



meromorphic extension

Canonical name	MeromorphicExtension
Date of creation	2013-03-22 16:07:26
Last modified on	2013-03-22 16:07:26
Owner	Wkbj79 (1863)
Last modified by	Wkbj79 (1863)
Numerical id	10
Author	Wkbj79 (1863)
Entry type	Definition
Classification	msc 30D30
Synonym	meromorphic continuation
Related topic	AnalyticContinuationOfRiemannZeta
Related topic	RestrictionOfAFunction

Let $A \subset B \subseteq \mathbb{C}$ and $f: A \rightarrow \mathbb{C}$ be analytic. A *meromorphic extension* of f is a meromorphic function $g: B \rightarrow \mathbb{C}$ such that $g|_A = f$.

The meromorphic extension of an analytic function to a larger <http://planetmath.org/Domain> is unique; <http://planetmath.org/Ie>i.e., using the above notation, if $h: B \rightarrow \mathbb{C}$ has the property that $h|_A = f$, then $g = h$ on B .

Occasionally, an analytic function and its meromorphic extension are denoted using the same notation. A common example of this phenomenon is the Riemann zeta function.