**Experiment-3**

**Aim:** To plot various functions

1. Circle
2. Parabola
3. Ellipse
4. Trigonometric functions
5. Using subplots
6. Three circles and straight lines connected to their centres

**Codes:**

**a)Circle:**

clc

r=0:0.01:2\*pi;

a=2;

x=a.\*cos(r);

y=a.\*sin(r);

plot(x,y)

%labeling

xlabel('x-axis')

ylabel('y-axis')

title('121285')

grid on

**b)Parabola**

clc

x=[-2:0.01:2];

y=x.\*x;

plot(x,y)

%labeling

xlabel('x-axis')

ylabel('y-axis')

title('121285')

grid on

**c)Ellipse:**

clc

r=[0:0.01:2\*pi];

a=1;

b=5;

x=a\*cos(r);

y=b\*sin(r);

plot(x,y)

%labeling

xlabel('x-axis')

ylabel('y-axis')

title('121285')

grid on

**d)Trigonometric function: (sine wave)**

clc

t=[0:0.01:10];

x=4\*sin(2\*pi.\*t);

plot(t,x)

%labeling

xlabel('x-axis')

ylabel('y-axis')

title('121285')

**e)Subplots:**

clc

t=[0:0.01:10];

a=[0:0.01:2\*pi];

x=4\*sin(2\*pi.\*t);

%subplot for sine

subplot(2,2,1)

plot(t,x)

%labeling

xlabel('x-axis')

ylabel('y-axis')

title('sine wave')

%subplot for circle

x=cos(a);

y=sin(a);

subplot(2,2,2)

plot(x,y)

%labeling

xlabel('x-axis')

ylabel('y-axis')

title('circle')

%subplot for ellipse

b=2;

c=6;

x=b\*cos(a);

y=c\*sin(a);

subplot(2,2,3)

plot(x,y)

%labeling

xlabel('x-axis')

ylabel('y-axis')

title('ellipse')

%subplot for parabola

x=[-2:0.01:2];

y=x.\*x;

subplot(2,2,4)

plot(x,y)

%labeling

xlabel('x-axis')

ylabel('y-axis')

title('parabola')

**f)Three circles and straight lines connected to their centres**

clc

a=[0:0.01:2.\*pi];

x=cos(a);

y=sin(a);

plot(x,y)

%labeling

xlabel('x-axis')

ylabel('y-axis')

title('121285')

hold on

b=[0:0.01:5.\*pi];

c=5

x=cos(b)-c;

y=sin(b)-c;

plot(x,y)

hold on

b=[0:0.01:2.\*pi];

c=5

x=cos(b)+c;

y=sin(b)-c;

plot(x,y)

hold on

m=1;

x=[0 -5];

y=m.\*x;

plot(x,y)

hold on

m=-1;

x=[5 0];

y=m.\*x;

plot(x,y)

hold on

m=0;

x=[-5 5];

y=m\*5;

plot(x,y)