Rotate an object using arbitrary point

#include<graphics.h>  
#include<conio.h>  
#include<stdio.h>  
#include<math.h>  
void main()  
{  
int gd=DETECT,gm;  
int i,xmid,ymid,x1,y1,x2,y2,x3,y3,x,y,dy,dx,p,gap=50,temp,xr,yr;  
int x1dash,y1dash,x2dash,y2dash,x3dash,y3dash;  
float m;  
double theta;  
char str[5];  
clrscr();  
initgraph(&gd,&gm,"..\\bgi");  
  
printf("Enter first co-ords of the triangle\n");  
scanf("%d %d",&x1,&y1);  
printf("Enter second co-ords of the triangle\n");  
scanf("%d  %d",&x2,&y2);  
printf("Enter third co-ords of the triangle\n");  
scanf("%d  %d",&x3,&y3);  
  
xmid= getmaxx()/2;  
ymid= getmaxy()/2;  
line(5,ymid,getmaxx()-5,ymid);  
line(xmid+3,5,xmid+3,getmaxy()-5);  
  
for( i= xmid+gap;i<getmaxx()-5;i=i+gap)  
{  
outtextxy(i,ymid-3,"|");  
itoa(i-xmid,str,10);  
outtextxy(i,ymid+3,str);  
}  
for( i= ymid-gap;i>5;i=i-gap)  
{  
outtextxy(xmid,i,"-");  
itoa(ymid-i,str,10);  
outtextxy(xmid+5,i,str);  
  
}  
for( i= xmid-gap;i>5;i=i-gap)  
{  
outtextxy(i,ymid-3,"|");  
itoa(-(xmid-i),str,10);  
outtextxy(i-6,ymid+3,str);  
  
}  
for( i= ymid+gap;i<getmaxy()-5;i=i+gap)  
{  
outtextxy(xmid,i,"-");  
itoa(-(i-ymid),str,10);  
outtextxy(xmid+8,i,str);  
}  
line(x1+xmid,ymid-y1,x2+xmid,ymid-y2);  
line(x2+xmid,ymid-y2,x3+xmid,ymid-y3);  
line(x3+xmid,ymid-y3,x1+xmid,ymid-y1);  
  
printf("Enter the degree to rotate");  
scanf("%lf",&theta);  
theta= ((float) theta \*3.14f )/(float)180;  // converting theta to radian  
printf("Enter the arbitrary point to rotate");  
scanf("%d%d",&xr,&yr);  
x1dash=xr+(x1-xr)\*cos(theta)-(y1-yr)\*sin(theta);  
x2dash=xr+(x2-xr)\*cos(theta)-(y2-yr)\*sin(theta);  
x3dash=xr+(x3-xr)\*cos(theta)-(y3-yr)\*sin(theta);  
  
y1dash=yr+(x1-xr)\*sin(theta)+(y1-yr)\*cos(theta);  
y2dash=yr+(x2-xr)\*sin(theta)+(y2-yr)\*cos(theta);  
y3dash=yr+(x3-xr)\*sin(theta)+(y3-yr)\*cos(theta);  
  
line(x1dash+xmid,ymid-y1dash,x2dash+xmid,ymid-y2dash);  
line(x2dash+xmid,ymid-y2dash,x3dash+xmid,ymid-y3dash);  
line(x3dash+xmid,ymid-y3dash,x1dash+xmid,ymid-y1dash);  
  
getch();  
closegraph();  
}