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Dirichlet conditions

Canonical name	DirichletConditions
Date of creation	2013-03-22 13:21:53
Last modified on	2013-03-22 13:21:53
Owner	mathwizard (128)
Last modified by	mathwizard (128)
Numerical id	6
Author	mathwizard (128)
Entry type	Theorem
Classification	msc 42A20
Related topic	FourierSeriesOfFunctionOfBoundedVariation
Related topic	FourierCoefficients

Let f be a piecewise <http://planetmath.org/node/1146>regular real-valued function defined on some interval $[a, b]$, such that f has only a finite number of discontinuities and extrema in $[a, b]$. Then the Fourier series of this function converges to f when f is continuous and to the arithmetic mean of the left-handed and right-handed <http://planetmath.org/node/2950>limit of f at a point where it is discontinuous.