Plotting in Matlab

Steps to follow to plot any given function f(t)= cos(2πt/3):

1. Generate uniform samples of time t covering the function domain to be plotted. Choose suitable values so that the function displays the way you like

```
>> T= -10:0.1:10;        % array of values between -10 and
10 with step 0.1
```

2. Evaluate the value of the given function f(.) for all values of time.

```
>> f= cos(2*pi*T/3);
```

3. Use 'plot' function to graph the computed values of f(.) vs. their time values.

```
>> plot(T,f)                          % plot f vs. T
>> grid on                            % display grid on plot
>> xlabel ('Time')                    % add an x-axis label
>> ylabel ('My Function')             % add a y-axis label
>> title('my function plot')          % display a graph title
>> axis([-5 5 -0.5 0.5])              % limit range of x and y
```

figure(N)	Generate a new figure window N
plot	Plot on a linear scale
semilogx, semilogy	Plot on a semi-log scale for x or y
loglog	Plot in log scale for both x and y
grid	Display a grid on plot
xlabel, ylabel	Add x or y axis label
title	Add a title to the graph
axis	Limit range of x and y
hold	Hold current graph
subplot	Divides Figure window into a matrix of small figures
stem	Discrete sequence or "stem" plot

Branching and Looping

if expression statements **elsif** expression statements **else** statements **end**	Conditionally execute statements
for variable = expr statements end	Repeat statements a specific number of times
while expression statements **end**	Repeat statements an indefinite number of times

Symbolic Math

sym, syms	construct symbolic objects
diff	Differentiate symbolic expression
int	Integrate symbolic expression
dirac	Dirac-delta function
heaviside	Heaviside unit step function
laplace	Laplace transform
ilaplace	Inverse laplace transform
fourier	Fourier transform
ifourier	Inverse Fourier transform
ztransform	Z transform
iztransform	Inverse Z transform
ezplot	Plot symbolic expression
eval	Evaluate symbolic expression

Useful Matlab Utilities

tic, toc	Measure time in seconds between tic and toc
save ('filename','var1','var2',…)	Save workspace variable to file
load('filename')	Load workspace variables from file
save thissession	Save all variables in present session
load thissession	Loads all variables saved in 'thissession'