MATLAB EXPERIMENT-1

20BCE1209

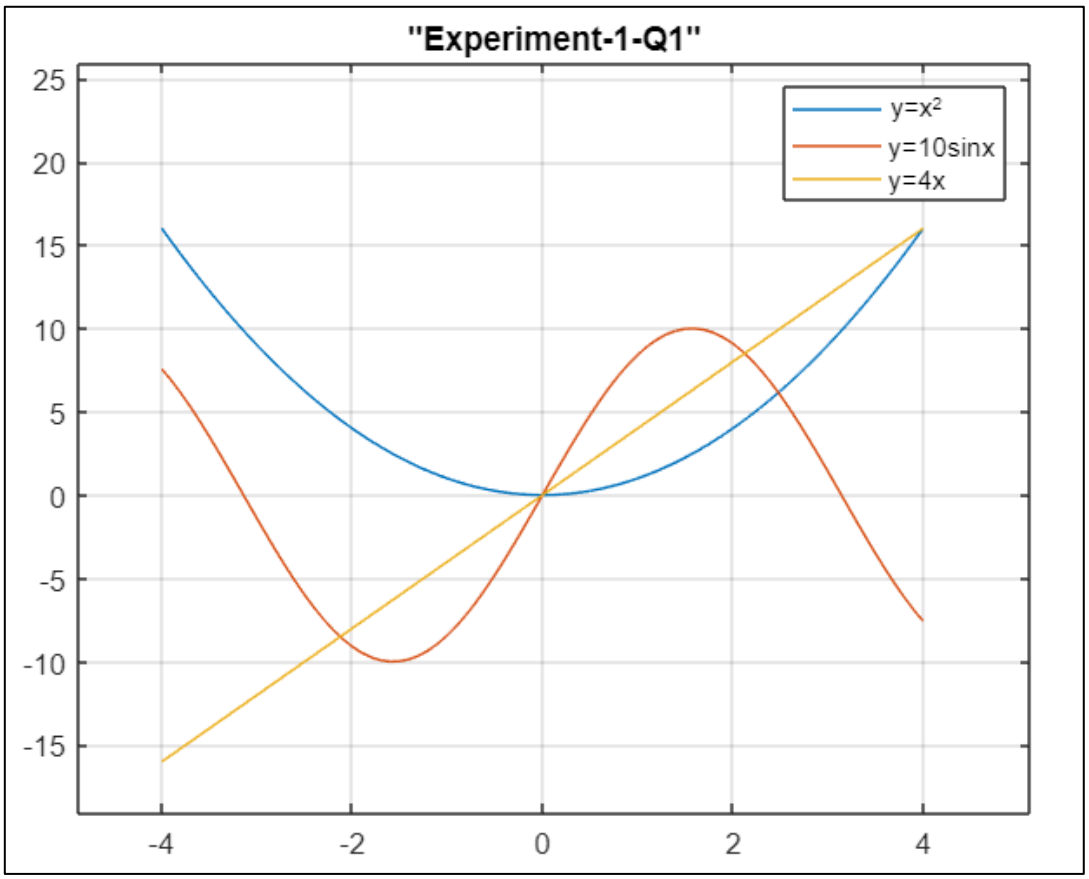
Q1Draw several graphs in the same window without using hold on function

Ans-

CODE;-

```
clear
clc
x=-4:0.1:4;
f=x.^2;
g=10*sin(x);
k=4*x;
plot(x,f,x,g,x,k),grid on,...
    legend("y=x^2","y=10sinx","y=4x"),...
    title "Experiment-1-Q1";
```

OUTPUT-



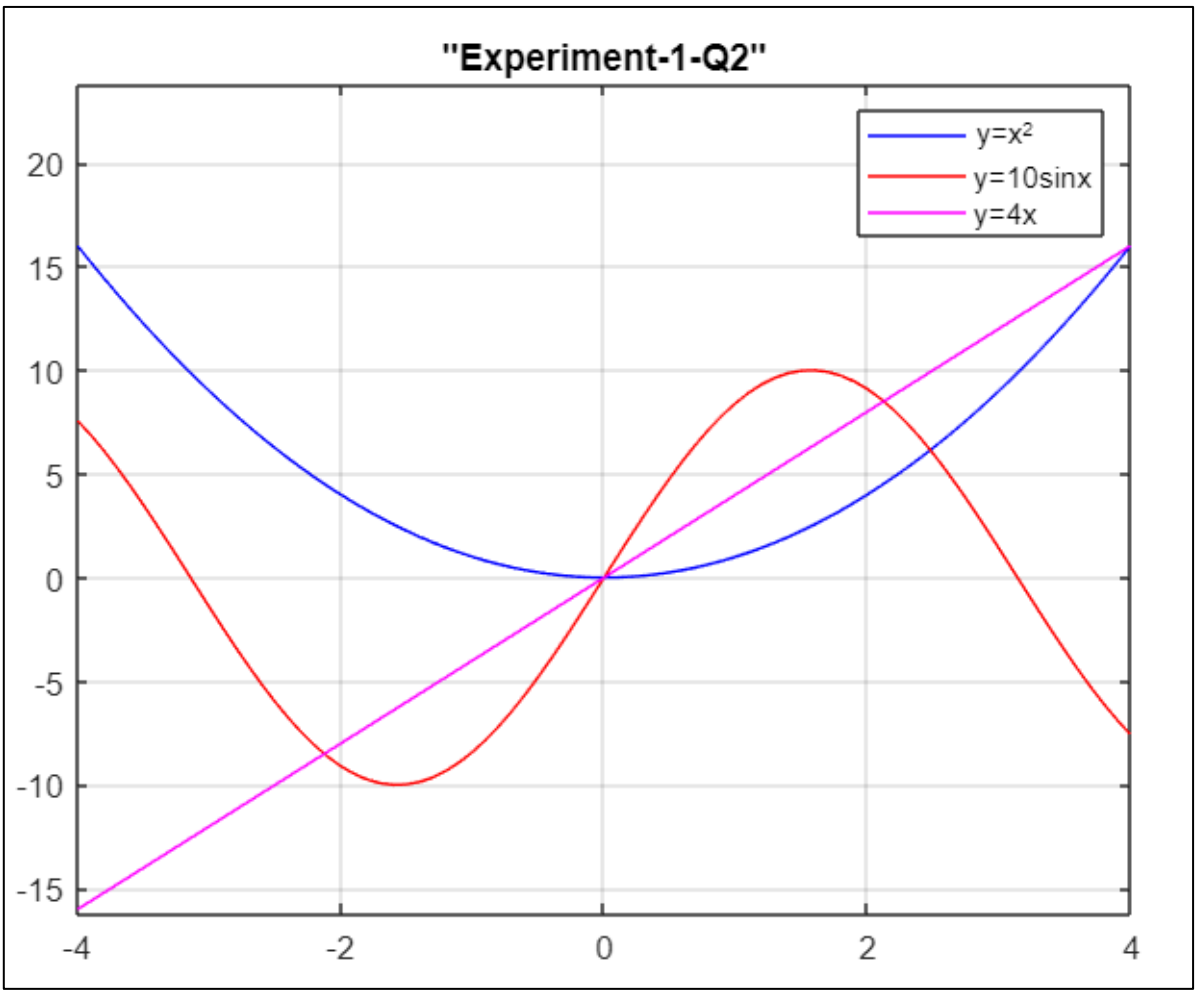
Q2 Draw several graphs in the same window with using hold on function.

Ans-

CODE: -

```
clear
clc
x=-4:0.1:4;
f=x.^2;
g=10*sin(x);
k=4*x;
plot(x,f,'b'),grid on,title "Experiment-1-Q2"
hold on
plot(x,g,'r')
plot(x,k,'m'),legend("y=x^2","y=10sinx","y=4x")
hold off
```

OUTPUT:-



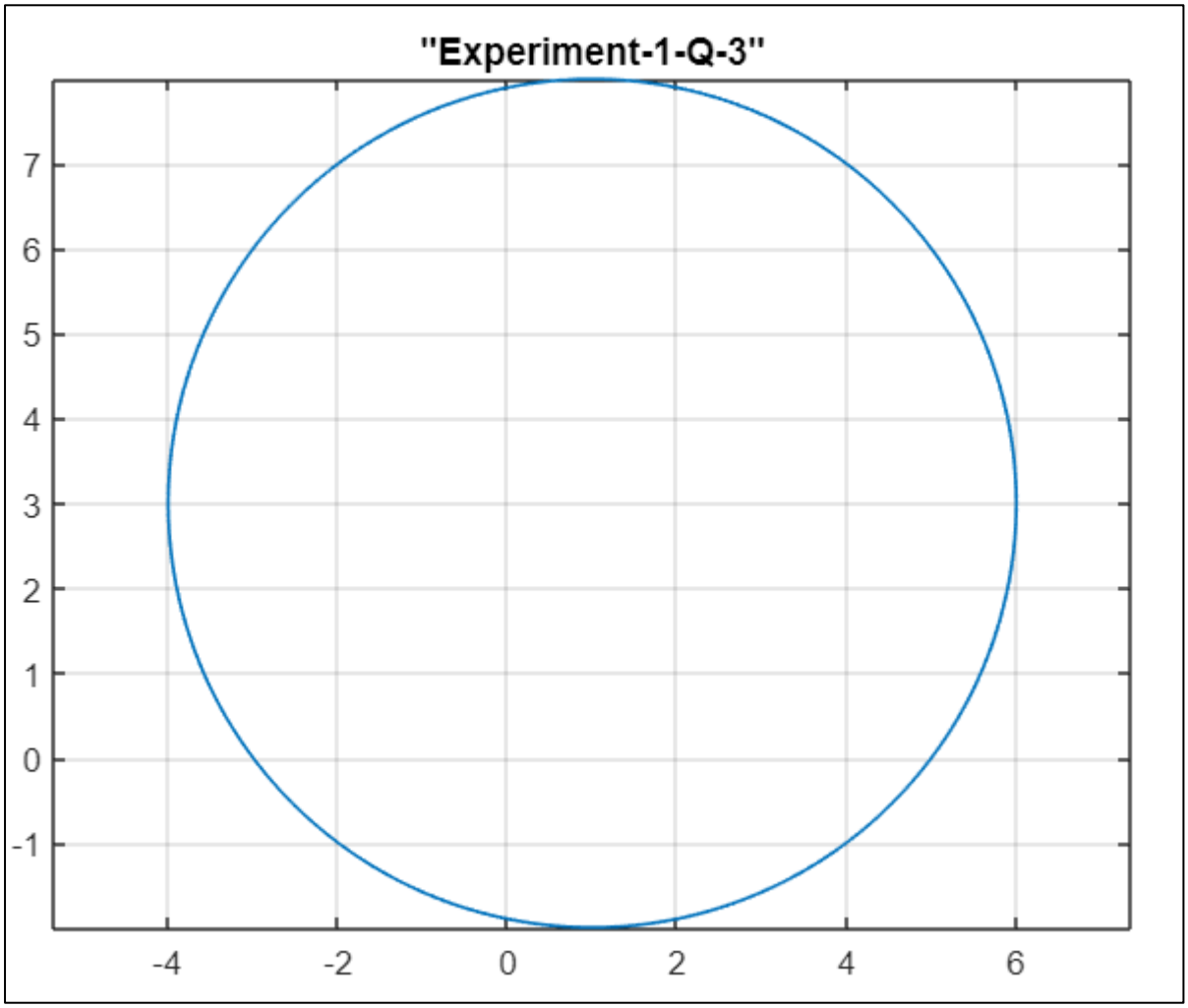
Q3 Draw a circle with centre (1, 3) and radius 5

Ans-

CODE: -

```
clear
clc
k=-20:0.1:20;
x=5*(cos(k))+1;
y=5*(sin(k))+3;
plot(x,y),grid on,axis equal,title "Experiment-1-Q-3";
```

OUTPUT:-

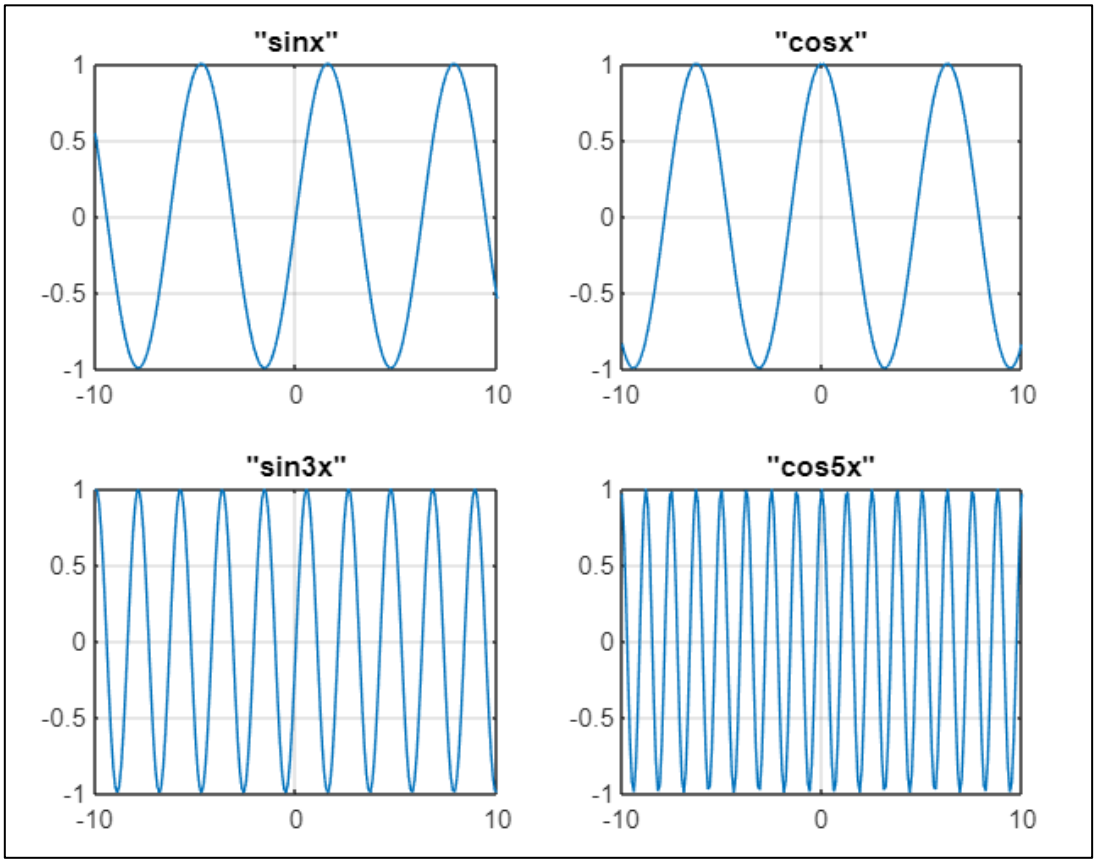


Q4 Draw the four curves sinx, cosx, sin3x, cos5x in one window using subplot
Ans-

CODE;-

```
clear
clc
x=-10:0.1:10;
f=sin(x);
g=cos(x);
h=sin(3*x);
z=cos(5*x);
figure
subplot(2,2,1)
plot(x,f),grid on,title "sinx";
subplot(2,2,2)
plot(x,g),grid on,title "cosx";
subplot(2,2,3)
plot(x,h),grid on,title "sin3x"
subplot(2,2,4)
plot(x,z),grid on,title "cos5x"
```

OUTPUT:-

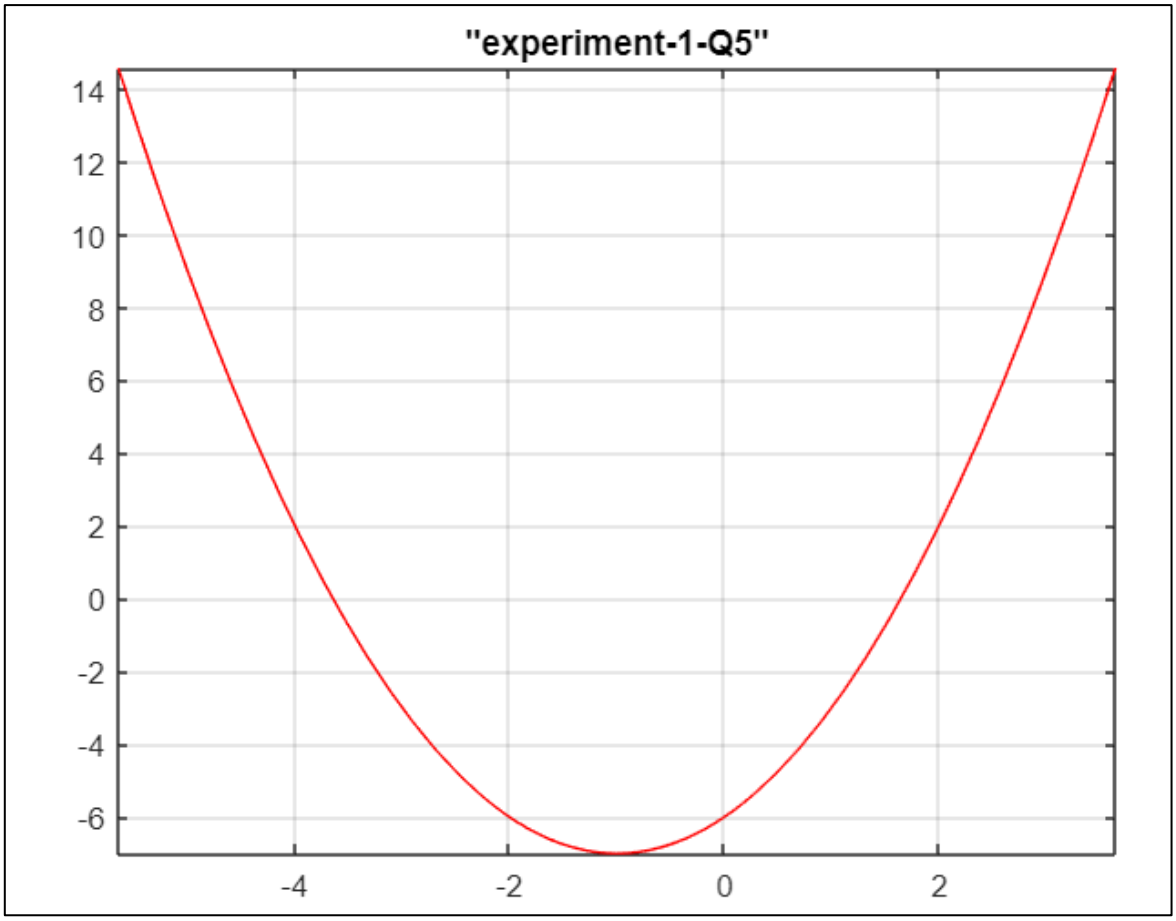


Q5 Draw the ezplot for the function x^2+2*x-6.
Ans

CODE;-

```
clear
clc
syms x
f=x^2+2*x-6;
ax=solve(f,x);
ax=double(ax);
figure
D=[ax(1)-2 ax(2)+2];
fplot(f,D,'r'),grid on,title "experiment-1-Q5"
```

OUTPUT:-



Q6 Find the equation of tangent to the curve $y = 2\sqrt{x}$ at (1, 2).

Ans

CODE;-

```
Clear
clc
syms x
x1=1;
y1=2;
f=2*x^(0.5);
fx=diff(f,x);
fx=subs(fx,x,x1);
fx=double(fx);
hold on
l=fx*(x-x1)+y1;
D=[x1-1 x1+5];
ezplot(f,D),grid on,
ezplot(l,D)
plot(x1,y1,".","markersize",15),...
    title "Experiment-1-Q6",...
    legend("y=2x^(1/2)","tangent at (1,2)","(1,2)")
hold off
```

OUTPUT:-