

$$\textcircled{3} A = \begin{bmatrix} 9 & 1 \\ 4 & 6 \end{bmatrix} \quad \det(A - \lambda I) = 0 \quad \checkmark.$$

$$\det \begin{bmatrix} 9-\lambda & 1 \\ 4 & 6-\lambda \end{bmatrix} = 0 \Rightarrow \lambda^2 - 15\lambda + 50 = 0$$
$$\lambda_1 = 5 \text{ ve } \lambda_2 = 10$$

$$\lambda_1 = 5 \text{ için } \begin{bmatrix} 9-5 & 1 \\ 4 & 6-5 \end{bmatrix} \cdot \vec{v}_5 = 0 \Rightarrow \vec{v}_5 = \begin{bmatrix} 1 \\ -4 \end{bmatrix} \quad \checkmark.$$

$$\lambda_2 = 10 \text{ için } \begin{bmatrix} 9-10 & 1 \\ 4 & 6-10 \end{bmatrix} \cdot \vec{v}_{10} = 0 \Rightarrow \vec{v}_{10} = \begin{bmatrix} 1 \\ 1 \end{bmatrix} \quad \checkmark.$$

Özdeğerler $\lambda_1 = 5$ ve $\lambda_2 = 10$,
Özvektörler $\vec{v}_5 = \begin{bmatrix} 1 \\ -4 \end{bmatrix}$ ve $\vec{v}_{10} = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$ dir. $\checkmark.$

$$\textcircled{6} e^{i\pi} + 1 = 0, \text{ çünkü } e^{i\pi} = \cos x + i \sin x \text{ dir. (Euler'ün)}.$$

Burada $\sin \pi = 0$ ve $\cos \pi = -1$ dir.

$$e^{i\pi} + 1 = \underbrace{\cos \pi}_{-1} + i \underbrace{\sin \pi}_0 + 1 = (-1) + 1 = \underline{\underline{0}} \quad \checkmark.$$
