

Index

↵ (Enter key)
∫ (integral)
→ (symbolic equals sign)
× (vector product)
Σ (vector sum)
→ (vectorize operator)
Σ and Π (summation and product)
! (factorial)
%
() (parentheses)
+ (with line break)
+, −, ·, and /
:= (definition)
<, >, ≤, ≥ (inequalities)
= (boolean equals)
= (evaluating expression)
| · | (determinant)
| · | (magnitude/absolute value)
∞ (infinity)
≠ (not equal to)
≡ (global assignment)
√ (square root)
3D Plot Format dialog box
 Axes page for 3D bar charts
 Axes page for 3D scatter plots
 Axes page for contour plots
 Axes page for surface plots
 Axes page for vector field plots
 Color & Lines page for 3D bar charts
 Color & Lines page for 3D scatter plots
 Color & Lines page for contour plots
 Color & Lines page for surface plots
 Title page for 3D bar chart
 Title page for 3D scatter plots
 Title page for contour plots
 Title page for surface plots
 Title page for vector field plots
 View page for 3D bar charts
 View page for 3D scatter plots
 View page for contour plots
 View page for surface plots

A

aborting calculations in progress
absolute value
 See also magnitude
acosh function
adaptive smoothing of data
addition
algorithms
 See numerical methods
aligning regions
aligning text
anchor points
angle function
Animate command
animation
 compressing AVI files
 creating
 launching from worksheet
 playback
 playback context menu
 saving
 saving with worksheet
 See also AVI files
 speed
annotating Electronic Books
annotation color
annotations
 deleting from Electronic Books
 highlighting
 inserting in Electronic Books
antisymmetric tensor function
APPEND function
APPENDPRN function
approximations
 Minerr function
 root of expression
arg function
argument of complex number
arguments
 hiding in graphs
 hiding in polar plots
 of functions
arrays
 as arguments to user functions
 calculating with
 calculations by element
 creating
 defining

- definition of
- displaying results
- extracting a column
- extracting a subarray
- functions for
- matrices
- nested
- operators for
- ORIGIN used with
- setting starting index
- size limits
- subscripts
- vectors
- when to use subscripts
- arrow keys
 - for editing
 - for scrolling
- ASCII codes
 - entering in strings
 - table
- asinh* function
- assume keyword
- atanh* function
- augment* function
 - used to write several variables to file
- augmenting matrices
- Auto (on status bar)
- Auto Contour
 - using
- Auto Grid
 - contour plots
 - graphs
 - polar plots
- automatic mode
- Autoscale
 - 3D bar charts
 - 3D scatter plots
 - contour plots
 - graphs
 - polar plots
 - surface plots
- autoscroll
- AVI files
 - compression
 - creating
 - hyperlinking from worksheet
 - playback
 - saving
- Axes page
 - 3D bar charts
 - 3D scatter plots
 - contour plots
 - surface plots
 - vector field plots
- axes style
 - graphs
 - polar plots
- axes, formatting
 - 3D bar charts
 - 3D scatter plots
 - contour plots
 - surface plots
 - vector field plots
- axis limits
- Axum component

B

- back planes
 - 3D bar charts
 - 3D scatter plots
 - surface plots
- bandpass filter
- bar charts (2D)
 - graphs
 - polar plots
- bar charts (3D)
 - adjusting spacing between bars
 - Autoscale
 - back planes
 - bar configurations
 - borders
 - boxes
 - changing bar colors
 - converting
 - creating
 - formatting
 - formatting axes
 - grid intervals
 - grid lines
 - of function of two variables
 - perspective
 - resizing
 - setting axis limits
 - tick marks
 - titles

- vertical scale
- base of results (decimal/hex/octal)
- base units
- Bessel functions
- beta distribution
- binomial distribution
- bitmaps
 - color palettes
 - functions for reading
- blank lines, inserting or deleting
- blank pages in printouts
- blank space between regions
- BMP files
- boilerplate math
- bookmarks
- Books context menu
- boolean operators
 - and strings
- borders
 - 3D bar charts
 - 3D scatter plots
 - surface plots
- bottom margin
- boundary value problems
- boxed axes
- boxes
 - 3D bar charts
 - 3D scatter plots
 - surface plots
- break statement
- breaking equations
- built-in functions
 - alphabetical list
 - listed by type
 - symbolic only
- Built-In Variables page on Math Options dialog box
- bulstoer* function
- bvalfit* function

C

- Calc on message line
- calculation
 - disabling for individual equation
 - equations
 - interrupting
 - locking

- order in worksheets
- restarting after interrupting
- units in
 - unlocking
- calculator, using Mathcad as
- carriage returns in text
- cauchy distribution
- ceil* function
- centigrade
- CFFT* function
- cfft* function
- CGS units
- character
 - deleting
 - inserting
- chemistry notation
- Chi* function
- chi-squared distribution
- cholesky decomposition function
- Ci* function
- clipboard
- cnorm* function
- coeffs keyword
- Collaboratory
 - forums
 - server URL
 - topics
 - using to open a file from the Internet
- Collect command
- collect keyword
- colon (:) as definition symbol
- color
 - 3D bar charts
 - 3D scatter plots
 - changes to Electronic Books
 - contour plots
 - equation highlights
 - graphs
 - in equations
 - in text
 - polar plots
 - surface plots
 - text highlights
- Color & Lines page
 - 3D bar charts
 - 3D scatter plots
 - contour plots
 - surface plots
- color images
 - displaying
 - reading

- unpacking and packing
 - writing to file
- color palettes for bitmaps
- cols* function
- column vectors
 - See* vectors
- comments in Electronic Books
- common log
- complementary error function
- complex
 - conjugate
 - fast Fourier transform
 - tolerance
- Complex command
- complex keyword
- complex numbers
 - conjugate
 - determining angle
 - display of
 - imaginary unit symbol
 - in graphs
 - magnitude of
 - operators and functions for
 - real and imaginary parts
 - vector field plots
- components
 - inserting
 - overview of
- computing results
- concat* function
- condition number of matrix
- conditional
 - functions
 - statement
- conjugate (complex)
- constants
 - See* numbers
 - See* predefined variables
- Constants math style
- constraints
 - defined
 - in solve blocks
 - too few
- context menu
 - animation playback
 - component
 - Electronic Book
 - Excel component
 - Input Table component
 - Scriptable Object component
 - Web browsing

- continue statement
- contour integrals
- contour plots
 - Auto Grid
 - Autoscale
 - changing the shading
 - converting plot type
 - creating
 - displaying as points
 - formatting
 - formatting axes
 - grid intervals
 - hiding the contours
 - numbering the contours
 - of function of two variables
 - resizing
 - setting axis limits
 - specifying how many contours
 - specifying tick marks and grid lines
 - titles
- convert keyword
- Convert to Partial Fraction command
- converting 3D plots
 - from 3D bar charts
 - from 3D scatter plots
 - from contour plots
 - from surface plots
- converting to partial fractions
- copy and paste
- copying
 - arrays
 - from Electronic Book
 - regions
 - results
 - text
 - to clipboard
- correlation (*corr*) function
- cosecant (*csc*) function
- cosh* function
- cosine (*cos*) function
- cosine integral
- cotangent (*cot*) function
- coth* function
- covariance (*cvar*) function
- creating
 - 3D bar charts
 - 3D scatter plots
 - contour plots
 - graphs
 - hyperlinks
 - polar plots

- pop-up window
- surface plots
- text regions
- vector field plots
- worksheet templates

- cross product

- crossed axes

- csc* function

- csgn* function

- csort* function

- cspline* function

- Ctrl+M

- to create matrix

- to create vector

- to edit matrix

- Ctrl+P for pi

- cube root

- cubic spline interpolation

- cumulative distribution functions

- cumulative distributions

- curve fitting

- functions for

- linear

- polynomial

- using cubic splines

- curves, finding area under

- customer registration

- cutting text

- cvar* function

- CWD variable



D

- δ function

- d/dx

- See* derivatives

- dashed selection rectangle

- data

- entering into a table

- graphing

- importing into Mathcad

- data exchange

- data files

- column width

- format for data in

- PRNCOLWIDTH used with

- PRNPRECISION used with

- reading data from

- reading into a matrix

- significant figures

- spreadsheet

- structured

- unstructured

- writing a matrix to a file

- writing data to

- writing rows and columns of data

- data input

- data input tables

- data output tables

- Data Points, display as

- 3D bar plots

- contour plots

- surface plots

- date

- in headers and footers

- inserting on a page

- dbeta* function

- dbinom* function

- dcauchy* function

- dchisq* function

- decimal places

- See* precision

- decimal points

- symbolic calculation

- decomposition

- matrix

- partial fraction

- singular value

- default formats

- graphs

- polar plots

- template

- worksheet layout

- Defaults page

- polar plots

- X-Y plots

- defining

- functions

- global

- multiple definitions of variable

- operators

- programs

- range variables

- recursive functions

- See also* creating

- several variables at once

- strings

- units

- variable in program
- variables
- definition symbol (\coloneqq)
- degrees, converting to radians
- deleting
 - annotations from Electronic Books
 - blank lines
 - characters
 - equations
 - graphs
 - hyperlinks
 - line breaks from text
 - lockable area
 - operators
 - pagebreaks
 - parentheses
 - parts of an expression
 - regions
 - text
- delta function
- density functions
- derivative and nth derivative
- derivatives
 - higher order
 - symbolic
- determinant
- Determinant command
- device-independent bitmap
- dexp* function
- dF* function
- dgamma* function
- dgeom* function
- diagonal matrix (*diag*) function
- DIB
 - See* device-independent bitmap
- dictionaries (spell-checker)
- did not find solution (error)
 - in solve block
- differential equations
 - higher order
 - partial
 - second order
 - slowly varying solutions
 - smooth systems
 - specialized solvers
 - stiff systems
 - systems
- Differentiate on Variable command
- differentiation
 - See* derivatives
- differentiation variable

- digamma* function
- dilog* function
- dilogarithmic integral
- dimensions
 - common sources of error
 - consistency
- Dimensions page on Math Options dialog box
- Dirac* delta function
- disabling equations
- Display as Matrix
- displayed precision
- displaying
 - color images
 - full numerical precision
 - grayscale images
- distribution functions
- division
- DLLs
 - creating
 - custom
 - linking to mcaduser.lib library
- dlnorm* function
- dlogis* function
- dnbinom* function
- dnorm* function
- dot product
- double integrals
- dpois* function
- drag and drop
- dragging regions
- drawings
 - See* pictures
- dt* function
- dunif* function
- dweibull* function
- dynamic-link libraries for Mathcad



E

- ϵ function
- e*, base of natural logarithms
- Edit Links command
- editing equations
 - annotated example
 - compared to word-processors
 - deleting ()'s from around expression
 - deleting an operator

- deleting parts of expression
- existing expressions
- inserting an operator
- making expression an argument to a function
- math
- moving parts of an expression
- moving/rearranging equations
- numbers
- putting ()'s around an expression
- variable or function names
- editing lines
- Ei* function
- eigenvals* function
- eigenvalues
- eigenvectors
- Electronic Book
 - annotating
 - annotation color
 - bookmark
 - browsing history
 - copying information from
 - deleting annotations
 - hyperlinks
 - moving around in
 - navigation
 - opening
 - printing section
 - saving section
 - searching for information in
 - toolbar
- Electronic Books
 - available titles
 - Mathcad Treasury
- elements, vector and matrix
- e-mail address
- endpoints for ranges
- Enter key
- epsilon function
- equal sign (=)
 - as boolean operator
 - in numerical calculations
 - in solve blocks
 - symbolic calculations
- equality constraints
- equations
 - as constraints in solve blocks
 - breaking
 - calculating results
 - changing font
 - color
 - commenting out
- definition
- disabling calculation for
- effect of range variables in
- errors in
- font
- global definitions
- in text
- locking
- order of evaluation
- processing and calculating
- properties
- solving for root
- solving symbolically
- solving with solve blocks
- unlocking
- using units in
- wrapping
- erf* function
- ERR variable and *minerr*
- error (*erf*) function
- error bars
 - graphs
 - polar plots
- error* function
 - in programs
- error messages
 - and user functions
 - correcting
 - custom
 - in equations
 - in programs
 - not detected with 0 as factor/numerator
 - with units
- Euler's constant
- Euler's gamma function
- Evaluate Floating Point command
- Evaluate in Place option
- Evaluate Symbolically command
- Evaluation and Boolean Palette
- Excel component
- Expand command
- expand in series
- expand keyword
- Expand to Series command
- exponent
- exponential
 - function
 - notation, entering
 - notation, in displayed results
 - threshold
- exponential (*exp*) function

- exponential distribution
- exponential integral
- exponential threshold
 - in components
- exporting
 - data
 - text
 - worksheets as RTF
- expressions
 - applying a function to
 - collecting like terms of
 - converting to partial fractions
 - correcting errors in
 - deleting parts of
 - error messages in
 - evaluating
 - expanding
 - factoring
 - finding the coefficients of
 - moving parts of
 - range variables in
 - selecting several
 - simplifying
 - symbolic evaluation of

F

- F (function) keys, table of
- F distribution
- Φ function
- Factor Expression command
- factor keyword
- factorial (!)
- fahrenheit
- fast Fourier transform
 - alternate forms of
 - See* Fourier transforms
- FFT
 - See* Fourier transforms
- FFT* function
- fft* function
- File Read/Write component
- File Send command
- file-access functions
- filename
 - in headers/footers
- files

- reading data from
- saving
- writing data to
- filters
 - for exporting data
 - for importing data
 - signal processing
- Find* function
 - at end of solve block
 - user functions defined with
 - values returned by
- first order differential equation
- fitting a surface
 - using cubic splines
- float keyword
- Floating Point command
- floor* function
- font
 - changing in math
 - changing in text
 - sensitivity
 - used to display equations
- for loop
- Format Bar
 - defined
 - math styles
 - text styles
- Format Properties command
- Format Style command
- formatting
 - 3D bar charts
 - 3D scatter plots
 - contour plots
 - numbers in matrices
 - results
 - surface plots
 - symbolic
 - vector field plots
 - worksheets
- Fourier keyword
- fourier keyword
- Fourier transforms
 - alternate form
 - symbolic
 - two-dimensional
 - using *fft*
- FRAME for animation
- Fresnel cosine integral
- Fresnel sine integral
- FTP
- functions

- applying to an expression
- boolean
- built-in
- complex arithmetic
- defined in terms of solve blocks
- defining
- error message
- file-access
- Fourier transform
- graphing
- hyperbolic
- inverse trigonometric
- piecewise continuous
- plotting function of two variables
- plotting in polar plot
- population statistics
- prediction
- probability distribution
- real and imaginary part
- recursive
- regression
- See also* built-in functions
- series for
- statistical
- symbolic calculation
- tensor
- that take vector arguments
- to combine arrays
- to combine vectors or matrices
- to compute angle to a point
- to create arrays
- to find roots of expressions
- to manipulate strings
- trigonometric
- user function names
- user-defined
- vector and matrix

G

- gamma (Euler's constant)
- gamma distribution
- gamma* function
- Gaussian distribution
- generalized
 - eigenvalues
 - eigenvectors

- inverse of a matrix
- genfit* function
- geninv* function
- genvals* function
- geometric distribution
- Given*, in solve blocks
- global definitions
- Go to Page command
- Gopher
- Graph Palette
- graphs
 - Auto Grid
 - Autoscale
 - axes style
 - axis labels
 - axis limits
 - axis settings in dialog box
 - bar charts (2D)
 - changing perspective
 - color of traces
 - complex numbers
 - copying format from existing plot
 - creating
 - deleting
 - error bars
 - formatting
 - formatting traces
 - graphing functions
 - graphing several curves
 - graphing vectors
 - grid lines
 - hiding arguments
 - horizontal and vertical lines
 - labels and titles
 - legends
 - line charts
 - logarithmic axes
 - markers
 - moving
 - polar coordinates
 - QuickPlot
 - read out of coordinates
 - resizing
 - setting axis limits
 - setting defaults with no plot
 - Show Markers
 - stem
 - step
 - tick marks
 - titles
 - trace settings in dialog box

- traces on
 - what to graph
 - with dots
 - zooming
- grayscale images
 - displaying
 - reading
 - writing to file
- grayscale plots
 - 3D bar charts
 - contour
 - surface
- greatest integer
- Greek letters
 - in equations
 - table of
- Greek Symbol Palette
- grid intervals
 - 3D bar charts
 - 3D scatter plots
 - contour plots
 - surface plots
 - vector field plots
- grid lines
 - 3D bar charts
 - 3D scatter plots
 - graphs
 - on contour plots
 - polar plots
 - surface plots
 - vector field plots
- guess
 - for *root* function
 - for solve blocks

H

- halting iteration on a condition
- handbook
 - See* Electronic Books
- hard line breaks in text
- hard pagebreaks
- HBK (Electronic Book) file
- headers and footers
- heaviside step function
- help
 - context sensitive

- on-line
- QuickSheets
- hexadecimal numbers
- highlighting
 - annotations in Books
 - equations
 - text regions
- highpass filter
- histogram (*hist*) function
- history of browsing in Electronic Book
- HTML
- HTTP
- hyperbolic cosine integral
- hyperbolic functions
- hyperbolic sign integral
- hyperlinks
 - and relative paths
 - deleting
 - to other file types
 - to worksheets

I

- i* (imaginary unit)
- I0*, *I1*, and *In* Bessel functions
- ICFFT* function
- icfft* function
- identity* function
- identity matrix
- if* function
- if statement
- IFFT* and *ICFFT* functions
- ifft* and *icfft* functions
- IFFT* function
- Im* function
- image components
 - HLS
 - HSV
 - RGB
- image file format
 - BMP
 - GIF
 - JPG
 - TGA
- imaginary numbers
 - choosing *i* or *j* for display
 - symbol for

- imaginary part of a complex number
- implied multiplication
- importing
 - data
 - text
- impulse function
- in0, in1, etc., variables
- incompatible units error
- increments for ranges
- indefinite
 - integral
 - sum
- indented paragraphs
- index variables
 - See* range variables
- inequalities
 - as constraints in solve blocks
- infinity (∞)
- inner product
- in-place activation
- Input Table component
- input to a component
- Insert Function command
- Insert Function dialog box
- Insert Hyperlink command
- insert key
- Insert Link command
- Insert Math Region command
- Insert Matrix dialog box
- Insert Object command
- Insert Reference command
- Insert Unit dialog box
- inserting
 - annotations in Electronic Books
 - blank lines
 - characters
 - equations in text
 - functions
 - hyperlinks
 - line break in text
 - math region
 - minus sign in front of expression
 - parentheses around expression
 - text
 - units
 - worksheet
- insertion point
- integral transforms
 - Fourier
 - Laplace
- integrals
 - contour
 - double
 - indefinite
 - numerical approximations used
 - symbolic evaluation of
 - tolerance for numeric approximation
 - variable limits
- integrand, of definite integral
- Integrate on Variable command
- integrating variable, of definite integral
- integration
 - See* integrals
- intercept* function
- International System of units
- Internet
 - access
 - Collaboratory
- Internet Setup command
- interp* function
- interpolation
 - cubic splines
 - for a vector of points
 - linear
 - using cubic splines
- interrupted (error)
- interrupting calculations in progress
- inverse
 - cumulative distributions
 - Fourier transform
 - hyperbolic functions
 - Laplace transform
 - matrix
 - trigonometric functions
 - wavelet transform
 - z-transform
- inverse Fourier transforms
- inverse Laplace transforms
- inverse of matrix
- inverse z-transforms
- Invert command
- invfourier keyword
- invlaplace keyword
- invztrans keyword
- iterated product
- iterated sum
- iteration
 - faster without subscripts
 - halting
 - on a vector
 - over a range
 - program loops

- recursive
- See also* range variables
- with seed value
- with several variables

iwave function

J

- j* (imaginary unit)
- J0*, *J1*, and *Jn* Bessel functions
- Jacobian matrix
- JavaScript
- JScript

K

- K0*, *K1*, and *Kn* Bessel functions
- keywords
- keywords, symbolic
- Kronecker's delta function
- ksmooth* function

L

- labels
 - graph axes
 - graphs
 - polar plots
- Labels page
 - polar plots
 - X-Y plots
- Lambert's *W* function
- laplace keyword
- Laplace transforms
- Laplace's equation
- last* function
- Laurent series
- least integer function
- left inverse of a matrix

- left page margin
- legends
 - graphs
 - polar plots
- length* function
- level curves
- limits on array sizes
- limits, evaluating
- line break
 - in equation
 - in text
- line charts
 - polar plots
 - X-Y plots
- linear
 - interpolation
 - prediction
 - regression
 - systems of differential equations
 - systems of equations
- lines
 - polar plots
 - X-Y plots
- linfit* function
- link
 - See also* hyperlinks
 - to animation file
 - to Internet
 - to other worksheets
 - to World Wide Web
- linterp* function
- Lissajous figures
- literal subscripts
- ln* (natural log) function
- local result format
- Lock Area command
- Lock Regions command
- lockable area
 - deleting
 - specifying
- locked calculations
- loess* function
- log* function
- log normal distribution
- logical operators
 - See* boolean operators
- logistic distribution
- looping
 - for loop
 - while loops
- looping in programs

Lorczak, Paul R.
lowpass filter
lsolve function
lspline function
LU decomposition (*lu*) function

M

Macintosh Mathcad 6 files
magnitude
 complex numbers
 vector
mailing worksheets
mantissa
manual mode
 starting in
 updating in
margins
markers
 3D scatter plots
 graphs
 polar plots
marking changes in Electronic Books
Markov processes
Math Options dialog box
 Built-In Variables page
 Unit System page
Math Palette
math styles
 applications
 applying
 Constants
 editing
 saving
 Variables
Mathcad
 quitting
 starting
Mathcad 6 for Macintosh
Mathcad 6 for Windows
Mathcad Treasury
MathConnex
MathSoft home page
MATLAB component
matrices
 adding/deleting rows or columns
 as arguments to user functions

as array elements
calculations by element
combining
combining with *augment* function
combining with stack function
condition number
creating
creating from bitmaps
creating with components
defining
defining by formula
defining with two range variables
definition of
determinant
displayed as pictures
displayed as scrolling output tables
extracting a column
extracting a submatrix
extracting elements
functions for
inverting
limits on size
matrix arithmetic
norm
numbering elements
operators for
ORIGIN used with
plotting in 3D bar chart
plotting in contour plot
plotting in surface plot
plotting in vector field plots
raising to a power
rank
sorting by row or column
start with row and column zero
subscripts
transpose
when to use subscripts
writing to data files
matrix function
matrix subscript
max function
MCD file
MCT file
mean function
median function
medsmooth function
menu commands
 See also individual commands
 table
messages

- removing from the Collaboratory
- sending to the Collaboratory
- metafile
- Microsoft Internet Explorer
- Microsoft Office
- min* function
- Minerr* function
 - at end of solve block
 - values returned by
- minus sign
 - inserting in front of expression
- MKS units
- mod* function
- mode
 - See* automatic mode, manual mode
- moving
 - crosshair
 - editing lines
 - graphs
 - insertion point
 - regions
 - scrollbar
 - to bottom of worksheet
 - to top of worksheet
- multigrid* function
- multiple integrals
- multiple roots, finding with solve blocks
- multiple summations
- multiplication
 - implied
- multivalued functions
- multivariate cubic spline interpolation

N

- names
 - font sensitive
 - operators in
 - variable and function names
 - vectors and scalars use same names
- natural log
- negating an expression
- negative binomial distribution
- nested arrays
- noisy data
- nonlinear
 - differential equations

- regression
- systems of equations
- nonscalar value (error message)
- norm
 - functions
 - of matrix
 - of vector
- norm1* and *norm2* functions
- normal distribution
- norme* and *normi* functions
- not converging (error)
 - integrals
 - root function
- notation used in manual
- nth* order derivative
- nth* root
- num2str* function
- numbering pages
- numbers
 - complex
 - dimensional values
 - displayed as zero
 - exponential notation for
 - format for computed results
 - formatting
 - hexadecimal
 - imaginary
 - octal
 - radix (base) for results
- numerical methods
 - differentiation
 - integration

O

- object linking and embedding
 - See* OLE
- objects
 - embedding
 - linking
- octal numbers
- OLE
 - drag and drop
 - editing links
 - in-place activation
 - used in components
- on error statement

- on-line resources
- opening
 - Electronic Books
 - worksheets
- operator palettes
- operators
 - as parts of variable name
 - boolean
 - complete list of
 - defined
 - defining
 - derivative
 - for complex numbers
 - for vectors and matrices
 - how to type
 - indefinite integral
 - inserting
 - integral
 - iterated product
 - iterated sum
 - listed in order of precedence
 - logical
 - nth order derivative
 - palettes
 - vector sum
- Optimize command
- Optimize Palette command
- order of calculation of equations
- order of derivative
- order of evaluation
- ORIGIN variable
- output from a component
- Output Table component
- overlapping regions
- overtyping text

P

- page
 - boundary
 - headers and footers
 - length
 - numbering
- Page Setup dialog box
- pagebreaks, inserting and deleting
- palettes
- palettes, color, for bitmaps

- paper size for printing
- paper source for printing
- paragraphs
 - alignment
 - indenting
 - properties
- parametric plots
- parametric surface plots
- parentheses
 - deleting from expression
- partial differential equations
- partial fractions
- password
 - locked areas
- Paste command
- Paste Special command
- pasting
 - arrays
 - bitmaps
 - device-independent bitmaps
 - from clipboard
 - metafiles
 - numerical results
 - OLE objects
 - text
- patch plots
- pbeta* function
- pbinom* function
- pcauchy* function
- pchisq* function
- Pearson's correlation coefficient
- pending computations
- percent
- perimeter axes
- permutations
- personal dictionary (spell-checker)
- perspective for 3D bar charts
- perspective, changing
 - 3D bar charts
 - 3D scatter plots
 - surface plots
 - vector field plots
- pexp* function
- pF* function
- pgamma* function
- pgeom* function
- pi (Π , product symbol)
- pi (3.14159...)
- picture operator
- pictures
 - border on

- created from bitmap file
 - created from matrix
 - formatting
 - importing into an array
 - pasted from clipboard
 - resizing
- piecewise continuous functions
- placeholder
 - in graph regions
 - units
- Playback command
- plnorm* function
- plogis* function
- plots
 - 3D bar charts
 - 3D scatter plots
 - contour plots
 - graphs
 - polar plots
 - read out of coordinates
 - surface plots
 - vector field plots
- pnbinom* function
- pnorm* function
- points, plotting
- poisson distribution
- Poisson's equation
- Polar Axes page
 - polar plot defaults
 - polar plots
- polar coordinates
- Polar Plot dialog box
 - Defaults page
 - Labels page
 - Polar Axes page
 - Traces page
- polar plots
 - Auto Grid
 - Autoscale
 - axes style
 - axis settings in dialog box
 - bar charts
 - changing perspective
 - color of traces
 - copying coordinates to clipboard
 - copying format from existing plot
 - creating
 - error bars
 - formatting
 - formatting traces
 - graphing several curves
 - grid lines
 - hiding arguments
 - horizontal and vertical lines
 - labels and titles
 - legends
 - line charts
 - lines
 - logarithmic axes
 - logarithmic axis limits
 - markers
 - QuickPlot
 - radial reference lines
 - relation to rectangular plots
 - resizing
 - setting axis limits
 - setting defaults with no plot
 - Show Markers
 - step
 - tick marks
 - titles
 - trace settings in dialog box
 - traces on
 - using default settings
 - with dots
 - zooming
- Polar Trace dialog box
- Polar Zoom dialog box
- polygamma* function
- polynomial
 - finding the roots of
 - regression
- Polynomial Coefficients command
- polyroots* function
- population standard deviation
- population statistics
- population variance
- pop-up window, creating
- power
- ppois* function
- precedence among operators
- precision
 - in components
 - in displayed results
- predefined variables
- predict* function
- prediction
- principal branch of function
- Print Preview command
- printing
 - blank pages in
 - calculate worksheet first

- color
- current worksheet
- Electronic Book section
- extra pages
- landscape
- portrait
- print preview
- selected pages
- selected regions
- to a file
- wide worksheets
- PRN files
- PRNCOLWIDTH variable
- PRNPRECISION variable
- probability density functions
- probability distribution
 - beta
 - binomial
 - cauchy
 - chi-squared
 - exponential
 - F
 - gamma
 - geometric
 - log normal
 - logistic
 - negative binomial
 - normal
 - poisson
 - Student's t
 - uniform
 - Weibull
- probability distributions
- processing equations
 - results of
- product
 - cross product
 - dot product
 - over a range
 - symbolic
- product registration
- program
 - if statement
- Programming Palette
- programs
 - adding lines
 - break statement
 - continue statement
 - controlling or interrupting
 - defining
 - error handling

- error messages in
 - for loop
 - for loops
 - generating symbolic results
 - if statement
 - local assignment
 - looping
 - nested
 - on error statement
 - output of
 - palette for creating
 - recursion
 - return statement
 - statements
 - subroutines
 - symbolic evaluation of
 - while loop
- properties
 - equation region
 - of components
 - text region
- proxy server
- Psi* functions
- pspline* function
- pt* function
- pulse function
- punif* function
- pweibull* function

Q

- qbeta* function
- qbinom* function
- qcauchy* function
- qchisq* function
- qexp* function
- qF* function
- qgamma* function
- qgeom* function
- qlnorm* function
- qlogis* function
- qnbinom* function
- qnorm* function
- qpois* function
- QR decomposition (*qr*) function
- qt* function
- QuickPlot

QuickSheets

See also Resource Center

storing custom operators

quitting Mathcad

qunif function

qweibull function

R

radians

converting to degrees

trig functions

radix of displayed results

random number generators

range variables

creating

defining

fundamental principle for

how Mathcad evaluates equations with

in expressions

setting endpoints and increments

using two in one equation

rank function

rbeta function

rbinom function

rcauchy function

rchisq function

Re function

READ function

READ_BLUE function

READ_GREEN function

READ_HLS function

READ_HLS_HUE function

READ_HLS_LIGHT function

READ_HLS_SAT function

READ_HSV function

READ_HSV_HUE function

READ_HSV_SAT function

READ_HSV_VALUE function

READ_IMAGE function

READ_RED function

READBMP function

readout of coordinates

graphs

plots

READPRN function

compared to *READ*

READRGB function

real part of a complex number

rectangle to indicate disabled equation

recursion

reduced view

reduced-row echelon form

reference existing worksheet

reference lines in graphs

reference tables

See Resource Center

references

and relative paths

regions

3D bar charts

3D scatter plots

aligning

blank space between

contour plot

copying

deleting

dragging

dragging across documents

equation

graphs

locking

moving

overlapping

polar plots

selecting

separating

surface plot

text

unlocking

vector field plots

viewing

registration

regress function

regression

linear

nonlinear

polynomial

using linear combinations of functions

regression functions

relational operators

relative paths

for hyperlinks

for references

relax function

replacing characters in math or text

resizing

3D bar charts

- 3D scatter plots
- contour plot
- graphs
- pictures
- polar plots
- surface plot
- text regions
- vector field plots
- Resource Center
 - accessing worksheets on Web
 - bookmarks
 - contents
 - QuickSheets
 - reference tables
 - tutorial
 - Web browsing in
 - Web library
- resources, on-line
- result format
 - global
 - local
- results
 - calculating
 - calculating with equations
 - copying
 - dimensions in
- return statement
- reverse* function
- rexp* function
- rF* function
- rgamma* function
- rgeom* function
- rich text format (RTF)
- right page boundary
- right page margin
- rkadapt* function
- rkfixed* function
- rlnorm* function
- rlogis* function
- rnbinom* function
- rnd* function
- rnorm* function
- Romberg integration
- root* function
 - defining user function in terms of
 - displayed in a symbolic result
 - failure of
 - initial guess for
 - secant method and
 - tolerance for numeric approximation
- roots

- finding
- finding multiple with solve blocks
- finding symbolically
- of polynomials
- using plots to find
- rounding off
- row vectors
 - See* vectors
- rows* function
- rpois* function
- rref* function
- rsort* function
- rt* function
- RTF file
 - See also* rich text format
- runif* function
- rweibull* function

S

- sample standard deviation
- sample variance
- Save As dialog box
- saving
 - annotations in Electronic Books
 - Electronic Book section
 - new file
 - worksheets
- sbval* function
- scalar
 - addition
 - definition of
 - division
 - multiplication
- scatter plots
- scatter plots (2D)
- scatter plots (3D)
 - Autoscale
 - back planes
 - borders
 - boxes
 - changing marker formats
 - connecting by lines
 - converting
 - creating
 - formatting
 - formatting axes

- grid intervals
- grid lines
- perspective
- resizing
- setting axis limits
- tick marks
- titles
- Scriptable Object component
 - object model
- scrolling
 - autoscroll
- scrolling output table
 - copying values from
 - setting numerical format for
- search
 - Electronic Book
 - in equations
 - in text
- Search Book command
- search* function
- secant (*sec*) function
- secant method
- sech* function
- second derivatives
 - calculating
 - for spline functions
- second order differential equations
- seed for random number generator
- seeded iteration
 - with a vector
 - with several variables
- selecting
 - graphs
 - math expression
 - pagebreak
 - regions
 - several equations
 - text
- selection rectangle
- semicolon, in range variable definitions
- separating overlapping regions
- series
- series keyword
- Set Lockable Area command
- shading
 - contour plots
 - surface plots
- Shi* function
- Show Border option
- Show Markers
 - graphs
- polar plots
- Si* function
- sigma (summation symbol)
 - for vector
- sign function (complex)
- sign function (real)
- signum* function
- Simplify command
- simplify keyword
- simultaneous definitions
- simultaneous equations
 - solving numerically
- sine (*sin*) function
- sine integral
- singular value decomposition
- singular values of a matrix
- singularities in trig functions
- sinh* function
- slope* function (linear regression)
- smooth systems (differential equations)
- smoothing data
- soft pagebreaks
- solve blocks
 - cannot be nested
 - constraints in
 - defining a function that uses
 - defining variables in terms of
 - definition of
 - did not find solution error
 - displaying results of
 - end with *Find* or *Minerr*
 - expressions allowed in
 - finding multiple solutions
 - finding vector of results
 - Given* in
 - solving for different variables
 - too few constraints in
 - using effectively
 - using to solve symbolically
 - values returned by
- Solve command
- Solve for Variable command
- solve keyword
- solving equations
 - differential equations
 - See also* solve blocks
 - with *lsolve*
 - with *root* function
 - with solve blocks
 - with Solve for Variable
 - with solve keyword

- sort* function
- sorting vectors and matrices
- spaces, inserting or deleting
- spell-checking
- spline functions
 - end conditions for
 - example using
 - multivariate
 - second derivatives for
- spreadsheets
 - ASCII data from
 - exchanging data with
 - reading data from
- square root
 - estimating arithmetically
- stack* function
- stack overflow error
- standard deviation (*stdev*) function
- standard normal distribution
- statistics
 - cubic spline interpolation
 - cumulative distribution functions
 - density functions
 - functions
 - generalized linear regression
 - histograms
 - interpolation
 - inverse cumulative distributions
 - linear interpolation
 - linear prediction
 - linear regression
 - multivariate cubic spline
 - multivariate polynomial regression
 - nonlinear regression
 - polynomial regression
 - random number generation
 - smoothing data
- Stdev* function
- stdev* function
- stem graphs
- step function
- step graph
 - graphs
 - polar plots
- step-size for iteration
- stiffb* function
- stiffc* function
- str2num* function
- str2vec* function
- string expressions
 - See* strings
- string literals
 - See* strings
- strings
 - arguments to file access functions
 - arguments to graphics read/write functions
 - as elements of vectors
 - comparing
 - converting to numbers and vectors
 - defining
 - editing
 - evaluating
 - manipulating
 - variables
- strlen* function
- structured data
- Student's *t* distribution
- styles
 - math
 - text
- submatrix* function
- subroutines
- subscripted variables
 - calculating with
 - entering values in input tables
- subscripts
 - in text
 - last element function
 - left bracket used to type
 - literal
 - non-numeric
 - ORIGIN used with
 - start with zero
 - vector and matrix
 - when to use
- Substitute for Variable command
- substitute keyword
- substr* function
- subtraction
- summation
 - multiple
 - of vector elements
 - symbolic evaluation of
 - variable upper limit
- summations, over a range
- superscript
 - array
 - example of array superscript in use
 - to get column from matrix
- supsmooth* function
- surface plots
 - Autoscale

- back planes
- borders
- boxes
- changing the shading
- changing view
- controlling how bumpy
- converting
- creating
- discontinuous
- formatting
- formatting axes
- grid intervals
- grid lines
- mesh on the surface
- of function of two variables
- parametric
- patch plots
- perspective
- resizing
- setting axis limits
- tick marks
- titles
- vertical scale
- svd* function
- svds* function
- symbolic
 - equal sign
 - evaluation
 - evaluation of programs
 - evaluation returns long answers
 - keywords
 - transforms
- Symbolic Keywords palette
- Symbolics menu commands
- System of Units dialog box
- system of units, choosing

T

- tables
 - input
 - output
 - show only 50 elements
- tangent (*tan*) function
- tanh* function
- Taylor series
- TCP/IP

- technical support
- temperature
- templates
 - calculation mode
 - creating new
 - for math
 - modifying
 - used to save calculation mode
 - using to create a worksheet
- text
 - alignment
 - changing font
 - color
 - cut and paste in
 - deleting
 - editing
 - entering
 - exporting to other programs
 - Greek letters in
 - importing from other programs
 - inserting equations in
 - moving
 - moving insertion point in
 - regions
 - selecting
 - selecting a word
 - spell-checking
 - styles
- text box
- text regions
 - changing width
 - creating
 - editing
 - hard line breaks
 - how to exit
- text styles
 - applying
 - creating
 - modifying
- tick marks
 - 3D bar charts
 - 3D scatter plots
 - contour plots
 - graphs
 - polar plots
 - surface plots
 - vector field plots
- tilde (~), used in global definitions
- time in headers and footers
- time, inserting on a page
- Tip of the Day

- Title page
 - 3D bar chart
 - 3D scatter plots
 - contour plots
 - surface plots
 - vector field plots
- titles
 - 3D bar charts
 - 3D scatter plots
 - contour plots
 - graphs
 - polar plots
 - surface plots
 - vector field plots
- TOL variable
 - used in symbolic calculations
 - used with integrals
 - used with *root* function
 - used with solve blocks
- tolerance
 - See* TOL variable
- too few constraints (error)
- toolbar
 - Electronic Book
 - Web
- top margin
- top-to-bottom evaluation
- trace (*tr*) function
- traces
 - graphs
 - polar plots
- Traces page
 - polar plots
 - X-Y plots
- trailing zeros
- transcendental functions
- transforms
 - Fourier (numerical)
 - Fourier (symbolic)
 - Laplace
 - symbolic
 - wavelet
 - z
- Transpose command
- transpose of matrix
- trig keyword modifier
- trigonometric functions
 - with degrees and radians
- truncation
 - See floor* function
- truncation functions

tutorial
two-point boundary value problems
typing over text

U

- U.S. Customary units
- undefined variables
- uniform distribution
- Uniform Resource Locator
 - See URL
- unit impulse function
- unit step function
- units
 - alphabetical list
 - alternative definitions
 - base units
 - CGS system
 - changing dimension names
 - common sources of error
 - converting calculated results
 - default
 - defining
 - dimensional consistency
 - dimensional values
 - errors in dimensions
 - in calculated values
 - in equations
 - in tables
 - metric
 - MKS system
 - placeholder
 - prefixes
 - SI
 - U.S. customary
- Unlock Area command
- until* function
- update
 - file access functions
 - results in window
 - window manually
 - worksheet
 - worksheet window
- URL
 - Collaboratory
 - for worksheet
 - MathSoft home page

Use Default Palette command

user functions

- array arguments
- defined in terms of *root*
- defined in terms of solve blocks
- errors in
- evaluating variables in
- valid names

V

Var function

var function

variables

- complex
- defining
- defining several at once
- global definitions of
- in red
- matrices
- names
- predefined
- range variables
- string
- substituting for
- vectors

variance function

VBScript

vec2str function

vector field plots

- creating
- formatting
- formatting axes
- from complex matrices
- from real matrices
- grid intervals
- grid lines
- perspective
- resizing
- tick marks
- titles

vector product

vector subscript

vector sum operator

vectorize operator

- effect of
- how to type

properties of

when to use

vectors

- as arguments to user functions
- as array elements
- calculations by element
- column vectors
- combining
- combining with *augment* function
- combining with *stack* function
- computing with
- cross product
- defining
- defining several variables at once
- displayed as scrolling output tables
- dot product
- functions for
- graphing
- limit on size
- magnitude
- norm
- numbering elements
- operators for
- ORIGIN used with
- row
- solve blocks applied to
- sorting elements
- start with element zero
- subscripts
- sum elements of
- sum of elements operator
- undefined elements filled with zeros
- vector arithmetic
- vectorize operator
- when to use subscripts

vertical scale

3D bar charts

surface plots

video clips

View page

3D bar charts

3D scatter plots

contour plots

surface plots

Visual Basic Scripting Edition

W

- W function
- wait message
- wave function
- wavelet transforms
- Web
 - See* World Wide Web
- Web library
- Web toolbar
- Weibull distribution
- while loops
- windows
 - generally
 - multiple
 - scrolling
 - update results automatically
 - update results manually
 - zooming in and out of
- Wizards
 - for inserting a component
- worksheets
 - definition of
 - exporting as RTF
 - formatting
 - hyperlinking
 - in pop-up window
 - including by reference
 - mailing
 - opening
 - opening from Internet
 - order of evaluation
 - posting on the Collaboratory
 - printing
 - referencing in another worksheet
 - removing from the Collaboratory
 - retrieving from the Collaboratory
 - saving
 - saving as Mathcad 6 format
 - sending by e-mail
- World Wide Web
 - accessing
 - bookmarks for browsing
 - browsing
 - Collaboratory
 - HTML browsing
 - library
 - MathSoft home page
 - MathSoft store

- toolbar
- wrapping equations
- WRITE function
- WRITEBMP function
- WRITEPRN function
 - compared to WRITE
- WRITERGB function
- WWW
 - See* World Wide Web

X

- X-Y Plot default dialog box
- X-Y Plot dialog box
 - Axes page
 - Defaults page
 - Labels page
 - Traces page
- X-Y plots
 - data
 - parametric
 - QuickPlot
 - stem
- X-Y Trace dialog box
- X-Y Zoom dialog box

Y

- Y_0 , Y_1 , and Y_n Bessel functions
- y-intercept

Z

- zero tolerance
 - in components
- zeros of expressions or functions
 - See* roots
- Zeta function
- Zoom command

zooming
 graphs
 polar plots

 windows
ztrans keyword
z-transforms