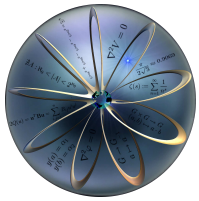

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multiplicity of eigenvalue

Canonical name	MultiplicityOfEigenvalue
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Defines	geometric multiplicity
Defines	algebraic multiplicity

Suppose V is a finite dimensional vector space over a field $\mathbb{F}$, and suppose $L\colon V \to V$ is a linear map. Suppose also that $\lambda \in \mathbb{F}$ is an eigenvalue of L, that is, $\det(L - \lambda I) = 0$.

The *algebraic multiplicity*, denoted by $A_\lambda(L)$, of λ is the multiplicity of the root λ to the polynomial $\det(L - \lambda I) = 0$. The *geometric multiplicity* of λ, denoted by $G_\lambda(L)$, is the dimension of $\ker(L - \lambda I)$, the eigenspace of λ.