{1}{\eta} & \frac{1}{\mu} & \frac{1}{\eta} \end{bmatrix}$$

$$U^{-1} \times L^{-1} = A^{-1}$$