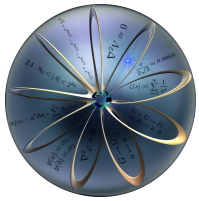

planetmath.org

Math for the people, by the people.

Gauss' mean value theorem

Canonical name	GaussMeanValueTheorem
Date of creation	2013-03-22 13:35:33
Last modified on	2013-03-22 13:35:33
Owner	Johan (1032)
Last modified by	Johan (1032)
Numerical id	12
Author	Johan (1032)
Entry type	Theorem
Classification	msc 30E20
Related topic	GaussMeanValueTheoremForHarmonicFunctions
Related topic	AverageValueOfFunction

Let Ω be a domain in $\mathbb{C}$ and suppose f is an analytic function on Ω. Furthermore, let C be a circle inside Ω with center z_0 and radius r. Then $f(z_0)$ is the mean value of f along C, that is,

$$f(z_0) = \frac{1}{2\pi} \int_0^{2\pi} f(z_0 + re^{i\theta}) d\theta.$$