## Linear Algebra

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unit name

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## Block I

# **Definitions**

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## 2. Jordan form

### Eigenvalue

Let:

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

$$\cdot \lambda \in K$$

Then,  $\lambda$  is an eigenvalue if:

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

$$Av = \lambda v$$

We denote:

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

### Eigenvector

Let:

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

 $\cdot \lambda \in K$  eigenvalue

$$\cdot v \in K$$

Then, v is an eigenvector of eigenvalue  $\lambda$ if:

$$Av = \lambda v$$

We denote:

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

## Block II

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**Tasks**