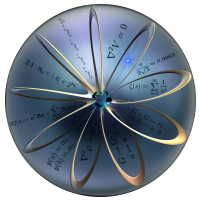

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weight lattice

Canonical name	WeightLattice
Date of creation	2013-03-22 13:11:57
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Entry type	Definition
Classification	msc 17B20
Defines	integral weight

The weight lattice Λ_W of a root system $R \subset E$ is the lattice

$$\Lambda_W = \left\{ e \in E \,\middle|\, \frac{(e,\alpha)}{(\alpha,\alpha)} \in \mathbb{Z} \text{ for all } r \in R \right\}.$$

Weights which lie in the weight lattice are called . If $R \subset \mathfrak{h}$ is the root system of a semi-simple Lie algebra $\mathfrak{g}$ with Cartan subalgebra $\mathfrak{h}$, then Λ_W is exactly the set of weights appearing in finite dimensional representations of $\mathfrak{g}$.