Det (A)= $1 \times \det\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix} - 0 \times \det\begin{pmatrix} 0 & 0 \\ -1 & -1 \end{pmatrix} + (-1) \times \det\begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}$

Or $\boldsymbol{det\begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix} = (0 \times 0) - (-1 \times 1) = 0 - (-1) = 0 + 1 = 1}$

On a donc : det (A) = $1 \times (-1) - 0 \times 0 + (-1) \times 1$

$= -1 - 1 = -2 \neq 0$