

QUESTION

Calculate the determinant of the matrix $\mathbf{A} = \begin{pmatrix} 1 & 0 & 0 & 0 \\ 1 & 2 & 0 & 1 \\ 2 & 0 & 1 & 2 \\ 1 & 3 & 2 & 0 \end{pmatrix}$.

ANSWER

$$\det \mathbf{A} = 1 \begin{vmatrix} 2 & 0 & 1 \\ 0 & 1 & 2 \\ 3 & 2 & 0 \end{vmatrix} = 2\{1(0) - 2(2)\} + 0 + 1\{0(2) - 1(3)\} = 2(0 - 4) + 1(0 - 3) = -8 - 3 = -11$$