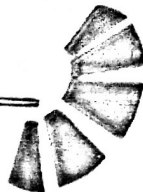


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$$A = LU = \begin{bmatrix} p & r & -1 \\ r & 0 & r \\ p & r & r \end{bmatrix}$$

$$L = \begin{bmatrix} 1 & 0 & 0 \\ * & 1 & 0 \\ * & * & 1 \end{bmatrix}$$

$$A \sim \begin{bmatrix} \textcircled{p} & r & -1 \\ r & 0 & r \\ p & r & r \end{bmatrix}$$

$$L \sim \begin{bmatrix} 1 & 0 & 0 \\ r/p & 1 & 0 \\ 1 & * & 1 \end{bmatrix}$$

$$\sim \begin{bmatrix} p & r & -1 \\ 0 & \textcircled{-1/p} & 19/p \\ 0 & r & r \end{bmatrix}$$

$$L \sim \begin{bmatrix} 1 & 0 & 0 \\ r/p & 1 & 0 \\ 1 & -r/p & 1 \end{bmatrix}$$

$$\sim \begin{bmatrix} p & r & -1 \\ 0 & -1/p & 19/p \\ 0 & 0 & 4 \end{bmatrix} = U$$



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$$L = \begin{bmatrix} 1 & 0 & 0 \\ \frac{r}{r} & 1 & 0 \\ 1 & -\frac{r}{r} & 1 \end{bmatrix}$$

$$[L \ I] = \left[\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & 0 \\ \frac{r}{r} & 1 & 0 & 0 & 1 & 0 \\ 1 & -\frac{r}{r} & 1 & 0 & 0 & 1 \end{array} \right]$$

$$\left[\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & -\frac{r}{r} & 1 & 0 \\ 1 & -\frac{r}{r} & 1 & 0 & 0 & 1 \end{array} \right]$$

$$\left[\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & -\frac{r}{r} & 1 & 0 \\ 0 & -\frac{r}{r} & 1 & -1 & 0 & 1 \end{array} \right]$$

$$\left[\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & -\frac{r}{r} & 1 & 0 \\ 0 & 0 & 1 & -r & \frac{r}{r} & 1 \end{array} \right]$$

$$\rightarrow L^{-1} = \begin{bmatrix} 1 & 0 & 0 \\ -\frac{r}{r} & 1 & 0 \\ -r & \frac{r}{r} & 1 \end{bmatrix}$$



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$$[u] \left[\begin{array}{ccc|ccc} \mu & \nu & -1 & 1 & 0 & 0 \\ 0 & -1/\mu & 1/\mu & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{array} \right]$$

$$\sim \left[\begin{array}{ccc|ccc} \mu & \nu & -1 & 1 & 0 & 0 \\ 0 & +1 & -\nu & 0 & -\mu/\mu & 0 \\ 0 & 0 & 1 & 0 & 0 & 1/\mu \end{array} \right]$$

$$\sim \left[\begin{array}{ccc|ccc} \mu & 0 & \nu & 1 & \mu/\mu & 0 \\ 0 & 1 & -\nu & 0 & -\mu/\mu & 0 \\ 0 & 0 & 1 & 0 & 0 & 1/\mu \end{array} \right]$$

$$\sim \left[\begin{array}{ccc|ccc} 1 & 0 & 1 & 1/\mu & 1/\mu & 0 \\ 0 & 1 & -\nu & 0 & -\mu/\mu & 0 \\ 0 & 0 & 1 & 0 & 0 & 1/\mu \end{array} \right]$$

$$\sim \left[\begin{array}{ccc|ccc} 1 & 0 & 0 & 1/\mu & 1/\mu & -1/\mu \\ 0 & 1 & 0 & 0 & -\mu/\mu & 1/\mu \\ 0 & 0 & 1 & 0 & 0 & 1/\mu \end{array} \right]$$

$$c^{-1} = \left[\begin{array}{ccc} 1/\mu & 1/\mu & -1/\mu \\ 0 & -\mu/\mu & 1/\mu \\ 0 & 0 & 1/\mu \end{array} \right]$$

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$$A^{-1} \sim \bar{u}^{-1} \bar{h}^{-1}$$

$$A^{-1} \sim \begin{bmatrix} 1/r & 1/\epsilon & -1/a \\ 0 & -r/a & 1/a \\ 0 & 0 & 1/a \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 \\ -1/r & 1 & 0 \\ -r & r/\epsilon & 1 \end{bmatrix}$$

$$z = \begin{bmatrix} 1/r - \frac{1}{r} + r/a & 1/\epsilon - \frac{1}{1r} & -1/a \\ \frac{1}{r} - r/a & -r/a + \frac{1}{a} & 1/a \\ -1/a & \frac{1}{1r} & 1/a \end{bmatrix}$$

$$z = \begin{bmatrix} r/a & 1/a & -1/a \\ \frac{1}{1a} & -\omega/r\epsilon & r/a \\ -1/a & 1/r & 1/a \end{bmatrix}$$