

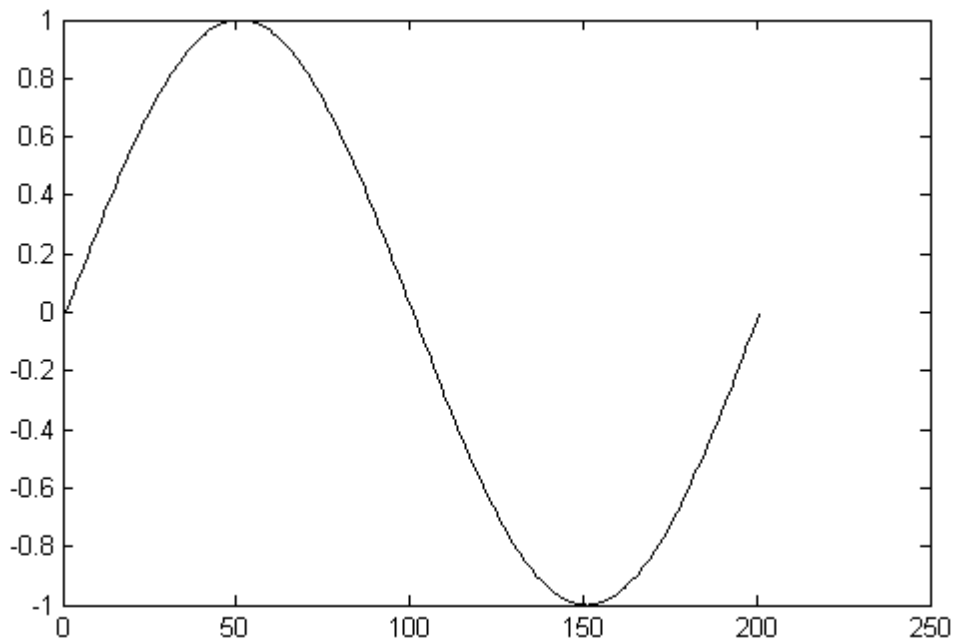
Plotting Function:

MATLAB has extensive facilities for displaying vectors and matrices as graphs, as well as annotating and printing these graphs.

Creating a Plot Using Plot Function:

The plot function has different forms, depending on the input arguments. If y is a vector, `plot(y)` produces a piecewise linear graph of the elements of y versus the index of the elements of y . If you specify two vectors as arguments, `plot(x,y)` produces a graph of y versus x . For example, these statements use the colon operator to create a vector of x values ranging from zero to 2π , compute the sine of these values, and plot the result.

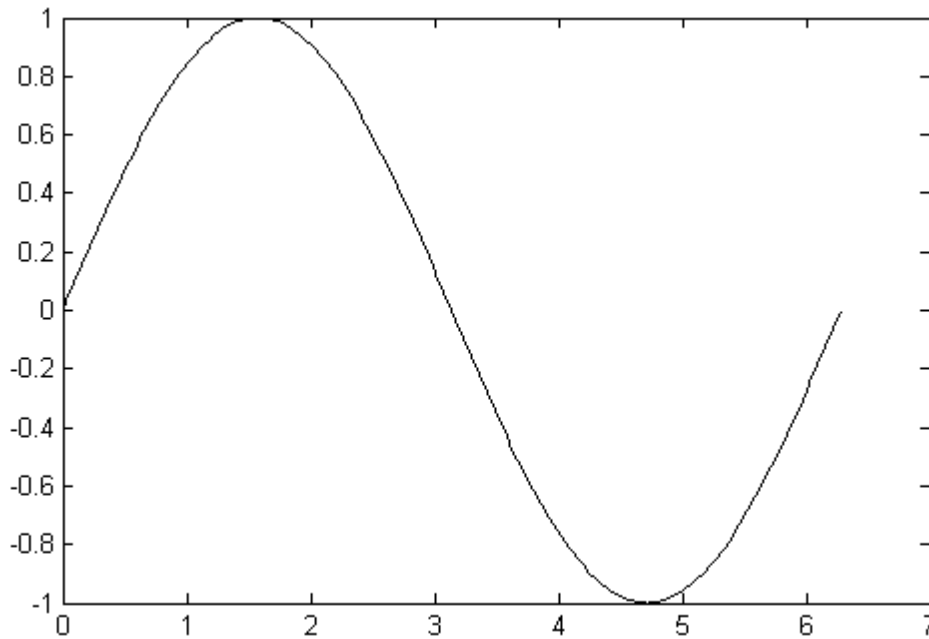
```
x = 0:pi/100:2*pi;  
y = sin(x);  
plot(y)
```



Now plot y variable by using:

`plot(x,y)`

can you see the difference at x-axis



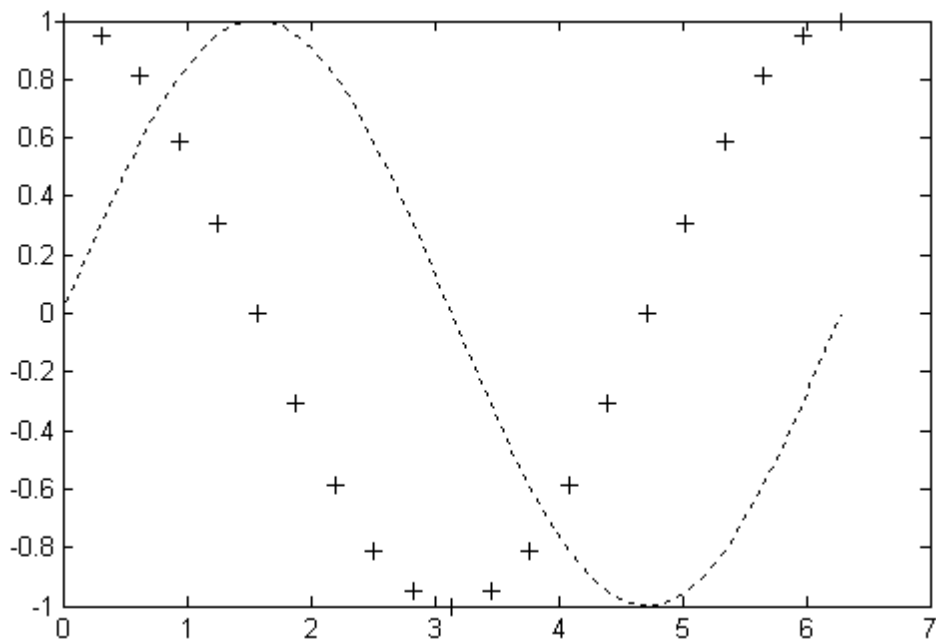
Specifying Line Styles and Colors:

Various line types, plot symbols and colors may be obtained with `plot(x,y,s)` where `s` is a character string made from one element from any or all the following 3 columns:

Color		Marker		Line Style	
b	blue	.	point	-	solid
g	green	o	circle	:	dotted
r	red	x	x-mark	-.	dashdot
c	cyan	+	plus	--	dashed
m	magenta	*	star	(none)	no line
y	yellow	s	square		
k	black	d	diamond		
		v	triangle (down)		
		>	triangle (left)		
		p	pentagram		
		h	hexagram		

Example:

```
x1 = 0:pi/100:2*pi;
x2 = 0:pi/10:2*pi;
plot(x1, sin(x1), 'r:', x2, cos(x2), 'r+')
```

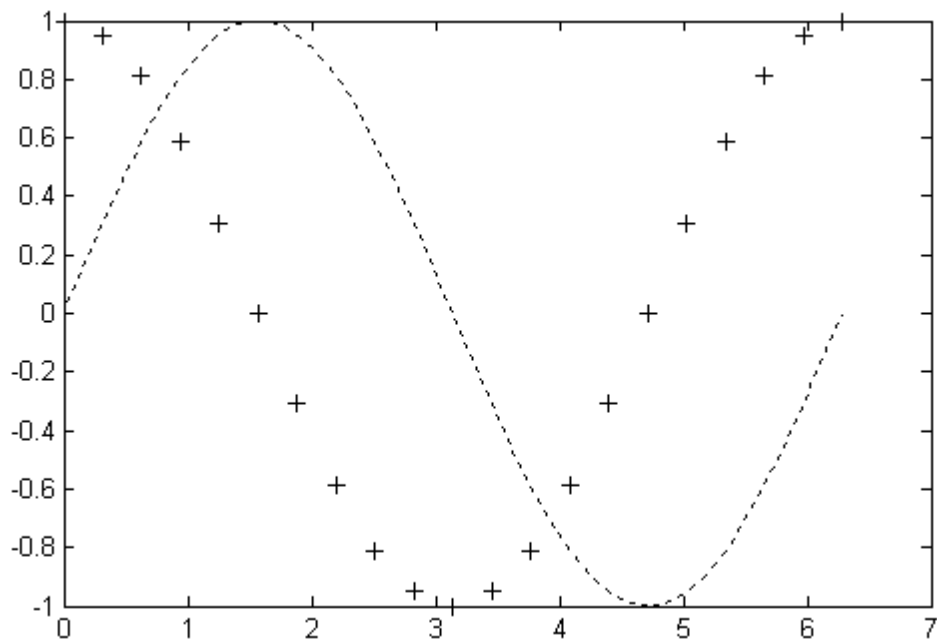


Adding Plots to an Existing Graph:

The hold command enables you to add plots to an existing graph. When you type hold on MATLAB does not replace the existing graph when you issue another plotting command; it adds the new data to the current graph, rescaling the axes if necessary.

Example:

```
x1 = 0:pi/100:2*pi;  
x2 = 0:pi/10:2*pi;  
plot(x1, sin(x1), 'r:')  
hold on  
plot(x2, cos(x2), 'r+')
```



Multiple Plots in One Figure:

The subplot command enables you to display multiple plots in the same window or print them on the same piece of paper. Typing

```
subplot (m, n, p)
```

partitions the figure window into an m-by-n matrix of small subplots and selects the pth subplot for the current plot. The plots are numbered along first the top row of the figure window, then the second row, and so on. For example, these statements plot data in four different sub regions of the figure window.

```
t = 0:pi/10:2*pi;  
x=sin(t); y=cos(t); z= 2*y-3*x; v=5-z;  
subplot (2,2,1); plot(x)  
subplot (2,2,2); plot(y)  
subplot (2,2,3); plot(z)  
subplot (2,2,4); plot(v)
```

