GENERAL PURPOSE FUNCTIONS

MANAGEMENT FUNCTIONS

`demo`	Run demos
`help`	Online help
`helpwin`	Show function categories with links to each category
`lookfor`	Look for keywords in help
`type`	List .m files
`what`	List .m and .mat files from directory
`which`	Locate functions and files

MANAGE VARIABLES AND WORK ENVIRONMENT

`clear`	Delete variables and functions from memory
`disp`	Display variables or text
`length`	Length of a vector
`load`	Load variables
`save`	Saving work environment variables
`size`	Size of an array
`who, whos`	List work environment variables

FILES AND OPERATING SYSTEM

`beep`	Produce a "beep" sound
`cd`	Change the working directory
`delete`	Delete file
`diary`	Saving text from a MATLAB session
`dir`	List the directory
`edit`	Editing an .m file
`!`	Execute operating system command

CONTROL THE COMMAND WINDOW

`clc`	Clear command window
`echo`	Echo commands in the script
`format`	Set output format for `disp`
`home`	Send cursor to "Home".
`more`	Control of paged output

STARTING AND CLOSING MATLAB

`exit`	Close MATLAB
`quit`	Terminate MATLAB
`startup`	Run .m file when starting MATLAB

LOGIC FUNCTIONS

`all`	True if all elements of a vector are true
`any`	True if any element of a vector is true
`exist`	Check if a variable or file exists
`find`	Search for non-zero element indices
`is`	Detect various states
`logical`	Convert numerical values to logical values

LANGUAGE CONSTRUCTION AND DEBUGGING

MATLAB AS A PROGRAMMING LANGUAGE

`error`	Displays an error message
`eval`	Interpret a string containing a MATLAB expression
`feval`	Evaluate a function
`for`	Repeat sentences a specific number of times
`global`	Define a global variable
`if`	Execute statements if a condition is met
`persistent`	Define a persistent variable
`switch`	Switch between several cases
`try`	Start `try` block
`while`	Repeating statements conditionally

INTERACTIVE INPUTS

`input`	Request user input
`keyboard`	Invoke the keyboard as a script file
`menu`	Generate a menu of choices for user input
`pause`	Wait for user response

MATRICES AND MATRIX MANIPULATION

ELEMENTAL MATRICES

`eye`	Identity matrix
`linspace`	Vector with linearly spaced elements
`ones`	Array of ones
`rand`	Array of uniformly distributed random numbers
`randn`	Matrix of random numbers distributed in a normal way
`zeros`	Array of zeros
`:`	Vector with regularly spaced elements

SPECIAL VARIABLES AND CONSTANTS

`ans`	Most recent response
`eps`	Relative floating point accuracy
`i o j`	Imaginary component of complex number
`Inf`	Infinity
`NaN`	Not-a-Number
`nargin, nargout`	Number of arguments of the current function
`pi`	Pi number (3,14159265…)
`realmax`	Highest floating point number
`realmin`	Lowest floating point number
`varargin, varargout`	Return variable numbers from arguments

TIME AND DATE

`calendar`	Calendar
`clock`	Date and time
`date`	Date
`etime`	Elapsed time
`tic, toc`	Stopwatch
`weekday`	Day of the week

MATRIX MANIPULATION

`cat`	Concatenate arrays
`diag`	Create or extract diagonal
`fliplr`	Turn to the right or left
`flipud`	Rotate up or down
`repmat`	Replicating and organizing an array
`reshape`	Change shape
`rot90`	Rotate 90º
`tril`	Remove the lower tridiagonal part
`triu`	Extract the upper tridiagonal part

SPECIALIZED MATRICES

`gallery`	Test matrices
`hilb`	Hilbert Matrix
`magic`	Magic square
`pascal`	Pascal Matrix
`wilkinson`	Wilkinson matrix

MATHEMATICAL FUNCTIONS

`abs`	Absolute value
`acos, acosh`	Inverse cosine and inverse hyperbolic cosine
`acot, acoth`	Inverse cotangent and inverse hyperbolic cotangent
`acsc, acsch`	Inverse cosecant and inverse hyperbolic cosecant
`angle`	Phase angle
`asec, asech`	Inverse secant and inverse hyperbolic secant
`asin, asinh`	Inverse sine and inverse hyperbolic sine
`atan, atanh`	Inverse tangent and inverse hyperbolic tangent
`atan2`	Inverse tangent (fourth quadrant)
`Bessel`	Bessel function
`ceil`	Round up
`conj`	Complex conjugate
`cos, cosh`	Hyperbolic cosine and cosine
`cot, coth`	Cotangent and hyperbolic cotangent
`csc, csch`	Cosecant and hyperbolic cosecant
`erf`	Error function
`exp`	Exponential
`fix`	Round to zero
`floor`	Round down
`gamma`	Gamma function
`imag`	Imaginary part
`log`	Logarithm
`log2`	Logarithm in base 2
`log10`	Logarithm in base 10
`mod`	Module
`rat`	Rational approach
`real`	Real part
`rem`	Remainder of a division
`round`	Round to the nearest integer
`sec, sech`	Secant and hyperbolic secant
`sign`	Sign function
`sin, sinh`	Hyperbolic sinus and sine
`sqrt`	Square root
`tan, tanh`	Tangent and hyperbolic tangent

MATRIX FUNCTIONS

`det`	Determinant
`eig`	Vector, eigenvalue and eigenspace
`expm`	Matrix exponential
`inv`	Inverse matrix
`poly`	Characteristic polynomial
`rank`	Number of independent columns and rows
`rcond`	Conditional estimator
`trace`	Sum of diagonal elements
`{} \ y /`	Solution of linear equation

DATA ANALYSIS

`cumprod`	Cumulative product
`cumsum`	Cumulative sum
`diff`	Differentiation function
`fft`	One-dimensional Fast Fourier transform
`max`	Maximum value
`mean`	Mean value
`median`	Median
`min`	Minimum value
`prod`	Product of the elements
`sort`	Sort in ascending order
`std`	Standard deviation
`sum`	Sum of elements
`trapz`	Trapezoidal standard for numerical integration

POLYNOMIAL FUNCTIONS

`polyfit`	Fitting polynomial data
`polyval`	Evaluate polynomial
`roots`	Finding roots of a polynomial

FUNCTION FUNCTIONS

`bvp4c`	Solve two-point value problems in ODEs
`fmin`	Minimize function of a variable
`fmins`	Minimize function of several variables
`fzero`	Finding the zero of a function of one variable
`ode23, ode23s, ode45`	Solve initial value problems in ODEs
`quad`	Numerical integration

SPARSE MATRIX FUNCTIONS

`full`	Convert sparse matrix to full matrix
`sparse`	Construct sparse matrix
`spy`	Display sparse matrix

TEXT VARIABLE FUNCTIONS

`char`	ASCII code characters
`double`	ASCII character codes
`lower`	Convert string to lowercase
`sprintf`	Write formatted data to string
`str2mat`	Convert string to array
`strcat`	Concatenate strings
`strcmp`	Compare strings
`upper`	Convert string to uppercase

FILE INPUT AND OUTPUT FUNCTIONS

`fclose`	Clos .m files
`feof`	Test for end of file
`fopen`	Open file or get information about a file
`fprintf`	Write data to file
`fread`	Read binary data from file
`fscanf`	Read data with file format
`fseek`	Set file position indicator
`ftell`	Receive file position indicator
`fwrite`	Write binary data to file

GRÁFICAS

2D

`bar`	Bar graph
`grid`	Grid lines
`hist`	Histogram
`loglog`	Logarithmic plot on the two axes
`plot`	Lineal plot
`polar`	Graph with polar coordinates
`semilogx`	Semilogarithmic graph on the X-axis
`semilogy`	Semilogarithmic graph on the Y-axis
`text`	Text anotation
`title`	Graph title
`xlabel`	Title on the X-axis
`ylabel`	Title on the Y-axis
`zoom`	Zoom in

3D

`clabel`	Contour elevation labels
`comet3`	Animated 3D graphic
`contour`	2D contour plot
`contour3`	3D contour plot
`mesh`	3D mesh
`meshc`	3D mesh with graph contour
`meshgrid`	2D mesh
`plot3`	3d plot
`quiver`	Quiver graphic
`surf`	Shaded surface
`surfl`	Shaded area with illumination
`view`	Rotate 3D figure
`zlabel`	Title on the Z-axis

GENERAL

`axes`	Create object on axes
`axis`	Control scale and appearance of axes
`cla`	Delete axes
`clf`	Delete current graphic
`colorbar`	Show color bar
`colormap`	Set color map
`drawnow`	Complete any pending drawing
`figure`	Create figure window
`fplot`	Graph of a function
`gca`	Handle current axes
`gcf`	Manage current figure
`gco`	Return graphic object handling
`get`	Graphic object properties
`ginput`	Graphical input from mouse or cursor
`gtext`	Text placement with mouse
`set`	Set graphic object properties
`subplot`	Create mosaic axes