



Math for the people, by the people.

Minkowski inequality

Canonical name	MinkowskiInequality
Date of creation	2013-03-22 11:46:24
Last modified on	2013-03-22 11:46:24
Owner	drini (3)
Last modified by	drini (3)
Numerical id	13
Author	drini (3)
Entry type	Theorem
Classification	msc 26D15
Related topic	LebesgueMeasure
Related topic	MeasurableSpace

If $p \geq 1$ and a_k, b_k are real numbers for $k = 1, \dots$, then

$$\left(\sum_{k=1}^n |a_k + b_k|^p \right)^{1/p} \leq \left(\sum_{k=1}^n |a_k|^p \right)^{1/p} + \left(\sum_{k=1}^n |b_k|^p \right)^{1/p}$$

The Minkowski inequality is in fact valid for all L^p norms with $p \geq 1$ on arbitrary measure spaces. This covers the case of \mathbb{R}^n listed here as well as spaces of sequences and spaces of functions, and also complex L^p spaces.