

EXEMPLO 1

(31)

$$A = \begin{bmatrix} 1 & 1 \\ 0 & -1 \end{bmatrix} ; (A - sI) = \begin{bmatrix} 1-s & 1 \\ 0 & -1-s \end{bmatrix}$$

$$\det(A - sI) = (1-s)(-1-s) = -1 - s + s + s^2$$

$$\lambda^2 - 1 = 0 \Rightarrow \lambda^2 = 1 \Rightarrow \begin{cases} \lambda_1 = 1 \\ \lambda_2 = -1 \end{cases}$$

$$(A - \lambda_1 I)v_1 = 0 \Rightarrow \begin{bmatrix} 1-1 & 1 \\ 0 & -1-1 \end{bmatrix} \begin{bmatrix} v_{11} \\ v_{12} \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

$$\begin{bmatrix} 0 & 1 \\ 0 & -2 \end{bmatrix} \begin{bmatrix} v_{11} \\ v_{12} \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix} \Rightarrow \begin{cases} 0 \cdot v_{11} + 1 \cdot v_{12} = 0 \\ 0 \cdot v_{11} - 2 \cdot v_{12} = 0 \end{cases} \Rightarrow$$

$$\Rightarrow \begin{cases} v_{11} = \text{QUALQUER (P. EX., } v_{11} = 1) \\ v_{12} = 0 \end{cases}$$

$$\text{PORTANTO, } \lambda_1 = 1, v_1 = \begin{bmatrix} 1 \\ 0 \end{bmatrix} \quad (\text{VERIFICAR})$$