

LINEAR FUNCTIONS

Why

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Definition

A function $f: \mathbb{R}^n \to \mathbb{R}$ is linear if

- 1. f(x+y) = f(x) + f(y) for all $x, y \in \mathbb{R}^n$ and
- 2. $f(\alpha x) = \alpha f(x)$ for all $x \in \mathbb{R}^n$ and $\alpha \in \mathbb{R}$.

There are simple consequences to these conditions. For example, f(0) = 0.

¹Future editions will include.

