$$\begin{pmatrix} 1 & 2 \\ 2 & 1 \end{pmatrix} = -3 \qquad \begin{pmatrix} 1 & 2 & 1 \\ 1 & & -3 \end{pmatrix}$$

$$\begin{pmatrix} I & I+B \\ I+B^T & I \end{pmatrix}$$

$$\downarrow \qquad I-(I+B)-(I+B^T)$$

$$\begin{pmatrix} I & B \\ B^T & -B-B^T \end{pmatrix} \qquad \begin{pmatrix} 1 & 1+\varepsilon \\ 1+\varepsilon & 1 \end{pmatrix} \quad 1-(1+\varepsilon)^2 = -2\varepsilon-\varepsilon^2$$

$$= -I - B - B^T + BB^T \qquad \begin{pmatrix} 1 & a \\ a & a^2+1 \end{pmatrix}$$

$$\det\begin{pmatrix} I & & \\ & I & \\ & & I \end{pmatrix} \qquad \begin{pmatrix} 1 & 1+b & 1+c \\ 1+b & & \\ & & 1 \end{pmatrix}$$

$$= \sum_{\sigma \in S_3} \prod A_{i\sigma(i)} \qquad \rightarrow \boxed{-B - B^T + B^T B}$$

$$\begin{pmatrix} I & I+B & I+C \\ I+B^T & & \\ I+C^T & & I \end{pmatrix} \mapsto \begin{pmatrix} I & B & C \\ I+B^T & -B^T & D-B^T \\ I+C^T & & -C^T \end{pmatrix}$$

$$\mapsto \begin{pmatrix} I & B & C \\ B^T & -B^T-B & D-B^T-C \\ C^T & & -C^T-C \end{pmatrix}$$