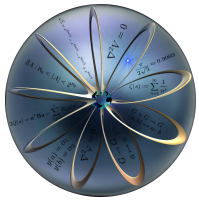

planetmath.org

Math for the people, by the people.

index of special functions

Canonical name	IndexOfSpecialFunctions
Date of creation	2013-03-22 14:40:06
Last modified on	2013-03-22 14:40:06
Owner	rspuzio (6075)
Last modified by	rspuzio (6075)
Numerical id	35
Author	rspuzio (6075)
Entry type	Topic
Classification	msc 33-00
Related topic	ComplexFunction
Related topic	ExponentialIntegral
Related topic	SpecialCasesOfHypergeometricFunction
Related topic	PropertiesOfOrthogonalPolynomials

The term is not a completely precise mathematical term. It usually refers to a function of one or more real or complex variables which is either of use in some application or interesting in its own right, and hence has been studied enough to warrant giving it a name. Special functions are usually named after the mathematician who first introduced them or contributed much to their theory although, as in the rest of mathematics, such attributions are not always accurate, and they should be taken with a grain of salt.

0.1 http://planetmath.org/node/6420Elementary Functions

- exponential
- logarithm
- http://planetmath.org/node/4676trigonometric functions
- http://planetmath.org/node/6169cyclometric functions
- hyperbolic functions
- area functions
- Gudermannian function
- http://planetmath.org/node/5744sinc function

0.2 Antiderivatives of elementary functions

- error function
- logarithmic integral
- exponential integral
- cosine integral
- sine integral
- hyperbolic sine integral
- Fresnel integrals
- elliptic integrals

0.3 Gamma and related functions

- gamma function
- beta function
- polygamma functions
- Barnes function

0.4 Functions defined as solutions of linear differential equations

- **Bessel functions**
- hypergeometric function
- confluent hypergeometric function
- **generalized hypergeometric functions**
- Hermite polynomials
- Legendre polynomials
- associated Laguerre polynomials
- spherical harmonics
- surface harmonics
- Lamé function
- Heun function

0.5 Functions defined as solutions of non-linear equations

- Painlevé transcendents
- Emden function
- Lambert W function
- Airy functions

0.6 Abelian functions

- Jacobi theta functions
- Weierstrass sigma function
- Jacobi Zeta function
- Weierstrass zeta function

0.7 Zeta Functions

- general Zeta functions (in the sense of Jorgensen and Lang)
- Hecke zeta function
- Hurwitz zeta function
- L-functions
- Riemann zeta function
- Zeta functions of surfaces
- Zeta functions of graphs
- Zeta functions of operators