**Program 9**

**Write a program to draw an elliptical arc.**

#include<stdio.h>

#include<graphics.h>

#include<math.h>

#define ROUND(a) ((int)(a+0.5))

void arcellipse(int xc, int yc, int Rx, int Ry,float a1,float a2)

{

int Rx2= Rx\*Rx;

int Ry2=Ry\*Ry;

int twoRx2= 2\*Rx2;

int twoRy2= 2\*Ry2;

int p;

int x=ROUND(Rx\*cos(a2));

int y=ROUND(Ry\*sin(a2));

int xf=ROUND(Rx\*cos(a1));

int yf=ROUND(Ry\*sin(a1));

int px= twoRy2\*x;

int py= twoRx2\*y;

putpixel(xc+x,yc+y,15);

p=ROUND(Ry2-(Rx2\*Ry)+(0.25\*Rx2));

while(px<py)

{

x++;

px+=twoRy2;

if(p<0)

p+= Ry2+px;

else

{

y--;

py-=twoRx2;

p+=Ry2-py+px;

}

putpixel(xc+x,yc+y,WHITE);

}

p= ROUND(Ry2\*(x+0.5)\*(x+0.5)+Rx2\*(y-1)\*(y-1)-Rx2\*Ry2);

while(y>yf)

{

y--;

py-=twoRx2;

if(p>0)

p+=Rx2-py;

else

{

x++;

px+=twoRy2;

p+=Rx2-py+px;

}

putpixel(xc+x,yc+y,WHITE);

}

}

int main()

{

int xc,yc, Rx, Ry;

float a1,a2;

int gdriver = DETECT, gmode, errorcode;

initgraph(&gdriver, &gmode, "..\\");

errorcode = graphresult();

if (errorcode != grOk)

{

printf("Graphics error: %s\n", grapherrormsg(errorcode));

printf("Press any key to halt:");

getch();

exit(1);

}

printf("Enter center of ellipse\n");

scanf("%d %d", &xc, &yc);

printf("Enter the x-radius and y-radius\n");

scanf("%d %d",&Rx,&Ry);

printf("Enter the start and end angles with x-axis\n");

scanf("%f %f",&a1,&a2);

a1=a1\*3.142/180;

a2=a2\*3.142/180;

arcellipse(xc,yc,Rx,Ry,a1,a2);

getch();

closegraph();

return 0;

}



