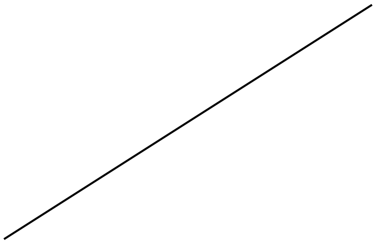
Experiment No. : 1

Write a Program to draw a line using DDA Algorithm.

```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
void main()
{
int gdriver=DETECT,gmode;
initgraph(&gdriver,&gmode,"c:\tc\bgi");
int x,y,x1,x2,y1,y2,dx,dy,step,m, xinc,yinc;
x=x1;
y=y1;
printf("Enter Ist end point of line");
scanf("%d%d",&x1,&y1);
printf("Enter 2nd end point of line");
scanf("%d%d",&x2,&y2);
dx=x2-x1;
dy=y2-y1;
m=(y2-y1)\(x2-x1);
if(abs(dx)>abs(dy))
step=abs(dx);
else
step=abs(dy);
xinc=dx/float(steps);
yinc=dy/float(steps);
putpixel(x,y,2);
for(k=0;k<=step;k++)
{
x=x+xinc;
y=y+yinc;
putpixel(x,y,2);
}
getch();
closegraph();
}
```

Output

```
Enter 1st end point of line: 100,200
Enter 2nd end point of line: 200,300
```



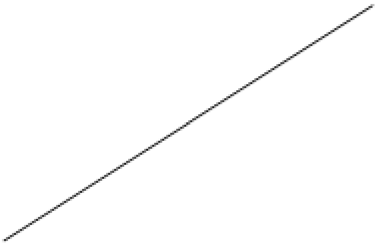
Experiment No. : 2

Write a Program to draw a line using Bresenham’s Algorithm

```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
void main()
{
int x,y,x1,x2,y1,y2,dx,dy,p;
int gdriver=DETECT,gmode;
initgraph(&gdriver,&gmode,"c:\tc\bgi");
printf("Enter Ist end point of line");
scanf("%d%d",&x1,&y1);
printf("Enter 2nd end point of line");
scanf("%d%d",&x2,&y2);
x=x1;
y=y1;
putpixel(x,y,4);
dx=x2-x1;
dy=y2-y1;
p=2*dy-dx;
while(x<x2)
        {
        if(p<0)
                {
                 x+=1;
                 p+=2*dy;
                }
        else
                {
                 x+=1;
                 y+=1;
                 p+=2*dy-2*dx;
                }
        putpixel(x,y,4);
        }
getch();
closegraph();
}
```

Output

```
Enter 1st end point of line: 100,200
Enter 2nd end point of line: 200,300
```



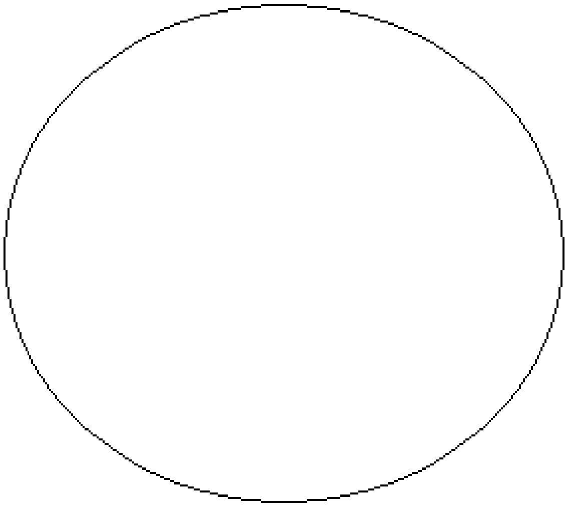
Experiment No. : 3

write a program to draw a circle using bresenham's algorithm

```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
#include<math.h>
void main()
{
int gd=DETECT,gm;
int r,x,y,p,xc=320,yc=420;
initgraph(&gd,&gm,"C://tc//bgi");
cleardevice();
printf("enter radius");
scanf("%d",&r);
x=0;
y=r;
putpixel(xc+x,yc-y,1);
p=3-(2*r);
for(x=0;x<=y;x++)
{
if(p<0)
{
y=y;
p=(p+4*x)+6;
}
else
{
y=y-1;
p=p+((4*(x-y)+10));
}
putpixel(xc+x,yc-y,1);
putpixel(xc-x,yc-y,2);
putpixel(xc+x,yc+y,3);
putpixel(xc-x,yc+y,4);
putpixel(xc+y,yc-x,5);
putpixel(xc-y,yc-x,6);
putpixel(xc+y,yc+x,7);
putpixel(xc-y,yc+x,8);
}
getch();
closegraph();
}
```

OUTPUT

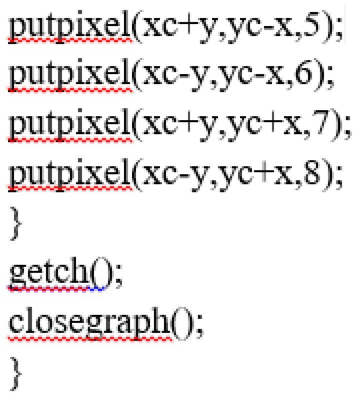
```
Enter  radius 100
```



Experiment No : 4

write a program to draw a circle using Mid-point Algorithm

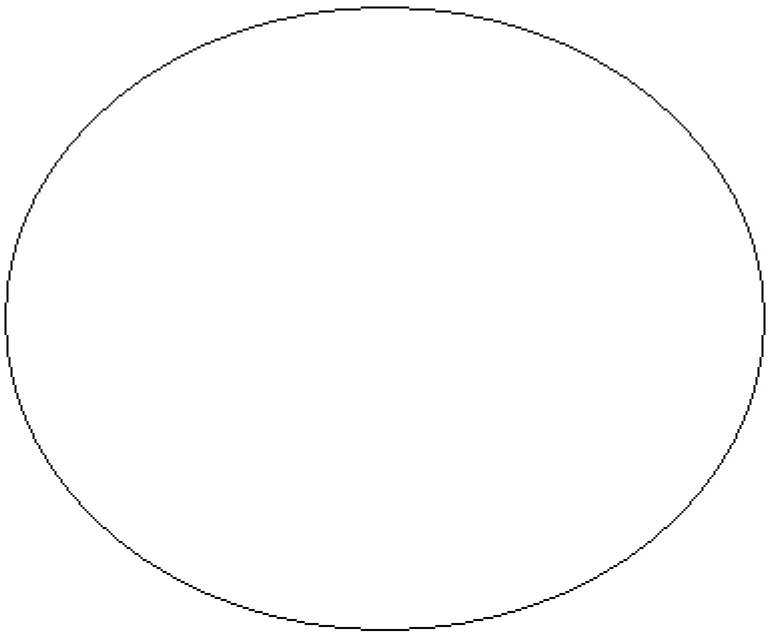
```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
#include<math.h>
void main()
{
int gd=DETECT,gm;
int r,x,y,p,xc=320,yc=420;
initgraph(&gd,&gm,"C://tc//bgi");
cleardevice();
printf("enter radius");
scanf("%d",&r);
x=0;
y=r;
putpixel(xc+x,yc-y,1);
p=1-r;
for(x=0;x<=y;x++)
{
if(p<0)
{
y=y;
p=(p+2*x)+3;
}
else
{
y=y-1;
p=p+((2*(x-y)+5));
}
putpixel(xc+x,yc-y,1);
putpixel(xc-x,yc-y,2);
putpixel(xc+x,yc+y,3);
putpixel(xc-x,yc+y,4);
```



```
putpixel(xc+y,yc-x,5);
putpixel(xc-y,yc-x,6);
putpixel(xc+y,yc+x,7);
putpixel(xc-y,yc+x,8);
}
getch();
closegraph();
}
```

OUTPUT

```
enter radius 200
```



Experiment No : 5

write a program to draw a eclipse using Mid-point Algorithm

```
#include<stdio.h>
 #include<conio.h>
 #include<graphics.h>
 void ellipse(int xc,int yc,int rx,int ry)
 {
   int gm=DETECT,gd;
   int x, y, p;
   clrscr();
 initgraph(&gm,&gd,"C:\\TC\\BGI");
   x=0;
   y=ry;
   p=(ry*ry)-(rx*rx*ry)+((rx*rx)/4);
   while((2*x*ry*ry)<(2*y*rx*rx))
   {
        putpixel(xc+x,yc-y,WHITE);
        putpixel(xc-x,yc+y,WHITE);
        putpixel(xc+x,yc+y,WHITE);
        putpixel(xc-x,yc-y,WHITE);
```

```
     if(p<0)
     {
  x=x+1;
  p=p+(2*ry*ry*x)+(ry*ry);
     }
     else
     {
  x=x+1;
  y=y-1;
  p=p+(2*ry*ry*x+ry*ry)-(2*rx*rx*y);
     }
}
p=((float)x+0.5)*((float)x+0.5)*ry*ry+(y-1)*(y-1)*rx*rx-rx*rx*ry*ry;
      while(y>=0)
{
     putpixel(xc+x,yc-y,WHITE);
     putpixel(xc-x,yc+y,WHITE);
     putpixel(xc+x,yc+y,WHITE);
     putpixel(xc-x,yc-y,WHITE);

     if(p>0)
     {
  y=y-1;
```

```
    p=p-(2*rx*rx*y)+(rx*rx);
       }
       else
       {
    y=y-1;
    x=x+1;
    p=p+(2*ry*ry*x)-(2*rx*rx*y)-(rx*rx);
       }
  }
  getch();
  closegraph();
}
void main()
{
  int xc,yc,rx,ry;
  clrscr();
  printf("Enter Xc=");
  scanf("%d",&xc);
  printf("Enter Yc=");
  scanf("%d",&yc);
  printf("Enter Rx=");
  scanf("%d",&rx);
  printf("Enter Ry=");
  scanf("%d",&ry);

  ellipse(xc,yc,rx,ry);

  getch();

 }
```

OUTPUT

```
Enter XC= 20

Enter Yc = 50

Enter Rx= 20

Enter Ry = 30
```