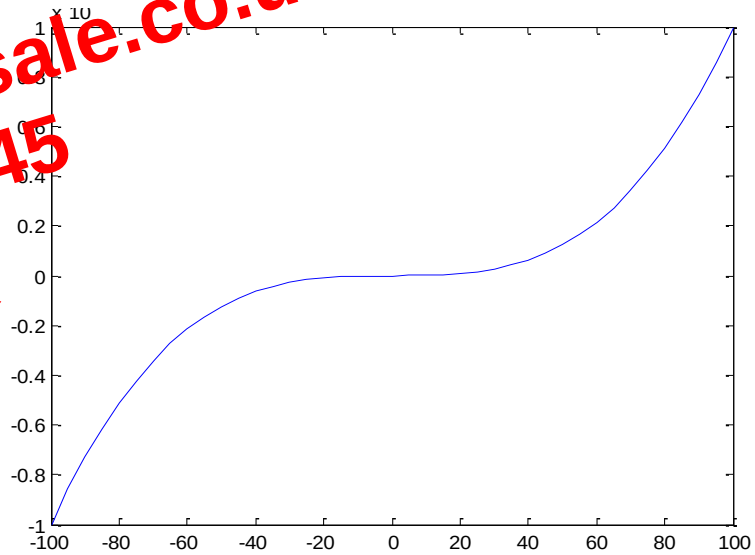
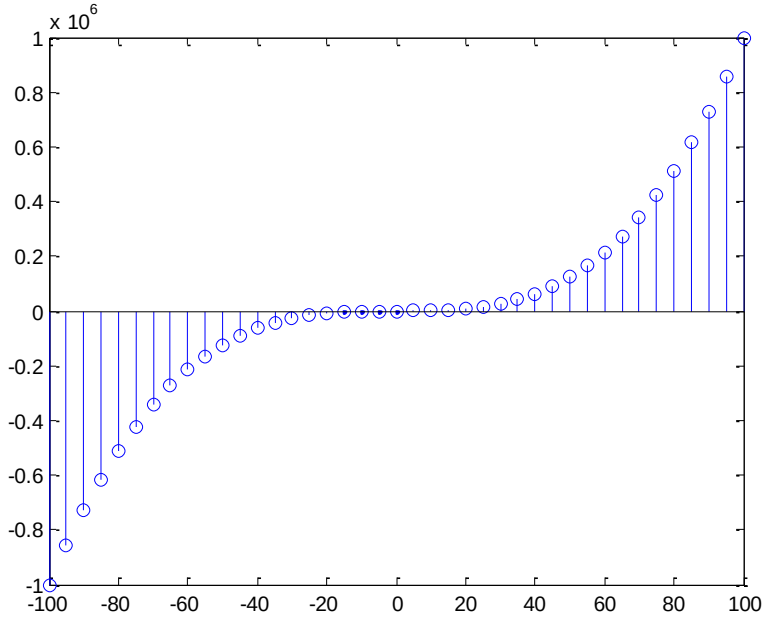
Change the code file a little, reduce the increment to 5:


```
>> x=[-100:5:100];
>> y=x.^3;
>> plot(x,y)
>> stem(x,y)
```





NOTE:

If the length of the increments are small, then curve will be more smoother.

Adding Title, Labels, Grid Lines and Scaling on the Graph

MATLAB allows you to add title, labels along the x-axis and y-axis, grid lines and also to adjust the axes to spruce up the graph.

- The **xlabel** and **ylabel** commands generate labels along x-axis and y-axis.
- The **title** command allows you to put a title on the graph.
- The **grid on** command allows you to put the grid lines on the graph.
- The **axis equal** command allows generating the plot with the same scale factors and the spaces on both axes.
- The **axis square** command generates a square plot.

SUB PLOTS

Generating Sub-Plots

When you create an array of plots in the same figure, each of these plots is called a subplot. The **subplot** command is for creating subplots.

Syntax for the command is:

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

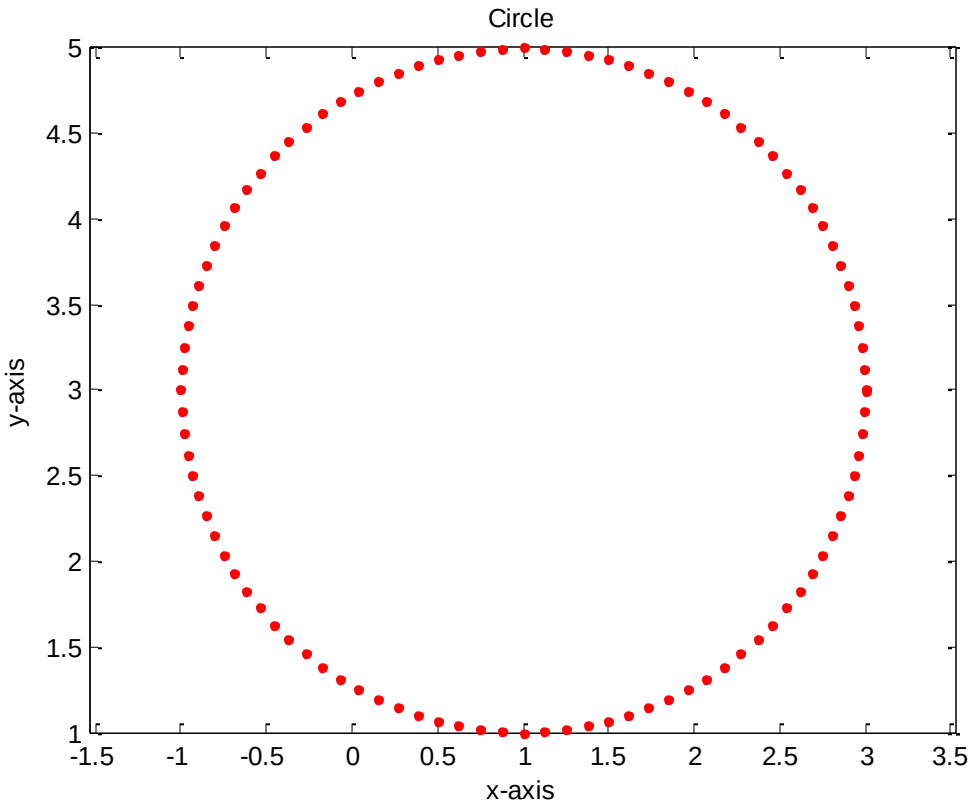
where, *m* and *n* are the number of rows and columns of the plot array and *p* specifies where to put a particular plot.

Each plot created with the subplot command can have its own characteristics. Following example demonstrates the concept:

2D PLOTS

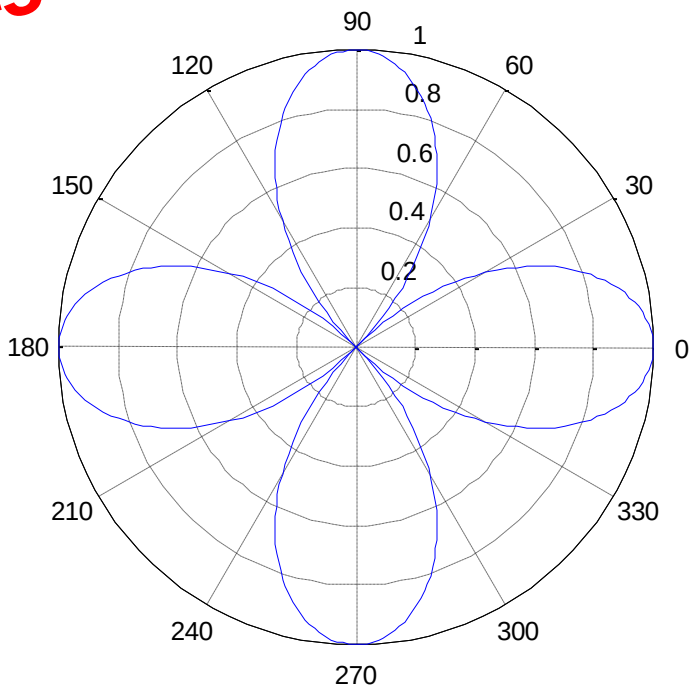
To draw a circle with centre (1, 3)


```
clc
clear all
t = linspace(0, 2*pi, 101);
x = 1 +2*cos(t);
y = 3 +2*sin(t);
plot(x,y,'r.')
axis equal
xlabel('x-axis')
ylabel('y-axis')
title('Circle‘)
```



POLAR PLOTS

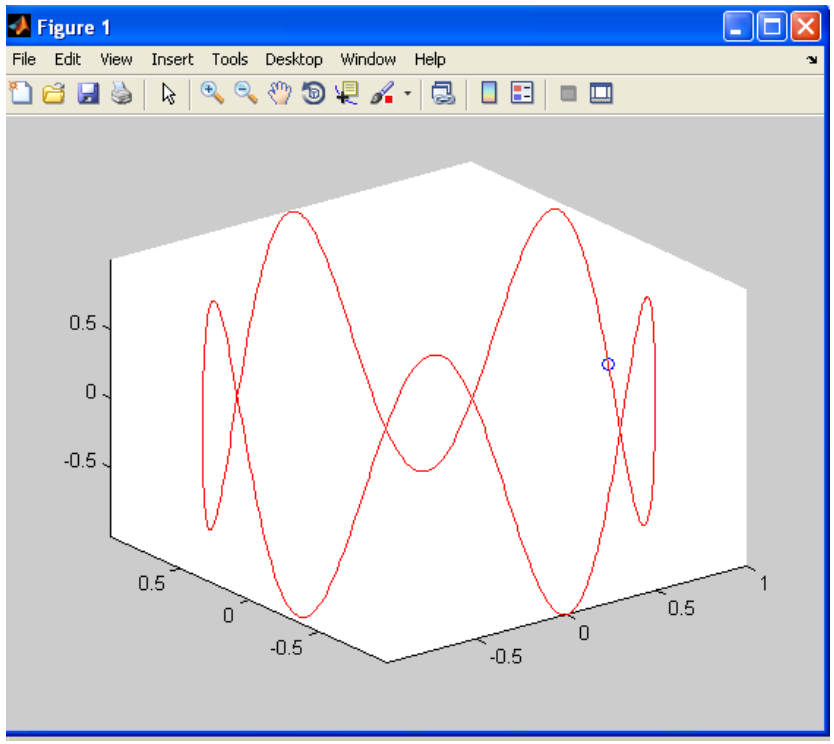

```
>> syms theta
>> ezpolar(cos(2*theta))
```



r = cos(2 θ)

3D PLOTS


```
t=linspace(0,2*pi,500);
x=cos(t);
y=sin(t);
z=sin(5*t);
xlabel('x-axis');
ylabel('y-axis');
zlabel('z-axis');
title('3D Curve');
comet3(x,y,z);
plot3(x,y,z);
```



3D PLOTS


```
[x,y] = meshgrid(-2:.2:2);
g = x .* exp(-x.^2 - y.^2);
surf(x, y, g)
```