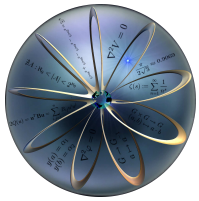

planetmath.org

Math for the people, by the people.

Riemann's theorem on isolated singularities

Canonical name	RiemannsTheoremOnIsolatedSingularities
Date of creation	2013-03-22 19:00:51
Last modified on	2013-03-22 19:00:51
Owner	pahio (2872)
Last modified by	pahio (2872)
Numerical id	5
Author	pahio (2872)
Entry type	Theorem
Classification	msc 30E99
Synonym	Riemann's theorem
Related topic	RiemannsRemovableSingularityTheorem

Let the complex function $f(z)$ be holomorphic in a deleted neighbourhood of the point $z = z_0$ of the closed complex plane $\mathbb{C} \cup \{\infty\}$. This point is

- a regular point (or a removable singularity) iff $f(z)$ is bounded in a neighbourhood of z_0,
- a pole iff $\lim\limits_{z \to z_0} |f(z)| = +\infty$,
- an essential singularity iff there is neither of the above cases.