

## Summary of Characters, Commands and Function

(adapted from Appendix, Gilat's MATLAB: An Introduction with Applications, 5th Edition)

### Characters and arithmetic operators

+	Addition.
–	Subtraction.
*	Scalar and array multiplication.
.*	Element-by-element multiplication of arrays.
/	Right division.
\	Left division (for solving system of linear equations).
./	Element-by-element right division.
^	Exponentiation.
.^	Element-by-element exponentiation.
:	Colon; creates vectors with equally spaced elements, represents range of elements in arrays.
=	Assignment operator.
( )	Parentheses; sets precedence, encloses input arguments in subscripts of arrays.
[ ]	Brackets; forms arrays. encloses output arguments in functions.
,	Comma; separates array subscripts and function arguments
;	Semicolon; suppresses display, ends row in array.
'	Single quote; matrix transpose, creates string.
...	Ellipsis; continuation of line.
%	Percent; denotes a comment

### Managing commands

clc	Clears the Command Window.
clear	Removes all variables from the memory.
clear x y z	Removes variables x, y, and z from the memory.
close	Closes the active Figure Window.
help	Displays help for MATLAB functions.
lookfor	Search for specified word in all help entries.
pause	Pauses command window output until user presses a key.
who	Displays variables currently in the memory.
whos	Displays information on variables in the memory.

### Predefined variables:

ans	Value of last expression.
eps	The smallest difference between two numbers.
i	square root of negative one.
inf	Infinity.
j	Same as i.
NaN	Not a number.
pi	The number $\pi$ .

### Display formats in the Command Window

format bank	Two decimal digits.
format compact	Eliminates empty lines.
format long	Fixed-point format with 14 decimal digits.
format short	Fixed-point format with 4 decimal digits.

### Elementary math functions

abs	Absolute value.
exp	Exponential.
log	Natural logarithm.
log10	Base 10 logarithm.
nthroot	Real nth root or a real number.
sqrt	Square root.

### Trigonometric math functions

acos	Inverse cosine.
cos	Cosine.
asin	Inverse sine.
sin	Sine.
atan	Inverse tangent.
tan	Tangent.

### Creating arrays

eye	Creates an identity matrix.
linspace	Creates equally spaced vector.
ones	Creates an array with ones.
rand	Creates an array with random numbers.
zeros	Creates an array with zeros.

### Handling arrays

length	Number of elements in the vector.
size	Size of an array.

### Array functions

det	Calculates determinant.
inv	Calculates the inverse of a square matrix.
max	Returns maximum value.
mean	Calculates mean value.
min	Returns minimum value.
sort	Arranges elements in ascending order.
std	Calculates standard deviation.
sum	Calculates sum of elements.

### Input and output

disp	Displays output.
input	Prompts for user input.

### Two-dimensional plotting

hist	Creates a histogram.
plot	Creates a plot.

### Formatting plots

axis	Sets limits to axes.
text	Adds text to a plot.
title	Adds title to a plot.
xlabel	Adds label to x axis.
ylabel	Adds label to y axis.