



CONVEX FUNCTIONS

Why

We generalize convex functions to \mathbf{R}^n .

Definition

Let A be a convex subset of \mathbf{R}^n . The function $f : A \rightarrow \mathbf{R}$ is *convex* if for any $a, b \in A$ and $t \in [0, 1]$,

$$f(ta + (1 - t)b) \leq tf(a) + (1 - t)f(b).$$

It is *concave* if $-f$ is convex.

