HELP

Keywords are separated into commands and operators

Operators can also be special characters and sequences of multiple special characters

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= Operator help

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! Unary conventional factorial operator

# Array indexing operation implemented as a binary operator

## Binomial coefficient operator (n ## k)

#/ Factorial falling operator

#/# Arithmetic division operator (expressed as fraction)

$# Mark function call for Trapezoidal integral approximation

$% Mark function call for adjustment for brute force approximation

$@ Mark function call for Clenshaw-Curtis integral approximation

$| Mark function call for Tanh-Sinh integral approximation

% Binary conventional remainder operator n%m; integer only

& Logical AND

' Mark function call for first derivative approximation

'' Mark function call for second derivative approximation

\* Arithmetic multiplication operator

\*\* Binary conventional exponentiation operator x\*\*y

\*10^ Decimal Shift

\*\ Conventional root operator a \*\ b; a \* sqrt(b)

\*^# Evaluate an exponential ( a \* exp (b \* x) ) defined by an array containing (a : b)

\*^\* Compute tensor product of two matrices

+ Arithmetic addition operator

+#\* Evaluate a harmonic series defined by an array of coefficients

( c0 + c1\*cos(x) + c2\*cos(2x) + ... )

+\*^ Evaluate a polynomial defined by an array of coefficients ( c0 + c1\*x + c2\*x^2 + ... )

+|- Plus or Minus operator

- Arithmetic subtraction operator

-# Matrix indexing operation selecting row vector

-|+ Minus or Plus operator

. Dot product of two arrays; lengths of arrays must match

.. Array range operation implemented as a binary operator

/ Arithmetic division operator

/# Factorial rising operator

: Choice based on condition code

< Less than

<\*> Integral delta marker for presentation

<< Left shift operator

<<= Logical implied by

<= Less than or equal to

<> Derivative approximation evaluated at left parameter

using delta value in right parameter

<|| Less than absolute value of

== Equal to

=>> Logical implies

> Greater than

>= Greater than or equal to

>> Right shift operator

>|| Greater than absolute value of

? Logical condition code set

@# Evaluate function defined by array at X

@\*^ Evaluate a Chebyshev polynomial using Clenshaw's special case

defined by an array of coefficients ( c0 + c1\*T[1](x) + c2\*T[2](x) + ... )

ADJ Compute adjugate of matrix

APPEND Append a series of arrays into one long array

ARRAYDER Compute derivative of function described by array

ARRAYINT Compute integral of function described by array

AUGMENTED Construct augmented matrix from source matrix and additional column

BERNOULLI Bernoulli function B(m) for second (n=1) Bernoulli numbers

CHARACTERISTIC Compute characteristic polynomial for matrix

CHEBINTERP Generate Chebyshev interpolation polynomial for function described by array

CHEBYSHEV Apply Vandermonde matrix to solve for Chebyshev interpolation polynomial

as curve of best fit

CLENQUAD Compute integral of function described by Chebyshev polynomial

COFACTOR Compute cofactor matrix from source

COL Read column vector from matrix

COMATRIX Compute comatrix matrix from source

CONV Compute product of polynomials

COV Computed co-variance of an array of values

DECONV Compute quotient of polynomials

DET Compute determinant of matrix

DOT Dot product of two arrays; lengths of arrays must match

DYADIC Compute dyadic product of 2 arrays

EIG Compute Von Mises dominant eigen-pair

EVALSPLINE Evaluate a VC31 spline function at specified parameter

FALSE Logical FALSE

FITEXP Apply non-linear (logarithmic) regression to find curve of best fit

FITHARMONIC Apply harmonic series regression to find curve of best fit

FITLINE Apply least squares regression to find line of best fit

FITPOLY Apply Vandermonde matrix to solve for polynomial coefficients

to find curve of best fit

GAMMA Gamma function

GAUSSIAN Solve linear equations with Gaussian elimination

GAUSSQUAD Apply Gauss Quadrature to build an integral

of an interpolated Lagrange polynomial

GENKNOT Construct a zero knot for odd or even functions

HARMONIC Harmonic function H(x)

HYPOT Distance in multi-dimensional space;

SQRT of sum of squares of array elements

IDENTITY Compute identity matrix with specified size

INTEGRAL Sum of items of an array constructed based on delta terms;

using traditional integral notation

INTEGRALC Sum of items of an array constructed based on delta terms;

using traditional contour integral notation

INTEGRALD Sum of items of an array constructed based on delta terms;

using traditional double integral notation

INTEGRALI Sum of items of an array constructed based on delta terms;

using traditional indefinite integral notation

INTEGRALS Sum of items of an array constructed based on delta terms;

using traditional surface integral notation

INTEGRALT Sum of items of an array constructed based on delta terms;

using traditional triple integral notation

INTEGRALV Sum of items of an array constructed based on delta terms;

using traditional volume integral notation

INTERPOLATE Generate Lagrange interpolation polynomial for function described by array

INTERVAL Select sub-list of elements for interval lo-hi

INV Compute inverse of matrix

LAGRANGE Apply Lagrange series to derive interpolation polynomial as curve of best fit

LENGTH Length of an array treated as a unary function

LOGGAMMA LogGamma function

LUXB Solve LUx=b general case from assignment array=LUXB(L;U;b)

MATADD Compute sum of two matrices

MATMUL Compute product of two matrices

MATRIX Construct matrix from array with dimensions

MAX Maximum value found in array

MEAN Mean of an array of values

MEDIAN Median of an array of values

MIN Minimum value found in array

MINOR Compute minor of matrix

MINUS Arithmetic subtraction operator

Mode Mode of an array of values

NEGATE Arithmetic negate operator

PEARSON Compute Pearson regression coefficient for X/Y data set pair

PI Product of items of an array; traditional capital PI notation

PIVOT Reorder a vector to a specified pattern

POLYDER Compute derivative of polynomial

POLYHG Compute coefficients of hyper geometric polynomial

POLYINT Compute integral of polynomial

ROOTS Compute roots of polynomial

ROW Read row vector from matrix

SIGMA Sum of items of an array; traditional capital SIGMA notation

SOLVE Solve linear equations with column substitution

STDEV Standard deviation of an array of values

SUMMATION Sum of items of an array; summation functionality using SIGMA notation

TR Compute trace of matrix

TRANSPOSE Compute transpose of matrix

TRIU Compute upper triangular matrix from source

TRUE Logical TRUE

VANCHE Construct Vandermonde matrix for a Chebyshev interpolation

VAR Computed variance of an array of values

VC31 Solve LUx=b using VC31LU to produce Chebyshev spline for function values

\ Binary conventional root operator n\\x; intended for small integer roots

\# Matrix indexing operation selecting diag vector

^ Binary conventional exponentiation operator x^n; intended for small integer exponents

abs Absolute value of parameter

asin Trigonometric ARC SIN function

atan Trigonometric ARC TAN function

cos Trigonometric COS function

coscb Trigonometric COS Cubed function

cossq Trigonometric COS Squared function

e Symbol for the irrational value of e; Epsilon base of natural log

epsilon Epsilon base of natural log

exp Unary conventional EXP function e^x

ln Unary conventional natural logarithm function

pi Symbol for the irrational value of pi; Trigonometric ratio of circle diameter to perimeter

sgn Sign SGN function value of parameter

sin Trigonometric SIN function

sincb Trigonometric SIN Cubed function

sinsq Trigonometric SIN Squared function

sqrt Unary conventional SQRT function

tan Trigonometric TAN function

tancb Trigonometric TAN Cubed function

tansq Trigonometric TAN Squared function

zeta Zeta function

| Logical OR

|# Matrix indexing operation selecting column vector

|| Mark function call for interval evaluation

|~ Logical XOR

~ Logical NOT

~& Logical NAND

~<<= Logical NOT implied by

~= Not equal to

~=>> Logical NOT implies

~| Logical NOR

~|~ Logical NOT XOR

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= Keyword help

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!! Define a user function

!$ Define a segmented user function as a list of polynomials

!% Define a function transform

!\* Declare a user function as a Hyper-Geometric polynomial

!+ Define a user function as a library import

!^ Define a function as an integration transform source

// Add a comment to the output stream

ASSERT Make a conditional assertion

BACKGROUND Read a script file and execute as a background task

CALC Calculate and show value for an expression

CALCULATE Calculate and show value for an expression

DCT Apply Discrete Cosine Tranform to function

DEFINE Define a user function

DERIVE Plot derivatives of a polynomial

ENCODE Encode a segmented function as a Java class

ENTITLED Change the title of the last frame displayed

EXPORT Export data to a file from specified matrix

FAMILY Import polynomial power functions for named family

FFT Compute and display a fast Fourier transform

GRAPH Display a graph of an array of data points

HELP Show the HELP table

IMPORT Import data from a file into specified matrix

ITERATE Read a script file and iterate

LIBRARY Construct a library of functions

MANDELBROT Display a plot of the Mandelbrot set

PLOT3D Plot a specified 2D domain of a 3D user defined function

PLOTF Plot a specified range of a user defined function

POLY Analyze a polynomial and tabulate key points

POLYNOMIAL Analyze a polynomial and tabulate key points

POLYPRINT Format an array as a polynomial

PRETTYPRINT Show the formatted value of a symbol

PRIMEGAPS Tabulate gaps between primes

PRIMETABLE Tabulate primes starting from specified

RADIX Calculate and show value for an expression in specified radix

READ Read a workspace storage file

RECOGNIZE Read a symbol definition file

RENDER format and display (pretty print) an equation using MathML

RENDERF format and display (pretty print) a function using MathML

RPN Start the RPN calculator

RUNSIEVE Run a sieve to populate the primes table

SAVE Save a workspace storage file

SCATTER Produce an X/Y scatter plot

SCRIPTPRINT Display the contents of a script file

SETCONTOUR Set color scheme manager for contour plots

SETDOMAIN Set domain constraints on a function

SETMODE Set value display mode and precision

SHOW Show symbol table contents Symbols|Functions|Parent|ALL parents

SPLOT Display a graph of a complex number sequence

STDDOMAIN Standardize a function domain to [-1,1]

VERIFY Verify symbol present in current symbol table