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| Functions by name |
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| <code>abbrev(<i>s</i>,<i>n</i>)</code> | name <i>s</i> , abbreviated to a length of <i>n</i> |
| <code>abs(<i>x</i>)</code> | the absolute value of <i>x</i> |
| <code>acos(<i>x</i>)</code> | the radian value of the arccosine of <i>x</i> |
| <code>acosh(<i>x</i>)</code> | the inverse hyperbolic cosine of <i>x</i> |
| <code>age(<i>e_d</i>_{DOB},<i>e_d</i>[,<i>s_{nl}</i>])</code> | the age in integer years on <i>e_d</i> for date of birth <i>e_d</i> _{DOB} with <i>s_{nl}</i> the nonleap-year birthday for 29feb birthdates |
| <code>age_frac(<i>e_d</i>_{DOB},<i>e_d</i>[,<i>s_{nl}</i>])</code> | the age in years, including the fractional part, on <i>e_d</i> for date of birth <i>e_d</i> _{DOB} with <i>s_{nl}</i> the nonleap-year birthday for 29feb birthdates |
| <code>asin(<i>x</i>)</code> | the radian value of the arcsine of <i>x</i> |
| <code>asinh(<i>x</i>)</code> | the inverse hyperbolic sine of <i>x</i> |
| <code>atan(<i>x</i>)</code> | the radian value of the arctangent of <i>x</i> |
| <code>atan2(<i>y</i>, <i>x</i>)</code> | the radian value of the arctangent of <i>y/x</i> , where the signs of the parameters <i>y</i> and <i>x</i> are used to determine the quadrant of the answer |
| <code>atanh(<i>x</i>)</code> | the inverse hyperbolic tangent of <i>x</i> |
| <code>autocode(<i>x</i>,<i>n</i>,<i>x₀</i>,<i>x₁</i>)</code> | partitions the interval from <i>x₀</i> to <i>x₁</i> into <i>n</i> equal-length intervals and returns the upper bound of the interval that contains <i>x</i> or the upper bound of the first or last interval if <i>x</i> < <i>x₀</i> or <i>x</i> > <i>x₁</i> , respectively |
| <code>betaden(<i>a</i>,<i>b</i>,<i>x</i>)</code> | the probability density of the beta distribution, where <i>a</i> and <i>b</i> are the shape parameters; 0 if <i>x</i> < 0 or <i>x</i> > 1 |
| <code>binomial(<i>n</i>,<i>k</i>,<i>θ</i>)</code> | the probability of observing <code>floor(<i>k</i>)</code> or fewer successes in <code>floor(<i>n</i>)</code> trials when the probability of a success on one trial is <i>θ</i> ; 0 if <i>k</i> < 0; or 1 if <i>k</i> > <i>n</i> |
| <code>binomialp(<i>n</i>,<i>k</i>,<i>p</i>)</code> | the probability of observing <code>floor(<i>k</i>)</code> successes in <code>floor(<i>n</i>)</code> trials when the probability of a success on one trial is <i>p</i> |
| <code>binomialtail(<i>n</i>,<i>k</i>,<i>θ</i>)</code> | the probability of observing <code>floor(<i>k</i>)</code> or more successes in <code>floor(<i>n</i>)</code> trials when the probability of a success on one trial is <i>θ</i> ; 1 if <i>k</i> < 0; or 0 if <i>k</i> > <i>n</i> |
| <code>binormal(<i>h</i>,<i>k</i>,<i>ρ</i>)</code> | the joint cumulative distribution $\Phi(h, k, \rho)$ of bivariate normal with correlation <i>ρ</i> |
| <code>birthday(<i>e_d</i>_{DOB},<i>Y</i>[,<i>s_{nl}</i>])</code> | the <i>e_d</i> date of the birthday in year <i>Y</i> for date of birth <i>e_d</i> _{DOB} with <i>s_{nl}</i> the nonleap-year birthday for 29feb birthdates |
| <code>bofd("cal",<i>e_d</i>)</code> | the <i>e_b</i> business date corresponding to <i>e_d</i> |
| <code>byteorder()</code> | 1 if your computer stores numbers by using a hilo byte order and evaluates to 2 if your computer stores numbers by using a lohi byte order |
| <code>c(<i>name</i>)</code> | the value of the system or constant result <i>c</i> (<i>name</i>) (see [P] creturn) |
| <code>_caller()</code> | version of the program or session that invoked the currently running program; see [P] version |
| <code>cauchy(<i>a</i>,<i>b</i>,<i>x</i>)</code> | the cumulative Cauchy distribution with location parameter <i>a</i> and scale parameter <i>b</i> |

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| <code>cauchyden(<i>a</i>,<i>b</i>,<i>x</i>)</code> | the probability density of the Cauchy distribution with location parameter <i>a</i> and scale parameter <i>b</i> |
| <code>cauchytail(<i>a</i>,<i>b</i>,<i>x</i>)</code> | the reverse cumulative (upper tail or survivor) Cauchy distribution with location parameter <i>a</i> and scale parameter <i>b</i> |
| <code>Cdhms(<i>e_d</i>,<i>h</i>,<i>m</i>,<i>s</i>)</code> | the <i>e_{tC}</i> datetime (ms. with leap seconds since 01jan1960 00:00:00.000) corresponding to <i>e_d</i> , <i>h</i> , <i>m</i> , <i>s</i> |
| <code>ceil(<i>x</i>)</code> | the unique integer <i>n</i> such that $n - 1 < x \leq n$; <i>x</i> (not ".") if <i>x</i> is missing, meaning that <code>ceil(.a) = .a</code> |
| <code>char(<i>n</i>)</code> | the character corresponding to ASCII or extended ASCII code <i>n</i> ; "" if <i>n</i> is not in the domain |
| <code>chi2(df,<i>x</i>)</code> | the cumulative χ^2 distribution with <i>df</i> degrees of freedom; 0 if $x < 0$ |
| <code>chi2den(df,<i>x</i>)</code> | the probability density of the χ^2 distribution with <i>df</i> degrees of freedom; 0 if $x < 0$ |
| <code>chi2tail(df,<i>x</i>)</code> | the reverse cumulative (upper tail or survivor) χ^2 distribution with <i>df</i> degrees of freedom; 1 if $x < 0$ |
| <code>Chms(<i>h</i>,<i>m</i>,<i>s</i>)</code> | the <i>e_{tC}</i> datetime (ms. with leap seconds since 01jan1960 00:00:00.000) corresponding to <i>h</i> , <i>m</i> , <i>s</i> on 01jan1960 |
| <code>chop(<i>x</i>, ϵ)</code> | <code>round(<i>x</i>)</code> if $\text{abs}(x - \text{round}(x)) < \epsilon$; otherwise, <i>x</i> ; or <i>x</i> if <i>x</i> is missing |
| <code>cholesky(<i>M</i>)</code> | the Cholesky decomposition of the matrix: if $R = \text{cholesky}(S)$, then $RR^T = S$ |
| <code>clip(<i>x</i>,<i>a</i>,<i>b</i>)</code> | <i>x</i> if $a < x < b$, <i>b</i> if $x \geq b$, <i>a</i> if $x \leq a$, or <i>missing</i> if <i>x</i> is missing or if $a > b$; <i>x</i> if <i>x</i> is missing |
| <code>Clock(<i>s₁</i>,<i>s₂</i>[,<i>Y</i>])</code> | the <i>e_{tC}</i> datetime (ms. with leap seconds since 01jan1960 00:00:00.000) corresponding to <i>s₁</i> based on <i>s₂</i> and <i>Y</i> |
| <code>clock(<i>s₁</i>,<i>s₂</i>[,<i>Y</i>])</code> | the <i>e_{tC}</i> datetime (ms. since 01jan1960 00:00:00.000) corresponding to <i>s₁</i> based on <i>s₂</i> and <i>Y</i> |
| <code>Clockdiff(<i>e_{tC1}</i>, <i>e_{tC2}</i>,<i>s_u</i>)</code> | the <i>e_{tC}</i> datetime difference, rounded down to an integer, from <i>e_{tC1}</i> to <i>e_{tC2}</i> in <i>s_u</i> units of days, hours, minutes, seconds, or milliseconds |
| <code>clockdiff(<i>e_{tC1}</i>,<i>e_{tC2}</i>,<i>s_u</i>)</code> | the <i>e_{tC}</i> datetime difference, rounded down to an integer, from <i>e_{tC1}</i> to <i>e_{tC2}</i> in <i>s_u</i> units of days, hours, minutes, seconds, or milliseconds |
| <code>Clockdiff_frac(<i>e_{tC1}</i>,<i>e_{tC2}</i>,<i>s_u</i>)</code> | the <i>e_{tC}</i> datetime difference, including the fractional part, from <i>e_{tC1}</i> to <i>e_{tC2}</i> in <i>s_u</i> units of days, hours, minutes, seconds, or milliseconds |
| <code>clockdiff_frac(<i>e_{tC1}</i>,<i>e_{tC2}</i>,<i>s_u</i>)</code> | the <i>e_{tC}</i> datetime difference, including the fractional part, from <i>e_{tC1}</i> to <i>e_{tC2}</i> in <i>s_u</i> units of days, hours, minutes, seconds, or milliseconds |
| <code>Clockpart(<i>e_{tC}</i>,<i>s_u</i>)</code> | the integer year, month, day, hour, minute, second, or millisecond of <i>e_{tC}</i> with <i>s_u</i> specifying which time part |
| <code>clockpart(<i>e_{tC}</i>,<i>s_u</i>)</code> | the integer year, month, day, hour, minute, second, or millisecond of <i>e_{tC}</i> with <i>s_u</i> specifying which time part |
| <code>cloglog(<i>x</i>)</code> | the complementary log-log of <i>x</i> |
| <code>Cmdyhms(<i>M</i>,<i>D</i>,<i>Y</i>,<i>h</i>,<i>m</i>,<i>s</i>)</code> | the <i>e_{tC}</i> datetime (ms. with leap seconds since 01jan1960 00:00:00.000) corresponding to <i>M</i> , <i>D</i> , <i>Y</i> , <i>h</i> , <i>m</i> , <i>s</i> |
| <code>Cofc(<i>e_{tC}</i>)</code> | the <i>e_{tC}</i> datetime (ms. with leap seconds since 01jan1960 00:00:00.000) of <i>e_{tC}</i> (ms. without leap seconds since 01jan1960 00:00:00.000) |

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| <code>cofC(e_{tC})</code> | the e_{tC} datetime (ms. without leap seconds since 01jan1960 00:00:00.000) of e_{tC} (ms. with leap seconds since 01jan1960 00:00:00.000) |
| <code>Cofd(e_d)</code> | the e_{tC} datetime (ms. with leap seconds since 01jan1960 00:00:00.000) of date e_d at time 00:00:00.000 |
| <code>cofd(e_d)</code> | the e_{tC} datetime (ms. since 01jan1960 00:00:00.000) of date e_d at time 00:00:00.000 |
| <code>colegnumb(M, s)</code> | the equation number of M associated with column equation s ; <i>missing</i> if the column equation cannot be found |
| <code>collatorlocale($loc, type$)</code> | the most closely related locale supported by ICU from loc if $type$ is 1; the actual locale where the collation data comes from if $type$ is 2 |
| <code>collatorversion(loc)</code> | the version string of a collator based on locale loc |
| <code>colnfreeparms(M)</code> | the number of free parameters in columns of M |
| <code>colnumb(M, s)</code> | the column number of M associated with column name s ; <i>missing</i> if the column cannot be found |
| <code>colsof(M)</code> | the number of columns of M |
| <code>comb(n, k)</code> | the combinatorial function $n!/\{k!(n-k)!\}$ |
| <code>cond($x, a, b[, c]$)</code> | a if x is <i>true</i> and nonmissing, b if x is <i>false</i> , and c if x is <i>missing</i> ; a if c is not specified and x evaluates to <i>missing</i> |
| <code>corr(M)</code> | the correlation matrix of the variance matrix |
| <code>cos(x)</code> | the cosine of x , where x is in radians |
| <code>cosh(x)</code> | the hyperbolic cosine of x |
| <code>daily($s_1, s_2[, Y]$)</code> | a synonym for <code>date($s_1, s_2[, Y]$)</code> |
| <code>date($s_1, s_2[, Y]$)</code> | the e_d date (days since 01jan1960) corresponding to s_1 based on s_2 and Y |
| <code>datediff($e_{d1}, e_{d2}, s_u[, s_{nl}]$)</code> | the difference, rounded down to an integer, from e_{d1} to e_{d2} in s_u units of days, months, or years with s_{nl} the nonleap-year anniversary for e_{d1} on 29feb |
| <code>datediff_frac($e_{d1}, e_{d2}, s_u[, s_{nl}]$)</code> | the difference, including the fractional part, from e_{d1} to e_{d2} in s_u units of days, months, or years with s_{nl} the nonleap-year anniversary for e_{d1} on 29feb |
| <code>datepart(e_d, s_u)</code> | the integer year, month, or day of e_d with s_u specifying year, month, or day |
| <code>day(e_d)</code> | the numeric day of the month corresponding to e_d |
| <code>daysinmonth(e_d)</code> | the number of days in the month of e_d |
| <code>det(M)</code> | the determinant of matrix M |
| <code>dgammapda(a, x)</code> | $\frac{\partial P(a, x)}{\partial a}$, where $P(a, x) = \text{gammapp}(a, x)$; 0 if $x < 0$ |
| <code>dgammapdada(a, x)</code> | $\frac{\partial^2 P(a, x)}{\partial a^2}$, where $P(a, x) = \text{gammapp}(a, x)$; 0 if $x < 0$ |
| <code>dgammapdadx(a, x)</code> | $\frac{\partial^2 P(a, x)}{\partial a \partial x}$, where $P(a, x) = \text{gammapp}(a, x)$; 0 if $x < 0$ |
| <code>dgammapdx(a, x)</code> | $\frac{\partial P(a, x)}{\partial x}$, where $P(a, x) = \text{gammapp}(a, x)$; 0 if $x < 0$ |
| <code>dgammapdxdx(a, x)</code> | $\frac{\partial^2 P(a, x)}{\partial x^2}$, where $P(a, x) = \text{gammapp}(a, x)$; 0 if $x < 0$ |

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| <code>dhms(e_d, h, m, s)</code> | the e_{tc} datetime (ms. since 01jan1960 00:00:00.000) corresponding to e_d , h , m , and s |
| <code>diag(M)</code> | the square, diagonal matrix created from the row or column vector |
| <code>diag0cnt(M)</code> | the number of zeros on the diagonal of M |
| <code>digamma(x)</code> | the <code>digamma()</code> function, $d \ln \Gamma(x) / dx$ |
| <code>dofb($e_b, "cal"$)</code> | the e_d datetime corresponding to e_b |
| <code>dofC(e_{tC})</code> | the e_d date (days since 01jan1960) of datetime e_{tC} (ms. with leap seconds since 01jan1960 00:00:00.000) |
| <code>dofc(e_{tc})</code> | the e_d date (days since 01jan1960) of datetime e_{tc} (ms. since 01jan1960 00:00:00.000) |
| <code>dofh(e_h)</code> | the e_d date (days since 01jan1960) of the start of half-year e_h |
| <code>dofm(e_m)</code> | the e_d date (days since 01jan1960) of the start of month e_m |
| <code>dofq(e_q)</code> | the e_d date (days since 01jan1960) of the start of quarter e_q |
| <code>dofw(e_w)</code> | the e_d date (days since 01jan1960) of the start of week e_w |
| <code>dofy(e_y)</code> | the e_d date (days since 01jan1960) of 01jan in year e_y |
| <code>dow(e_d)</code> | the numeric day of the week corresponding to date e_d : 0 = Sunday, 1 = Monday, . . . , 6 = Saturday |
| <code>doym(e_d)</code> | the numeric day of the year corresponding to date e_d |
| <code>dunnettprob(k, df, x)</code> | the cumulative multiple range distribution that is used in Dunnett's multiple-comparison method with k ranges and df degrees of freedom; 0 if $x < 0$ |
| <code>e(name)</code> | the value of stored result <code>e(name)</code> ; see [U] 18.8 Accessing results calculated by other programs |
| <code>el(s, i, j)</code> | $s[\text{floor}(i), \text{floor}(j)]$, the i, j element of the matrix named s ; <i>missing</i> if i or j are out of range or if matrix s does not exist |
| <code>e(sample)</code> | 1 if the observation is in the estimation sample and 0 otherwise |
| <code>epsdouble()</code> | the machine precision of a double-precision number |
| <code>epsfloat()</code> | the machine precision of a floating-point number |
| <code>exp(x)</code> | the exponential function e^x |
| <code>expm1(x)</code> | $e^x - 1$ with higher precision than <code>exp(x) - 1</code> for small values of $ x $ |
| <code>exponential(b, x)</code> | the cumulative exponential distribution with scale b |
| <code>exponentialden(b, x)</code> | the probability density function of the exponential distribution with scale b |
| <code>exponentialtail(b, x)</code> | the reverse cumulative exponential distribution with scale b |
| <code>F(df_1, df_2, f)</code> | the cumulative F distribution with df_1 numerator and df_2 denominator degrees of freedom: $F(df_1, df_2, f) = \int_0^f Fden(df_1, df_2, t) dt$; 0 if $f < 0$ |
| <code>Fden(df_1, df_2, f)</code> | the probability density function of the F distribution with df_1 numerator and df_2 denominator degrees of freedom; 0 if $f < 0$ |
| <code>fileexists(f)</code> | 1 if the file specified by f exists; otherwise, 0 |
| <code>fileread(f)</code> | the contents of the file specified by f |
| <code>filereaderror(s)</code> | 0 or positive integer, said value having the interpretation of a return code |

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| <code>filewrite(<i>f</i>,<i>s</i>[,<i>r</i>])</code> | writes the string specified by <i>s</i> to the file specified by <i>f</i> and returns the number of bytes in the resulting file |
| <code>firstdayofmonth(<i>e_d</i>)</code> | the <i>e_d</i> date of the first day of the month of <i>e_d</i> |
| <code>float(<i>x</i>)</code> | the value of <i>x</i> rounded to <code>float</code> precision |
| <code>floor(<i>x</i>)</code> | the unique integer <i>n</i> such that $n \leq x < n + 1$; <i>x</i> (not “.”) if <i>x</i> is missing, meaning that <code>floor(.a) = .a</code> |
| <code>fmtwidth(<i>fmtstr</i>)</code> | the output length of the <code>%fmt</code> contained in <i>fmtstr</i> ; missing if <i>fmtstr</i> does not contain a valid <code>%fmt</code> |
| <code>frval()</code> | returns values of variables stored in other frames |
| <code>_frval()</code> | programmer’s version of <code>frval()</code> |
| <code>Ftail(<i>df₁</i>,<i>df₂</i>,<i>f</i>)</code> | the reverse cumulative (upper tail or survivor) <i>F</i> distribution with <i>df₁</i> numerator and <i>df₂</i> denominator degrees of freedom; 1 if $f < 0$ |
| <code>gammaden(<i>a</i>,<i>b</i>,<i>g</i>,<i>x</i>)</code> | the probability density function of the gamma distribution; 0 if $x < g$ |
| <code>gammap(<i>a</i>,<i>x</i>)</code> | the cumulative gamma distribution with shape parameter <i>a</i> ; 0 if $x < 0$ |
| <code>gammaptail(<i>a</i>,<i>x</i>)</code> | the reverse cumulative (upper tail or survivor) gamma distribution with shape parameter <i>a</i> ; 1 if $x < 0$ |
| <code>get(<i>systemname</i>)</code> | a copy of Stata internal system matrix <i>systemname</i> |
| <code>hadamard(<i>M</i>,<i>N</i>)</code> | a matrix whose <i>i</i> , <i>j</i> element is $M[i, j] \cdot N[i, j]$ (if <i>M</i> and <i>N</i> are not the same size, this function reports a conformability error) |
| <code>halfyear(<i>e_d</i>)</code> | the numeric half of the year corresponding to date <i>e_d</i> |
| <code>halfyearly(<i>s₁</i>,<i>s₂</i>[,<i>Y</i>])</code> | the <i>e_h</i> half-yearly date (half-years since 1960h1) corresponding to <i>s₁</i> based on <i>s₂</i> and <i>Y</i> ; <i>Y</i> specifies <i>topyear</i> ; see <code>date()</code> |
| <code>has_eprop(<i>name</i>)</code> | 1 if <i>name</i> appears as a word in <code>e(properties)</code> ; otherwise, 0 |
| <code>hh(<i>e_{tc}</i>)</code> | the hour corresponding to datetime <i>e_{tc}</i> (ms. since 01jan1960 00:00:00.000) |
| <code>hhC(<i>e_{tc}</i>)</code> | the hour corresponding to datetime <i>e_{tc}</i> (ms. with leap seconds since 01jan1960 00:00:00.000) |
| <code>hms(<i>h</i>,<i>m</i>,<i>s</i>)</code> | the <i>e_{tc}</i> datetime (ms. since 01jan1960 00:00:00.000) corresponding to <i>h</i> , <i>m</i> , <i>s</i> on 01jan1960 |
| <code>hofd(<i>e_d</i>)</code> | the <i>e_h</i> half-yearly date (half years since 1960h1) containing date <i>e_d</i> |
| <code>hours(<i>ms</i>)</code> | $ms/3,600,000$ |
| <code>hypergeometric(<i>N</i>,<i>K</i>,<i>n</i>,<i>k</i>)</code> | the cumulative probability of the hypergeometric distribution |
| <code>hypergeometricp(<i>N</i>,<i>K</i>,<i>n</i>,<i>k</i>)</code> | the hypergeometric probability of <i>k</i> successes out of a sample of size <i>n</i> , from a population of size <i>N</i> containing <i>K</i> elements that have the attribute of interest |
| <code>I(<i>n</i>)</code> | an $n \times n$ identity matrix if <i>n</i> is an integer; otherwise, a <code>round(<i>n</i>)</code> \times <code>round(<i>n</i>)</code> identity matrix |
| <code>ibeta(<i>a</i>,<i>b</i>,<i>x</i>)</code> | the cumulative beta distribution with shape parameters <i>a</i> and <i>b</i> ; 0 if $x < 0$; or 1 if $x > 1$ |
| <code>ibetatail(<i>a</i>,<i>b</i>,<i>x</i>)</code> | the reverse cumulative (upper tail or survivor) beta distribution with shape parameters <i>a</i> and <i>b</i> ; 1 if $x < 0$; or 0 if $x > 1$ |
| <code>igaussian(<i>m</i>,<i>a</i>,<i>x</i>)</code> | the cumulative inverse Gaussian distribution with mean <i>m</i> and shape parameter <i>a</i> ; 0 if $x \leq 0$ |

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| <code>igausianden(m, a, x)</code> | the probability density of the inverse Gaussian distribution with mean m and shape parameter a ; 0 if $x \leq 0$ |
| <code>igausiantail(m, a, x)</code> | the reverse cumulative (upper tail or survivor) inverse Gaussian distribution with mean m and shape parameter a ; 1 if $x \leq 0$ |
| <code>indexnot(s_1, s_2)</code> | the position in ASCII string s_1 of the first character of s_1 not found in ASCII string s_2 , or 0 if all characters of s_1 are found in s_2 |
| <code>inlist(z, a, b, \dots)</code> | 1 if z is a member of the remaining arguments; otherwise, 0 |
| <code>inrange(z, a, b)</code> | 1 if it is known that $a \leq z \leq b$; otherwise, 0 |
| <code>int(x)</code> | the integer obtained by truncating x toward 0 (thus, <code>int(5.2) = 5</code> and <code>int(-5.8) = -5</code>); x (not ".") if x is missing, meaning that <code>int(.a) = .a</code> |
| <code>inv(M)</code> | the inverse of the matrix M |
| <code>invbinomial(n, k, p)</code> | the inverse of the cumulative binomial; that is, θ (θ = probability of success on one trial) such that the probability of observing <code>floor(k)</code> or fewer successes in <code>floor(n)</code> trials is p |
| <code>invbinomialtail(n, k, p)</code> | the inverse of the right cumulative binomial; that is, θ (θ = probability of success on one trial) such that the probability of observing <code>floor(k)</code> or more successes in <code>floor(n)</code> trials is p |
| <code>invcauchy(a, b, p)</code> | the inverse of <code>cauchy()</code> : if <code>cauchy(a, b, x) = p</code> , then <code>invcauchy(a, b, p) = x</code> |
| <code>invcauchytail(a, b, p)</code> | the inverse of <code>cauchytail()</code> : if <code>cauchytail(a, b, x) = p</code> , then <code>invcauchytail(a, b, p) = x</code> |
| <code>invchi2(df, p)</code> | the inverse of <code>chi2()</code> : if <code>chi2(df, x) = p</code> , then <code>invchi2(df, p) = x</code> |
| <code>invchi2tail(df, p)</code> | the inverse of <code>chi2tail()</code> : if <code>chi2tail(df, x) = p</code> , then <code>invchi2tail(df, p) = x</code> |
| <code>invcloglog(x)</code> | the inverse of the complementary log-log function of x |
| <code>invdunnettprob(k, df, p)</code> | the inverse cumulative multiple range distribution that is used in Dunnett's multiple-comparison method with k ranges and df degrees of freedom |
| <code>invexponential(b, p)</code> | the inverse cumulative exponential distribution with scale b : if <code>exponential(b, x) = p</code> , then <code>invexponential(b, p) = x</code> |
| <code>invexponentialtail(b, p)</code> | the inverse reverse cumulative exponential distribution with scale b : if <code>exponentialtail(b, x) = p</code> , then <code>invexponentialtail(b, p) = x</code> |
| <code>invF(df_1, df_2, p)</code> | the inverse cumulative F distribution: if <code>F(df_1, df_2, f) = p</code> , then <code>invF(df_1, df_2, p) = f</code> |
| <code>invFtail(df_1, df_2, p)</code> | the inverse reverse cumulative (upper tail or survivor) F distribution: if <code>Ftail(df_1, df_2, f) = p</code> , then <code>invFtail(df_1, df_2, p) = f</code> |
| <code>invgammap(a, p)</code> | the inverse cumulative gamma distribution: if <code>gammap(a, x) = p</code> , then <code>invgammap(a, p) = x</code> |
| <code>invgammaptail(a, p)</code> | the inverse reverse cumulative (upper tail or survivor) gamma distribution: if <code>gammaptail(a, x) = p</code> , then <code>invgammaptail(a, p) = x</code> |
| <code>invibeta(a, b, p)</code> | the inverse cumulative beta distribution: if <code>ibeta(a, b, x) = p</code> , then <code>invibeta(a, b, p) = x</code> |
| <code>invibetatail(a, b, p)</code> | the inverse reverse cumulative (upper tail or survivor) beta distribution: if <code>ibetatail(a, b, x) = p</code> , then <code>invibetatail(a, b, p) = x</code> |

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| <code>invgaussian(m, a, p)</code> | the inverse of <code>igaussian()</code> : if $\text{igaussian}(m, a, x) = p$, then $\text{invgaussian}(m, a, p) = x$ |
| <code>invgaussiantail(m, a, p)</code> | the inverse of <code>igaussiantail()</code> : if $\text{igaussiantail}(m, a, x) = p$, then $\text{invgaussiantail}(m, a, p) = x$ |
| <code>invlaplace(m, b, p)</code> | the inverse of <code>laplace()</code> : if $\text{laplace}(m, b, x) = p$, then $\text{invlaplace}(m, b, p) = x$ |
| <code>invlaplacetail(m, b, p)</code> | the inverse of <code>laplacetail()</code> : if $\text{laplacetail}(m, b, x) = p$, then $\text{invlaplacetail}(m, b, p) = x$ |
| <code>invlogistic(p)</code> | the inverse cumulative logistic distribution: if $\text{logistic}(x) = p$, then $\text{invlogistic}(p) = x$ |
| <code>invlogistic(s, p)</code> | the inverse cumulative logistic distribution: if $\text{logistic}(s, x) = p$, then $\text{invlogistic}(s, p) = x$ |
| <code>invlogistic(m, s, p)</code> | the inverse cumulative logistic distribution: if $\text{logistic}(m, s, x) = p$, then $\text{invlogistic}(m, s, p) = x$ |
| <code>invlogistictail(p)</code> | the inverse reverse cumulative logistic distribution: if $\text{logistictail}(x) = p$, then $\text{invlogistictail}(p) = x$ |
| <code>invlogistictail(s, p)</code> | the inverse cumulative logistic distribution: if $\text{logistic}(s, x) = p$, then $\text{invlogistic}(s, p) = x$ |
| <code>invlogistictail(m, s, p)</code> | the inverse cumulative logistic distribution: if $\text{logistic}(m, s, x) = p$, then $\text{invlogistic}(m, s, p) = x$ |
| <code>invlogit(x)</code> | the inverse of the logit function of x |
| <code>invnbinomial(n, k, q)</code> | the value of the negative binomial parameter, p , such that $q = \text{nbinomial}(n, k, p)$ |
| <code>invnbinomialtail(n, k, q)</code> | the value of the negative binomial parameter, p , such that $q = \text{nbinomialtail}(n, k, p)$ |
| <code>invnchi2(df, np, p)</code> | the inverse cumulative noncentral χ^2 distribution: if $\text{nchi2}(df, np, x) = p$, then $\text{invnchi2}(df, np, p) = x$ |
| <code>invnchi2tail(df, np, p)</code> | the inverse reverse cumulative (upper tail or survivor) noncentral χ^2 distribution: if $\text{nchi2tail}(df, np, x) = p$, then $\text{invnchi2tail}(df, np, p) = x$ |
| <code>invnF(df_1, df_2, np, p)</code> | the inverse cumulative noncentral F distribution: if $\text{nF}(df_1, df_2, np, f) = p$, then $\text{invnF}(df_1, df_2, np, p) = f$ |
| <code>invnFtail(df_1, df_2, np, p)</code> | the inverse reverse cumulative (upper tail or survivor) noncentral F distribution: if $\text{nFtail}(df_1, df_2, np, f) = p$, then $\text{invnFtail}(df_1, df_2, np, p) = f$ |
| <code>invnibeta(a, b, np, p)</code> | the inverse cumulative noncentral beta distribution: if $\text{nibeta}(a, b, np, x) = p$, then $\text{invnibeta}(a, b, np, p) = x$ |
| <code>invnormal(p)</code> | the inverse cumulative standard normal distribution: if $\text{normal}(z) = p$, then $\text{invnormal}(p) = z$ |
| <code>invnt(df, np, p)</code> | the inverse cumulative noncentral Student's t distribution: if $\text{nt}(df, np, t) = p$, then $\text{invnt}(df, np, p) = t$ |
| <code>invnttail(df, np, p)</code> | the inverse reverse cumulative (upper tail or survivor) noncentral Student's t distribution: if $\text{nttail}(df, np, t) = p$, then $\text{invnttail}(df, np, p) = t$ |
| <code>invpoisson(k, p)</code> | the Poisson mean such that the cumulative Poisson distribution evaluated at k is p : if $\text{poisson}(m, k) = p$, then $\text{invpoisson}(k, p) = m$ |

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| <code>invpoisontail(k, q)</code> | the Poisson mean such that the reverse cumulative Poisson distribution evaluated at k is q : if <code>poisontail(m, k) = q</code> , then <code>invpoisontail(k, q) = m</code> |
| <code>invsym(M)</code> | the inverse of M if M is positive definite |
| <code>invt(df, p)</code> | the inverse cumulative Student's t distribution: if <code>t(df, t) = p</code> , then <code>invt(df, p) = t</code> |
| <code>invttail(df, p)</code> | the inverse reverse cumulative (upper tail or survivor) Student's t distribution: if <code>ttail(df, t) = p</code> , then <code>invttail(df, p) = t</code> |
| <code>invtukeyprob(k, df, p)</code> | the inverse cumulative Tukey's Studentized range distribution with k ranges and df degrees of freedom |
| <code>invvech(M)</code> | a symmetric matrix formed by filling in the columns of the lower triangle from a row or column vector |
| <code>invvecp(M)</code> | a symmetric matrix formed by filling in the columns of the upper triangle from a row or column vector |
| <code>invweibull(a, b, p)</code> | the inverse cumulative Weibull distribution with shape a and scale b : if <code>weibull(a, b, x) = p</code> , then <code>invweibull(a, b, p) = x</code> |
| <code>invweibull(a, b, g, p)</code> | the inverse cumulative Weibull distribution with shape a , scale b , and location g : if <code>weibull(a, b, g, x) = p</code> , then <code>invweibull(a, b, g, p) = x</code> |
| <code>invweibullph(a, b, p)</code> | the inverse cumulative Weibull (proportional hazards) distribution with shape a and scale b : if <code>weibullph(a, b, x) = p</code> , then <code>invweibullph(a, b, p) = x</code> |
| <code>invweibullph(a, b, g, p)</code> | the inverse cumulative Weibull (proportional hazards) distribution with shape a , scale b , and location g : if <code>weibullph(a, b, g, x) = p</code> , then <code>invweibullph(a, b, g, p) = x</code> |
| <code>invweibullphtail(a, b, p)</code> | the inverse reverse cumulative Weibull (proportional hazards) distribution with shape a and scale b : if <code>weibullphtail(a, b, x) = p</code> , then <code>invweibullphtail(a, b, p) = x</code> |
| <code>invweibullphtail(a, b, g, p)</code> | the inverse reverse cumulative Weibull (proportional hazards) distribution with shape a , scale b , and location g : if <code>weibullphtail(a, b, g, x) = p</code> , then <code>invweibullphtail(a, b, g, p) = x</code> |
| <code>invweibulltail(a, b, p)</code> | the inverse reverse cumulative Weibull distribution with shape a and scale b : if <code>weibulltail(a, b, x) = p</code> , then <code>invweibulltail(a, b, p) = x</code> |
| <code>invweibulltail(a, b, g, p)</code> | the inverse reverse cumulative Weibull distribution with shape a , scale b , and location g : if <code>weibulltail(a, b, g, x) = p</code> , then <code>invweibulltail(a, b, g, p) = x</code> |
| <code>irecode(x, x_1, \dots, x_n)</code> | <i>missing</i> if x is missing or x_1, \dots, x_n is not weakly increasing; 0 if $x \leq x_1$; 1 if $x_1 < x \leq x_2$; 2 if $x_2 < x \leq x_3$; ...; n if $x > x_n$ |
| <code>isleapsecond(e_{tC})</code> | 1 if e_{tC} is a leap second; otherwise, 0 |
| <code>isleapyear(Y)</code> | 1 if Y is a leap year; otherwise, 0 |
| <code>issymmetric(M)</code> | 1 if the matrix is symmetric; otherwise, 0 |
| <code>J(r, c, z)</code> | the $r \times c$ matrix containing elements z |
| <code>laplace(m, b, x)</code> | the cumulative Laplace distribution with mean m and scale parameter b |

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| <code>laplaceden(m, b, x)</code> | the probability density of the Laplace distribution with mean m and scale parameter b |
| <code>laplacetail(m, b, x)</code> | the reverse cumulative (upper tail or survivor) Laplace distribution with mean m and scale parameter b |
| <code>lastdayofmonth(e_d)</code> | the e_d date of the last day of the month of e_d |
| <code>ln(x)</code> | the natural logarithm, $\ln(x)$ |
| <code>ln1m(x)</code> | the natural logarithm of $1 - x$ with higher precision than $\ln(1 - x)$ for small values of $ x $ |
| <code>ln1p(x)</code> | the natural logarithm of $1 + x$ with higher precision than $\ln(1 + x)$ for small values of $ x $ |
| <code>lncauchyden(a, b, x)</code> | the natural logarithm of the density of the Cauchy distribution with location parameter a and scale parameter b |
| <code>lnfactorial(n)</code> | the natural log of n factorial = $\ln(n!)$ |
| <code>lngamma(x)</code> | $\ln\{\Gamma(x)\}$ |
| <code>lnigammaden(a, b, x)</code> | the natural logarithm of the inverse gamma density, where a is the shape parameter and b is the scale parameter |
| <code>lnigaussianden(m, a, x)</code> | the natural logarithm of the inverse Gaussian density with mean m and shape parameter a |
| <code>lniwishartden(df, V, X)</code> | the natural logarithm of the density of the inverse Wishart distribution; missing if $df \leq n - 1$ |
| <code>lnlaplaceden(m, b, x)</code> | the natural logarithm of the density of the Laplace distribution with mean m and scale parameter b |
| <code>lnmvnormalden(M, V, X)</code> | the natural logarithm of the multivariate normal density |
| <code>lnnormal(z)</code> | the natural logarithm of the cumulative standard normal distribution |
| <code>lnnormalden(z)</code> | the natural logarithm of the standard normal density, $N(0, 1)$ |
| <code>lnnormalden(x, σ)</code> | the natural logarithm of the normal density with mean 0 and standard deviation σ |
| <code>lnnormalden(x, μ, σ)</code> | the natural logarithm of the normal density with mean μ and standard deviation σ , $N(\mu, \sigma^2)$ |
| <code>lnwishartden(df, V, X)</code> | the natural logarithm of the density of the Wishart distribution; missing if $df \leq n - 1$ |
| <code>log(x)</code> | a synonym for <code>ln(x)</code> |
| <code>log10(x)</code> | the base-10 logarithm of x |
| <code>log1m(x)</code> | a synonym for <code>ln1m(x)</code> |
| <code>log1p(x)</code> | a synonym for <code>ln1p(x)</code> |
| <code>logistic(x)</code> | the cumulative logistic distribution with mean 0 and standard deviation $\pi/\sqrt{3}$ |
| <code>logistic(s, x)</code> | the cumulative logistic distribution with mean 0, scale s , and standard deviation $s\pi/\sqrt{3}$ |
| <code>logistic(m, s, x)</code> | the cumulative logistic distribution with mean m , scale s , and standard deviation $s\pi/\sqrt{3}$ |
| <code>logisticden(x)</code> | the density of the logistic distribution with mean 0 and standard deviation $\pi/\sqrt{3}$ |
| <code>logisticden(s, x)</code> | the density of the logistic distribution with mean 0, scale s , and standard deviation $s\pi/\sqrt{3}$ |

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| <code>logisticden(<i>m, s, x</i>)</code> | the density of the logistic distribution with mean m , scale s , and standard deviation $s\pi/\sqrt{3}$ |
| <code>logistictail(<i>x</i>)</code> | the reverse cumulative logistic distribution with mean 0 and standard deviation $\pi/\sqrt{3}$ |
| <code>logistictail(<i>s, x</i>)</code> | the reverse cumulative logistic distribution with mean 0, scale s , and standard deviation $s\pi/\sqrt{3}$ |
| <code>logistictail(<i>m, s, x</i>)</code> | the reverse cumulative logistic distribution with mean m , scale s , and standard deviation $s\pi/\sqrt{3}$ |
| <code>logit(<i>x</i>)</code> | the log of the odds ratio of x , $\text{logit}(x) = \ln\{x/(1-x)\}$ |
| <code>matmissing(<i>M</i>)</code> | 1 if any elements of the matrix are missing; otherwise, 0 |
| <code>matrix(<i>exp</i>)</code> | restricts name interpretation to scalars and matrices; see <code>scalar()</code> |
| <code>matuniform(<i>r, c</i>)</code> | the $r \times c$ matrices containing uniformly distributed pseudorandom numbers on the interval (0, 1) |
| <code>max(<i>x₁, x₂, ..., x_n</i>)</code> | the maximum value of x_1, x_2, \dots, x_n |
| <code>maxbyte()</code> | the largest value that can be stored in storage type byte |
| <code>maxdouble()</code> | the largest value that can be stored in storage type double |
| <code>maxfloat()</code> | the largest value that can be stored in storage type float |
| <code>maxint()</code> | the largest value that can be stored in storage type int |
| <code>maxlong()</code> | the largest value that can be stored in storage type long |
| <code>mdy(<i>M, D, Y</i>)</code> | the e_d date (days since 01jan1960) corresponding to M, D, Y |
| <code>mdyhms(<i>M, D, Y, h, m, s</i>)</code> | the e_{tc} datetime (ms. since 01jan1960 00:00:00.000) corresponding to M, D, Y, h, m, s |
| <code>mi(<i>x₁, x₂, ..., x_n</i>)</code> | a synonym for <code>missing(<i>x₁, x₂, ..., x_n</i>)</code> |
| <code>min(<i>x₁, x₂, ..., x_n</i>)</code> | the minimum value of x_1, x_2, \dots, x_n |
| <code>minbyte()</code> | the smallest value that can be stored in storage type byte |
| <code>mindouble()</code> | the smallest value that can be stored in storage type double |
| <code>minfloat()</code> | the smallest value that can be stored in storage type float |
| <code>minint()</code> | the smallest value that can be stored in storage type int |
| <code>minlong()</code> | the smallest value that can be stored in storage type long |
| <code>minutes(<i>ms</i>)</code> | $ms/60,000$ |
| <code>missing(<i>x₁, x₂, ..., x_n</i>)</code> | 1 if any x_i evaluates to <i>missing</i> ; otherwise, 0 |
| <code>mm(<i>e_{tc}</i>)</code> | the minute corresponding to datetime e_{tc} (ms. since 01jan1960 00:00:00.000) |
| <code>mmC(<i>e_{tC}</i>)</code> | the minute corresponding to datetime e_{tC} (ms. with leap seconds since 01jan1960 00:00:00.000) |
| <code>mod(<i>x, y</i>)</code> | the modulus of x with respect to y |
| <code>mofd(<i>e_d</i>)</code> | the e_m monthly date (months since 1960m1) containing date e_d |
| <code>month(<i>e_d</i>)</code> | the numeric month corresponding to date e_d |
| <code>monthly(<i>s₁, s₂ [, Y]</i>)</code> | the e_m monthly date (months since 1960m1) corresponding to s_1 based on s_2 and Y ; Y specifies <i>topyear</i> ; see <code>date()</code> |
| <code>mreldif(<i>X, Y</i>)</code> | the relative difference of X and Y , where the relative difference is defined as $\max_{i,j}\{ x_{ij} - y_{ij} /(y_{ij} + 1)\}$ |
| <code>msofhours(<i>h</i>)</code> | $h \times 3,600,000$ |

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| <code>msofminutes(<i>m</i>)</code> | $m \times 60,000$ |
| <code>msofseconds(<i>s</i>)</code> | $s \times 1,000$ |
| <code>nbetaden(<i>a, b, np, x</i>)</code> | the probability density function of the noncentral beta distribution; 0 if $x < 0$ or $x > 1$ |
| <code>nbinomial(<i>n, k, p</i>)</code> | the cumulative probability of the negative binomial distribution |
| <code>nbinomialp(<i>n, k, p</i>)</code> | the negative binomial probability |
| <code>nbinomialtail(<i>n, k, p</i>)</code> | the reverse cumulative probability of the negative binomial distribution |
| <code>nchi2(<i>df, np, x</i>)</code> | the cumulative noncentral χ^2 distribution; 0 if $x < 0$ |
| <code>nchi2den(<i>df, np, x</i>)</code> | the probability density of the noncentral χ^2 distribution; 0 if $x < 0$ |
| <code>nchi2tail(<i>df, np, x</i>)</code> | the reverse cumulative (upper tail or survivor) noncentral χ^2 distribution; 1 if $x < 0$ |
| <code>nextbirthday(<i>e_dDOB, e_d[, s_{nl}]</i>)</code> | the e_d date of the first birthday after e_d for date of birth $e_{d\text{DOB}}$ with s_{nl} the nonleap-year birthday for 29feb birthdates |
| <code>nextleapyear(<i>Y</i>)</code> | the first leap year after year Y |
| <code>nF(<i>df₁, df₂, np, f</i>)</code> | the cumulative noncentral F distribution with df_1 numerator and df_2 denominator degrees of freedom and noncentrality parameter np ; 0 if $f < 0$ |
| <code>nFden(<i>df₁, df₂, np, f</i>)</code> | the probability density function of the noncentral F distribution with df_1 numerator and df_2 denominator degrees of freedom and noncentrality parameter np ; 0 if $f < 0$ |
| <code>nFtail(<i>df₁, df₂, np, f</i>)</code> | the reverse cumulative (upper tail or survivor) noncentral F distribution with df_1 numerator and df_2 denominator degrees of freedom and noncentrality parameter np ; 1 if $f < 0$ |
| <code>nibeta(<i>a, b, np, x</i>)</code> | the cumulative noncentral beta distribution; 0 if $x < 0$; or 1 if $x > 1$ |
| <code>normal(<i>z</i>)</code> | the cumulative standard normal distribution |
| <code>normalden(<i>z</i>)</code> | the standard normal density, $N(0, 1)$ |
| <code>normalden(<i>x, σ</i>)</code> | the normal density with mean 0 and standard deviation σ |
| <code>normalden(<i>x, μ, σ</i>)</code> | the normal density with mean μ and standard deviation σ , $N(\mu, \sigma^2)$ |
| <code>now()</code> | the current e_{tc} datetime |
| <code>npnchi2(<i>df, x, p</i>)</code> | the noncentrality parameter, np , for noncentral χ^2 : if $\text{nchi2}(df, np, x) = p$, then $\text{npnchi2}(df, x, p) = np$ |
| <code>npnF(<i>df₁, df₂, f, p</i>)</code> | the noncentrality parameter, np , for the noncentral F : if $\text{nF}(df_1, df_2, np, f) = p$, then $\text{npnF}(df_1, df_2, f, p) = np$ |
| <code>npnt(<i>df, t, p</i>)</code> | the noncentrality parameter, np , for the noncentral Student's t distribution: if $\text{nt}(df, np, t) = p$, then $\text{npnt}(df, t, p) = np$ |
| <code>nt(<i>df, np, t</i>)</code> | the cumulative noncentral Student's t distribution with df degrees of freedom and noncentrality parameter np |
| <code>ntden(<i>df, np, t</i>)</code> | the probability density function of the noncentral Student's t distribution with df degrees of freedom and noncentrality parameter np |
| <code>nttail(<i>df, np, t</i>)</code> | the reverse cumulative (upper tail or survivor) noncentral Student's t distribution with df degrees of freedom and noncentrality parameter np |

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| <code>nullmat(matname)</code> | use with the row-join (,) and column-join (\) operators |
| <code>plural(n, s)</code> | the plural of s if $n \neq \pm 1$ |
| <code>plural(n, s₁, s₂)</code> | the plural of s_1 , as modified by or replaced with s_2 , if $n \neq \pm 1$ |
| <code>poisson(m, k)</code> | the probability of observing <code>floor(k)</code> or fewer outcomes that are distributed as Poisson with mean m |
| <code>poissonp(m, k)</code> | the probability of observing <code>floor(k)</code> outcomes that are distributed as Poisson with mean m |
| <code>poisontail(m, k)</code> | the probability of observing <code>floor(k)</code> or more outcomes that are distributed as Poisson with mean m |
| <code>previousbirthday(e_{dDOB}, e_d[, s_{nl}])</code> | the e_d date of the birthday immediately before e_d for date of birth e_{dDOB} with s_{nl} the nonleap-year birthday for 29feb birthdates |
| <code>previousleapyear(Y)</code> | the leap year immediately before year Y |
| <code>qofd(e_d)</code> | the e_q quarterly date (quarters since 1960q1) containing date e_d |
| <code>quarter(e_d)</code> | the numeric quarter of the year corresponding to date e_d |
| <code>quarterly(s₁, s₂[, Y])</code> | the e_q quarterly date (quarters since 1960q1) corresponding to s_1 based on s_2 and Y ; Y specifies <i>topyear</i> ; see <code>date()</code> |
| <code>r(name)</code> | the value of the stored result <code>r(name)</code> ; see [U] 18.8 Accessing results calculated by other programs |
| <code>rbeta(a, b)</code> | beta(a, b) random variates, where a and b are the beta distribution shape parameters |
| <code>rbinomial(n, p)</code> | binomial(n, p) random variates, where n is the number of trials and p is the success probability |
| <code>rcauchy(a, b)</code> | Cauchy(a, b) random variates, where a is the location parameter and b is the scale parameter |
| <code>rchi2(df)</code> | χ^2 , with df degrees of freedom, random variates |
| <code>recode(x, x₁, ..., x_n)</code> | <i>missing</i> if x_1, x_2, \dots, x_n is not weakly increasing; x if x is missing; x_1 if $x \leq x_1$; x_2 if $x \leq x_2, \dots$; otherwise, x_n if $x > x_1, x_2, \dots, x_{n-1}$. $x_i \geq .$ is interpreted as $x_i = +\infty$ |
| <code>real(s)</code> | s converted to numeric or <i>missing</i> |
| <code>regexm(s, re)</code> | performs a match of a regular expression and evaluates to 1 if regular expression re is satisfied by the ASCII string s ; otherwise, 0 |
| <code>regexr(s₁, re, s₂)</code> | replaces the first substring within ASCII string s_1 that matches re with ASCII string s_2 and returns the resulting string |
| <code>regexs(n)</code> | subexpression n from a previous <code>regexm()</code> match, where $0 \leq n < 10$ |
| <code>reldif(x, y)</code> | the “relative” difference $ x - y /(y + 1)$; 0 if both arguments are the same type of extended missing value; <i>missing</i> if only one argument is missing or if the two arguments are two different types of <i>missing</i> |
| <code>replay()</code> | 1 if the first nonblank character of local macro ‘0’ is a comma, or if ‘0’ is empty |
| <code>return(name)</code> | the value of the to-be-stored result <code>r(name)</code> ; see [P] return |
| <code>rexponential(b)</code> | exponential random variates with scale b |
| <code>rgamma(a, b)</code> | gamma(a, b) random variates, where a is the gamma shape parameter and b is the scale parameter |
| <code>rhypergeometric(N, K, n)</code> | hypergeometric random variates |

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| <code>rigaussian(<i>m,a</i>)</code> | inverse Gaussian random variates with mean <i>m</i> and shape parameter <i>a</i> |
| <code>rlaplace(<i>m,b</i>)</code> | Laplace(<i>m,b</i>) random variates with mean <i>m</i> and scale parameter <i>b</i> |
| <code>rlogistic()</code> | logistic variates with mean 0 and standard deviation $\pi/\sqrt{3}$ |
| <code>rlogistic(<i>s</i>)</code> | logistic variates with mean 0, scale <i>s</i> , and standard deviation $s\pi/\sqrt{3}$ |
| <code>rlogistic(<i>m,s</i>)</code> | logistic variates with mean <i>m</i> , scale <i>s</i> , and standard deviation $s\pi/\sqrt{3}$ |
| <code>rnbinomial(<i>n,p</i>)</code> | negative binomial random variates |
| <code>rnormal()</code> | standard normal (Gaussian) random variates, that is, variates from a normal distribution with a mean of 0 and a standard deviation of 1 |
| <code>rnormal(<i>m</i>)</code> | normal(<i>m,1</i>) (Gaussian) random variates, where <i>m</i> is the mean and the standard deviation is 1 |
| <code>rnormal(<i>m,s</i>)</code> | normal(<i>m,s</i>) (Gaussian) random variates, where <i>m</i> is the mean and <i>s</i> is the standard deviation |
| <code>round(<i>x,y</i>)</code> or <code>round(<i>x</i>)</code> | <i>x</i> rounded in units of <i>y</i> or <i>x</i> rounded to the nearest integer if the argument <i>y</i> is omitted; <i>x</i> (not “.”) if <i>x</i> is missing (meaning that <code>round(.a) = .a</code> and that <code>round(.a,y) = .a</code> if <i>y</i> is not missing) and if <i>y</i> is missing, then “.”) is returned |
| <code>roweqnumb(<i>M,s</i>)</code> | the equation number of <i>M</i> associated with row equation <i>s</i> ; <i>missing</i> if the row equation cannot be found |
| <code>rowfreeparms(<i>M</i>)</code> | the number of free parameters in rows of <i>M</i> |
| <code>rownumb(<i>M,s</i>)</code> | the row number of <i>M</i> associated with row name <i>s</i> ; <i>missing</i> if the row cannot be found |
| <code>rowsof(<i>M</i>)</code> | the number of rows of <i>M</i> |
| <code>rpoisson(<i>m</i>)</code> | Poisson(<i>m</i>) random variates, where <i>m</i> is the distribution mean |
| <code>rt(<i>df</i>)</code> | Student’s <i>t</i> random variates, where <i>df</i> is the degrees of freedom |
| <code>runiform()</code> | uniformly distributed random variates over the interval (0, 1) |
| <code>runiform(<i>a,b</i>)</code> | uniformly distributed random variates over the interval (<i>a, b</i>) |
| <code>runiformint(<i>a,b</i>)</code> | uniformly distributed random integer variates on the interval [<i>a, b</i>] |
| <code>rweibull(<i>a,b</i>)</code> | Weibull variates with shape <i>a</i> and scale <i>b</i> |
| <code>rweibull(<i>a,b,g</i>)</code> | Weibull variates with shape <i>a</i> , scale <i>b</i> , and location <i>g</i> |
| <code>rweibullph(<i>a,b</i>)</code> | Weibull (proportional hazards) variates with shape <i>a</i> and scale <i>b</i> |
| <code>rweibullph(<i>a,b,g</i>)</code> | Weibull (proportional hazards) variates with shape <i>a</i> , scale <i>b</i> , and location <i>g</i> |
| <code>s(<i>name</i>)</code> | the value of stored result <code>s(<i>name</i>)</code> ; see [U] 18.8 Accessing results calculated by other programs |
| <code>scalar(<i>exp</i>)</code> | restricts name interpretation to scalars and matrices |
| <code>seconds(<i>ms</i>)</code> | <i>ms</i> /1,000 |
| <code>sign(<i>x</i>)</code> | the sign of <i>x</i> : -1 if <i>x</i> < 0, 0 if <i>x</i> = 0, 1 if <i>x</i> > 0, or <i>missing</i> if <i>x</i> is missing |
| <code>sin(<i>x</i>)</code> | the sine of <i>x</i> , where <i>x</i> is in radians |
| <code>sinh(<i>x</i>)</code> | the hyperbolic sine of <i>x</i> |
| <code>smallestdouble()</code> | the smallest double-precision number greater than zero |
| <code>soundex(<i>s</i>)</code> | the soundex code for a string, <i>s</i> |

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| <code>soundex_nara(<i>s</i>)</code> | the U.S. Census soundex code for a string, <i>s</i> |
| <code>sqrt(<i>x</i>)</code> | the square root of <i>x</i> |
| <code>ss(<i>e_{tc}</i>)</code> | the second corresponding to datetime <i>e_{tc}</i> (ms. since 01jan1960 00:00:00.000) |
| <code>ssC(<i>e_{tC}</i>)</code> | the second corresponding to datetime <i>e_{tC}</i> (ms. with leap seconds since 01jan1960 00:00:00.000) |
| <code>strcat(<i>s₁, s₂</i>)</code> | there is no <code>strcat()</code> function; instead the addition operator is used to concatenate strings |
| <code>strdup(<i>s₁, n</i>)</code> | there is no <code>strdup()</code> function; instead the multiplication operator is used to create multiple copies of strings |
| <code>string(<i>n</i>)</code> | a synonym for <code>stroofreal(<i>n</i>)</code> |
| <code>string(<i>n, s</i>)</code> | a synonym for <code>stroofreal(<i>n, s</i>)</code> |
| <code>stritrim(<i>s</i>)</code> | <i>s</i> with multiple, consecutive internal blanks (ASCII space character <code>char(32)</code>) collapsed to one blank |
| <code>strlen(<i>s</i>)</code> | the number of characters in ASCII <i>s</i> or length in bytes |
| <code>strlower(<i>s</i>)</code> | lowercase ASCII characters in string <i>s</i> |
| <code>strltrim(<i>s</i>)</code> | <i>s</i> without leading blanks (ASCII space character <code>char(32)</code>) |
| <code>strmatch(<i>s₁, s₂</i>)</code> | 1 if <i>s₁</i> matches the pattern <i>s₂</i> ; otherwise, 0 |
| <code>stroofreal(<i>n</i>)</code> | <i>n</i> converted to a string |
| <code>stroofreal(<i>n, s</i>)</code> | <i>n</i> converted to a string using the specified display format |
| <code>strpos(<i>s₁, s₂</i>)</code> | the position in <i>s₁</i> at which <i>s₂</i> is first found, 0 if <i>s₂</i> does not occur, and 1 if <i>s₂</i> is empty |
| <code>strproper(<i>s</i>)</code> | a string with the first ASCII letter and any other letters immediately following characters that are not letters capitalized; all other ASCII letters converted to lowercase |
| <code>strreverse(<i>s</i>)</code> | reverses the ASCII string <i>s</i> |
| <code>strrpos(<i>s₁, s₂</i>)</code> | the position in <i>s₁</i> at which <i>s₂</i> is last found, 0 if <i>s₂</i> does not occur, and 1 if <i>s₂</i> is empty |
| <code>strrtrim(<i>s</i>)</code> | <i>s</i> without trailing blanks (ASCII space character <code>char(32)</code>) |
| <code>strtoname(<i>s</i>[, <i>p</i>])</code> | <i>s</i> translated into a Stata 13 compatible name |
| <code>strtrim(<i>s</i>)</code> | <i>s</i> without leading and trailing blanks (ASCII space character <code>char(32)</code>); equivalent to <code>strltrim(strrtrim(<i>s</i>))</code> |
| <code>strupper(<i>s</i>)</code> | uppercase ASCII characters in string <i>s</i> |
| <code>subinstr(<i>s₁, s₂, s₃, n</i>)</code> | <i>s₁</i> , where the first <i>n</i> occurrences in <i>s₁</i> of <i>s₂</i> have been replaced with <i>s₃</i> |
| <code>subinword(<i>s₁, s₂, s₃, n</i>)</code> | <i>s₁</i> , where the first <i>n</i> occurrences in <i>s₁</i> of <i>s₂</i> as a word have been replaced with <i>s₃</i> |
| <code>substr(<i>s, n₁, n₂</i>)</code> | the substring of <i>s</i> , starting at <i>n₁</i> , for a length of <i>n₂</i> |
| <code>sum(<i>x</i>)</code> | the running sum of <i>x</i> , treating missing values as zero |
| <code>sweep(<i>M, i</i>)</code> | matrix <i>M</i> with <i>i</i> th row/column swept |
| <code>t(<i>df, t</i>)</code> | the cumulative Student's <i>t</i> distribution with <i>df</i> degrees of freedom |
| <code>tan(<i>x</i>)</code> | the tangent of <i>x</i> , where <i>x</i> is in radians |
| <code>tanh(<i>x</i>)</code> | the hyperbolic tangent of <i>x</i> |
| <code>tC(<i>l</i>)</code> | convenience function to make typing dates and times in expressions easier |

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| <code>tc(l)</code> | convenience function to make typing dates and times in expressions easier |
| <code>td(l)</code> | convenience function to make typing dates in expressions easier |
| <code>tdden(df, t)</code> | the probability density function of Student's t distribution |
| <code>th(l)</code> | convenience function to make typing half-yearly dates in expressions easier |
| <code>tin(d₁, d₂)</code> | <i>true</i> if $d_1 \leq t \leq d_2$, where t is the time variable previously <code>tsset</code> |
| <code>tm(l)</code> | convenience function to make typing monthly dates in expressions easier |
| <code>tobytes(s[, n])</code> | escaped decimal or hex digit strings of up to 200 bytes of s |
| <code>today()</code> | today's e_d date |
| <code>tq(l)</code> | convenience function to make typing quarterly dates in expressions easier |
| <code>trace(M)</code> | the trace of matrix M |
| <code>trigamma(x)</code> | the second derivative of $\ln\text{gamma}(x) = d^2 \ln\Gamma(x)/dx^2$ |
| <code>trunc(x)</code> | a synonym for <code>int(x)</code> |
| <code>ttail(df, t)</code> | the reverse cumulative (upper tail or survivor) Student's t distribution; the probability $T > t$ |
| <code>tukeyprob(k, df, x)</code> | the cumulative Tukey's Studentized range distribution with k ranges and df degrees of freedom; 0 if $x < 0$ |
| <code>tw(l)</code> | convenience function to make typing weekly dates in expressions easier |
| <code>twithin(d₁, d₂)</code> | <i>true</i> if $d_1 < t < d_2$, where t is the time variable previously <code>tsset</code> |
| <code>uchar(n)</code> | the Unicode character corresponding to Unicode code point n or an empty string if n is beyond the Unicode code-point range |
| <code>udstrlen(s)</code> | the number of display columns needed to display the Unicode string s in the Stata Results window |
| <code>udsubstr(s, n₁, n₂)</code> | the Unicode substring of s , starting at character n_1 , for n_2 display columns |
| <code>uisdigit(s)</code> | 1 if the first Unicode character in s is a Unicode decimal digit; otherwise, 0 |
| <code>uisletter(s)</code> | 1 if the first Unicode character in s is a Unicode letter; otherwise, 0 |
| <code>ustrcompare(s₁, s₂ [, loc])</code> | compares two Unicode strings |
| <code>ustrcompareex(s₁, s₂, loc, st, case, cslv, norm, num, alt, fr)</code> | compares two Unicode strings |
| <code>ustrfix(s [, rep])</code> | replaces each invalid UTF-8 sequence with a Unicode character |
| <code>ustrfrom(s, enc, mode)</code> | converts the string s in encoding enc to a UTF-8 encoded Unicode string |
| <code>ustrinvalidcnt(s)</code> | the number of invalid UTF-8 sequences in s |
| <code>ustrleft(s, n)</code> | the first n Unicode characters of the Unicode string s |
| <code>ustrlen(s)</code> | the number of characters in the Unicode string s |
| <code>ustrlower(s [, loc])</code> | lowercase all characters of Unicode string s under the given locale loc |
| <code>ustrltrim(s)</code> | removes the leading Unicode whitespace characters and blanks from the Unicode string s |

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| <code>ustrnormalize(<i>s</i>,<i>norm</i>)</code> | normalizes Unicode string <i>s</i> to one of the five normalization forms specified by <i>norm</i> |
| <code>ustrpos(<i>s</i>₁,<i>s</i>₂[,<i>n</i>])</code> | the position in <i>s</i> ₁ at which <i>s</i> ₂ is first found; otherwise, 0 |
| <code>ustrregxm(<i>s</i>,<i>re</i>[,<i>noc</i>])</code> | performs a match of a regular expression and evaluates to 1 if regular expression <i>re</i> is satisfied by the Unicode string <i>s</i> ; otherwise, 0 |
| <code>ustrregextra(<i>s</i>₁,<i>re</i>,<i>s</i>₂[,<i>noc</i>])</code> | replaces all substrings within the Unicode string <i>s</i> ₁ that match <i>re</i> with <i>s</i> ₂ and returns the resulting string |
| <code>ustrregexrf(<i>s</i>₁,<i>re</i>,<i>s</i>₂[,<i>noc</i>])</code> | replaces the first substring within the Unicode string <i>s</i> ₁ that matches <i>re</i> with <i>s</i> ₂ and returns the resulting string |
| <code>ustrregexs(<i>n</i>)</code> | subexpression <i>n</i> from a previous <code>ustrregxm()</code> match |
| <code>ustrreverse(<i>s</i>)</code> | reverses the Unicode string <i>s</i> |
| <code>ustrright(<i>s</i>,<i>n</i>)</code> | the last <i>n</i> Unicode characters of the Unicode string <i>s</i> |
| <code>ustrrpos(<i>s</i>₁,<i>s</i>₂[,<i>n</i>])</code> | the position in <i>s</i> ₁ at which <i>s</i> ₂ is last found; otherwise, 0 |
| <code>ustrrtrim(<i>s</i>)</code> | remove trailing Unicode whitespace characters and blanks from the Unicode string <i>s</i> |
| <code>ustrsortkey(<i>s</i>[,<i>loc</i>])</code> | generates a null-terminated byte array that can be used by the <code>sort</code> command to produce the same order as <code>ustrcompare()</code> |
| <code>ustrsortkeyex(<i>s</i>,<i>loc</i>,<i>st</i>,<i>case</i>,<i>cslv</i>,<i>norm</i>,<i>num</i>,<i>alt</i>,<i>fr</i>)</code> | generates a null-terminated byte array that can be used by the <code>sort</code> command to produce the same order as <code>ustrcompare()</code> |
| <code>ustrtitle(<i>s</i>[,<i>loc</i>])</code> | a string with the first characters of Unicode words titlecased and other characters lowercased |
| <code>ustrto(<i>s</i>,<i>enc</i>,<i>mode</i>)</code> | converts the Unicode string <i>s</i> in UTF-8 encoding to a string in encoding <i>enc</i> |
| <code>ustrtohex(<i>s</i>[,<i>n</i>])</code> | escaped hex digit string of <i>s</i> up to 200 Unicode characters |
| <code>ustrtoname(<i>s</i>[,<i>p</i>])</code> | string <i>s</i> translated into a Stata name |
| <code>ustrtrim(<i>s</i>)</code> | removes leading and trailing Unicode whitespace characters and blanks from the Unicode string <i>s</i> |
| <code>ustrunescape(<i>s</i>)</code> | the Unicode string corresponding to the escaped sequences of <i>s</i> |
| <code>ustrupper(<i>s</i>[,<i>loc</i>])</code> | uppercase all characters in string <i>s</i> under the given locale <i>loc</i> |
| <code>ustrword(<i>s</i>,<i>n</i>[,<i>loc</i>])</code> | the <i>n</i> th Unicode word in the Unicode string <i>s</i> |
| <code>ustrwordcount(<i>s</i>[,<i>loc</i>])</code> | the number of nonempty Unicode words in the Unicode string <i>s</i> |
| <code>usubinstr(<i>s</i>₁,<i>s</i>₂,<i>s</i>₃,<i>n</i>)</code> | replaces the first <i>n</i> occurrences of the Unicode string <i>s</i> ₂ with the Unicode string <i>s</i> ₃ in <i>s</i> ₁ |
| <code>usubstr(<i>s</i>,<i>n</i>₁,<i>n</i>₂)</code> | the Unicode substring of <i>s</i> , starting at <i>n</i> ₁ , for a length of <i>n</i> ₂ |
| <code>vec(<i>M</i>)</code> | a column vector formed by listing the elements of <i>M</i> , starting with the first column and proceeding column by column |
| <code>vecdiag(<i>M</i>)</code> | the row vector containing the diagonal of matrix <i>M</i> |
| <code>vech(<i>M</i>)</code> | a column vector formed by listing the lower triangle elements of <i>M</i> |
| <code>vecp(<i>M</i>)</code> | a column vector formed by listing the upper triangle elements of <i>M</i> |
| <code>week(<i>e</i>_{<i>d</i>})</code> | the numeric week of the year corresponding to date <i>e</i> _{<i>d</i>} , the %td encoded date (days since 01jan1960) |

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| <code>weekly(s₁, s₂[, Y])</code> | the e_w weekly date (weeks since 1960w1) corresponding to s_1 based on s_2 and Y ; Y specifies <i>topyear</i> ; see <code>date()</code> |
| <code>weibull(a, b, x)</code> | the cumulative Weibull distribution with shape a and scale b |
| <code>weibull(a, b, g, x)</code> | the cumulative Weibull distribution with shape a , scale b , and location g |
| <code>weibullden(a, b, x)</code> | the probability density function of the Weibull distribution with shape a and scale b |
| <code>weibullden(a, b, g, x)</code> | the probability density function of the Weibull distribution with shape a , scale b , and location g |
| <code>weibullph(a, b, x)</code> | the cumulative Weibull (proportional hazards) distribution with shape a and scale b |
| <code>weibullph(a, b, g, x)</code> | the cumulative Weibull (proportional hazards) distribution with shape a , scale b , and location g |
| <code>weibullphden(a, b, x)</code> | the probability density function of the Weibull (proportional hazards) distribution with shape a and scale b |
| <code>weibullphden(a, b, g, x)</code> | the probability density function of the Weibull (proportional hazards) distribution with shape a , scale b , and location g |
| <code>weibullphtail(a, b, x)</code> | the reverse cumulative Weibull (proportional hazards) distribution with shape a and scale b |
| <code>weibullphtail(a, b, g, x)</code> | the reverse cumulative Weibull (proportional hazards) distribution with shape a , scale b , and location g |
| <code>weibulltail(a, b, x)</code> | the reverse cumulative Weibull distribution with shape a and scale b |
| <code>weibulltail(a, b, g, x)</code> | the reverse cumulative Weibull distribution with shape a , scale b , and location g |
| <code>wofd(e_d)</code> | the e_w weekly date (weeks since 1960w1) containing date e_d |
| <code>word(s, n)</code> | the n th word in s ; <i>missing</i> ("") if n is missing |
| <code>wordbreaklocale(loc, type)</code> | the most closely related locale supported by ICU from loc if $type$ is 1, the actual locale where the word-boundary analysis data come from if $type$ is 2; or an empty string is returned for any other $type$ |
| <code>wordcount(s)</code> | the number of words in s |
| <code>year(e_d)</code> | the numeric year corresponding to date e_d |
| <code>yearly(s₁, s₂[, Y])</code> | the e_y yearly date (year) corresponding to s_1 based on s_2 and Y ; Y specifies <i>topyear</i> ; see <code>date()</code> |
| <code>yh(Y, H)</code> | the e_h half-yearly date (half-years since 1960h1) corresponding to year Y , half-year H |
| <code>ym(Y, M)</code> | the e_m monthly date (months since 1960m1) corresponding to year Y , month M |
| <code>yofd(e_d)</code> | the e_y yearly date (year) containing date e_d |
| <code>yq(Y, Q)</code> | the e_q quarterly date (quarters since 1960q1) corresponding to year Y , quarter Q |
| <code>yw(Y, W)</code> | the e_w weekly date (weeks since 1960w1) corresponding to year Y , week W |

Also see

[FN] [Functions by category](#)

[D] [egen](#) — Extensions to generate

[D] [generate](#) — Create or change contents of variable

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

[U] [13.3 Functions](#)