



Math for the people, by the people.

perfect bilinear form

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Let A , B , and C be abelian groups. A bilinear form

$$\varphi : A \times B \rightarrow C$$

is said to be φ if the associated group homomorphisms

$$A \rightarrow \text{Hom}(B, C)$$

$$a \mapsto \varphi(a, \cdot)$$

and

$$B \rightarrow \text{Hom}(A, C)$$

$$b \mapsto \varphi(\cdot, b)$$

are injective.

In particular, if C is finite then the finiteness of either A or B implies the finiteness of the other.