$$(A-\lambda_2 I)v_2 = 0 \Longrightarrow \begin{bmatrix} 1+1 & 1 \\ 0 & -1+1 \end{bmatrix}\begin{bmatrix} v_{2_1} \\ v_{2_2} \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

$$\begin{bmatrix} 2 & 1 \\ 0 & 0 \end{bmatrix}\begin{bmatrix} v_{2_1} \\ v_{2_2} \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix} \Longrightarrow \begin{cases} 2v_{2_1} + 1v_{2_2} = 0 \\ 0v_{2_1} + 0v_{2_2} = 0 \end{cases} \Longrightarrow$$

$$\Longrightarrow \begin{cases} v_{2_1} = \text{QUALQUER} \quad (\text{P. EX.}, \ v_{2_1} = 1) \\ v_{2_2} = -2 . v_{2_1} \Longrightarrow v_{2_2} = -2 \end{cases}$$

PORTANTO, $\lambda_2 = -1$, $v_2 = \begin{bmatrix} 1 \\ -2 \end{bmatrix}$ (VERIFICAR)

EXEMPLO 2

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

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

$$\lambda^2 + 2\lambda + 2 = 0 \Longrightarrow \lambda = \frac{-2 \pm \sqrt{2^2 - 4.1.2}}{2.1} \Longrightarrow \begin{cases} \lambda_1 = -1 + i \\ \lambda_2 = -1 - i \end{cases}$$