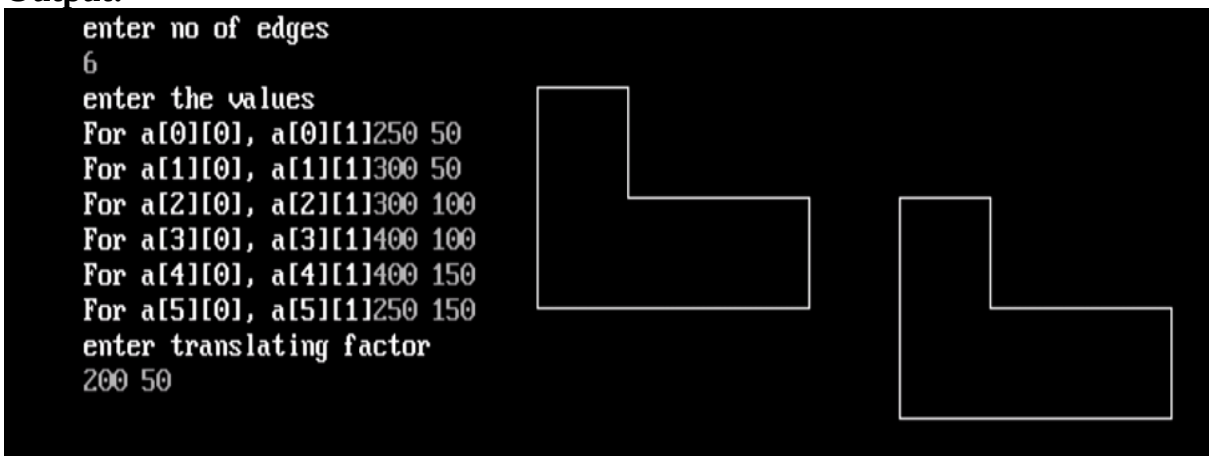
Experiment No 6

Translation

Source Code:

```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
#include<dos.h>
void main()
{
int
gd=DETECT,gm,i,n,a[10][2],b[10][
2],x1,y1,x2,y2,tx,ty;
clrscr();
initgraph(&gd,&gm,"C:\\TurboC3\\
BGI");
printf("enter no of edges\n");
scanf("%d",&n);
printf("enter the values\n");
for(i=0;i<n;i++)
{
printf("For a[%d][0], a[%d][1]",i,i);
scanf("%d%d",&a[i][0],&a[i][1]);
}
a[i][0]=a[0][0];
a[i][1]=a[0][1];
for(i=0;i<n;i++)
{
x1=a[i][0];
y1=a[i][1];
x2=a[i+1][0];
y2=a[i+1][1];
line(x1,y1,x2,y2);
}
printf("enter translating factor\n");
scanf("%d%d",&tx,&ty);
for(i=0;i<n;i++)
{
b[i][0]=a[i][0]+tx;
b[i][1]=a[i][1]+ty;
}
b[i][0]=a[i][0]+tx;
b[i][1]=a[i][1]+ty;
for(i=0;i<n;i++)
{
x1=b[i][0];
y1=b[i][1];
x2=b[i+1][0];
y2=b[i+1][1];
line(x1,y1,x2,y2);
}
getch();
}
```

Output:

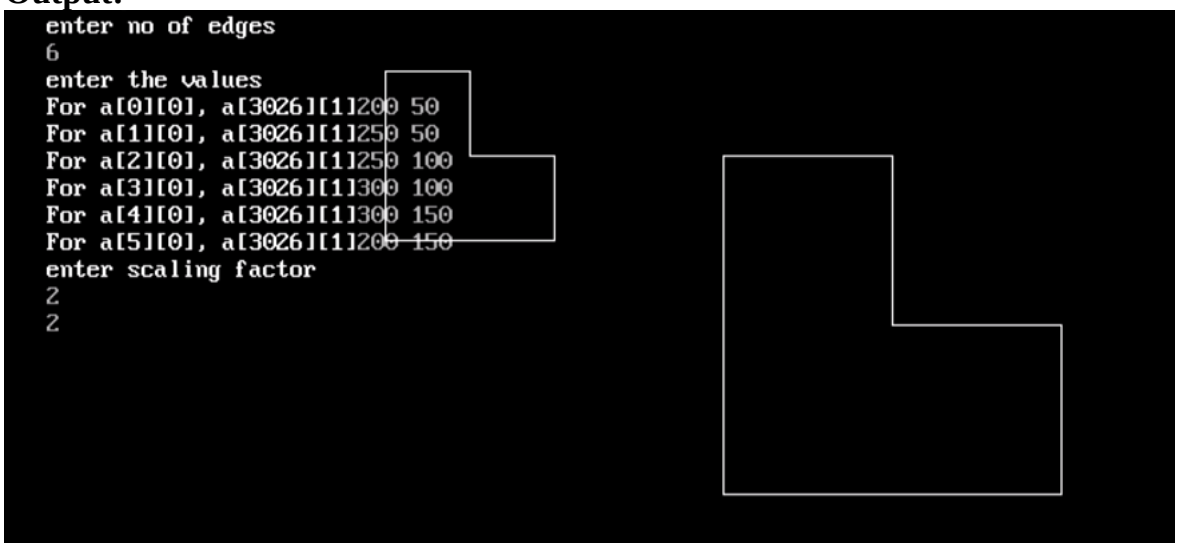


Scaling

Source Code:

```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
#include<dos.h>
void main()
{
int
gd=DETECT,gm,i,n,a[10][2],b[10][
2],x1,y1,x2,y2,sx,sy;
clrscr();
initgraph(&gd,&gm,"C:\\TurboC3\\
BGI");
printf("enter no of edges\n");
scanf("%d",&n);
printf("enter the values\n");
for(i=0;i<n;i++)
{
printf("For a[%d][0], a[%d][1]",i);
scanf("%d%d",&a[i][0],&a[i][1]);
}
a[i][0]=a[0][0];
a[i][1]=a[0][1];
for(i=0;i<n;i++)
{
x1=a[i][0];
y1=a[i][1];
x2=a[i+1][0];
y2=a[i+1][1];
line(x1,y1,x2,y2);
}
printf("enter scaling factor\n");
scanf("%d%d",&sx,&sy);
for(i=0;i<n;i++)
{
b[i][0]=a[i][0]*sx;
b[i][1]=a[i][1]*sy;
}
b[i][0]=a[i][0]*sx;
b[i][1]=a[i][1]*sy;
for(i=0;i<n;i++)
{
x1=b[i][0];
y1=b[i][1];
x2=b[i+1][0];
y2=b[i+1][1];
line(x1,y1,x2,y2);
}
getch();
}
```

Output:

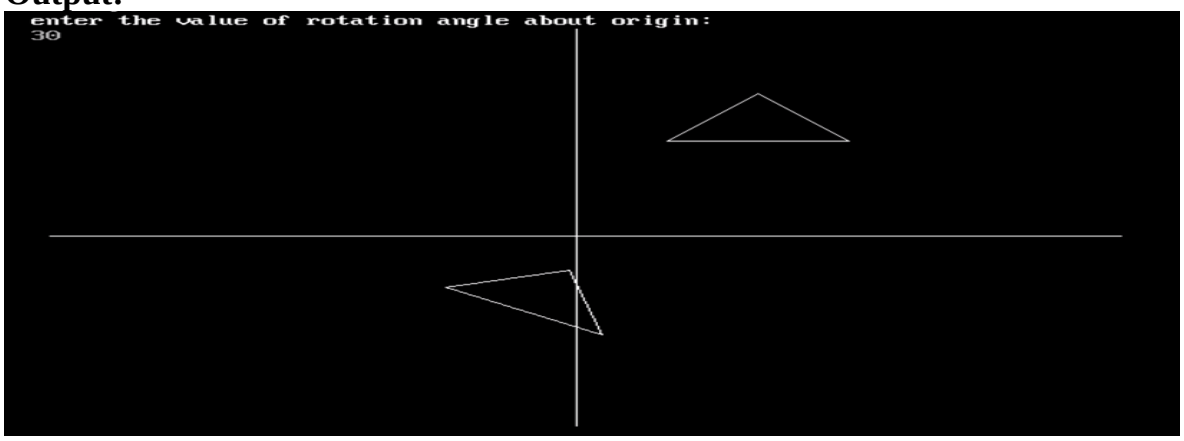


Rotation

Source Code:

```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
#include<dos.h>
#include<math.h>
void main()
{
int
gd=DETECT,gm,a[20][2],b[20][2],n,i,ti
ta,x1,y1,x2,y2;
float ta;
clrscr();
initgraph(&gd,&gm,"C:\\TurboC3\\BGI
");
printf("enter the no of edges\n");
scanf("%d",&n);
printf("enter the co-ordinates\n");
for(i=0;i<n;i++)
{
printf("enter value for array-position
a[i][0],a[i][1]:\n");
scanf("%d%d",&a[i][0],&a[i][1]);
}
a[i][0]=a[0][0];
a[i][1]=a[0][1];
getch();
detectgraph(&gd,&gm);
initgraph(&gd,&gm,"C:\\TurboC3\\BGI
");
line(300,10,300,450);
line(10,250,600,250);
putpixel(220,250,WHITE);
for(i=0;i<n;i++)
{
x1=a[i][0];
y1=a[i][1] ;
x2= a[i+1][0];
y2= a[i+1][1];
line(x1,y1,x2,y2);
}
printf("enter the value of rotation angle
about origin:\n");
scanf("%d",&tita);
for(i=0;i<n;i++)
{
x1=a[i][0];
y1=a[i][1] ;
x2= a[i+1][0];
y2= a[i+1][1];
line(x1,y1,x2,y2);
}
ta=tita*(3.142/180);
  for(i=0;i<n;i++)
{
b[i][0]=a[i][0]*cos(ta)-a[i][1]*sin(ta);
b[i][1]=a[i][0]*sin(ta)+a[i][1]*cos(ta) ;
}
b[i][0]=b[0][0];
b[i][1]=b[0][1];
for(i=0;i<n;i++)
{
x1=b[i][0];
y1=b[i][1] ;
x2= b[i+1][0];
y2= b[i+1][1];
line(x1,y1,x2,y2);
}
getch();
}
```

Output:

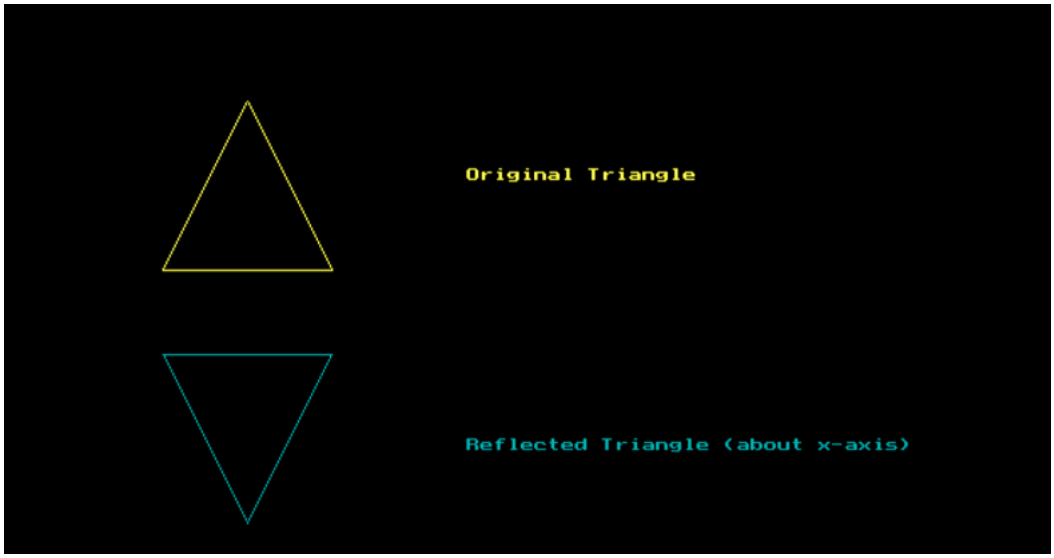


Reflection

Source Code:

```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
#include<math.h>
#include<dos.h>
void main()
{ int gd=DETECT,gm;
int  x1=100, x2=150, x3=200, y1=200, y2=100, y3=200,xt;
clrscr();
initgraph(&gd,&gm,"C:\\TurboC3\\BGI");
setcolor(YELLOW);
line(x1,y1,x2,y2);
line(x2,y2,x3,y3);
line(x3,y3,x1,y1);
outtextxy(280,140,"Original Triangle");
setcolor(CYAN);
line(x1,-y1+450,x2,-y2+450);
ine(x2,-y2+450,x3,-y3+450);
line(x3,-y3+450,x1,-y1+450);
outtextxy(280,300,"Reflected Triangle (about x-axis)");
getch();
closegraph();
  }
```

Output:



Shearing

Source Code:

```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
#include<dos.h>
#include<math.h>
void main()  {
int
gd,gm,a[20][2],b[20][2],n,i,shx,shy,x1,
y1,x2,y2,c;
clrscr();
detectgraph(&gd,&gm);
initgraph(&gd,&gm,"c:\\turboc4\\tc\\bgi
");
printf("enter the no of edges\n");
scanf("%d",&n);
printf("enter the co-ordinates\n");
for(i=0;i<n;i++)  {
printf("enter value for array-position
a[i][0],a[i][1]:\n");
scanf("%d%d",&a[i][0],&a[i][1]);  }
a[i][0]=a[0][0];
a[i][1]=a[0][1];
getch();
detectgraph(&gd,&gm);
initgraph(&gd,&gm,"c:\\turboc4\\tc\\bgi
");
line(290,10,290,450);
line(10,250,600,250);
putpixel(220,250,WHITE);
for(i=0;i<n;i++)  {
x1=a[i][0];
y1=a[i][1] ;
x2= a[i+1][0];
y2= a[i+1][1];
line(x1,y1,x2,y2); }
printf("enter about which axis you want
shearing:\n1.X-AXIS.\n2.Y-AXIS.\n");
scanf("%d",&c);
switch(c)  {
case 1:
printf("enter the shearing distance:\n");
scanf("%d",&shx);
for(i=0;i<n;i++) {
x1=a[i][0]+shx*a[i][1];
y1=a[i][1] ;
x2= a[i+1][0]+shx*a[i+1][1];
y2= a[i+1][1];
line(x1,y1,x2,y2); }
break;
case 2:
printf("enter the shearing distance:\n");
scanf("%d",&shy);
for(i=0;i<n;i++) {
x1=a[i][0];
y1=a[i][1]+shy*a[i][0] ;
x2= a[i+1][0];
y2= a[i+1][1]+shy*a[i+1][0];
line(x1,y1,x2,y2);  }
break;
default:
printf("not valid.\n");  }
getch();  }
```

Output: