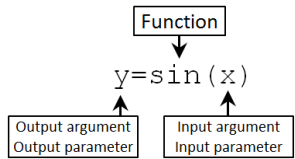
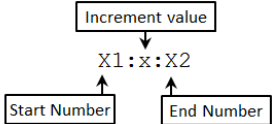
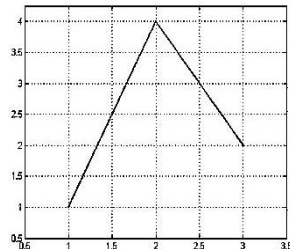
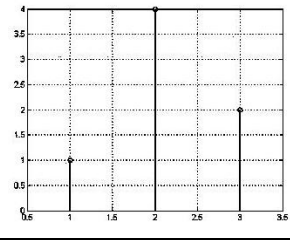
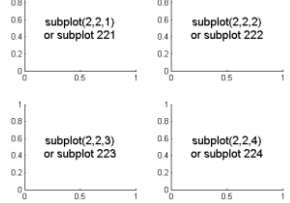
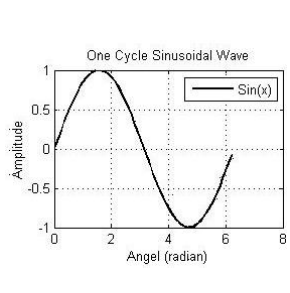


MATLAB Basic Commands

e.g #	Command	Usage	Example		Notes
			Command	Result	
1	+	Addition	3+4	7	In case of matrix addition or subtraction, both matrices have to have same dimensions
			[1 2 3]+[4 5 6]	[5 7 9]	
	-	Subtraction	7-3	4	
2	*	• Unary Multiplication	2*4	8	<ul style="list-style-type: none"> (1 × 4) + (2 × 5) + (3 × 6) = 32 For more info about the brackets [], See example # 7 Refer to Matrices multiplication for more information
		• Matrix Multiplication	[1 2 3] * [4 5 6]	32	
3	/	Division	8/2	4	You can use the brackets () as (2+3)^2/5
4	^	Power (exponent)	2^3	8	
5	=	• Assign a value to a variable	a=10 b=3+2 My_var=a/b	a=10 b=5 My_var=2	<ul style="list-style-type: none"> Wherever you enter the variables (a or b or My_var) in your code, they will represent their values. You can name the variable by any name, but be aware that variables are case sensitive and have some restrictions, so any mismatch will cause an error.
6	sin () cos ()	trigonometric functions	y=sin(0) y2=sin(pi/2) y3=cos(0)	y=0 y2=1 y3=1	 <ul style="list-style-type: none"> The input argument has to be in radian pi is a constant equal to π
7	[]	Define a new matrix	MyMatrix= [2 5 3]	MyMatrix= [2 5 3]	<ul style="list-style-type: none"> Here we defined a matrix named MyMatrix has 1 row and 3 columns . You can use space to separate between matrix's element
8	,	Define a new columns	MyMatrix= [2,5,3]	MyMatrix= [2 5 3]	Same as the previous example but here we used comma instead of space
9	;	• Define a new row	MyMatrix=[1,2,3;4,5,6;7,8,9]	MyMatrix= $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$	<ul style="list-style-type: none"> you can use enter instead as MyMatrix=[1 2 3 4 5 6 7 8 9] It's very useful to boost the speed of your code's execution as well as to avoid redundant outcomes
		• Used at the end of command line to avoid presenting the outcome in command window	A=[1 2];	Nothing will appear in command window, but the matrix A will be defined.	
10	:	Create a vector of serial numbers	1:5	[1 2 3 4 5]	
11	: :	Create a vector with certain increment step	1:2:9	[1 3 5 7 9]	
			a=-0.6; b=0; c=0.2; a:c:b	[-0.6 -0.4 -0.2 0]	
12	'	Matrix transpose. i.e. change the rows to be columns and vice versa	[1 2 3]'	$\begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$	It can be used after matrix's name e.g. MyMatrix' i.e. in all examples you can use the matrix's name instead of matrix itself
			[1 2 ; 3 4]'	$\begin{bmatrix} 1 & 3 \\ 2 & 4 \end{bmatrix}$	
13	.*	Array Multiplication	[1 2 3].*[3 4 5]	[3 8 15]	In array multiplication each element in the matrix is multiplied by the corresponding one in the other matrix, thus the dimensions both matrices must agree.
14	.^	Array Power	[1 2 3].^2	[1 4 9]	You can use also 2.^[2 3 4]

e.g #	Command	Usage	Example		Notes
			Command	Result	
15	(,)	Used after the matrix's name to return a specific element in that matrix	A= [3 4 5 7 3 4 2 1 5]; A(3,2)	1	Return the element in row number 3 and column number 2 in the matrix A
16	max () min ()	Find the maximum and minimum values	x=[2 5 10 4]; max(x) min(x)	10 2	<ul style="list-style-type: none"> Many useful ways to use max () and min () . See MATLAB help
17	sum ()	Gives the addition result	sum([1 5 3]) A=[1 2 3; 4 5 6]; sum (A)	9 [5 7 9]	<ul style="list-style-type: none"> It can be used as an integral In case of matrix has more than one row, it adds each column's elements separately.
18	find ()	Find elements that satisfy a certain condition and return its index	A=[1 4 6]; C1=find(A>4) A(C1) C2=find(A>1 & A<6) A(C2)	C1=3 6 C2=2 4	<ul style="list-style-type: none"> The condition A>4 i.e. all elements in the matrix A greater than 4. & means both conditions have to be satisfied. Use MATLAB help to find more info.
19	%	Comment	% add any comment % or explanation % for your code	No execution will be carried out, any command or line begin with % will be ignored	Note that each (%) will eliminate anything on its right for one line only. i.e. if your comments are more than one line you have to add % for each line as in this example.
20	Plot(x,y)	Locate a point in the coordinates x and y on xy plane and connect them with a straight line	x=[1 2 3]; y=[1 4 2]; Plot(x,y)		<ul style="list-style-type: none"> You can change the color of the curve and the line's width, many properties can be found in MATLAB help To add title and labels for the axes see example
21	stem ()	Same as plot but without connecting the points with each other	x=[1 2 3]; y=[1 4 2]; stem(x,y)		It is useful to represent an impulse response of a system
22	Subplot(m,n,p)	To add subplots to a figure. i.e. divide the figure plane into subplots	Subplot(2,1,1)		Type this command before the plot command, because this command just creates a new subplot, and make it as the current plot plane. Learn more about it in MATLAB help
23	' '	Defined a string (text) variable i.e. As letters not numbers	x=[0:0.1:2*pi]; y=sin(x); plot(x,y);		<ul style="list-style-type: none"> All of these properties can be used in any figure either you used plot or stem or any MATLAB plotting commands. To change the curve's color of width, search for plot in MATLAB help
	legend('txt')	Add text to depicts the curve	title('One Cycle Sinusoidal Wave')		
24	xlabel('txt') ylabel('txt')	Add labels to x and y axes	legend('Sin(x)');		
25	title('txt')	Add title to the current plot	xlabel('Angel (radian)')		
26	grid	Show the grid of the plot	ylabel('Amplitude')		

- In all above examples we can use the matrix's name instead of the matrix itself.
- Whenever you want to know more about any symbol, operation, or function, type in the command window "help" followed by the symbol or the name of the command that you want to know more about it. Alternatively, select the required word and then press "F1" to give you a quick help. Also you can use "lookfor" in command to search for any MATLAB command.