

**scalar** — Scalar mathematical functions

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

### Transcendental & square root, continued

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<b>sin()</b>	<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 $\pi$	

### Factorial & gamma

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<b>factorial()</b>	<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

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<b>mod()</b>	<code>mod()</code>	modulus
<b>trunc()</b>	<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

Dates

<b>date()</b>	clock()	%tc of string
	mdyhms()	%tc of month, day, year, hour, minute, and second
	dhms()	%tc of %td, hour, minute, and second
	hms()	%tc of hour, minute, and second
	hh()	hour of %tc
	mm()	minute of %tc
	ss()	second of %tc
	dofc()	%td of %tc
	Cofc()	%tC of %tc
	Clock()	%tC of string
	Cmdyhms()	%tC of month, day, year, hour, minute, and second
	Cdhms()	%tC of %td, hour, minute, and second
	Chms()	%tC of hour, minute, and second
	hhC()	hour of %tC
	mmC()	minute of %tC
	ssC()	second of %tC
	dofC()	%td of %tC
	date()	%td of string
	mdy()	%td of month, day, and year
	yw()	%tw of year and week
	ym()	%tm of year and month
	yq()	%tq of year and quarter
	yh()	%th of year and half
	cofd()	%tc of %td
	Cofd()	%tC of %td
	dofb()	%td of %tb
	bofd()	%tb of %td
	month()	month of %td
	day()	day-of-month of %td
	year()	year of %td
	dow()	day-of-week of %td
	week()	week of %td
	quarter()	quarter of %td
	halfyear()	half-of-year of %td
	doy()	day-of-year of %td

<b>date()</b> , <i>continued</i>	<code>yearly()</code>	%ty of string
	<code>yofd()</code>	%ty of %td
	<code>dofy()</code>	%td of %ty
	<code>halfyearly()</code>	%th of string
	<code>hofd()</code>	%th of %td
	<code>dofh()</code>	%td of %th
	<code>quarterly()</code>	%tq of string
	<code>qofd()</code>	%tq of %td
	<code>dofq()</code>	%td of %tq
	<code>monthly()</code>	%tm of string
	<code>mofd()</code>	%tm of %td
	<code>dofm()</code>	%td of %tm
	<code>weekly()</code>	%tw of string
	<code>wofd()</code>	%tw of %td
	<code>dofw()</code>	%td of %tw
	<code>hours()</code>	hours of milliseconds
	<code>minutes()</code>	minutes of milliseconds
	<code>seconds()</code>	seconds of milliseconds
	<code>msofhours()</code>	milliseconds of hours
	<code>msofminutes()</code>	milliseconds of minutes
	<code>msofseconds()</code>	milliseconds of seconds

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## 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] <a href="#">matrix</a>	Matrix functions
[M-4] <a href="#">mathematical</a>	Important mathematical functions
[M-4] <a href="#">statistical</a>	Statistical functions

## Also see

[M-4] [intro](#) — Categorical guide to Mata functions