

Scalar — Scalar mathematical functions

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[M-5] Manual entry	Function	Purpose
Complex		
Re()	Re()	real part
	Im()	imaginary part
C()	C()	make complex
Sign related		
abs()	abs()	absolute value (length if complex)
sign()	sign()	sign function
	quadrant()	quadrant of value
dsign()	dsign()	FORTRAN-like DSIGN function
conj()	conj()	complex conjugate
Transcendental & square root		
exp()	exp()	exponentiation
	ln(), log()	natural logarithm
	log10()	base-10 logarithm
	expm1()	$\exp() - 1$
	ln1p(), log1p()	natural logarithm of $(1 + x)$
	ln1m(), log1m()	natural logarithm of $(1 - x)$
sqrt()	sqrt()	square root

Transcendental & square root, continued

sin()	<code>sin()</code>	sine
	<code>cos()</code>	cosine
	<code>tan()</code>	tangent
	<code>asin()</code>	arcsine
	<code>acos()</code>	arccosine
	<code>atan()</code>	arctangent
	<code>arg()</code>	arctangent of complex
	<code>atan2()</code>	two-argument arctangent
	<code>sinh()</code>	hyperbolic sine
	<code>cosh()</code>	hyperbolic cosine
	<code>tanh()</code>	hyperbolic tangent
	<code>asinh()</code>	inverse-hyperbolic sine
	<code>acosh()</code>	inverse-hyperbolic cosine
	<code>atanh()</code>	inverse-hyperbolic tangent
	<code>pi()</code>	value of π

Factorial & gamma

factorial()	<code>factorial()</code>	factorial
	<code>lnfactorial()</code>	natural logarithm of factorial
	<code>gamma()</code>	gamma function
	<code>lngamma()</code>	natural logarithm of gamma function
	<code>digamma()</code>	derivative of <code>lngamma()</code>
	<code>trigamma()</code>	second derivative of <code>lngamma()</code>

Modulus & integer rounding

mod()	<code>mod()</code>	modulus
trunc()	<code>trunc()</code>	truncate to integer
	<code>floor()</code>	round down to integer
	<code>ceil()</code>	round up to integer
	<code>round()</code>	round to closest integer or multiple

Description

With a few exceptions, the above functions are what most people would consider scalar functions, although in fact all will work with matrices, in an element-by-element fashion.

Remarks and examples

[stata.com](https://www.stata.com)

For other mathematical functions, see

[M-4] Matrix	Matrix functions
[M-4] Mathematical	Important mathematical functions
[M-4] Statistical	Statistical functions

Also see

[M-4] **Intro** — Categorical guide to Mata functions

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