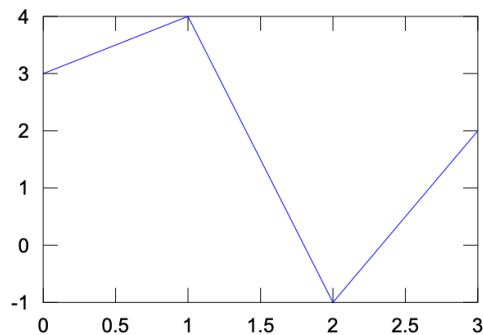


Octave Plotting - Part 01

1. Basic Plots

If x is a vector of 10 'x'-coordinates and y is a vector of '10' y-coordinates, then `plot(x,y)` plots 10 points where the x-coordinates come from the 'x' vector and the y-coordinates come from the 'y' vector. The points are connected with straight lines.

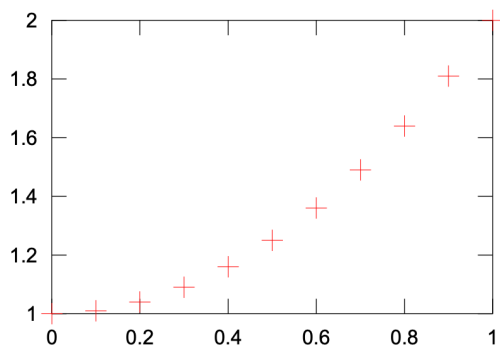
```
> x=[0,1,2,3];  
> y=[3,4,-1,2];  
> plot(x,y)
```



2. Properties of plots

The plot command allows you to specify certain properties of the graph. (we'll Line Styles, Marker Symbols, and Colors in the next Lab Session Octave Plotting Part 02)

```
> x=[0:0.1:1];  
> y=1+x.^2;  
> plot(x,y,'r+') [ r - red (Color) , + - Plus Sign (Marker Symbol) ]
```

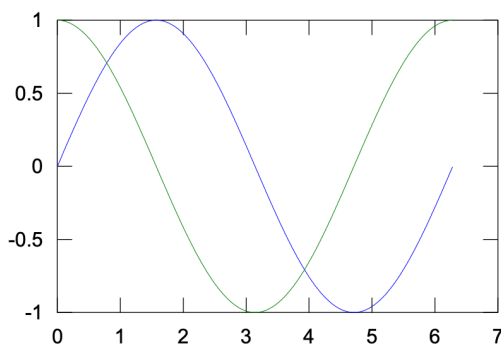




3. Plotting more than one graph

You can plot more than one graph at once with the plot command. Just specify each x and y coordinate vector.

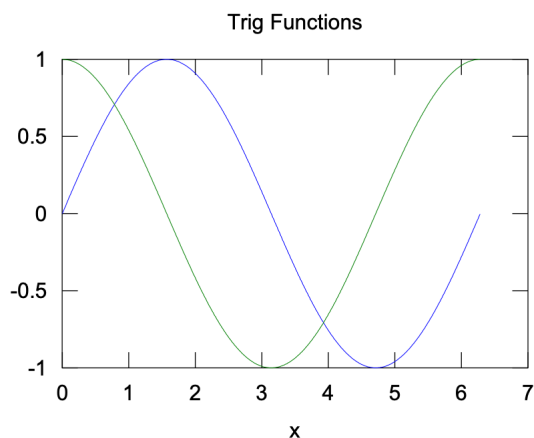
```
> x=[0:0.01:2*pi];  
> plot(x,sin(x),x,cos(x))
```



4. Labels

It can be helpful to add some text labels to a plot.

```
octave-3.2.3:66> plot(x,sin(x),x,cos(x))  
octave-3.2.3:67> title('Trig Functions')  
octave-3.2.3:68> ylabel('y')  
octave-3.2.3:69> xlabel('x')
```

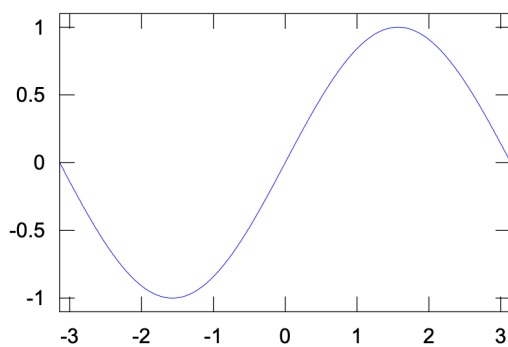




5. Miscellaneous

You might want to adjust the viewing region of a plot. Use `axis([xmin,xmax,ymin,ymax])`.

```
> x=[-pi:0.01:pi];  
> plot(x,sin(x))  
> axis([-pi,pi,-1.1,1.1])
```



- Generate **scatter plots** in Octave

```
Ex : x=[0:0.1:1];  
      y=1+x.^2;  
      scatter (x,y)
```

- Generate **histograms** in Octave

```
Ex: x=[0:1:10];  
     y=1+x*2;  
     hist (x,y)
```

- Generate **stem plots** in Octave

```
Ex : x=[0:1:10];  
      y=1+x*2;  
      stem (x,y)
```



Exercise

1. Draw a plot for x ranging from 1:50 and y ranging from 1:50. The equation should include the results of the power of y (Note: $y = y.^2$)
2. Draw a scatter plot for x and y where the, x ranging from 10:50 and y ranging from 10:50. The equation should include the results of the power of y (Note: $y = y.^5$)
3. Draw a scatter plot for x and y where the, x ranging from 10:20 and y ranging from 10:20. (Note : $y = y.^{-2}$)
4. Create x as a vector of linearly spaced values between 0 and 2π . Use an increment of $\pi/100$ between the values. Create y as sine values of x. Create a line plot of the data.
5. Define x as 100 linearly spaced values between -2π and 2π . Define y1 and y2 as sine and cosine values of x. Create a line plot of both sets of data.
6. Create a variable that has random numbers from (1 to 5). Then generate a histogram for the variable. hint:- use the function rand() and hist ()
7. Create a variable that has random numbers generated in between (1,5), create a stem plot in octave for the above-generated variables.