

12.46

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Question

The eigenvalues of the matrix

$$\mathbf{P} = \begin{pmatrix} 4 & -5 \\ 2 & -5 \end{pmatrix} \quad (1)$$

are

- ① -7 and 8
- ② -6 and 5
- ③ 3 and 4
- ④ 1 and 2

Theoretical Solution

$$|\mathbf{P} - \lambda \mathbf{I}| = 0 \quad (2)$$

$$\left| \begin{pmatrix} 4 - \lambda & -5 \\ 2 & -5 - \lambda \end{pmatrix} \right| = 0 \quad (3)$$

Theoretical Solution

$$\lambda^2 + \lambda - 10 = 0 \quad (4)$$

$$\lambda_1 = \frac{-1 + \sqrt{41}}{2}, \quad \lambda_2 = \frac{-1 - \sqrt{41}}{2} \quad (5)$$

Hence, Answer : NO CORRECT OPTION