Midpoint ellipse drawing algorithm

#include<stdio.h>

#include<graphics.h>

void main ()

{

int gd=DETECT,gm;

float p,x,y,xc,yc,a,b;

initgraph(&gd,&gm,"C:\\tc\\bgi");

cleardevice();

printf("Enter xc, yc:\n");

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

printf("Enter a, b:\n");

scanf("%f%f",&a,&b);

x=0;

y=b;

//Region 1

p=(b\*b)-(a\*a\*b)+(0.25\*a\*a);

do

{

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\*b\*b\*x+b\*b;

}

else

{

x=x+1;

y=y-1;

p=p+2\*b\*b\*x-2\*a\*a\*y+b\*b;

}

}while(2\*b\*b\*x<2\*a\*a\*y);

//Region 2

p=(b\*b\*(x+0.5)\*(x+0.5))+((y-1)\*(y-1)\*a\*a-a\*a\*b\*b);

do

{

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\*a\*a\*y+a\*a;

}

else

{

x=x+1;

y=y-1;

p=p-2\*a\*a\*y+2\*b\*b\*x+a\*a;

}

}while(y!=0);

getch();

closegraph();

restorecrtmode();

}