

$$A = \begin{bmatrix} \mu & \mu & -1 \\ \Sigma & 0 & \Sigma \\ \mu & \Sigma & \Sigma \end{bmatrix} \xrightarrow[\text{row}^2 = \text{row}^2 - \text{row}^1]{\text{row}^1 = \text{row}^1 - \frac{\Sigma}{\mu} \text{row}^1} \begin{bmatrix} \mu & \mu & -1 \\ 0 & -\frac{\Sigma}{\mu} & \frac{14}{\mu} \\ 0 & \mu & \Sigma \end{bmatrix} \xrightarrow{\text{row}^2 = \text{row}^2 + \frac{\mu}{\Sigma} \text{row}^1} \begin{bmatrix} \mu & \mu & -1 \\ 0 & -\frac{\Sigma}{\mu} & \frac{14}{\mu} \\ 0 & 0 & \mu \end{bmatrix}$$

$$\rightarrow U = \begin{bmatrix} \mu & \mu & -1 \\ 0 & -\frac{\Sigma}{\mu} & \frac{14}{\mu} \\ 0 & 0 & \mu \end{bmatrix}, \quad L = \begin{bmatrix} 1 & 0 & 0 \\ \frac{\Sigma}{\mu} & 1 & 0 \\ 1 & -\frac{\mu}{\Sigma} & 1 \end{bmatrix}$$

$$\xrightarrow{U} \left[ \begin{array}{ccc|ccc} \mu & \mu & -1 & 1 & 0 & 0 \\ 0 & -\frac{\Sigma}{\mu} & \frac{14}{\mu} & 0 & 1 & 0 \\ 0 & 0 & \mu & 0 & 0 & 1 \end{array} \right] \xrightarrow{\text{row}^1 = \text{row}^1 + \frac{\mu}{\Sigma} \text{row}^2} \left[ \begin{array}{ccc|ccc} \mu & 0 & \mu & 1 & \frac{\mu}{\Sigma} & 0 \\ 0 & -\frac{\Sigma}{\mu} & \frac{14}{\mu} & 0 & 1 & 0 \\ 0 & 0 & \mu & 0 & 0 & 1 \end{array} \right]$$

$$\xrightarrow[\text{row}^2 = \text{row}^2 - \frac{14}{\mu} \text{row}^3]{\text{row}^1 = \text{row}^1 - \frac{\mu}{\mu} \text{row}^3} \left[ \begin{array}{ccc|ccc} \mu & 0 & 0 & 1 & \frac{\mu}{\Sigma} & \frac{1}{\mu} \\ 0 & -\frac{\Sigma}{\mu} & 0 & 0 & 1 & -\frac{14}{\mu} \\ 0 & 0 & \mu & 0 & 0 & 1 \end{array} \right] \rightarrow U^{-1} = \begin{bmatrix} \frac{1}{\mu} & \frac{1}{\Sigma} & -\frac{1}{\mu} \\ 0 & -\frac{\mu}{\Sigma} & \frac{1}{\mu} \\ 0 & 0 & \frac{1}{\mu} \end{bmatrix}$$

$$\xrightarrow{L^{-1}} \left[ \begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & 0 \\ \frac{\Sigma}{\mu} & 1 & 0 & 0 & 1 & 0 \\ 1 & -\frac{\mu}{\Sigma} & 1 & 0 & 0 & 1 \end{array} \right] \xrightarrow[\text{row}^2 = \text{row}^2 - \text{row}^1]{\text{row}^3 = \text{row}^3 - \text{row}^1} \left[ \begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & -\frac{\Sigma}{\mu} & 1 & 0 \\ 0 & -\frac{\mu}{\Sigma} & 1 & -1 & 0 & 1 \end{array} \right]$$

$$\xrightarrow{\text{row}^3 = \text{row}^3 + \frac{\mu}{\Sigma} \text{row}^2} \left[ \begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & -\frac{\Sigma}{\mu} & 1 & 0 \\ 0 & 0 & 1 & -\frac{\mu}{\Sigma} & \frac{\mu}{\Sigma} & 1 \end{array} \right] \rightarrow L^{-1} = \begin{bmatrix} 1 & 0 & 0 \\ \frac{\Sigma}{\mu} & 1 & 0 \\ \frac{\mu}{\Sigma} & \frac{\mu}{\Sigma} & 1 \end{bmatrix} \rightarrow A^{-1} = U^{-1} L^{-1}$$

$$\rightarrow A^{-1} = \begin{bmatrix} \frac{1}{\mu} & \frac{1}{\Sigma} & -\frac{1}{\mu} \\ \frac{1}{\mu} & -\frac{\mu}{\Sigma} & \frac{1}{\mu} \\ -\frac{1}{\mu} & \frac{1}{\Sigma} & \frac{1}{\mu} \end{bmatrix}$$