

Linear Algebra

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Block I

Definitions

1. Vectorial space

2. Jordan form

Eigenvalue

Let:

$$\cdot A \in \mathcal{M}_{n \times n}(K)$$

$$\cdot \lambda \in K$$

Then, λ is an eigenvalue if:

$$\cdot \exists v \in K \setminus \{0\} :$$

$$Av = \lambda v$$

We denote:

$$\cdot \{ \lambda \in K \mid \lambda \text{ eigenvalue} \} : \text{Spec}(A)$$

Eigenvector

Let:

$$\cdot A \in \mathcal{M}_{n \times n}(K)$$

$$\cdot \lambda \in K \text{ eigenvalue}$$

$$\cdot v \in K$$

Then, v is an eigenvector of eigenvalue λ if:

$$\cdot Av = \lambda v$$

We denote:

$$\cdot \{v \in K \mid v \text{ eigenvector of eigenvalue } \lambda\} : Ker_{\lambda}(K)$$

Block II

Propositions

1. Vectorial space

2. Jordan form

Block III

Examples

1. Vectorial space

2. Jordan form

Block IV

Problems

1. Vectorial space

2. Jordan form

Block V

Tasks