Solution (#875) (i) If

$$A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}, \quad \text{then} \quad \mathrm{adj}A = \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}.$$

(ii) For example

$$A = \begin{pmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{pmatrix}.$$