

## How to use MATLAB or FREEMAT to Make a Two-Dimensional Plot

To make a two-dimensional plot of a given set of data, e.g.,

$$x = [x_1, x_2, \dots, x_n] \text{ and } y = [y_1, y_2, \dots, y_n]$$

use the following code:

```
x = [x1 x2 ... xn];  
y = [y1 y2 ... yn];  
plot(x, y, 'line color', x, y, 'color and symbol for data')  
title('Title to be placed at top of plot')  
xlabel('Label to be placed on x axis')  
ylabel('Label to be placed on y axis')
```

Row vector **x** is assigned the values of the independent variable – the data that is plotted in the x-axis direction. Row vector **y** is assigned the values of the dependent variable, and plotted in the y-axis direction. The data is plotted twice: once with straight-line segments connecting the data points together, and again with symbols identifying the individual data points. A title, x-axis label, and y-axis label are also added.

### **Example 1:**

The following data was measured for a parallel resonant circuit:

Frequency (Hz)	Voltage (V)
500	0.0750
1000	0.1497
2000	0.3040
3000	0.5412
4000	0.6532
5000	0.7348
5200	0.7292
6000	0.7217
7000	0.6557
8000	0.5687
9000	0.5103
10000	0.4478

A plot of this data may be generated as follows:

```
x=[0.5 1 2 3 4 5 5.2 6 7 8 9 10];  
y=[0.0750 0.1497 0.3040 0.5412 0.6532 0.7348 ...  
    0.7292 0.7217 0.6557 0.5687 0.5103 0.4478];  
plot(x,y,'b', x,y,'r+')  
title('Voltage vs. Frequency')  
xlabel('f (kHz)')  
ylabel('V (rms volts)')
```

The FREEMAT result is shown below.



