



Definition

A *real linear transformation* is a function $f : \mathbf{R}^n \rightarrow \mathbf{R}^m$ satisfying

$$f(\alpha x + \beta y) = \alpha f(x) + \beta f(y).$$

Equivalently, f is (a) homogenous $f(\alpha x) = \alpha f(x)$ and (b) additive $f(x + y) = f(x) + f(y)$.

