

Let U and V be vector spaces over a field F .

A linear transformation (also called a linear mapping, linear operator or, in some contexts, linear function) is a function between two modules (including vector spaces) that preserves the operations of module (or vector) addition and scalar multiplication.

Thus a function $T:U \rightarrow V$ such that $T(u_1+u_2)=T(u_1)+T(u_2)$, for $u_1, u_2 \in U$ and $T(\alpha u)=\alpha T(u)$ for $\alpha \in F$ and $u \in U$ is called a linear transformation.

ANSWER: linear transformation.