

**scalar** — Scalar mathematical functions

[Contents](#)   
 [Description](#)   
 [Remarks and examples](#)   
 [Also see](#)

## Contents

[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()	exponentiation natural logarithm base-10 logarithm
<b>sqrt()</b>	sqrt()	square root
<b>sin()</b>	sin() cos() tan() asin() acos() atan() arg() atan2() sinh() cosh() tanh() asinh() acosh() atanh() pi()	sine cosine tangent arcsine arccosine arctangent arctangent of complex two-argument arctangent hyperbolic sine hyperbolic cosine hyperbolic tangent inverse-hyperbolic sine inverse-hyperbolic cosine inverse-hyperbolic tangent value of $\pi$

Factorial & gamma
-------------------

---

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

Modulus & integer rounding
----------------------------

---

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

Dates
-------

---

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

---

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

---

## 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

For other mathematical functions, see

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

## Also see

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