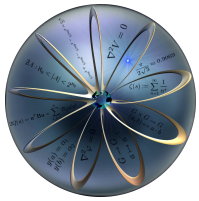

planetmath.org

Math for the people, by the people.

Harnack's principle

Canonical name	HarnacksPrinciple
Date of creation	2013-03-22 14:57:35
Last modified on	2013-03-22 14:57:35
Owner	Mathprof (13753)
Last modified by	Mathprof (13753)
Numerical id	14
Author	Mathprof (13753)
Entry type	Theorem
Classification	msc 30F15
Classification	msc 31A05

If the functions $u_1(z), u_2(z), \ldots$ are http://planetmath.org/HarmonicFunctionharmonic in the domain $G \subseteq \mathbb{C}$ and

$$u_1(z) \leq u_2(z) \leq \cdots$$

in every point of G, then $\lim_{n\to\infty} u_n(z)$ either is infinite in every point of the domain or it is finite in every point of the domain, in both cases http://planetmath.org/UniformConvergenceuniformly in each http://planetmath.org/Close subdomain of G. In the latter case, the function $u(z) = \lim_{n\to\infty} u_n(z)$ is harmonic in the domain G (cf. limit function of sequence).