$$\begin{pmatrix} 1 & 4 \\ 1 & 1 \end{pmatrix} \rightarrow \begin{vmatrix} 1-\lambda & 4 \\ 1 & 1-\lambda \end{vmatrix} = 0$$

$$(1-\lambda)(1-\lambda) = 0$$

$$\lambda^2 - 2\lambda + 1 - 4 = 0$$

$$\lambda^2 - 2\lambda - 3 = 0$$

$$\lambda_1 = 3$$

$$\lambda_2 = -1.$$

$$\lambda_1 = 3$$

$$\begin{cases} -2x + 4y = 0 \\ 1 \cdot x - 2y = 0 \end{cases} \Rightarrow x = 2y$$

$$\lambda = -1.$$

$$\begin{cases} 2x + 4y = 0 \\ x + 2y = 0 \end{cases} \quad x = -2y$$

Ответ $\lambda_1 = 3$, $\lambda_2 = -1$

$\bar{u}_1 = \begin{pmatrix} 2 \\ 4 \end{pmatrix}$, $\bar{u}_2 = \begin{pmatrix} 1 \\ -2 \end{pmatrix}$