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quadratic convergence

Canonical name	QuadraticConvergence
Date of creation	2013-03-22 14:20:59
Last modified on	2013-03-22 14:20:59
Owner	Koro (127)
Last modified by	Koro (127)
Numerical id	8
Author	Koro (127)
Entry type	Definition
Classification	msc 41A25
Related topic	LinearConvergence

A sequence $\{x_i\}$ in a metric space (X, d) is said to converge quadratically to x^* if there is a constant $1 > c > 0$ such that $d(x_{i+1}, x^*) \leq cd(x_i, x^*)^2$ for all i .

The convergence is said to be of order p if $d(x_{i+1}, x^*) \leq cd(x_i, x^*)^p$ for all i .