MIDPOINT ELIPSE ALGORITHM

```
#include<stdio.h>
#include<graphics.h>
int main()
{
        long x,y,x_center,y_center;
        long a_sqr,b_sqr,fx,fy,d,a,b,tmp1,tmp2;
        int g_driver=DETECT,g_mode;

        initgraph(&g_driver,&g_mode,"");
        printf("*MID POINT ELLIPSE*");
        printf("\n Enter coordinate x = ");
        scanf("%ld",&x_center);
        printf(" Enter coordinate y = ");
        scanf("%ld",&y_center);
        printf("\n Now Enter constants a =");
        scanf("%ld",&a,&b);
        printf(" Now Enter constants b =");
        scanf("%ld",&b);
        x=0;
        y=b;
        a_sqr=a*a;
        b_sqr=b*b;
        fx=2*b_sqr*x;
        fy=2*a_sqr*y;
```

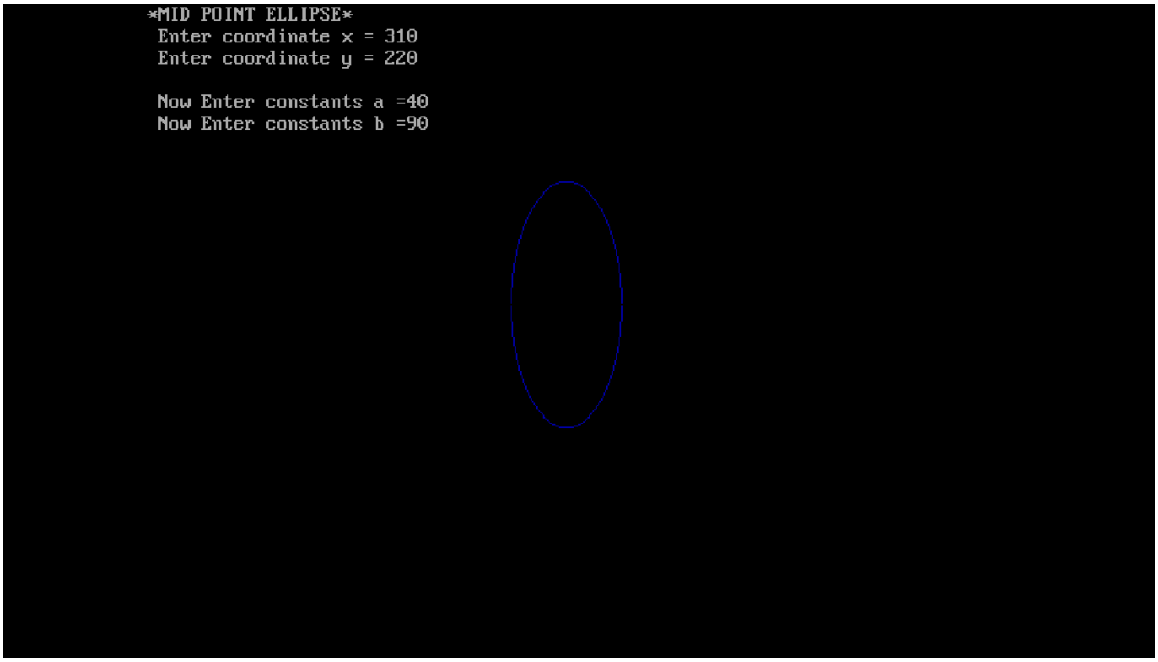
```
d=b_sqr-(a_sqr*b) + (a_sqr*0.25);
do
{
        putpixel(x_center+x,y_center+y,1);
        putpixel(x_center-x,y_center-y,1);
        putpixel(x_center+x,y_center-y,1);
        putpixel(x_center-x,y_center+y,1);

        if(d<0)
        {
                d=d+fx+b_sqr;
        }
        else
        {
                y=y-1;
                d=d+fx+-fy+b_sqr;
                fy=fy-(2*a_sqr);
        }
        x=x+1;
        fx=fx+(2*b_sqr);
        delay(10);
}
while(fx<fy);
tmp1=(x+0.5)*(x+0.5);
tmp2=(y-1)*(y-1);
```

```
        d=b_sqr*tmp1+a_sqr*tmp2-(a_sqr*b_sqr);

        do
        {
                putpixel(x_center+x,y_center+y,1);
                putpixel(x_center-x,y_center-y,1);
                putpixel(x_center+x,y_center-y,1);
                putpixel(x_center-x,y_center+y,1);

                if(d>=0)
                d=d-fy+a_sqr;
                else
                {
                        x=x+1;
                        d=d+fx-fy+a_sqr;
                        fx=fx+(2*b_sqr);
                }
                y=y-1;
                fy=fy-(2*a_sqr);
        }
        while (y>0);
        getch();
        closegraph();
}
```


MID POINT ELLIPSE
Enter coordinate x = 310
Enter coordinate y = 220
Now Enter constants a =40
Now Enter constants b =90