



```
#include <stdio.h>
#include<conio.h>
#include <graphics.h>
void plot(int xc,int yc,int x,int y)
{
    putpixel(xc+x,yc+y,WHITE);
    putpixel(xc-x,yc+y,WHITE);
    putpixel(xc+x,yc-y,WHITE);
    putpixel(xc-x,yc-y,WHITE);
}
void ellipse_midpoint(int xc,int yc,int rx,int ry)
{
    long x,y;
    long px,py,p,two_rx2,two_ry2,rx2,ry2;
    ry2=ry*ry;
    rx2=rx*rx;
    two_ry2=2*ry2;
    two_rx2=2*rx2;
    /*REGION 1*/
    x=0;
    y=ry;
    plot(xc,yc,x,y);
    p=floor(ry2-rx2*ry+0.25*rx2+.5);
    px=0;
    py=two_rx2*y;
    while(px<py)
    {
        x=x+1;
        px=px+two_ry2;
        if(p>=0)
        {
            y=y-1;
            py=py-two_rx2;
        }
        if(p< 0) p=p+ry2+px;
        else p=p+ry2+px-py;

        plot(xc,yc,x,y);
    }
}
```

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```
/*REGION 2*/
p=floor(ry2*(x+0.5)*(x+0.5)+rx2*(y-1)*(y-1)-rx2*ry2+0.5);
while(y>0)
{
    y=y-1;
    py=py-two_rx2;
    if(p<=0)
    {
        x=x+1;
        px=px+two_ry2;
    }
    if(p>0)    p=p+rx2-py;
    else p=p+rx2-py+px;
    plot(xc,yc,x,y);
}
}
}
void main()
{
    int xc,yc,rx,ry;
    int gd=VGA,gm=VGAHI;
    printf("Feed in the centre cordinates & half horizontal & vertical axis length: ");
    scanf("%d%d%d%d",&xc,&yc,&rx,&ry);
    initgraph(&gd,&gm,"\\tc\\bgi");
    ellipse_midpoint(xc,yc,rx,ry);
    getch();
    closegraph();
}
```

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