

Find the inverse of  $\mathbf{A} = \begin{bmatrix} 1 & 1 & 0 \\ -2 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix}$ . [91 雲科大機械 6]

[解]  $|\mathbf{A}| = 1 + 0 + 0 - 0 - 1 + 2 = 2$

$$\mathbf{A}^{-1} = \frac{1}{|\mathbf{A}|} \begin{bmatrix} \begin{vmatrix} 1 & 1 \\ 1 & 1 \end{vmatrix} & -\begin{vmatrix} 1 & 0 \\ 1 & 1 \end{vmatrix} & \begin{vmatrix} 1 & 0 \\ 1 & 1 \end{vmatrix} \\ -\begin{vmatrix} -2 & 1 \\ 0 & 1 \end{vmatrix} & \begin{vmatrix} 1 & 0 \\ 0 & 1 \end{vmatrix} & -\begin{vmatrix} 1 & 0 \\ -2 & 1 \end{vmatrix} \\ \begin{vmatrix} -2 & 1 \\ 0 & 1 \end{vmatrix} & -\begin{vmatrix} 1 & 1 \\ 0 & 1 \end{vmatrix} & \begin{vmatrix} 1 & 1 \\ -2 & 1 \end{vmatrix} \end{bmatrix} = \frac{1}{2} \begin{bmatrix} 0 & -1 & 1 \\ 2 & 1 & -1 \\ -2 & -1 & 3 \end{bmatrix}$$

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