32.

$$A = \begin{pmatrix} 0 & 1 & -1 \\ 1 & 0 & 1 \\ 2 & 1 & 0 \end{pmatrix}$$

gesucht: A^{-1}

$$(A, E) = \begin{pmatrix} 0 & 1 & -1 & 1 & 0 & 0 \\ 1 & 0 & 1 & 0 & 1 & 0 \\ 2 & 1 & 0 & 0 & 0 & 1 \end{pmatrix}$$

$I_S \leftrightarrow II_S$

$$\longrightarrow \begin{pmatrix} 1 & 0 & -1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 0 & 1 & 0 \\ 1 & 2 & 0 & 0 & 0 & 1 \end{pmatrix}$$

$III - I = III$

$$\longrightarrow \begin{pmatrix} 1 & 0 & -1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 0 & 1 & 0 \\ 0 & 2 & 1 & -1 & 0 & 1 \end{pmatrix}$$

$-2 \cdot II + III = III$

$$\longrightarrow \begin{pmatrix} 1 & 0 & -1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 0 & 1 & 0 \\ 0 & 0 & -1 & -1 & -2 & 1 \end{pmatrix}$$

$-1 \cdot III = III$

$$\longrightarrow \begin{pmatrix} 1 & 0 & -1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 0 & 1 & 0 \\ 0 & 0 & 1 & 1 & 2 & -1 \end{pmatrix}$$

$II - III = II$

$III + I = I$

$$\longrightarrow \begin{pmatrix} 1 & 0 & 0 & 2 & 2 & -1 \\ 0 & 1 & 0 & -1 & -1 & 1 \\ 0 & 0 & 1 & 1 & 2 & -1 \end{pmatrix}$$

$$A^{-1} = \begin{pmatrix} -1 & -1 & 1 \\ 2 & 2 & -1 \\ 1 & 2 & -1 \end{pmatrix}$$

$$A \cdot A^{-1} = \begin{pmatrix} 0 & 1 & -1 \\ 1 & 0 & 1 \\ 2 & 1 & 0 \end{pmatrix} \cdot \begin{pmatrix} -1 & -1 & 1 \\ 2 & 2 & -1 \\ 1 & 2 & -1 \end{pmatrix} = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix} \checkmark$$