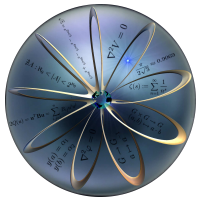

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## uniformly convex space

| | |
|---|---|
| Canonical name | UniformlyConvexSpace |
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| Owner | georgiosl (7242) |
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| Entry type | Definition |
| Classification | msc 46H05 |
| Synonym | uniformly convex |

A normed space is *uniformly convex* iff $\forall \epsilon > 0$ there exists $\delta > 0$ that satisfies for $\|x\| \leq 1$ $\|y\| \leq 1$ and $\|x - y\| > \epsilon \Rightarrow \|\frac{x+y}{2}\| \leq 1\text{-}\delta$.

For example it is easily seen that the normed space $(\mathbb{R}^2, \|.\|_2)$ is uniformly convex space. Also $L^p$ and $l^p$ spaces for $1 < p < \infty$ are uniformly convex, see *J.A. Clarkson, "Uniformly convex spaces", Trans. Amer. Math. Society, 40 (1936), 396-414.*